

THE BIG BOOM • IN SPAWN WE TRUST • WHAT'S UP, DOC?

THE MAGAZINE OF OUTDOOR ADVENTURE

# northwest

**Orange**  
**is the**  
**New**  
**Green**



Washington Inmates  
Turn the Big House  
into a Greenhouse  
to Save Sage Grouse



*a brief note from the state director*

If summer is about anything in Oregon and Washington, it's about getting outdoors. Liberated from the snows and rains of winter and spring, everyone seems to spend more time outside here—whether at work, at play, or both.

This is certainly the case for me as I experience my first summer in the Pacific Northwest.

Speaking of the season, inside our summer issue you'll find stories on a variety of topics—mountain biking trails, pygmy rabbit studies, prison agriculture projects, stone tools believed to be more than 15,800 years old, and high school shop class projects.

But what brings these stories together?

It's your public lands and our efforts, often in partnership with others, to fulfill our mission of multiple-use, sustained yield, and conservation.

These stories delve into the nooks and crannies of the work we do and the partners we team up with throughout Oregon and Washington. Along the way, they seek to reveal the specialness inherent in the Northwest's public lands.

As you flip through these pages—perhaps while on a break from a summer hike or a day spent working outdoors—we hope you'll feel more connected to your public lands and all who serve as its stewards.

Happy reading!

—*Jamie Connell, State Director*  
*BLM Oregon/Washington*

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Love the Earth  
and the Sun  
and the Animals.  
— Walt Whitman

*After such a rainy winter, no one minds the dog days of summer at Oregon's Alvord Desert. Photo by Justin Knott*

# In Spawn



## ***It is a small marvel every time an adult steelhead returns from the Pacific Ocean to lay its eggs in the Sandy River Basin.***

Their 2,000-mile journey takes years to accomplish, and only recently have fish biologists started fixing spawning habitat to increase the numbers game of miracle steelhead eggs.

The Lower Columbia River Steelhead was listed as a threatened species under the Endangered Species Act in 2006.

In 2007, BLM partner agencies like the U.S. Forest Service and The Freshwater Trust began fixing decades of human river manipulation, returning the ecosystem to its more natural state. This included removing two dams in the Sandy Basin, demolishing river berms and putting log jams at strategic points to increase water flow to vital side channels, where steelhead like to lay eggs.

For several years now, Bruce Zoellick—fish biologist for the Bureau of Land Management—has been doing practically everything he could to restore habitat for the threatened steelhead. That even means snorkeling to count spawning sites.

The results have been encouraging, to say the least.

“I’m so excited about steelhead because it’s a great response — but it’s also my favorite fish,” said Zoellick after a river survey in the spring of 2016.

Since 2012, Zoellick has been closely monitoring a particular two-mile stretch of the Salmon River, a primary tributary for the Sandy, maneuvering all the side channels to count steelhead redds, or nests in the gravel where fish lay eggs.

In 2012, 64 redds were counted in that stretch of river. Only two years later that number had almost doubled to 115 redds. And in May 2016, the total was 137, something that Zoellick excitably calls a “world record.”

“We reconnected those side channels and got a really good response from the fish,” said Zoellick, who added that numbers for coho salmon and lamprey are also positive.

The increasing number of redds could equate to 3,000 or 4,000 returning adult steelhead next year, said Zoellick, a high enough rate to compare favorably with steelhead streams in the coast range, which is a much shorter commute.

Mark McCollister, habitat restoration director for the Freshwater Trust, called the latest fish levels excellent, encouraging and validating, adding that future work on the Sandy could “drive recovery of the entire Columbia Basin.”

“We might actually move that dial closer to recovery,” said McCollister in reference to threatened fish species.

And that would be another small marvel.



# We Trust.

Story by Toshio Suzuki  
Photo by Michael Campbell

**BLM Scientists Help Threatened Steelhead Trout  
Rebuild their Habitat for Future Generations**

## Ancient camels in Oregon?

**You bet. More on this later.**

This summer, archaeology college students are getting out of the classroom to get their hands dirty with a little volcanic ash.

The BLM, the University of Oregon Museum of Natural and Cultural History, and the Oregon Archaeological Society are heading back to their dig at the Rimrock Draw Rockshelter site to search for more clues of some of the earliest humans.

Discovered in 2009 by BLM archaeologist Scott Thomas, Rimrock has hosted on-site field schools since 2011. Field schools are university programs where professors take their students off campus for some hands-on learning. BLM employees and volunteers will join them.

