

Northwest Passage

The Magazine of Outdoor Adventure

FLYING THE FRIENDLY SKIES

with

DRONES

They help our military overseas.

Amazon plans to fly them to deliver our packages.

How has the BLM been using them in Oregon?

plus

- Archaeologists Discover the History of the World
- Oregon's Juniper Economy



Today our foresters use lasers and satellites on the job, but here I'm using an old-school clinometer to measure elevation. See more timber pics at bit.ly/15R1Jz1



JEROME E. PEREZ • State Director • jperez@blm.gov

I'M IN AWE OF THE EXPERTS employed by the Bureau of Land Management and the work they do on public lands.

From paleontologists digging into ancient earth, to pilots of unmanned aerial vehicles flying above Oregon firs—this edition of *Northwest Passage* shows the varied pursuits of our professionals in the field. Turn the pages and enjoy learning about what we do in Oregon and Washington!



Hey, that's me, on the left installing a GoPro inside a timber harvester. Check out the video I shot from inside the big rig at bit.ly/1xYXyce



TOSHIO SUZUKI • Editor • tsuzuki@blm.gov

IN MY FIRST SIX MONTHS AS EDITOR of this magazine I have researched the following: golden chanterelle mushroom hunting; why Reese Witherspoon loves Oregon; gin distillers who use Oregon juniper; and much, much more. All of this connects to BLM and making a magazine for the public.

I have a lot to learn as the new editor of *Northwest Passage*, and I look forward to sharing more BLM stories in these pages.



NORTHWEST PASSAGE

THE MAGAZINE OF OUTDOOR ADVENTURE

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ECONOMY
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plant into sustainable jobs
for local communities

Made in Oregon

Residents of the Pacific Northwest are proud of their home and heritage. Check out more great photos from Oregon and Washington at [flickr.com/blmoregon](https://www.flickr.com/blmoregon).

Photo by Radcliffe Dacanay, [flickr.com/kworth30](https://www.flickr.com/kworth30)
Front Cover Illustration by Matt Christenson

Winter storm watching is a sport on the Oregon coast.

Visitors from all over the world make the trek to watch whales, waves and winter gales. Just don't forget to bring your camera.

This picture of the historic Yaquina Head Lighthouse was captured by photographer David Frey, who took some black and white photography in college and then didn't shoot anything until 2012. Lucky for us, his skills never went away.

Oh, by the way, Photostream is our new regular section featuring photos taken by you on your public lands. Don't wait 25 years to send us something. Contact us at [flickr.com/blmoregon](https://www.flickr.com/photos/blmoregon/), and we'll try to feature your best photos in future issues of *Northwest Passage*. For now, let's check out a few more on the next two pages.

And plan your visit to the coast to see the Yaquina Head Lighthouse at www.blm.gov/0c5c





winter
at the
coast

01

02 The Oregon Coast at 30,000 Feet

While the whale watchers were scanning for marine life some 30,000 feet below, photographer Linda Lane floated high above when she took this photo of the Oregon coast from inside her plane.

You can see more of her work at flickr.com/wonderlane

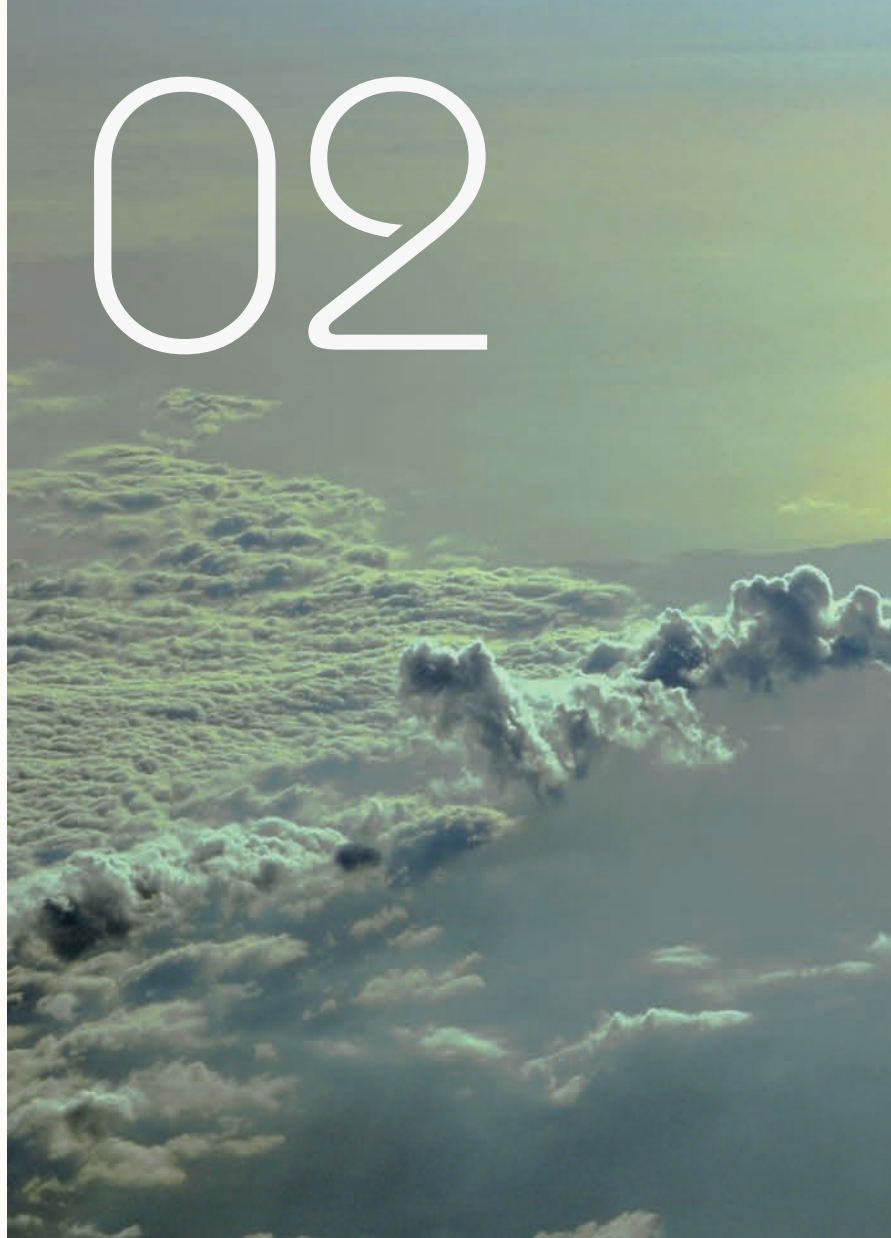
03 Ain't No Mountain High Enough

Also with his head in the clouds is Craig Coonrad, who took this photo on a trip to Steens Mountain in eastern Oregon where he experienced the dizzying view from 10,000 feet. More of Craig's work can be found at flickr.com/craig_coonrad

