

October 2016 2 | Pinal Nugget

# Oracle State Park tops

# October events with birding weekend

Discovering birds along the trails, learning about colorful species, and socializing with other bird-lovers at will fill the weekend of October 8-9 at Oracle State Park for Environmental Education.

Bird enthusiast Kathe Anderson begins the events with a 3 p.m. program on Saturday in the Kannally Ranch House entitled "Temporary

Custody of a Rainbow". The new presentation will cover the backstory of ten colorful migrants, such as the yellow warbler, blue grosbeak, and

#### NUGGET

Covering the Copper Corridor Communities of Globe, Miami, Superior, Kearny, Hayden, Winkelman, Dudleyville, Aravaipa, Mammoth.

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— Anne Murray

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summer tanager. This will be followed by a 90-minute presunset bird walk ending at 5:30 p.m. Bring a snack and wrap up round 6 p.m. with a bird list. Both events free with the park entrance fee of \$7 per car; reservation suggested.

The park is located just off Mt. Lemmon Rd., in Oracle, and is open every weekend from 8 a.m.-5 p.m. Visitors are welcome to bring snacks and beverages, tour the ranch house, and enjoy the mountain views.

Reservations for programs can be made by calling the park office 520-896-2425.

Another bird walk at the park will begin at 7 a.m. on Sunday with Kathe Anderson. Following the two-hour

guided walk, participants will be treated to a special breakfast on the patio of the Kannally Ranch House, courtesy of Friends of Oracle State Park. The group will review the morning sightings while enjoying coffee, treats, and exceptional views of the mountains. A \$10 fee includes park entrance; reservation required.

Also scheduled for October and November:

Saturday, October 15: Super Moon Trail Music event. Take a pre-sunset walk along the Nature Trail loop anytime between 4-5:45 p.m. to enjoy the sounds of live instrumental music at designated spots. Then relax on

Continued on page 3



#### **FALL FUN IN ORACLE**

The Oracle State Park and Center for Environmental Education will have several programs for folks of all ages in October.

#### **Oracle State Park**

Continued from page 2

the ranch house patio as the sun sets and the "Super Moon" rises. The moon looks extra large at the horizon because the full moon coincides with the moon's orbit at its closest position to earth. Bring your own snacks and beverages. Park gates will remain open until 7:30 p.m. Free with park admission of \$7 per car, thanks to support from Friends of Oracle State Park.

Saturday, October 22: Family-friendly **Environmental Education Trail Program** Sampler. Families with kids of all ages will meet at 1 p.m. at the Group Use Area for a 45-minute ranger- or docent-led program along one of the park's easy trails. Sample hands-on interactive activities borrowed from the Oracle Adventure Program and Oracle Odyssey Program which are designed for elementary grade school field trips to the park. Consider how animals depend on the five senses for survival; also habitat needs and interrelationships between plants, animals, and people. Free with park admission; reservation required, and there is a six participant minimum.

Sunday, October 30: "A Short Tour of the Sonoran Desert." This is an Arizona-Sonora Desert Museum presentation by museum interpretive docent, Bob Elder. The program begins at 1 p.m. in the living room of the Kannally ranch house. Get a sampling from a variety of themes covered by docents presenting outdoor tours of the famed Desert Museum: ecology, biodiversity, and animal life history information included. Free with park admission. Space is limited; please call for a reservation.

Sunday, November 13: Ranger-Led

Continued on page 21



39900 South Clubhouse Dr. Tucson, AZ

For tickets and additional information (520) 825-2818

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Saturday, October 15, 2016 - Southern Arizona Symphony Orchestra - 7:30pm. Linus Lerner, Music Director. Arturo Marquez: Conga del Fuego; Danzon No. 2. George Gershwin: Piano Concerto, guest artist SYMPHONY ORCHESTRA James Dick, piano. William Levi Dawson: Negro Folk Symphony. \$24 in advance, \$25 door.



Saturday, October 22, 2016-Unforgettable Too 7:30pm Produced by TAD Management. Join Chelsea Faulds, along with an incredible eight piece band perform spectacular arrangements of some of the greatest songs ever written, as they were performed by the great Nat King Cole and his daughter Natalie Cole. \$30 in advance, \$35 door.



Saturday, November 12, 2016 - Tucson Jazz Institute Ellington Band - 7:30pm. TJI Ellington Band has been featured on the Jerry Lewis MDA Telethon, The New Orleans Jazz & Heritage Festival, The Telluride Jazz Festival and all the major European Jazz Festivals in 2006, 2011, and 2014. Under Doug Tidaback's direction the TJI Ellington Band was named



the #1 Community High School Band and 2013-2014 the 1st Place High School Band at the Essentially Ellington Competition. This led to performances at the Lincoln Center in New York in May 2010-2016. \$30 in advance, \$35 door.