In 2015, this site received international recognition after archaeologists found **a stone tool and camel teeth fragments under a layer of volcanic ash from an eruption about 15,800 years ago.**

Continuing their excavations in 2016, the archaeologists had to tackle massive boulder debris from an ancient wall that broke off between 8,000 and 10,000 years ago. They painstakingly turned big rocks into smaller ones to move them aside—all without damaging potential artifacts hiding below.

Thanks to the bits of teeth, we know our ancestors encountered ancient camels in what has become southeast Oregon. And dating the tool makes Rimrock Draw Rockshelter **one of the oldest known human occupations** in the western United States.

Which means Rimrock isn't just a local news story. Not only is this area very well known to the international archaeology community, but last spring it was **featured in the pilot episode** of "Origins: The Journey of Mankind," a new program on the **National Geographic Channel.**

Still, key questions remain to be answered. Primary among them, can other artifacts be found to corroborate or shed new light on the stone tool?

This may be the summer we find out.

The University of Oregon has returned with archaeological and paleoethnobotanical field schools which continue to draw students from academic institutions around the world as well as from a variety of public agencies throughout the United States.

Researchers from Colorado, Texas, and Wyoming will also be on site this summer to conduct world-class geological research in support of the archaeological investigations.

All of which puts a big spotlight on the archaeologists' next **big discovery.** However, unlike their antediluvian ancestors, they probably won't meet up with any **herds of camels.**



**ARCHAEOLOGISTS UNEARTH AN  
ANCIENT VOLCANIC ERUPTION TO  
REVEAL CLUES ABOUT SOME OF THE  
EARLIEST HUMANS IN THE WEST.**

**BOOM**

*Story by Greg Shine*

# SPARKS



# WILL FLY

## *A Rural High School Shop Class Builds Beyond the Birdhouse*

***Walking into Anne-Marie Chamberlain's shop class is like entering a full-fledged welding business.***

Welders and grinders fill the air with high-pitched cracks, mechanical whines, white-hot flashes and the smell of burning metal.

It is hard to believe it is actually a school room with kids as young as 14.

**Story & Photo by Larry Moore**

Every year, the shop students at Adrian High School in southeastern Oregon work at building utilization cages—small, pyramid-shaped wire frames designed to help the BLM measure the effects of cattle grazing by excluding small patches of land.

When entering class, students do not pause for instruction or introduction. They confidently proceed straight to the shop stations and get to work.

Chamberlain attributes this scene to the nature of the local area. Adrian, with a population of less than 200, is in rural Malheur County. This is wide-open country. The county accounts for almost 10,000 square miles with only 30,000 residents – a prime scenario for cattle grazing.

Some students, like sophomore Tristen Spires, have been welding and crafting for years. His dad owns a construction business in town and he said he has always been very hands-on.

“To help the BLM do research, it's kind of cool – and it's good for the school,” said Spires.

“This feels good, knowing your skills are being put to use – it's not just grades,” said another student, Nelson Amaral.

This cage-welding collaboration got its start when Russ Bond, a range technician for the BLM who has children attending Adrian, approached Chamberlain and asked if her class would be interested in making 100 of the triangular steel contraptions.

“I laughed and said, ‘I don't know if we can do 100, but we can start with 25, if you can get me the materials,’” said Chamberlain.

The materials arrived this spring, and the students were enthusiastic from the get-go.

“We had just learned welds, so the timing was perfect,” said Chamberlain.

Once the cages make it out onto the range, information collected on livestock use can lead to good decisions about rangeland health.

It is also providing good dividends for the students at Adrian who have a closer affiliation with public lands than the typical American high school student.

“A lot of the kids are familiar with public lands,” said Chamberlain. “They hunt, they fish and we've studied issues with public lands in our classes.”

Not too long ago, Michele McDaniel, now a BLM supervisory range specialist at the Vale District Office, was in the same Adrian High School shop class learning how to weld.

“My stuff wasn't being put to use in the real world,” said McDaniel, who now has 15 years of rangeland experience. “The cages that these kids are building will be applied and put to use with actual land management.”

“Maybe this will drive an interest for some of these kids to pursue a career with the BLM or with land management,” added McDaniel.

Like his classmates, sophomore Qim Tolman said the work is fun and he is glad it is being put to use.

“I just hope I can get a good weld that doesn't fall apart,” he added, with a laugh.