04 Are you Rough and Ready?

Dig that crazy ride! The Northwest Rafting Co. took a snowy sojourn through the BLM's Rough and Ready ACEC, or Area of Critical Environmental Concern. See more photos and read the full story of this adventure at bit.ly/1wA9Ut8

02



03





PHOTO BY LINDA LANE



PHOTO BY ZACHARY COLLIER



THE STORY BOARD

► **Plot:** Public Lands provide free and cheap medicinals

► **Location:** Oregon & Washington

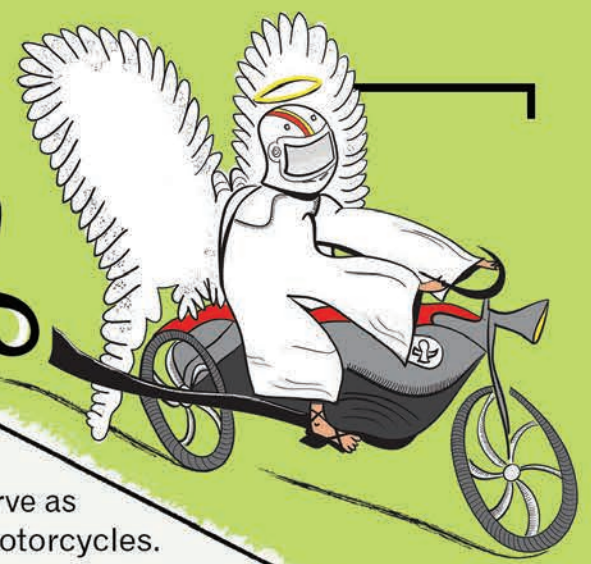
► **Action:** Got a tummyache? Keep things moving with cascara bark, a natural laxative. How about that persistent cough? Try cherry bark extract. In fact, almost everything your naturopath prescribes can be picked for free from public lands. (We can even heal a broken heart. Our prescription? A bouquet of hand-picked wildflowers.)

►► **From lush green forests at the coast to mountains and prairies in the east, the BLM manages about 25 percent of Oregon.**

►► **The Story Board presents just a few of the amazing adventures happening on your public lands.**

Natural Medicine

Hog Heaven



► **Plot:** Harley-Davidson selects one of the most beautiful destinations in Oregon to serve as the backdrop for their 2015 line of motorcycles.

► **Location:** Yaquina Head Lighthouse on the central Oregon coast.



PHOTO BY BENEDICT CAMPBELL, COURTESY HARLEY-DAVIDSON

► **Action:** Owners of touring motorcycles like beautiful coastal highways and historic lighthouses, right? That's what Harley-Davidson was thinking when they chose BLM Oregon's Yaquina Head Outstanding Natural Area as a backdrop for a photo shoot last year.

The noteworthy photo above features the American company's latest black and orange cruiser parked in front of Oregon's tallest lighthouse with a gorgeous, multi-layered coastal sunset in the background.

Take a Hike!

► **Plot:**

► **Location:**



#go wild

- **Plot:** An Academy Award-winning actress films on Oregon's public lands.
- **Location:** The Pacific Crest National Scenic Trail, which goes from Mexico to Canada.
- **Plot:** Reese Witherspoon and the director of the "Dallas Buyers Club" came here to film "Wild," a movie about a woman who walks 1,000 miles of the Pacific Crest Trail...solo. The movie recently opened so keep an eye out for Oregon landmarks!



Chimney Rock Trail in central Oregon offers year-round solitude and beauty to hikers of all skill levels.

About 35 miles east of Bend, Oregon.

► Action:

Chimney Rock is a 2.6 mile hike that is free and open all year.

Dhyana Kearly, who runs the "Hiking Central Oregon" blog, shared that she's a regular visitor for the stunning views and fresh air. Plus the light is just right for photos. Plan your trip to Chimey Rock at <http://on.doi.gov/1pNev3S>



The List

- ▼ BLM timber harvested in 2013: 211 million board feet
- ▼ Number of average size homes that wood can build: 13,354¹
- ▼ Oregon state mushroom: the golden chanterelle
- ▼ Pounds of mushrooms harvested from BLM Oregon in 2013: More than 350,000
- ▼ Cups of cream of chanterelle soup those mushrooms could make: 2,100,000²
- ▼ Number of wild horses in Oregon in 1974: 2,100³
- ▼ Number of wild horses in Oregon in 2013: 3,904
- ▼ Estimated number of wild horses on all BLM-managed lands: 40,815
- ▼ Total acres of Oregon's Cascade-Siskiyou National Monument: 54,000
- ▼ Total acres of Washington state's San Juan Islands National Monument: 1,000
- ▼ Number of islands, rocks and outcroppings that comprise those 1,000 acres: 450
- ▼ Number of Oregon Christmas trees harvested in 2013: 6.4 million⁴
- ▼ Estimated wholesale value: \$110 million
- ▼ Cost of a BLM Oregon Christmas tree permit: \$5

References:

1. U.S. Census Bureau, Associated Oregon Loggers, Inc.
2. ForagerChef.com
3. The New York Times, Sept. 21, 1974, "U.S. Begins Roundup of Wild Horses in West as Their Population Grows"
4. Pacific Northwest Christmas Tree Association

Also includes recent data from "BLM Facts 2013"

