

Harney Electric

Ruralite

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Digging for Summer Adventure

Jake Anderson looks for opals at Royal Peacock Opal Mine near Denio, Nevada.

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PHOTO BY LAUREN BROWN

Digging for Summer Adventure

The Wilson family runs a fee-for-dig operation at Royal Peacock Opal Mine



Denise and Barry Nash work the bank digging for opals at Royal Peacock Opal Mine. They have been coming to the mine for eight years.

By Lauren Brown

Tucked in Nevada's remote Virgin Valley is an oasis where those looking for a different kind of summer vacation can search for their own opals.

The Wilson family has owned the mine since Julie Wilson's grandfather, a horse and cattle man, bought it in 1944 because her grandmother "always liked the bling and sparkle of the opals," Julie says.

When Julie's parents, Harry and Joy Wilson, got married, they ranched along with Harry's parents in Virgin Valley and put Royal Peacock Opal Mine on the map. They tried to mine opals commercially for a while, but it was hard to entice people to work in the middle of nowhere—and there wasn't a consistent market for opals at the time.

In the 1970s, the Wilsons opened the mine as a fee-for-dig operation. Guides take visitors to the mine each day to dig in the bank or the tailings—material that has been chipped off the bank and left in mounds that people can rake through.

Harry and Joy promoted their business by going to trade shows. The mine has been featured on the Travel, Discovery and History TV channels. The couple also successfully petitioned the Nevada Legislature in Carson City to have the black opal from Royal Peacock Opal Mine designated as the official Nevada state precious gemstone.

Julie is proud of her family heritage and of the work her folks put into the mining operation.

"They are the backbone of Virgin Valley—the oldest family in the Virgin Valley—and we're still here," she says. "There's generations still coming up. Hopefully they will continue it on, because it is a unique kind of place."

Julie and her son, Jake Anderson, run the business with the help of guide Craig Greeninger, who helps customers at the mine site. John Witzel and his daughter, Laurel, are among those who assist at the mine and the gift shop. At the mine, Jake teaches people where to dig and what to look for.

Through periodic volcanic eruptions and climatic changes, hydrated silica filled voids within organic matter under very specific conditions to create opals. Royal Peacock has had some of its opal carbon dated at 10 million to 16 million years old, Jake says.

Jake also creates fine jewelry with the opals, which is available for sale at the mine gift shop.

"I get a thrill out of it," Jake says. "There is some beautiful stuff coming out of here."



Joy and Harry Wilson petitioned the Nevada Legislature to have the black opal from Royal Peacock Opal Mine designated as the official state precious gemstone.

Photo courtesy of Julie Wilson

Virgin Valley gems are different from Australian or Ethiopian opals, which are more common in the market. Jake says it is important to make sure anyone who works with opals that come from Royal Peacock mine is familiar with Virgin Valley opals and their unique properties. They absorb heat at a higher rate than other opals, and are more prone to crazing—or cracking—if they aren't stabilized properly.

“People appraise these opals like they would an Australian opal or an Ethiopian opal, but it's far more valuable than one of those,” Jake says.

On the morning of a dig, guests meet at the rock shop and determine if they will dig in the bank or the tailings. Bank digging is hard work. Prospectors use pick axes or other sharp tools to cleave clay from the bank. If that doesn't appeal, there are huge piles of tailings.

Jake and Craig offer instruction and rotate around the digging area to make sure folks find opals.

“We have people that have been coming here for 25 or 30 years, and they come back once or twice a year,” Julie says. “Some years they get amazing opals, some years they get so-so opals, some years they get skunked. It's the luck of the draw because you know you're dealing with Mother Nature. I always tell people it's either one more swing with the pick or 100 more swings of the pick.”

One such prospector is Barry Nash, a primary care physician from Winter Haven, Florida, who first visited Royal Peacock eight years ago and caught the opal bug. He usually visits the mine two or three times a year to try his hand at finding the iridescent gems.

“This is a fantastic place,” Barry says. “It's so quiet, so peaceful. It's just amazing.”

When he lucks out in the mine, he carefully ships his finds home to Florida.

If You Go

What: Royal Peacock Opal Mine is open 8 a.m. to 4 p.m., May 15 through October 15.

Where: #10 Virgin Valley Road, about 35 miles from Denio, Nevada. Go to www.royalpeacock.com for directions.

Lodging: Stay at the onsite campground. The cost is \$40 to \$45 a night for RV spaces, \$10 a night per person for tent/dry camping or \$85 a night for single occupancy, plus \$10 per additional person, in one of the furnished lodgings.