Saturday, November 19, 2016 - Southern Arizona Symphony Orchestra - 7:30pm. Linus Lerner, Music Director. Gioacchino Rossini: Overture to The Barber of Seville. Carl Nielsen: Flute Concerto, guest artist SOUTHERN ARIZONA Ludwig van Carol Wincenc, flute. Symphony No. 5. \$24 in advance, \$25 door.



Saturday, November 26, 2016 - ARTRAGEOUS! **3pm & 7:30pm.** Watch a team of artists bring giant artworks to life with amazing speed right before your eyes unveiling larger than life icons and masterpieces in just moments. Have it accompanied by amazing vocals, creative choreography, high energy, live music and unforgettable audience interaction that will



attract your attention and delight your senses with energy, spirit and action. A show for the entire family! \$40 in advance, \$45 door.

Friday, December 2 and Sunday December 4, 2016 -SaddleBrooke Singers Christmas Concert 7:30pm & 4pm. Your friends and neighbors, bring you this doublebarreled Holiday Treat! A Century of Holiday Favorites, which includes a holiday song from each decade of the 20th Century. Next, a multi-traditional Choral Celebration,



A Holiday to Remember: A Musical Revue, complete with musical instruments, dancers, and, of course, the great choral sound of the SaddleBrooke Singers! Directed by Tanya Elias-Graf. Musical Director. \$18 in advance, \$20 door.

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# Local mines endure despite low copper prices

**BY CAT BROWN**PINAL NUGGET

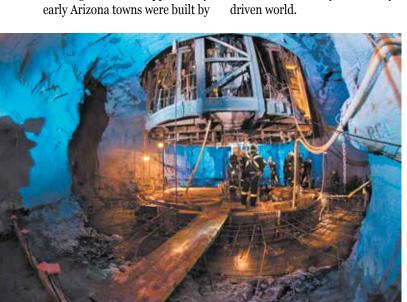
The price of copper has been in a steady decline since 2011, due primarily to a decreased demand from China. There are signs that this trend may be experiencing a slight recovery.

The Chinese economy has begun to improve, and demand continues to outpace copper production. Analysts are cautious, but optimistic for the copper price forecast. The copper price closing on Sept 13th was \$2.10, up slightly from the start of the month, but it still hovers near a six-year low.

Copper has been an important factor in humanity's development. The metal is soft and easy to shape, though it is too soft to be useful to make tools. The discovery five millennia ago that combining copper with tin will create bronze, a much sturdier metal, launched the bronze age. Copper was the first strategic metal, and it became one of the first global trade goods.

The Gold Rush colonized California and Silver was the founding drive behind migration to Nevada, but for Arizona that building block was Copper. Many early Arizona towns were built by companies staking copper mining claims like Phelps Dodge. Places like Bisbee, Superior, Miami and Jerome exist only because of copper mining. Arizona has been the largest producer of copper in America since the early 1900's, producing almost 2/3 of the copper produced in the US. According to the Arizona Mining Association, the combined direct and indirect impact of copper mining was worth up to \$34.2 billion in the U.S. economy and 12.1 billion in Arizona. Copper is, in fact, one of the "Five C's of Arizona": Copper, Citrus, Cotton, Climate and Cattle.

In present day we use copper wiring and plumbing in our houses, there is copper in many parts of our cars, and copper is essential to linking our homes and businesses together via telecommunications. Copper's high conductivity and malleability make it vital to today's electricity driven world





#### $(\uparrow)$

#### **COPPER ANODES**

Most copper is shipped in the form of Copper anodes.

The mines of the Copper Corridor continue to produce a significant amount of the state's total Copper and the area still has vast untapped reserves.

Florence Copper - See update page 14

Resolution Copper Mine – is a joint venture underground mine owned by Rio Tinto and BHP, and operated by Rio Tinto. The Resolution Copper Mine property lies on the boundaries of Superior, Arizona. The town is named after the Magma and Superior Company, which mined the deposit in the first half of the last century. Modern mining technics have made it possible to delve deeper, tapping into the largest ore body in the US

at almost 7,000 feet under the surface. The project has not been without controversy, as it has sought the transfer of Forestry land to private hands. While protests against this exchange still occur, the permitting process continues, and the project could begin copper production in the next decade.