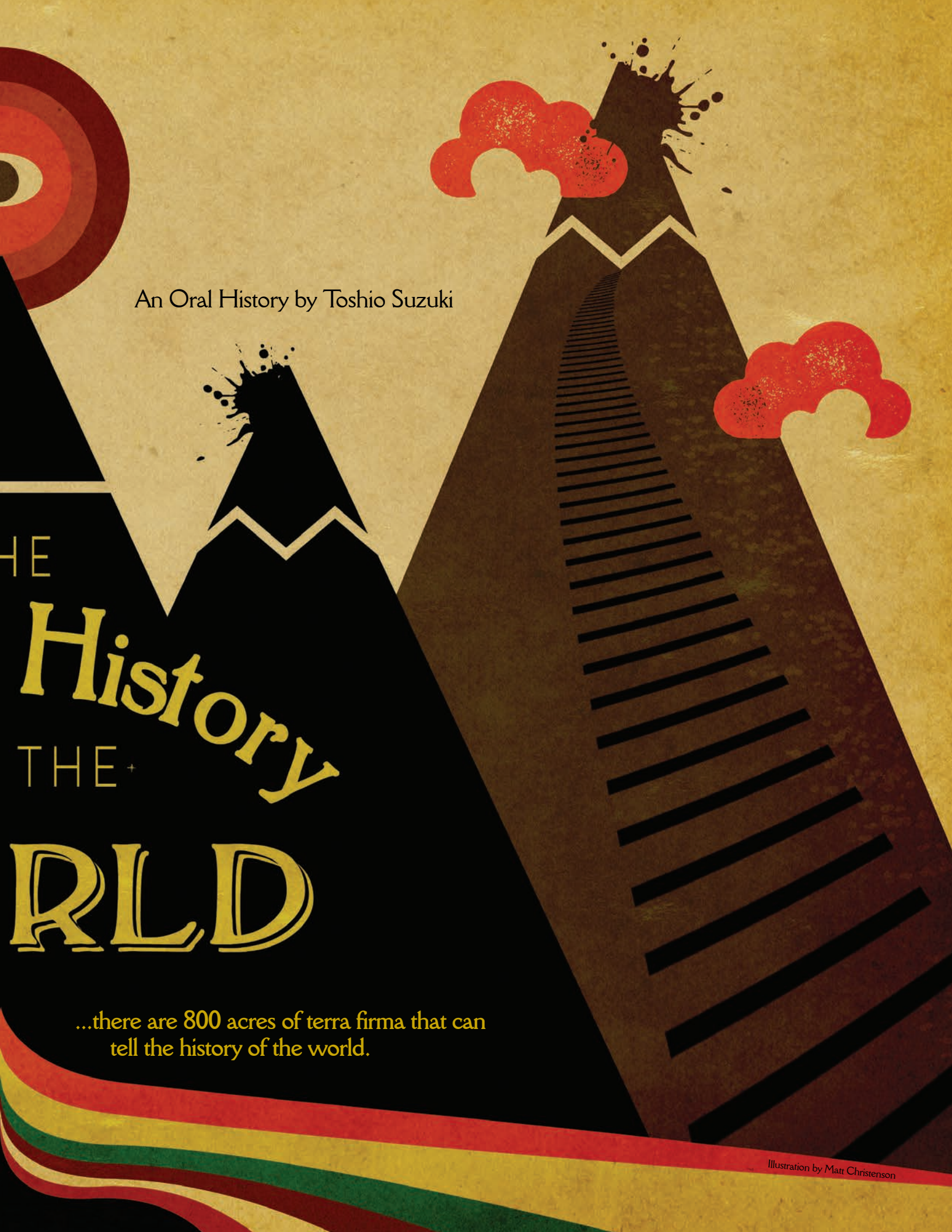


PHOTO COURTESY FOX SEARCHLIGHT PICTURES



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Secret
+ OF
WO 

At an undisclosed location in central Oregon,
landlocked by private land...

A stylized illustration of a mountain range. The mountains are dark brown and black, with white zigzag patterns at their peaks. A large, dark brown mountain on the right has a series of horizontal lines running up its slope. Red, stylized clouds are scattered around the mountains. In the top left corner, there is a sun with concentric red and orange circles. The background is a textured, light brown color. At the bottom, there are wavy bands of red, yellow, and green.

An Oral History by Toshio Suzuki

THE
History
THE
WORLD

...there are 800 acres of terra firma that can tell the history of the world.

Illustration by Matt Christenson

T

hanks to the right mixture of a good fossil record and layer upon layer of ancient volcanic ash, Logan Butte has about 40 million years of continuous history, which is enough to make this Oregon parcel very well known among the global paleontology community.

Logan Butte is an Area of Critical Environmental Concern for the Bureau of Land Management, meaning it deserves and requires special protection. It also means it is not a tourist destination.

The place has been continuously studied—and sometimes pilfered—since 1864.¹ As recently retired BLM paleontologist John Zancanella said, “For our history here in Oregon, 1860 is pretty early.”

In addition to Zancanella, who helped manage the butte for 24 years, the following is a discussion with two additional scientists, in their own words, on the value of studying Logan Butte.

▲ The Study of Change

🕒 *Josh Samuels (curator, John Day Fossil Beds National Monument):* We can see how the life changed, how the plants and animals changed, what went extinct, what survived, what adapted. Really for North America, it is the best place to study how things changed in one place over time.

🕒 *Zancanella:* The story told here is not found almost anywhere else in the world. We have 40 million years of continuous rock sequence here ... the rising of those Cascades basically deposited those ash results that can be dated.

🕒 *Samuels:* Most the fossils we have in Oregon, we can tell people how old they are by about a million years.

🕒 *Samantha Hopkins (geology professor, University of Oregon):* The rocks from Logan Butte are from the middle of the Oligocene.² It’s a time period that isn’t very well known.

🕒 *Zancanella:* You get to look at evolution over a long period of time. Plants, animals, climatic change, moving of the continent — you can only find that in one other place in the world — it’s like between India and Pakistan.

🕒 *Samuels:* The only other place in the world where you can really do it is in Pakistan — and Pakistan is not really an easy place to go and study fossils.