# WELCOME to G

TOSHIO SUZUKI meets pris  
turned the big house in  
to help save sage g



# 1 Come the Green House

son inmates who  
to a greenhouse  
grouse at risk.



Welcome

These prisons  
But what lie

For some Americans, sagebrush is so ubiquitous it is forgotten—always in the background of a classic western movie but somehow never looked at. Until now.

Millions of acres of sagebrush land, managed mostly by the federal government because nobody else originally wanted it, have become a target for the largest, most ambitious habitat conservation effort in American history. The breadth of public-private, federal-local and other cross-management cooperation is so wide, even



# come

Photos by Jeff Clark

n gates may not look welcoming.  
s beyond them will surprise you.

prison inmates in the West are sowing sagebrush seeds; and they are all doing this to save the greater sage grouse, a bird smaller than a turkey that has become a measuring stick for an entire disappearing ecosystem.

Before touching down at the airport in Spokane, Washington, I can see sagebrush mingling with the

mostly grass fields separating the runways. I came to eastern Washington to visit the largest prison in the state, where a half-dozen inmates have mixed BLM organic materials with scientific education to generate 20,000 growing sagebrush plants in a small courtyard of their medium and minimum security facility.

There are almost two dozen different types of sagebrush ecosystems in 11 western states, between the coastal ranges of the Pacific and the Rocky Mountains. Like Spokane in eastern Washington, the areas are semi-arid, and both cold in the winter and hot in the summer.

Where there is sagebrush, the sage grouse has historically lived. The bird that the Lewis and Clark Expedition called “the Heath Cock or cock of the Plains” once numbered in the several millions, as opposed to the 200,000 estimated today.

“Have you ever heard of the sage grouse?” I asked my cab driver from the airport.

“Sage?” he replied.

“Sage grouse—it’s a bird,” I explained.

“No—it’s in Spokane?” the driver asked.

Not all Americans—especially those of us flocking towards large cities—know of the sage grouse and its distinctive mating dance that is mimicked in Native American ceremonial dance by all the tribes within the bird’s historic range.

It lives in the sagebrush sea, an area so massive it took generations to realize it was evaporating as the west was settled, landscapes augmented, and non-native vegetation took root.

The bird’s sustenance derives from the sagebrush, it hides its eggs underneath it, and every spring, if possible, it returns to the same sagebrush mating ground, or lek.

Scientists generally have agreed that as the sage grouse goes, so could go the pygmy rabbit, pronghorn elk, golden eagle, mule deer and countless other animals also reliant on the same habitat.

At Coyote Ridge Corrections Center, about 90 minutes southwest of Spokane, inmate Keven Bowen is all but totally consumed with growing healthy sagebrush root systems. Not long ago, he requested to move cells so that his small window looked out onto the 40-foot-long by 10-foot-wide greenhouse that provides shelter for the young plants.

When I spoke to him, he was using a small wooden stick to check all 20,000 of the 10-inch-long containers for a tough soil buildup at the top that was preventing water from soaking the roots.

Thanks to Bowen’s attention, every single plant under the open-air greenhouse with a clear plastic roof was clearly thriving, each with an inch or two of growth above their black cone homes.

“They’re all taking off now,” said Bowen after telling me about the rough weather they got when sowing in late May.

Work just like this is also being done at the largest prisons in Oregon and Idaho among others. The successful program has more than doubled since 2015.





to the

The Institute for Applied Ecology, the nonprofit that is helping the BLM manage the growing of sagebrush, now has programs running at 11 correctional facilities across six western states.

The executive director for the institute, Tom Kaye, said combining nonprofit expertise with BLM public land and department of corrections labor has been a success so far.