Asarco Mining – Asarco Mining has three mines in Arizona: the Ray Mine, the Silver Bell Mine and the Mission Mine. The company not only operates an open pit mine, but it is also involved in the smelting and refining of copper. The company produces approximately 350 – 400 million pounds of copper

Continued on page 20



#### A VIEW FROM THE BOTTOM

Viewing a Resolution Copper tunnel. (Photo Courtesy Resolution)

RESOLUTION

C O P P E R

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108 E. Ave. H, San Manuel Unique home features a 4th bedroom and large family room addition with French doors, outdoor access, custom lighting, all heated and cooled. Home is in excellent shape, well maintained, nicely painted with neutral colors, and white raised panel doors, upgraded fixtures. Kitchen updated and includes a side-by-side refrigerator, dishwasher, and large pantry. Both bathrooms have been remodeled with all new fixtures and plumbing. Landscaped yard with a covered carport. Fenced backyard with uncovered patio, 2 sheds and views. Washer/dryer and carport awning will not convey. \$118,000



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# A family affair for Copper Splash Art

BY CAT BROWN
PINAL NUGGET

Roy Trobaugh creates the copper splash artwork; his wife Alice is in the studio by his side, a welding torch in hand, helping create the smaller pieces; and now his son Branden and daughter-in-law Deanna have come on board. About a year ago Roy decided to take a step back and hand over the reins of selling the artwork to his son Branden and daughter-in-law Deanna. Branden and Deanna are working hard to get the word out about this unique, colorful, handcrafted and handpicked copper splash artwork.

Roy has always been interested in rocks. He was born in Young, Arizona and moved to Globe in 1959. He worked for the copper mines for 38 years. He's an avid rockhound and member of the Gems and Mineral Society. It was while he was working at the copper mine that Roy saw the potential in the copper splashes created as part of the mine's smelting process. When the

mines are pouring copper to create copper anodes, one of the end results of smelting, there is a lot of copper spillage. Roy says, "When they are pouring these anodes they are pouring it on a great big wheel that has about twenty anodes on it that rotates. They pour about a half a million pounds a day. They are pouring pretty fast, and it splashes and splatters, and it really makes

#### **†** THREE GENERATIONS

Three generations of Trobaughs, from left: Deanna, Adrianna, Branden, Alice, Roy and Ezra.

#### **(↓)** COPPER TREES

Alice Trobaugh uses a welding torch to create the delicate copper trees.



They are pouring pretty fast, and it splashes and splatters, and it really makes some neat shapes.





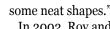
#### **COPPER BOWLS**

Roy Trobaugh uses a special ladle to create his copper bowls.



#### **COPPER SPLASHES**

The copper splashes made today aren't as thick as the ones coming from Phelps Dodge.



In 2002, Roy and his brother John put in a proposal to Phelps Dodge to buy these copper splash pieces. "On a cleanup day we would go over to the anode plant, and what they cleaned up off the floor we would go through it and find interesting pieces," Roy says he and his brother would throw the pieces they liked aside and then the company would weigh the pieces out and write them up a bill. Once they got the splash pieces, they would have to clean them up. "When we get them they are all black. We clean them up and put them back in the heat, and that's when the color comes on." Every now and again the mine would do a sample to analyze the copper and its impurities and during those pours,

the brothers would get one piece in the shape of a bowl.

They bought the splashes and bowls from the mine for three years. The brothers sold the copper splash artwork under the name Rocks by Nature. But after Freeport bought out Phelps Dodge, the mine canceled the brothers' contract, and they decided to start creating their own copper splashes using smaller pours.

The splash pieces created at the mine were thick and heavy. Because the smelting process went on for days, the copper would build up which meant the pieces were often a half inch thick. By using a smaller furnace, and melting only 800 pounds of copper during a pouring session, the

Continued on page 23

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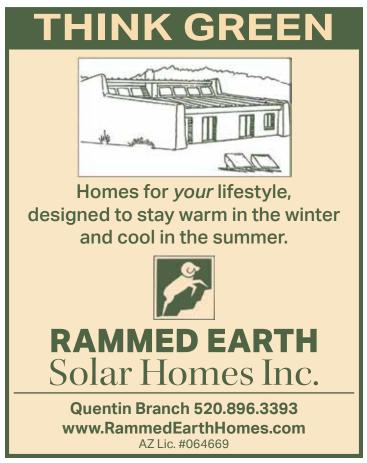
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#### (<del>+</del>)

#### **AND THEY'RE OFF**

Runners leave the starting line at the 2015 Oracle Run.

### Oracle Run set for Oct. 22

#### The 34th annual Oracle Run will be held on Saturday, October 22.

Registration and packet pick up for the Dia de Los Muertos/Halloween themed race will be held prior to the Oracle Run in front of the Acadia Ranch Museum, 825 Mt. Lemmon Hwy., Oracle. The 10K (6.2 miles) run begins at 8 a.m. New this year is the 5K (3.1 miles) run. It also begins at 8 a.m.