▲ Oregon Diversity, a Million Years at a Time

🕒 *Samuels:* Logan Butte was a really warm, wet environment ... palms and bananas, kiwis. Right around 33 million years ago, things really dramatically started to change. And some of that is documented at Logan’s Butte.

🕒 *Zancanella:* The exposure there actually represents a slice of time and a setting that we don’t get to see very often: foothill, low mountain setting that had stream channels running through it.

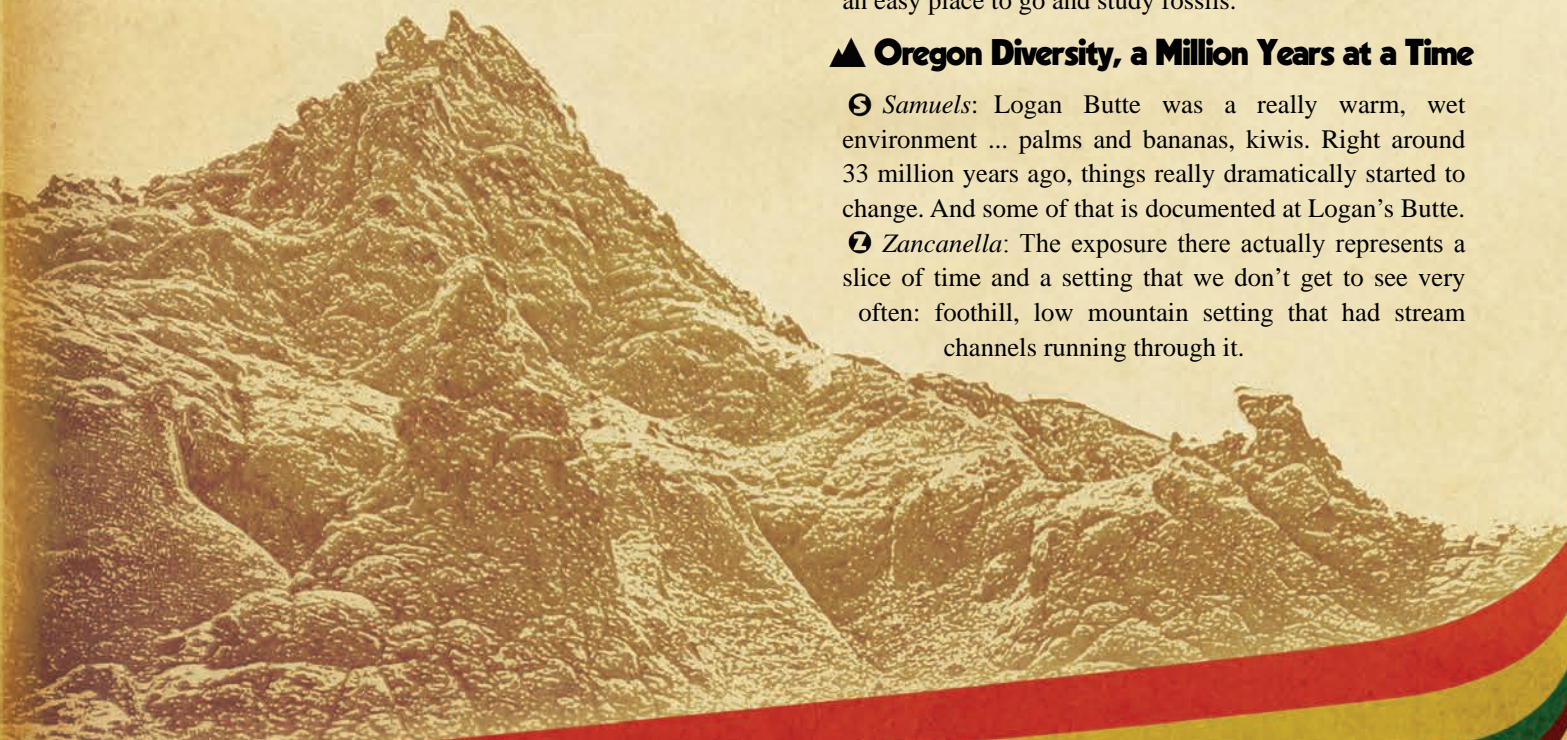


PHOTO BY JEFF CLARK

🕒 *Hopkins*: Logan Butte is interesting because it's on the other side of the Ochoco Mountains. It's not exactly the same stuff as the John Day Basin but the rocks are the same age.

🕒 *Samuels*: Logan Butte is basically about the exact same age as the Blue Basin at John Day Fossil Beds. Animals—some are the same and some are different. Logan Butte was maybe more upland with wooded areas. Blue Basin may have been more open space.

🕒 *Hopkins*: We're trying to figure out the how and why they are different. It helps us understand the diversity of Oregon landscapes 30 million years ago.

▲ Public Lands, Public Fossils

🕒 *Zancanella*: The very first fossil (Samuels) found there was a brand new species. That pretty much hooks you.

🕒 *Samuels*: That first thing I found (at Logan Butte) ... a little mouse ... is the smallest animal we know at that time. Less than half as big as a deer mouse known today with teeth about the size of a period at the end of a sentence.

🕒 *Hopkins*: We did, in fact, find the pocket mouse, which is a new species, on Josh's first trip there.

🕒 *Samuels*: A lot of animals are preserved there ... three-toed horses, early rhinos, dog species...

🕒 *Hopkins*: Saber-toothed 'cats', called nimravids.

🕒 *Zancanella*: A marine reptile with a short neck and 3-foot-long head ... basically a Loch Ness Monster—well, we call it a Loch Ness Monster.

🕒 *Samuels*: Archaeotherium—hell pigs or giant pigs.

🕒 *Hopkins*: Horses, which were the size of small gazelles at the time.

🕒 *Samuels*: The fossils from (Logan Butte), a lot of them are remarkably complete. Nice, beautiful, complete skulls.

🕒 *Hopkins*: All we're really looking at are the animals. We found some really nice rodent jaws and teeth, including the mouse jaw Josh is working on.