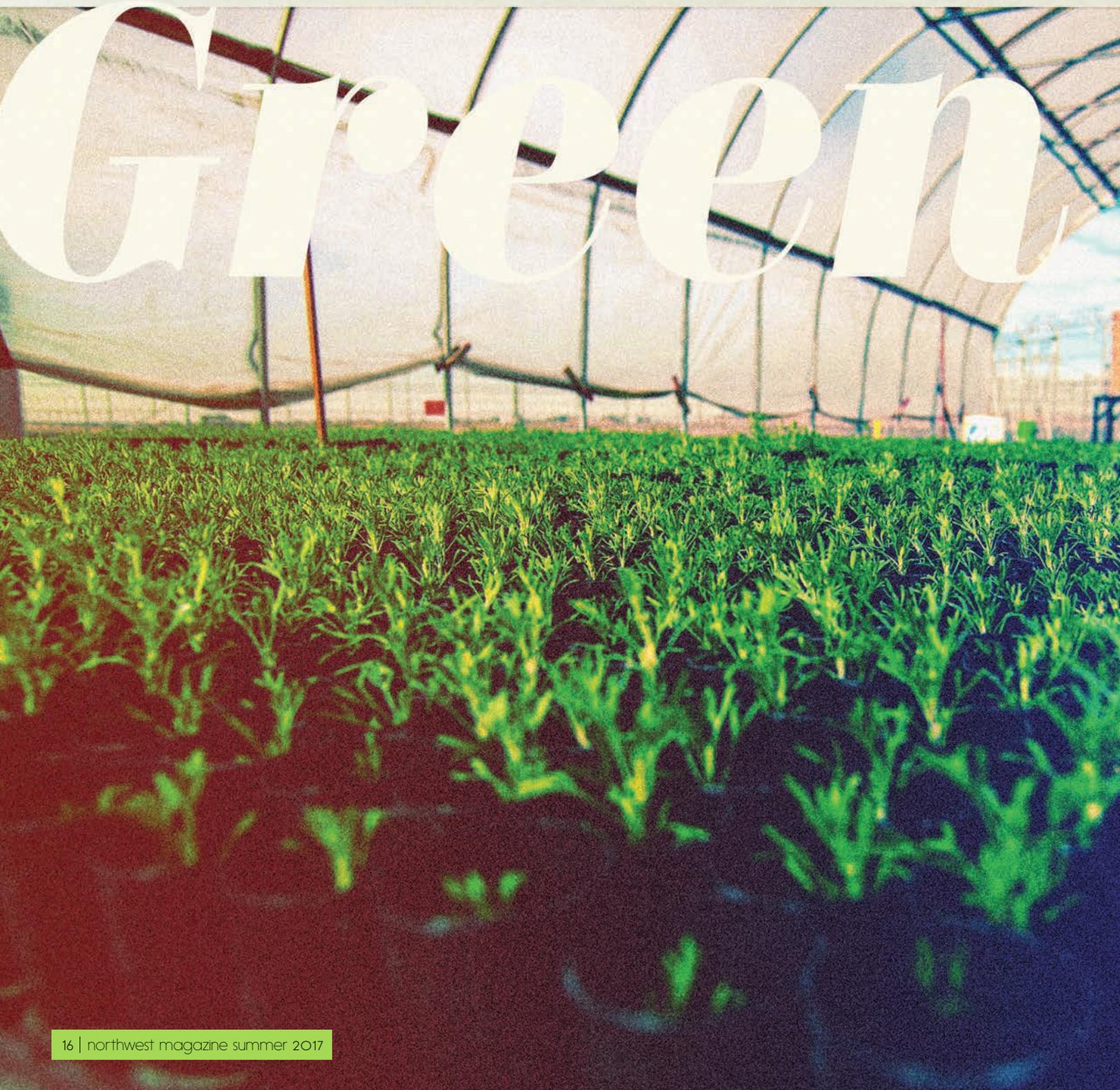
“We’re able to complete this circle of collecting the right seed, propagating it well and putting it on the right landscape to maximize our success on habitat restoration,” said Kaye.

The 11 prisons in 2016 produced about 319,000 sagebrush plants.

In 2017, the program intends to deliver 445,000 sagebrush plants grown specifically to thrive in their local environment, whether that be in Idaho, Montana, Nevada, Oregon, Utah or Washington.

But this program is all about quality, not necessarily quantity, according to BLM staffers.

Peggy Olwell, who leads the BLM plant conservation program, said often times there are no large-scale growers who provide sagebrush, and if they do, it isn’t necessarily a good fit for every environment.



“Sagebrush does better when you get the local material,” said Olwell. “That’s one of the reasons we’re doing it this way.”

Everything from the amount of nutritional content and toxicity in the leaves, to when the plant flowers and the insects come are all additional factors for selecting local seed, said several BLM wildlife biologists working or assisting with the prison project.

Inmates at Coyote Ridge have a multitude of work opportunities—they make children’s toys for charity, mattresses for college dormitories and frozen burritos for the state’s school system—and most jobs earn

\$.35 an hour. The sagebrush program is unique, though, because it requires the completion of the prison’s conservation curriculum and it is the only job that gets inmates outside working to grow a living thing.