Oracle Run T-shirts will be provided to all the race contestants. This year's shirt is designed by a local Oracle artist (with no advertising). Awards will be given for overall 10K men, women, seniors and masters champions; each age division of 10K run; and overall 5K men, women, seniors and masters champions. Additional random prizes provided by local merchants for all participants will be drawn at the conclusion of the Run.

This is a challenging, fun event that

benefits the Oracle Historical Society.

For more information contact Race Director Darrell Klesch at 520-896-9609. A printable entry form is available online at: http://bit.ly/2cOqAao. Cost to participate is \$35 if entry received before Oct. 8 and \$45 thereafter.

Coordinators want to remind participants that dogs will not be allowed this year.

#### "I Don't Want It" Sale

SaddleBrooke's Annual Sale will be held on

#### Saturday, Oct. 22, 2016, 7-11 a.m.

in the MountainView Parking Lot 38759 S. MountainView Blvd.

There will be more than 100 sellers with fantastic items ready to be your treasures!

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# Get the FAQ's on Florence Copper's 'PTF'

Nearly 2,000 people have toured the Florence Copper property since 2011. Site tours are a high priority for our staff.



There is no large open pit, no blasting, no tailing ponds - nothing that you'd typically associate with a traditional mine.



#### **TESTING FACILITY**

Florence Copper's PTF will be a pilotscale demonstration of commercial ISCR operations. Crews will drill 24 wells for the injection and recovery of ISCR solution.

This is not a typical copper project, and we recognize that there's nothing like a first-hand visual experience to get a true understanding of how Florence Copper will operate once the permitting process is complete. Tour attendees visit an existing well field, examine core samples, and watch a demonstration model of the technology that will be used.

On tours, our guests get an understanding that this is "Mining without Impact": There is no large open pit, no blasting, no tailing ponds – nothing that you'd typically associate with a traditional mine. Although we are known locally as the Florence Copper Mine, it is more accurate to call us an in-situ copper recovery operation. This deposit lies in naturally shattered bedrock, which allows us to dissolve the copper insitu, or "in place" without altering the ore deposit in any way.

Right now, the Florence Copper Project is in the advanced permitting stages for the initial phase of in-situ copper recovery (ISCR) operations. We often call this "Phase 1" or the "Production Test Facility." The BY STACY GRAMAZIO

MANAGER OF COMMUNICATIONS
& PUBLIC AFFAIRS
FLORENCE COPPER

PTF will require approximately 40 employees. Essentially, it will be a pilot test facility that will operate for about one to two years.

Inevitably on tours we are asked, "Why does the project need to start with a test facility?" There's a lot of enthusiasm and excitement about the benefits of this project for Florence once we enter "Phase 2," or full commercial production. Yes, Florence Copper will create approximately 480 jobs for Pinal County and operate for 25 years during Phase 2. But the Phase 1 PTF is an important first

step. Take a peek at some frequently asked questions about Phase 1 to learn why.

#### What is the PTF?

The Phase 1 Production Test Facility will be a pilot-scale demonstration of commercial ISCR operations. It will incorporate the drilling of 24 wells, the injection and recovery of ISCR solution, the manufacture of up to 99.999% pure copper cathode, and the observation and monitoring of groundwater quality and other environmental conditions. ADEQ, the state agency that regulates the PTF, issued a temporary Aquifer Protection Permit (APP) to Florence Copper on August 4, 2016. Florence Copper's PTF also requires a final Underground Injection Control (UIC) permit from the EPA, the federal agency that regulates the project. We are hopeful we will reach this last milestone soon. When both state and federal permits are in hand, Florence Copper can begin construction of the test facility. The PTF will produce between 1 and 2 million pounds of copper cathode over 12-18 months of operation.

#### What are the main goals of the PTF and why is it necessary?

After careful consideration of the company's options, the engineering staff at Florence Copper made the decision to start this in-situ copper recovery operation with the PTF. They recognized the importance of demonstrating that the project is

environmentally sound and that it is in full compliance with the stringent permit conditions enforced by ADEQ and the EPA. Phase 1 will optimize the process used by previous property owner BHP Copper Inc. between 1997 and 1998 to recovery valuable copper minerals. It will also optimize and continuously improve best water management practices and new treatment technologies for commercial-scale operations.