🕒 *Samuels*: Our job is to go find them, bring them back to the museum, preserve them so future generations, everybody can see them, they can enjoy them, they can learn from them.

🕒 *Zancanella*: I think we're going to continue to find more there: We've only scratched—metaphorically speaking—scratched the surface there.

▲ National & Global Significance

🕒 *Samuels*: We want to tell the public about the importance of these places but we also want to protect them. These fossils belong to everyone.

🕒 *Zancanella*: You can't just hike in there either, because you'll be trespassing on private land. Logan Butte is totally landlocked by private boundaries.

🕒 *Hopkins*: Logan Butte is key because it's on BLM land. All federal lands require a permit ... in order to hold a permit you need to have a Ph.D. in your relevant field.³

🕒 *Samuels*: Not all of the important fossils sites are located within the (John Day Fossil Beds National Monument) — majority are outside on public-private land.

🕒 *Zancanella*: Park Service small units are surrounded by way more BLM land. It motivates the agencies to work together. This was the best part of my job — working with the Park Service and learning about all this. Most of eastern Oregon is pretty damn special.

🕒 *Samuels*: This place is really of national and global significance. It's the most significant site on BLM land in Oregon.

Notes

1. "Allocyon, a New Canid Genus from the John Day Beds of Oregon," was published in 1930 after Charles W. Merriam found fossils at Logan Butte.

2. The Oligocene Epoch, from approximately 34 million to 23 million years ago, is known for a period of time that transitioned from the tropical to more modern ecosystems.

3. The Paleontological Resources Preservation Act of 2009 means business; basically, if the fossil has vertebrae, don't take it from public lands. More information at <http://on.doi.gov/1sYsplf>

HOME GROWN DRONE

MISSION: FLY ABOVE OREGON & WASHINGTON TO COUNT TREES ON PUBLIC LANDS

MISSION: FLY ABOVE OREGON & WASHINGTON TO COUNT TREES ON PUBLIC LANDS

MISSION: FLY ABOVE OREGON & WASHINGTON TO COUNT TREES ON PUBLIC LANDS

44,000 N, 120,500 W

BLM, USA





Story by
Toshio Suzuki

Illustration by
Matt Christenson

Riders in the Sky

We fly them overseas. Amazon may use them to deliver packages directly to our homes. Now see where – and why – the BLM is flying drones in Oregon's friendly skies.



HOME GROWN DRONE



D

ownrange in Afghanistan, the military calls them unmanned aerial vehicles. Flying above Oregon Douglas firs, the Bureau of Land Management calls them unmanned aircraft systems.

Regardless of naming protocol, the small aerial drones obtained in 2008 by the Department of the Interior are being repurposed across the country for natural resource monitoring; and the military hand-downs may be just the beginning.

How to launch a drone, think NFL QB

After a five-minute preflight check, the RQ-11 Raven drone is ready for its first launch in BLM Oregon history. With a 54-inch wingspan and a total weight of four pounds, the Raven doesn't look like a football, but to throw one is to channel Peyton Manning: cock back at shoulder height, take a step and let it rip.

Whether above an abandoned mine in Colorado, or searching Washington rangeland for elk, the process looks the same. And the mixed flight crew from the BLM and U.S. Geological Survey is likely the same, too.

Once airborne, the Raven and its ground system take it from there. One pilot plots navigation points on computer software that looks like a GPS version of the old Atari game Missile Command. Nearby, under the tented command center, another pilot monitors the drone-eye view from a hand-held screen with blinders.

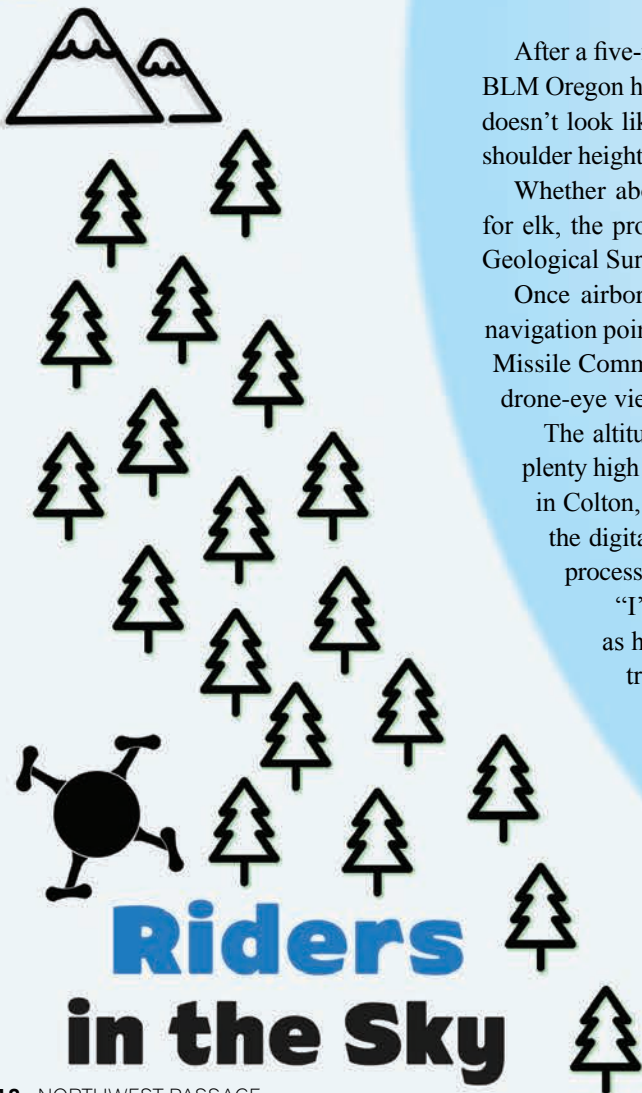
The altitude on this hot, late July day was restricted to 400 feet above the ground -- plenty high enough to peer down on the 70-foot-tall fir trees at the Horning Seed Orchard in Colton, about an hour's drive southeast from Portland. The stated goal was to see if the digital imagery from the drones could recognize and count cones on the trees, a process normally done from the ground by three full-time staffers at the orchard.