Mining: \$190 a person per day for digging in the bank, \$75 a person per day for digging in the tailings. Children 12 and younger can dig in the tailings at no charge with a paid adult.

What to bring: Pick axe, shovel, rake, bucket and other mining tools, as well as water, sunscreen and bug spray. See website for a complete list. Tools are available to rent.

What to wear: Lightweight, breathable layers. It is often hot at the mine site. Sun hats and eye protection are recommended. Sturdy shoes, hard-toe shoe coverings and hard hats are required for bank digging.

For more information: Call the shop at 775-941-0374.



Julie Wilson and Laurel Witzel display some of the opal jewelry sold at the Royal Peacock Opal Mine gift shop.

“We have quite the collection,” he says. “I've got them sitting on my desk. Most of my patients know I'm an opal miner, so I always show them what I found on my previous trip.”

Julie says people from all walks of life experience the mine.

“Some find us on the internet or social media, some from word of mouth, and some just see the sign on the highway and drive in,” she says. “I tell people that if they come in here and want to dig, they have to look at it like an adventure. If they look at it like an adventure—like a treasure hunt—then they have a great time. It's just a lot of fun.” ■

A Moment of Truth for the Northwest

Northwest RiverPartners works to strike a balance between low-cost, efficient, reliable power production and protecting the essence of the Pacific Northwest



Kurt Miller is executive director of Northwest RiverPartners in Vancouver, Washington.

I officially started at Northwest RiverPartners on March 11, 2019. Since then, I have been inspired every day by the opportunity to make a difference for people in the Northwest. It is an opportunity that lies before all of us. Together we can make a positive impact.

At Northwest RiverPartners, we advocate for our local hydropower system. That means we advocate for affordable energy, clean air, carbon-free generation, irrigation for agriculture, improved conditions for salmon, low-carbon transportation, renewability, safe drinking water and affordable energy for those who need it the most: low-income families, rural populations and small businesses.

Looking at that list, our job should be easy. It's hard to imagine anyone would oppose any of those values. Surprisingly, the work is quite challenging. A narrative out there says dams—especially the lower Snake River dams—harm salmon and orcas, and, consequently, indigenous communities. The messaging makes it clear that if you are for hydropower, you must be against the iconic essence of the Northwest.

These past few months, I have been blessed with the opportunity to talk to some of the people behind these messages. I can tell you their hearts are in the right place. They see the decline of salmon and orcas and want to do something about it. Some are convinced dams are the problem. Others aren't so sure, but they believe dams can be replaced by other forms of clean energy and are willing to try.

Their aspirations are as noble as our own. Ultimately, both sides want the healthy outcomes for salmon and orcas.

Our members believe hydropower is part of the solution, and we have lots of facts to support it. Recently, scientific studies show salmon returns to the Snake River are similar or better than both free-flowing and dammed rivers in Alaska, Canada, the Puget Sound and Southern Oregon. Through extensive tracking, we know juvenile salmon passage past each of the lower Snake and lower Columbia dams is around 96%.

Above all else, we've learned that changing ocean conditions—driven by climate change and pollution—are taking a toll on marine ecosystems worldwide.

Despite this data and research, these facts haven't carried the day in the court of public opinion. Because there are conflicting views, they've even struggled to hold weight in federal court.

Perhaps in an era of alternate facts and skepticism, this outcome isn't surprising.

However, this attitude presents a challenge. If we can't carry the day with facts, how do we get people to understand the importance of Northwest hydropower?

We have some very powerful stories to share. Across the region, real people in real communities depend on the hydropower system in a multitude of ways. We have great examples of efforts that have helped salmon, steelhead and other fish species. Sharing these stories is essential to showing what hydropower is all about.

The success of our efforts will depend on our ability to share these stories in a way that connects us all. Our goal at Northwest RiverPartners is to work with our members to identify compelling stories within their communities. We have more than 120 members, all of whom have earned a high degree of trust with their customers and member-owners through years of public service.

For the first time, Northwest RiverPartners will connect with Northwesterners through social media and other channels to reinforce what they are hearing from our member organizations.

A lot of decisions around hydropower are going to be made in the coming months and years. Those decisions will affect the reliability of the power grid, the affordability of electricity, the health of our environment, the sustainability of our salmon populations and the livability of our communities.

This is a moment of truth for the future of the Northwest.

If you want to make a difference, write to your representatives and senators and let them know hydropower is important to you. Also, please write to us if you have a story of how the hydropower system has helped you or your community. Address email to info@nwriverspartners.org, or send a letter to Northwest RiverPartners, 9817 NE 54th St. #103, Vancouver, WA 98662.