#### How will ISCR work during the PTF?

ISCR for the pilot test will be similar to how Florence Copper will operate during Phase 2, but on a much smaller scale. Our team will drill and operate 24 wells on a well field that will occupy about two acres. The wells will inject and recover a water-based solution that is similar in pH to household vinegar from up to 1200 feet below the ground in the copper-bearing bedrock of the deposit. The injection and recovery wells are triple-cased with concrete seals between the casing materials to ensure that all ISCR solution is injected and recovered in the oxidized copper-bearing zone. Once the copper is fully dissolved underground, it is known as a Pregnant Leach Solution (PLS) and transported to be processed into large sheets of nearly pure copper called copper cathode.

#### What facilities will be constructed during the PTF?





The wellfield is sampled at Florence Copper. Photo courtesy Florence Copper

In addition to the well field, we will build processing facilities and install equipment needed for Phase 1 and commercial-scale operations:

· Tanks for processing and managing

Continued on page 17

Often in the mining industry, a lot of acronyms are used. We know it can be confusing! Here's a handy list with some key terminology often used to describe Florence Copper's Phase 1.

ADEQ – Arizona Department of Environmental Quality. This is the state regulatory agency that issued a temporary Aquifer Protection Permit to Florence Copper. APP – Aquifer Protection Permit. Florence Copper received a temporary APP from the state of Arizona in August of 2016.

EPA – Environmental Protection Agency. This is the federal regulatory agency that issued a draft Underground Protection Control permit to Florence Copper.

ISCR – In-situ Copper Recovery. In-situ is Latin for "in place." Florence Copper is not a mine in the traditional sense, and we are not hauling the copper away from its natural area to extract it. The project will recover the copper "in-situ" using a series of water wells that extend a few feet out of the ground.

PLS – Pregnant Leach Solution. Once the copper is fully dissolved from deep in the bedrock, we call the solution a Pregnant Leach Solution. In other words, the water-based

to be transported for processing. **PTF** – Production Test Facility. Florence
Copper is in advanced permitting stages

solution is now loaded with copper and ready

for a one to two-year pilot test facility. The purpose of this facility is to demonstrate to residents and the regulatory agencies that the copper will be recovered and processed using responsible technology.

SX/EW – Solvent Extraction/Electrowinning. SX/EW technology was developed in Arizona. Florence Copper will construct a highly engineered SX/EW plant to manufacture up to 99.999% pure copper cathode on site.

UIC – Underground Injection Control. The EPA issued a draft UIC permit to Florence Copper almost two years ago. The project is awaiting its final issuance, which is expected in the near future.



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The Copper Basin Railway People



A NOTE FROM THE PUBLISHER:

Jake Jacobson was chosen as North America's "Railroad Man of the Year" in 1994, the Copper Basin "Citizen of Year" in 1998 and one of the "Century's Great Railroaders" in 2000.

#### Florence Copper

Continued from page 15

**ISCR** solutions

- · Water treatment tanks and equipment
- Storage and off-loading facilities A highly engineered Solvent Extraction/Electrowinning (SX/EW) plant will also be constructed for the manufacture of up to 99.999% pure copper cathode. The majority of the jobs created by the project will be for the SX/EW.

#### What is Florence Copper doing to protect water quality during the PTF?

First and foremost, we will strictly abide by the stringent requirements of our permits issued by ADEQ and the EPA, in accordance with the law. To satisfy these permits, the project must demonstrate "hydraulic control" of ISCR solutions at all times. Triple-cased, concrete sealed wells will ensure that ISCR solution is injected and recovered in the copper-bearing zone only.

Groundwater zones used for drinking or irrigation water will not be impacted.

#### What can residents expect to see when travelling Hunt **Highway during the PTF?**

The PTF will be low profile and low impact. Residents should not expect to notice any effects related to noise, light, or dust during construction or operations. One to two trucks per day will be necessary for delivering supplies to and transporting copper cathode from Florence Copper. Overall, the PTF – much like full commercial operations – leaves a very small environmental footprint as there is limited disturbance to the land.

#### When will the PTF finally start?

Our favorite question! We understand that local residents are anxious for hiring to begin and have been very patient. Permitting for an in-situ copper recovery project

is a multi-year process. We always knew it would be a long process, but we too had hoped to bring the benefits of jobs, taxes and revenues, and overall economic impact to the area sooner. The receipt of the APP from ADEQ was a good milestone. We are confident that the EPA will finalize our UIC in the near future and we can begin construction at that time. The timeline for the permit's issuance is up to the EPA and we cannot say exactly when the PTF can begin construction. Once the PTF is underway, we will start the permitting process for fullcommercial operations – over the 25-year life of Florence Copper's operations there will be 2.1 billion dollars in economic activities and 480 jobs generated for Pinal County. The future looks bright here in Florence – the PTF is just the first step on the road to more opportunities.



#### Change pays.

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Aaron I Franco, Agent

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# Winkelman to celebrate bridge's 100th birthday

In 1916, Pinal County decided to build a 419 foot long bridge over the Gila River at Winkelman.