"I'm gonna do a go-to downrange here, Mark," said USGS pilot Lance Brady, as he sent the RQ-16 T-Hawk drone moving at 30 mph. "OK, just don't hit the trees," ribbed fellow USGS pilot, Mark Bauer.

A glider and a 'flying chainsaw'

While the Raven is sleek, light and silent, reminiscent of the balsa wood gliders from childhood, the T-Hawk is an equally unattractive and offensively loud piece of engineering. "It sounds like a flying chainsaw," Bauer succinctly put it.

Roughly the size and shape of a small backyard charcoal grill, the T-Hawk warms up and springs into the air on its own.



Riders in the Sky

Both drone systems came from the U.S. military but only the Ravens were actually flown in combat. As the military progressed to more modern versions of the Raven, older models became surplus and about 30 drones with accompanying systems were acquired by the DOI. The 44 T-Hawks, on the other hand, are basically brand new, Brady said, likely dropped by the military due to their noisiness and reliance on airplane fuel.

The Raven systems (three drones plus equipment), when new, cost about \$250,000; and the T-Hawk systems (two drones plus equipment) cost closer to \$700,000, according to the pilots.

Despite the eyebrow-raising Department of Defense price tags, after five years of training on the military products, the USGS and BLM pilots actually have a much more fiscally conservative drone dream.

The drone dream

USGS pilot Brady estimated that a budget less than the cost of one Raven system could bring numerous more affordable drones—in the \$1,000 to \$5,000 range—to the field office level.

“We know that the military systems that we fly aren’t really suited for the natural resource monitoring that we want to be doing,” he said. “For that we need better systems.”

Jeff Safran, the BLM pilot and project lead at the seed orchard, reiterated the team’s long-term drone aspirations, adding that it could help share the very sought-after technology.

“Right now we have more projects than we can possibly take on,” said Safran. “Word spreads quickly of what we are doing and there’s a lot of interest.”

Mike Crawford, seed orchard program manager for BLM Oregon, said local staff looked into buying a \$500 drone to explore cone counting, but they weren’t sure if they were even allowed to purchase one.

Buying a drone might be the only easy part. Flying them legally is a completely different task. For example, the aerial research above those Oregon trees at the foothills of Mount Hood took a year and a half, from filing to flying.

Military clearance is first required because the drones still use military frequencies. The next approval stamp comes from the Federal Aviation Administration. Then there are the nearby landowner notifications. And finally, each mission has to be approved at the local level.

In addition to all of this, other land management agencies are taking note of the growing drone phenomenon.

The National Park Service has outlawed drones. And local municipalities are

creating laws, too, and one Colorado town considered issuing hunting licenses for drones.

And of course, there are the privacy concerns.

Professor David Wallin of Western Washington University learned of the sensitivities involved when the multi-agency drone team came for elk population surveys last spring.

As he explained via telephone, “Unmanned aircraft have a public relations issue right now.

“There’s a lot of concerns about privacy issues. So, part of the point of doing these surveys is to try and demystify that and get the word out and illustrate that this technology has a lot of really interesting, positive uses.”

Even though his mission wasn’t a smashing success in terms of data accumulation, Wallin is all-in on drone technology for research and has since obtained his commercial flying license.

“It’s gonna pay off,” he said of the enormous time commitment he has invested in drones.


According to the joint DOI drone team of Bauer-Brady-Safran, all is not doomed. As they continue to demonstrate the data gathering possible for natural resources, a recent FAA-DOI partnership has helped streamline the red tape involved in flying the Ravens or T-Hawks.

“It’s been a big leap forward,” said Bauer of the new deal. “If we’re operating on public lands we’re good to go.”


Safran said he doesn’t expect to have a drone in the back of every BLM pickup truck, but posed the real question he asks himself, “How do you integrate this into field management?”

No matter what they are named, Brady said a drone breakthrough could be right around the corner for the BLM.

“I think we’re actually closer than you think,” he said. ▼



To throw one is to channel Peyton Manning. Cock back at shoulder height, take a step and let it rip.