“Mr. Bowen and Mr. Le, they’d spend all day out here if I let ‘em—ain’t that right?” asked Tom Townsend, the towering construction and maintenance supervisor overseeing the sagebrush work crew at the expansive prison complex.

Townsend told me how he had to remove inmates from the work crew who goofed off while watering the plants, and how the work is not for everyone.

“It takes a special kind of person—they actually have to care about what they’re doing,” he added.

Prior to taking the Seeds for Success conservation course sponsored by The Sustainability in Prisons Project—a joint endeavor by Evergreen State College and Washington State Department of Corrections—inmate Hai Le was another unaware American when it came to the link between sagebrush and sage grouse.

“That’s the reason we’re doing this, to keep (greater sage grouse) off the endangered list,” Le told me.

In September of 2015, citing “an unprecedented conservation partnership across the western United States,” the U.S. Fish and Wildlife Service withdrew the greater sage grouse as a candidate species for listing under the Endangered Species Act.

There are other measurements that make this program a success, but they are harder to quantify. Does growing plants help foster a more peaceful prison environment? Can caring for a living plant help nurture the rehabilitation of the incarcerated?

Almost everyone I spoke to with exposure to this program told me it was a “win-win,” “two-fold” or “mutually beneficial” effort.

But it was the inmates who articulated it the best.

Jerome Watson, a self-described Seattle city kid with no green thumb experience other than weeding his mother’s lawn as a youngster, said he felt “blessed” to have a prison job that got him literally outside what can be an intense living environment.

“It’s nice to be outside, not in the melee of everything,” he told me.

“It’s a stress-free environment,” echoed another inmate, Ronald Wisner, gesturing to the plants and canopied area, “and it trickles down to your other relationships.”

“The empathy, in taking care of the planet, is good for me, personally,” said Wisner.

Then there is Bowen, the group-promoted leader, who only wishes he could actually plant the sagebrush at their future home on BLM-managed land.

“It’ll be cool to see ‘em—like a picture or something—when they’re planted,” he said, one of the few moments he paused to look up at me while working.

And what a photograph that could be: greater sage grouse lurching about, as only they do, among the sagebrush grown by environmentalists at America’s correctional institutions. ▼



# WHAT'S UP, DOC?

## *Catching Up with the World's Smallest Rabbit*

Story by Larisa Bogardus  
Rabbit by Matt Christenson

For example, why do the rabbits continue to eat primarily sagebrush outside of winter, when other grasses and seeds are available?

"There are a lot of toxins in sagebrush," Crowell explained. "There must be something in sagebrush that they need or really like."

Researchers these days identify a pygmy burrow by its size and the nearby scat, setting traps in the middle of the night and returning immediately at dawn to check them.

Last summer, Crowell's team successfully captured and tagged 50 pygmy rabbits in the area of Beaty Butte, a remote section of southeast Oregon between Steens Mountain and the community of Lakeview.

Radio collars won't work on pygmies because they are too small so tagging consists of inserting a grain-of-rice-sized chip into the rabbit's neck—just like a family pet receives for tracking.

At the same time, other measurements are gathered as well such as weight and a sample of DNA. The whole process takes less than five minutes.

In addition to studying their biological make-up and eating habits, another of the pygmy rabbit characteristics Crowell is studying is socialization.

"Studies in the 40s and 80s assumed they were solitary, but now we know they use each other's burrow systems," said Crowell.

Perhaps they've learned to share tunnels to elude a certain rhotacist rabbit wrangler.

**Shhh...**

**Be vewy quiet.**

**Even though researcher Miranda Crowell is no Elmer Fudd, she is hunting rabbits.**

**Pygmy rabbits, to be exact.**

For the past 15 years, BLM wildlife biologists and graduate student researchers in southern Oregon have been learning more about how and where these rabbits live. Even where they burrow their holes into the ground.

The trick, of course, is that catching tiny rabbits is not so easy. Adult pygmy rabbits weigh less than a pound. They are also fast and live underground.

"We used to go out and look for a pygmy rabbit, then chase it to its burrows," said Crowell, a researcher working on her thesis at the University of Nevada.

A pygmy rabbit life span is only a few years, and almost their entire diet consists of sagebrush, so bait trapping isn't an option. All of these factors explain why little is known about them.

Photo by Kristjan Morgan

# Hang Ten.

*Surfs Up on the Oregon Skies!*  
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# One Thousand Words