We appreciate your advocacy and support. ■

Balance Room Temperatures for Increased Comfort



Use the duct damper handle to control the amount of heated or cooled air to rooms. The summer and winter settings will be different.

Photo by James Dulley



A register booster fan has a winter/summer switch and an adjustable sensitivity knob to fine tune for your room.

Photo courtesy of Field Controls



To ask a question, write to **James Dulley**, Energy Report, 6906 Royalgreen Dr., Cincinnati, OH, 45244, or go to www.dulley.com.

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Q. We have a problem keeping several rooms comfortable. What are some simple, efficient methods to balance the temperatures in our home?

A. There are many reasons various rooms in a home do not stay warm or cool enough, even though they have similar-sized ducts.

The number and orientation of windows affect room temperatures. South-facing windows can transmit a lot of heat into a room, causing a room to overheat in summer. North-facing windows—especially old leaky ones—can make a room chilly during winter. Both problems can be mitigated somewhat by installing new windows or insulating shades, but there will still be variations.

If your HVAC blower has an efficient variable-speed electronically commutated motor, switch the thermostat fan to continuous when problems arise. This keeps air circulating to reduce room temperature differences. If your system has a less-efficient standard blower motor, use this option sparingly. It can use a lot of electricity. During air-conditioning season, this extra electricity use ends up as heat that makes the compressor run longer for a double cost.

Another problem is the walls of the ducts—especially sheet metal ducts—lose or gain heat as the air makes its way from the heat pump or central air conditioner to the rooms. This problem is made worse because heating ducts often are located under windows. This positions them on outside walls and takes space from the wall insulation thickness.

Hold a thermometer in the register outlet air flow in each room. If there is a 5-degree temperature difference or more, wrap insulation around as much of the duct as you can.

Uneven room temperatures also happen when not enough heated or cooled air gets to problem rooms. Hold your hand over room outlet registers to compare air flow. If a room is far from the indoor blower, the duct creates more air-flow resistance. This problem is exacerbated because longer ducts also lose more heat through their walls.

Longer ducts also have more joints, which can leak heated or cooled air before it reaches the intended room.

Check the baffles in the ducts near the heat pump or furnace to be sure those leading to problem rooms are not partially closed and blocking air flow. There usually is a small handle on the side of the duct. The duct damper is fully open when the handle is parallel to the duct.

Try partially closing the duct baffles leading to other rooms. You will have to close them to at least 45 degrees to notice the effect. This forces more heated or cooled air to problem rooms. The settings of duct dampers to each room will have to be changed from summer to winter because the heat gain/loss varies by season.

Hang a thread from a stick and hold it near all the joints in the ducts to locate air leaks. Seal leaks with duct tape or duct joint sealing compound. Don't just use cheap gray duct tape. It often comes loose in a year or two. Use aluminum foil duct tape or black Gorilla duct tape. Gorilla tape is easier to apply and holds up for many years.

Make sure room register baffles are fully opened. Install a deflector over the register to direct heated or cooled air into the room. This is particularly effective when air conditioning because cool air tends to hang near the floor and not circulate throughout the room. Move furniture so it does not block air flow.

Installing a duct booster fan can help get more air flow to the problem rooms. Duct booster fans are designed to fit into the ducts near the furnace blower. Some sense when the blower starts and come on automatically. Others have their own thermostat or can be connected to the main blower controls.

Register booster fans also can help. They mount over the outlet register in a room. They are easier to install than a duct booster fan and provide more control over room temperature. The register booster fan plugs into a standard wall electric outlet. It has its own thermostat so it comes on only when the main blower runs. The small fan motor uses only about 30 watts. ■

Drone Tech Provides Valuable Solutions for Utility Industry

By Ethan E. Rocke

At West Oregon Electric Cooperative in Vernonia, Oregon, drones are making quick work of jobs that once took days to complete.

Like many rural electric utilities, a lot of West Oregon's lines run through rugged terrain with large trees and thick brush. Inspecting those lines has traditionally presented a major logistical challenge to crews. Enter unmanned aircraft systems (UAS), or drones.

"When we used to inspect rights-of-way the old-fashioned way, we'd have to send three or four guys to trample through the brush for 4 or 5 miles," says WOEC Operations Manager Don Rose. "That job could sometimes take up to six guys two days to complete. Now we send two guys to fly a drone, and the entire inspection takes about an hour and a half. The video quality we get is exceptional, so we get all the information we need from the drone."

West Oregon's drone program is a little more than a year old, and Don says its benefits have made the cooperative's investment in the technology, training and certification process well worth it.