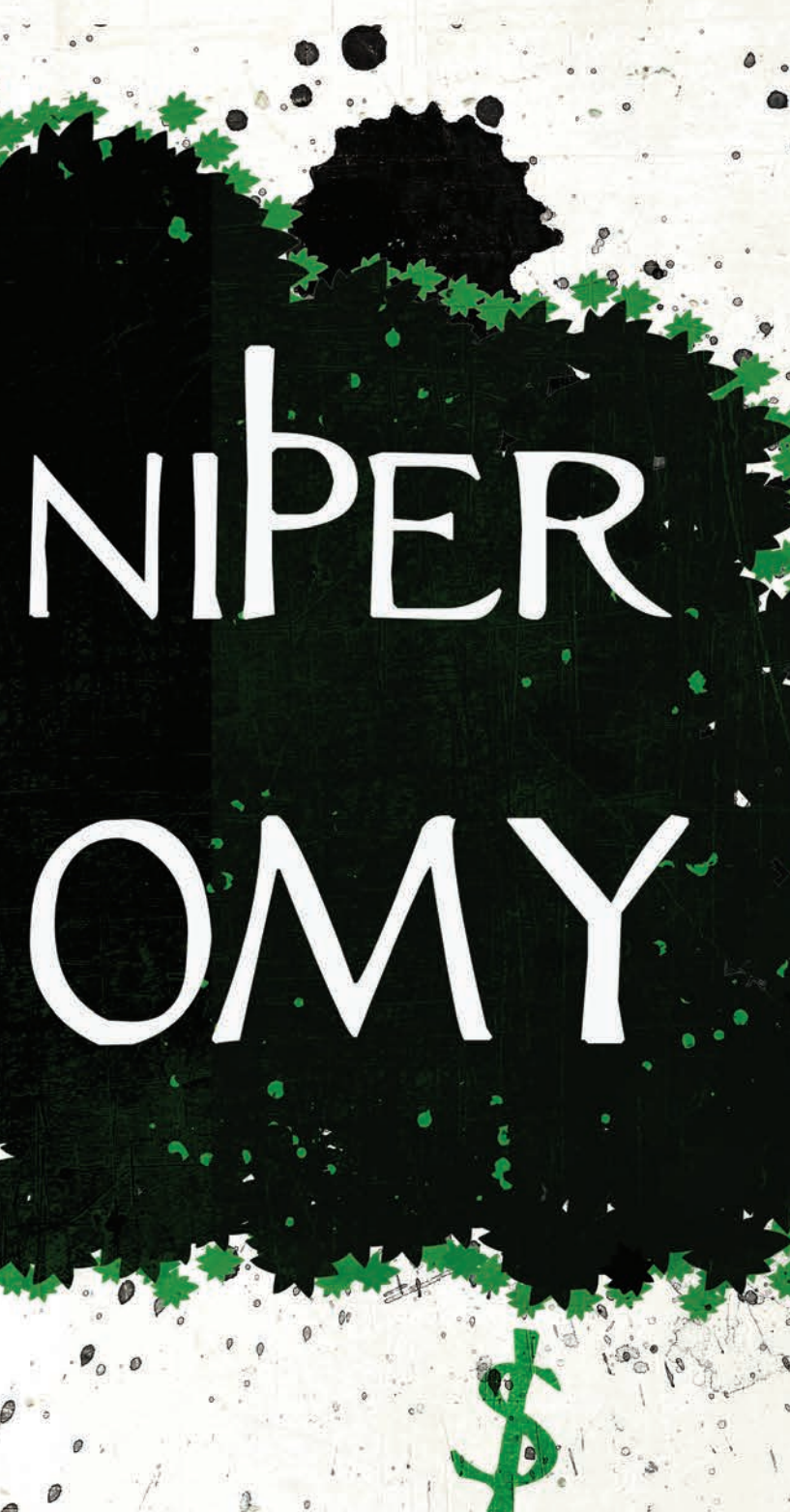


THE JU E CON

Illustrations by
Matt Christenson



Story by
Toshio Suzuki



NIPER OMY

IT TAKES A PRETTY POWERFUL PLANT to bring businesses, environmental groups and government agencies into agreement - *the western juniper tree has to go.*

But now one of Oregon's most troubling weeds might just become its next big cash crop.

How might this mischievous meddler create jobs for your community?





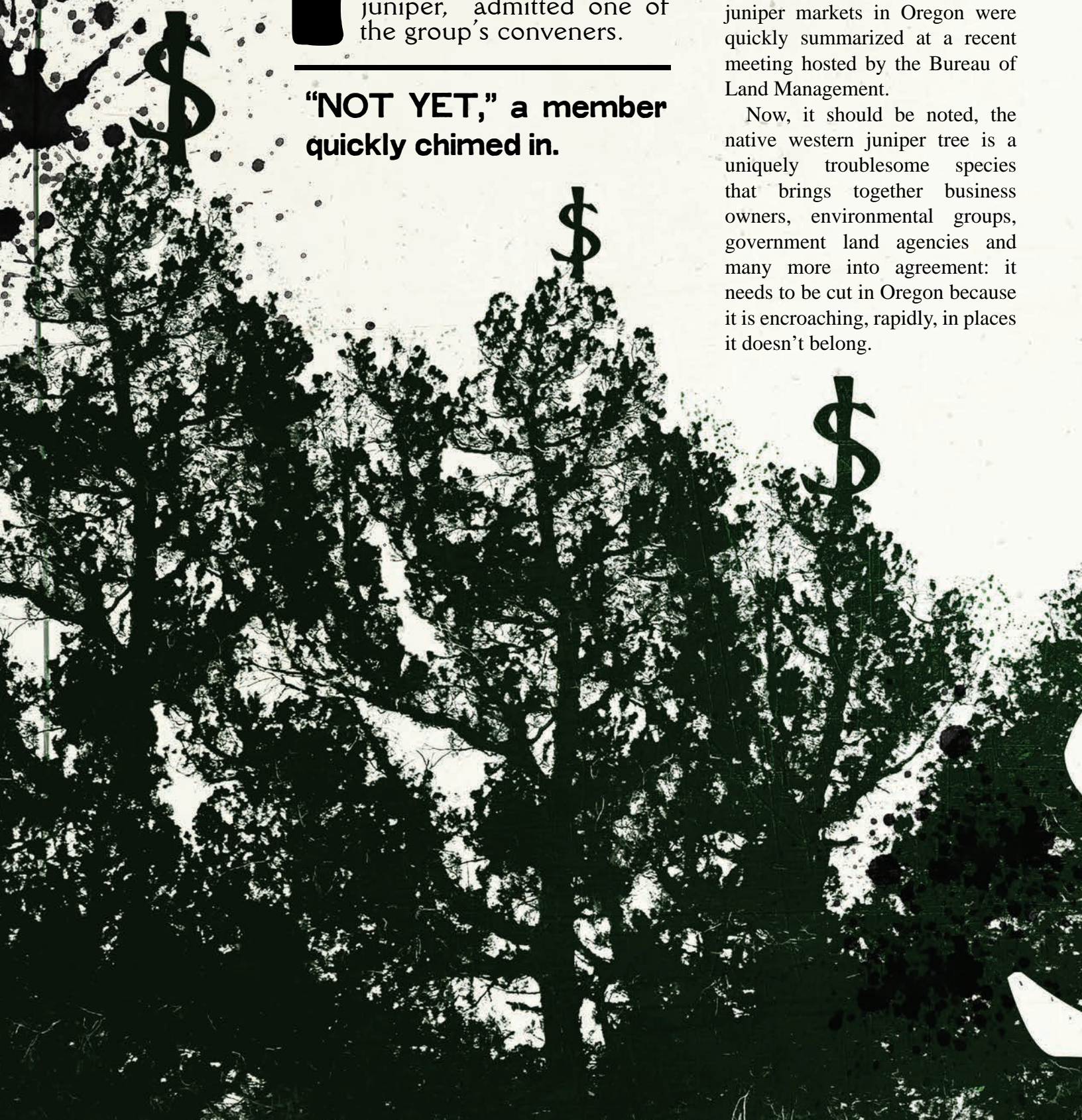
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here really isn't a lot of money to be made in juniper," admitted one of the group's conveners.