Winkelman and its citizens are very proud of this bridge which was listed on the National Register of Historic Places in 1988.



Since the bridge would be in both Pinal and Gila counties, an agreement was reached that each County would pay for half of the bridge cost. Topeka Bridge and Iron Company was the low bidder and built both the Winkelman and the Kelvin multi-span reinforced concrete arch bridges which were designed by Daniel Luten, a nationally known bridge designer. Daniel Luten's structure type with its unique and distinctive horseshoe arch profile, was patented in 1900.

The design of the 419-foot long bridge included long-span reinforced concrete arches. The structure is unique as it is founded on timber piles. Despite many delays caused by flooding of the Gila River during construction, the bridge was completed in November, 1916.

Because of the relatively high cost of multi-span Luten arches they were infrequently constructed. There were 13 Luten arch bridges built in Arizona, from 1913-1923, of which three are multi-span bridges. Only two remain in Winkelman and Clifton.

The Winkelman Bridge was listed on the National Register of Historic Places on September 30, 1988. This magnificent bridge was restored by

the Town with grant funding from Arizona Department of Transportation (ADOT) through an (ISTEA) grant. The restoration took 10 years to complete, from 1989 through 1999, with additional funding, support and assistance from Pinal and Gila

Winkelman and its citizens are very proud of this bridge which was listed on the National Register of Historic Places in 1988 for its importance as a vital local transportation route, and technologically as a representation of a proprietary structure type as a multi-span Luten arch bridge. All of which made it important to the community it serves and the State of Arizona to preserve the bridge for future generations to experience and appreciate the past. The bridge was rededicated after 100 years of service and is now a pedestrian bridge serving as a setting for community events.

The Town of Winkelman will be celebrating the Centennial of the Historic Bridge on Saturday, Oct. 15, starting at 12:30 p.m. until 3:30 p.m. The event will take place on the Bridge off of Quarrelli Street in Winkelman. Everyone is welcome. Bring your own lawn chair.

#### (←) WINKELMAN BRIDGE

Historic Winkelman Bridge, designed by Daniel Luten and constructed in 1916, is owned by the Town of Winkelman. It was rehabilitated in 1999 by rehabilitation engineer Jerry A. Cannon and rededicated in 2016.





# We're working to keep you safe. This includes:

- Routinely patrolling, testing, repairing, and replacing our pipelines.
- Continually meeting or exceeding all federal and state requirements and standards for safe pipeline operation and maintenance.
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Call 911 and Southwest Gas at 1-877-860-6020 immediately



For more information about natural gas pipeline safety, visit swgas.com/safety or call 1-877-860-6020.

#### **Mining Updates**

Continued from page 4

annually. The Ray mine is located outside of Kearny, Arizona. Mining at that location started in 1880. In 1952, the Ray Mine they began open pit mining and moves 250,000 tons a day. In November 2015, Asarco reached an agreement with the EPA to modify and retrofit the Hayden smelter. When completed, the Hayden smelter will be amongst the cleanest in the world. Asarco's Silver Bell operation is located in Marana and each month 1,800,000 tons of ore and waste are mined. The Mission Mine is 18 miles south of Tucson, Arizona. The Mission Complex is made up of the Mission, Eisenhower, Pima, Mineral Hill and South San Xavier properties and the nearby North San Xavier mine. The open pit on the property is currently 2.5 miles long and 1,200 feet deep, and is situated on 20,000 acres. The Mission and Silver Bell operations both have enough ore body reserves to continue mining until 2033. The Ray Mine location has enough reserves to continue mining until 2044.

Copper Creek Mine - The project is a joint venture between a junior mining company, Redhawk Resources, based out of the Vancouver exchange, and Anglo American, a large multinational based out of London and Australia, to develop the Copper Creek property. This mine consists of 29 square miles of patented and unpatented mining claims. Exploration work continues on this propertyt.

Pinto Valley Mine - The Mine was acquired by Capstone Mining Corp. in 2013. Capstone Mining Corp is a Vancouver, British Columbia company. The Pinto Valley Mine is an open pit mine located east of Phoenix in the Globe-Miami district. The planned lifespan of the mine has been expanded to 2039 on the strength newly drilled reserves. In 2015 the mine produced 60,400 (k tonnes) and employed 607 workers.

Carlota Mine - This mine is owned by KGHM International Ltd, a company based in Poland, and is an open pit mine located in Miami-Globe mining region. Since the mine opened in 1990's it has produced over 72,000 tonnes of copper cathodes. Active mining stopped in 2014, though it continues to operate a residual heap leach. In May, the company received a permit to move forward with a plan to place a 10MW solar array on the mine tailings.