Launching a drone program responsibly requires much more than the initial investment in one or more drones. As drone applications and business uses have exploded in recent years, the Federal Aviation Administration has tightened regulation of the industry.

FAA regulations require anyone using drones for business to be certified UAS pilots, and individuals and businesses must carry liability insurance for their drone operations.

"When we first started out, there was a

lot less regulation," Don says.

West Oregon turned to General Pacific's Northwest Drone Academy to get five of their linemen certified as Part 107 pilots.

Part 107 refers to the section of the U.S. code of federal regulations that governs drone use. General Pacific offers a two-day Part 107 Certification Class that culminates with taking the Part 107 exam. The cost for non-local students is \$1,200 and includes the cost of meals during class time, lodging and the \$150 testing fee. Local students who don't require lodging pay \$900.

Classroom training is not required to pass the exam. Many people opt to prepare on their own, using any of the myriad free or cheap resources available online. A pdf of the FAA's "Remote Pilot—Small Unmanned Aircraft Systems Study Guide" is easily accessible with a quick google search, and many videos on Part 107 preparation are available on YouTube.

Utilities that aren't ready to invest in an in-house drone program also have the option of contracting drone work out. For certain specialized needs, hiring professionals is often the better option.

Timberland Helicopters in Ashland, Oregon, has provided aerial solutions to electric and natural gas utilities for decades. Timberland General Manager Mark Gibson says the company began investing in drone technology and expanding its services into the UAS space about five years ago.

"Drone technology is absolutely here and is going to continue to grow," Mark says. "There are many valuable applications for the utility industry, and there are applications out there we don't even



know yet. There's so much potential."

Timberland offers a full lineup of drone services, including simple inspections and more specialized services such as infrared or corona inspections, beyond-visual-line-of-sight operations and payload operations such as pulling line across a river, canyon or other difficult terrain.

"There is a lot of potential for UAS applications in the utility space," Mark says. "They can't do everything, but they can save a lot of time and improve safety. Drones can keep a guy from having to climb a tower in bad weather or trudging through snow for miles. It can make mapping systems more cost effective. There are so many useful applications for this technology in the utility space."

Timberland partnered with General Pacific to develop the Northwest Drone Academy. In addition to its FAA Part



Many electric and natural gas utilities are investing in drone technology and using the systems to make quick work of jobs that previously took far longer.

107 Certification Class, the academy also offers mission-specific and specialized training, including 3D point cloud mapping, asset monitoring, corona, external load, line pulls, LIDAR, multispectral imaging, photogrammetry, surveillance, asset protection, thermography and videography/photography.

Most UAS applications fall into two categories: reconnaissance and payload operations. Reconnaissance is often easier and less costly than payload operations because the latter requires drones that can carry lines or equipment effectively. Reconnaissance drones are often small and inexpensive. Some models are available for less than \$1,000.

For any utility considering an in-house drone program, consultation with an aerial solution provider might be a good starting point. Discussing needs



and objectives with a professional up front can simplify the drone selection and acquisition process and help utilities decide which services to train for in-house and which services might be better to hire out. ■

This video frame from a West Oregon Electric Cooperative drone shows one of the co-op's lines and the rugged terrain that once made inspecting it a two-day job.

Photo courtesy of WOEC

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Final Call for 2019 Sharing Success Grant Applications

For the past five years, Harney Electric Cooperative has partnered with CoBank to fulfill an ongoing mission to serve rural America and build vibrant communities across the country.

The HEC board has determined that up to \$7,500 a year be set aside for possible donation to qualifying organizations. CoBank matches that donation for a possible maximum gift of \$15,000. This limit was increased in 2019 from \$10,000.

The application window closes Saturday, August 31, 2019.

Eligibility requirements:

- The project must be within Harney Electric's service territory. Look for this information on our website.
- The project should benefit the HEC membership or the cooperative indirectly.
- The project must be sponsored by a certified nonprofit organization with 501(c)(3) status.

Select organizations that are not

designated a 501(c)(3) are also eligible. These organizations include schools and government organizations such as counties or municipalities and their agencies or departments, as long as the donation serves a public purpose and is consistent with the purpose and guidelines of the Sharing Success program.

Organizations that are political in nature, limit their activities based on religious affiliation or discriminate do not qualify. CoBank reserves the right to review and determine if requests are eligible for contributions. See www.cobank.com/sharingsuccess for details.

Applications are available at www.HarneyElectric.org/content/sharing-success-program. A project proposal—in the form of a letter to our board of directors—is also required. Email the application and other materials to Stephanie.Bowen@HarneyElectric.org.