"NOT YET," a member quickly chimed in.

And with that, the main obstacle and goal for expanding western juniper markets in Oregon were quickly summarized at a recent meeting hosted by the Bureau of Land Management.

Now, it should be noted, the native western juniper tree is a uniquely troublesome species that brings together business owners, environmental groups, government land agencies and many more into agreement: it needs to be cut in Oregon because it is encroaching, rapidly, in places it doesn't belong.



Most of this juniper land grab—estimated to be about 10 million acres—is happening in eastern Oregon, where the BLM has a lot of land.

For the first time in its history, the western juniper compelled the Oregon noxious weed board to recognize a native species as a problem, explained Dan Hilburn, plant program director for the Oregon Department of Agriculture.

“It’s spreading like an invasive species, even though it’s native,” said Hilburn.

A 2008 U.S. Department of Agriculture study estimated that since the late 1800s, due mainly to modernized wildfire fighting strategies, juniper woodlands throughout the West have increased tenfold.

One aim of the Western Juniper Alliance (formerly known as the Western Juniper Utilization Group, a name teased for its impossible-to-pronounce WJUG acronym) is to increase awareness for the variety of reasons why felling juniper is a good idea.

Ranchers dislike juniper because it takes food from their cattle. Conservationists don’t like how juniper degrades soil and changes traditional ecosystems by sucking up water. Loggers, truckers and millers, like all businesses, are always interested in

This group is looking at the fact that juniper is going to get cut – probably at a pace, scale that Oregon has never seen.

exploring new revenue sources. State and federal agencies don’t want to see a useful product and biomass energy source go to waste when it could stimulate rural economies. And basically nobody wants to see the further loss of sage grouse habitat.

The sage grouse connection to juniper is what grabs a lot of attention, to the extent that Secretary of the Interior Sally Jewell visited Lakeview, Oregon, in September to see how the BLM’s habitat restoration projects were focusing on juniper.

Todd Forbes, BLM field manager for the Lakeview resource area, was there during Jewell’s visit to explain that once even sparse juniper infill establishes on a landscape, sage grouse get nervous thinking that predators are lurking in the trees, causing them to disappear from the prospective breeding ground.

“Once juniper density reaches somewhere about 7 or 10 percent, (sage grouse) quit using those areas entirely,” said Forbes.

The greater sage grouse is a candidate this year to be listed on the Endangered Species Act by the U.S. Fish and Wildlife Service.

Juniper cutting for sage grouse habitat often means leaving the timber on the land or burning it where it used to stand, something that the BLM is trying to change with its participation in the WJA group.

“The point of this group is looking at the fact that juniper is going to get cut — probably at a pace, scale that Oregon has never seen,” said Lindsey Babcock, a forester for the BLM

and a WJA group convener. “Is there something else we can be doing with this juniper that makes sense?”

Planter boxes, roadway sign posts and gin are a number of the end products made from juniper that could benefit from this type of market expansion.

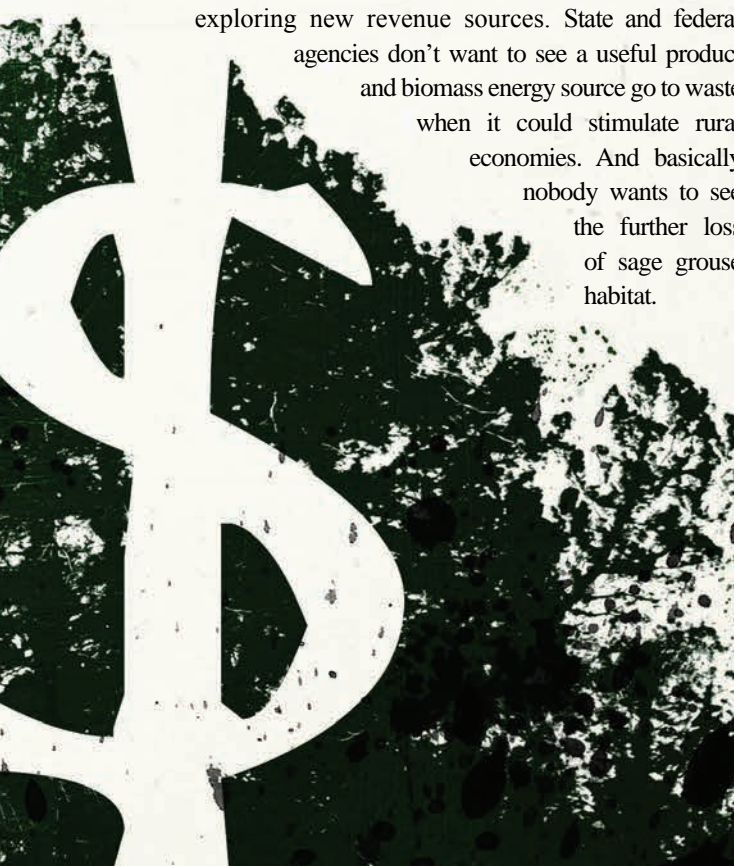
For Ken Kestner, the Lake County commissioner attending his first WJA meeting, it is his childhood roots on an Arkansas farm that gave him his “save every stick mentality.”

“It’s a cut and burn situation” for juniper right now in Lake County, he said. “I cringe every time I see that.”

Further certifications for western juniper lumber, upcoming Oregon legislation proposals and another year of funding for WJA are all potential reasons for optimism, according to the group.

“This is going to be a banner year for juniper sales,” said John Audley, president of Sustainable Northwest, during the group meeting at the BLM’s Salem office.

“The buzz is big,” said Tom Kelly, owner of Neil Kelly, one of the largest home remodel companies in America. “Everyone is talking about juniper.” ▼



Your Local Public Lands

From the surf to the snow, from local job creation to exciting recreation, your public lands are always working for you. To keep up to date on all your local news and opportunities, please visit us online at facebook.com/blmoregon and flickr.com/blmoregon.

NATIONAL SYSTEM OF PUBLIC LANDS
U.S. DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