Continued on page 22

#### **Oracle State Park**

Continued from page 3

Guided Hike. Beginning at 1 p.m., explore the new two-mile section of Arizona Trail recently rerouted through the park. Meet at the Kannally Ranch House for shuttle to Windmill. Round trip three-mile hike returns to windmill via Powerline Trail. Free with park admission; reservation required for six participant minimum.

**Saturday, November 19:** Tohono O'odham Basket-weaving Demonstration. Oracle provides traditional bear-grass gathering grounds for people of the lower desert. Elizabeth Jose of the Tohono O'odham Nation will be on hand with a weaving project to show technique, beginning at 1 p.m. on the ranch house patio. Free with park admission, thanks to support from Friends of Oracle State Park.

Sunday, November 20: Ethnobotany Program — A Medicine Making Workshop. Plant lovers can join Sonoran Herbalist, John Slattery from 10 a.m.-Noon on the Ranch House patio. Using plants which can be found in the park, he'll demonstrate how to make an oil infusion and turn it into a salve, and include some discussion about each plant. His own botanical products and books will be for sale as well. A \$3 workshop fee includes park entrance. Space is limited; reservation required. Sponsored by Friends of Oracle State Park.

Guided tours of the historic Kannally Ranch House are scheduled for 11 a.m. every Saturday and Sunday for 45 minutes. The multi-level Mediterranean-Revival style house, built in 1929-33 by one of the earliest cattle ranching families in Oracle, is listed on the National Register of Historic Places. An exhibit of impressionistic-style cowboy paintings by self-taught artist Lee Kannally is on display in the living room and dining room.

Note that wedding ceremonies and/ or receptions are often scheduled on the ranch house patio, and these private events may limit access to the ranch house and cause guided tours to be re-scheduled. Check the website for up-to-date information.

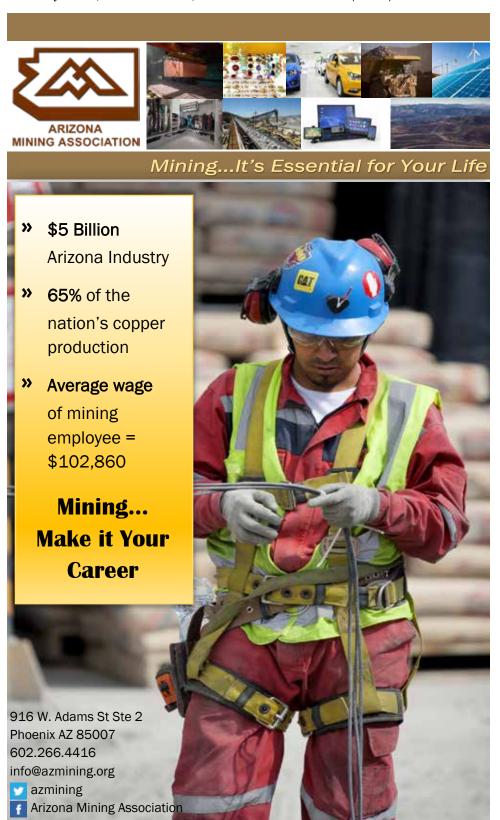
The American Avenue trailhead parking lot is open every day to access the National Scenic Arizona Trail, and to accommodate use by night-time stargazers. The park is an International Dark Sky Park, designated in 2014 by the International

Dark Sky Association.

The park is a 4,000 acre wildlife refuge with over 15 miles of maintained trails for use by hikers, mountain bikers, and

equestrians.

Up-to-the-minute Oracle State Park event information is always posted at www. azStateParks.com/Parks/ORAC.



#### **Mining Updates**

Continued from page 20

Oracle Ridge Copper Mine - A junior mining project incorporated on the Vancouver stock exchange. The mining plan was to re-activate the small-scale operation located outside of Oracle and San Manuel that had operated between 1991 and 1996. The company has been delisted from the exchange and all of the executives of the corporation have resigned. A receiver has been assigned to the company, and its future appears to be in question.

Miami Mine — owned by Freeport MacMoRan this open pit mine is located in the Globe-Miami mining district. The mine has been in operation since 1915. Due to the low price of copper, they have suspended mining operations and are leaching material already stockpiled.

#### MINE TOURS

If you ever wanted to get a close up view of a

mining operation now is your chance. There are three mines that offer tours open to the public.

The Mission Mine Tour is available through the Asarco Mineral Discovery Center. Asarco Mineral Discovery Center is located at 1421 W Pima Mine Road, Sahuarita, AZ 85629. Tours run on Saturdays only and tour schedules often change, so it's best to call and make a reservation by phone: (520) 625-8233 or (520) 625-7513. There are no pets allowed on the tour with the exception of service dogs. The cost of the Mission tour is \$9 for Adults, \$7 for Seniors (62+ years) and Active Military, \$6 for Children (5-12 years) and free for Children (0-4 years).

**Resolution Copper Mine** hosts bi-monthly tours on Fridays from 9 a.m. to noon. The tour focuses on the surface activities on the underground mine. You get a trip to their

West Plant where you can see the progress that has been made on the reclamations of the historical tailings pile, you get to visit the entrance to the never sweet tunnel and the water treatment plant, and you get to check out the historical smelter and smokestack. Tours are limited to eight people at a time and for safety reasons everyone who participates on a tour must wear closed toed shoes. Resolution Copper is located on the outskirts of the town of Superior, Arizona. You can sign up for the Resolution tour online - http://resolutioncopper.com/site-tour-sign/

Florence Copper (located on Hunt Hwy. in the town limits of Florence A7) offers towns

the town limits of Florence, AZ) offers tours by appointment. Call (520) 374-3984 or email sitetours@florencecopper.com to reserve your spot. You can also stop by the company's community office at 130 N. Main St., Florence for more information.



#### **Hayden and Ray Operations Proudly Support The Copper Basin Community**





Future NBA & WNBA players were out in force to participate in the Asarco local basketball camps.







Hayden Converter Retrofit Project Proceeding on Schedule - Wet Gas Cleaning Plant gets a complete makeover.

#### **Copper Artist**

Continued from page 9

brothers were able to do more delicate work. They poured the copper onto a stainless steel plate that didn't allow the copper to build up. The copper spread out, and the splash pieces they began creating were thinner, lighter, had better texture, and came in more variety of shapes. But creating the copper splash artwork is not without risk. The copper melts and comes out at of the furnace at 2,160 degrees Fahrenheit making it necessary for protective gear to be worn anytime a pour is done.

When the melted metal is poured into a ladle, it cools and creates a bowl. The overflow creates the copper vases. The hot metal flows into a vat, and when the metal in that vat is thin enough, they can empty the vat, and the shape that comes out is a vase. But Roy's favorite pieces are the copper circles, which can be used as a backing for a mirror, or a picture frame. He creates the circles by pouring the copper from the ladle onto the stainless steel plate in a circle. The circles are the only pieces that are not created freeform, but even within the circles, it's hard to find any two pieces that are alike.

Roy's wife Alice also works on the artwork, helping to create the smaller pieces. Alice retired last year and ever since she had been making a lot of the copper trees. The trees, the butterflies, and Kokopelli figures aren't made using smelting, they are created by hand using a welding torch. On the trees, each leaf is a little drop or splash of copper. To create one small tree, there are as many as a hundred drops of copper used.

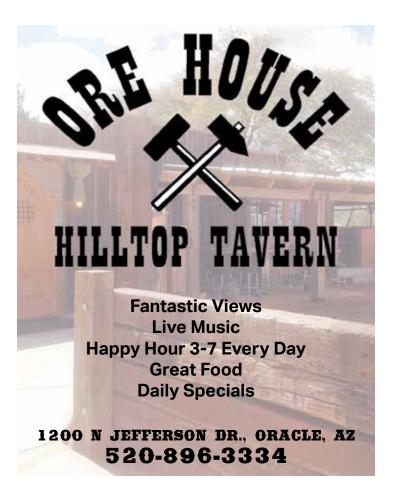
When Roy's brother John passed away, Roy decided he

would rather work behind the scenes. Roy's son Brandan and daughter-in-law Deanna came into the fold and took over selling the artwork. Brendan says the best part of selling the art is, "it brought me a lot closer to my dad and my wife and my family." Branden hasn't been out with his father on a pour vet, but he is looking forward to it. He wants to learn all aspects of making the artwork. The most challenging part of selling the copper artwork? Branden says it's, "Getting the information out about the art." The public often has a misconception about the art when they first see it. People mistakenly think the copper splashes are a natural phenomenon. They don't realize the time and effort that goes into making each piece.

Branden and Deanna created Copper Stores N More, a website where they showcase the copper art as well as sell it. Deanna is the driving force behind the company's Facebook presence. The couple also sells the art at local events and festivals. Deanna says that doing the events has been a learning experience, trying to figure out which event is best suited to display their art. But for her, the best part of going to the events is, "meeting all the different people."

You can find more information about the pieces on their website and find out which future events and festivals they will be attending at copperstorenmore.com.

There are more pictures of the copper splash art on their Facebook page as well as a video showcasing the pouring process - http://bit.ly/2cDkQWm.





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