

ODFW deploys drones for first time during elk surveys

From their vantage point high atop the Oregon Coast Range, Oregon Department of Fish and Wildlife biologist Herman Biederbeck and two researchers from Oregon State University can see almost forever as the first rays of sunlight peek over the top of Saddle Mountain in the distance to the east.

Below is the Young's River basin and a patchwork of thousands of acres forest land interspersed with clear-cuts — ideal elk habitat.

The researchers, Jonathan Burnett and Cory Garms, both Ph.D. students in the Department of Forest Engineering, Resources and Management at OSU, want to find out whether unmanned aerial systems (UAS) or "drones" can be used effectively to count elk in this kind of terrain.

Preliminary results of field trials conducted on the North Coast near Astoria suggests that they can.

"UAS technology has promise to be relatively inexpensive and safe — much safer — than the way we survey elk now, which is generally from a helicopter," said Biederbeck, a wildlife biologist with ODFW for 38 years.

This year's field trial in Clatsop County is the first time

that UAS technology has been used to count elk in Oregon, although ODFW has used drones to survey salmon spawning in rivers and as well as cormorant abundance along the Oregon coast.

ODFW conducts yearly elk population/composition surveys to make sure that age and sex ratios stay healthy.

"It's part of our mission to monitor these populations to ensure they are being well managed for the public," said Biederbeck.

This year drones were used in two field trials, one in January and another in March. The first tested the drone camera's ability to capture imagery that allows biologists to classify elk by age and sex. A later field trial tested the aircraft's ability to measure elk densities in forest stand types, another useful metric for managing elk.

ODFW currently contracts helicopters at a cost of \$1,000 to \$1,100 an hour to do this job. The agency staffs them with ODFW employees who look for and document elk in flights conducted year after year over the same survey units for statistical accuracy.

Between manned and unmanned, each aerial system has its advantages and disadvantages, according to Biederbeck, who notes that

with a helicopter observers can view great expanses of landscape in real time by scanning their eyes in front and to the sides of the airship.

Crew members can also ask the pilot to reposition the machine for a better look at animals, which can be especially helpful when it comes to distinguishing elk calves from adults. In addition, helicopters are much heavier and more powerful than drones and can fly in a wider range of weather conditions.

The down side is unless they have a hand-held camera on board, observers only get one chance to classify elk — right then and there.

In addition to their relatively low cost, drones have the advantage of recording images that can be reviewed on a computer back at the office. Human safety is one major benefit of the UAS.

People can get hurt or even killed in a helicopter. For example, two ODFW biologists, Holly Huchko and Eric Himmelreich, suffered broken bones but fortunately survived a helicopter crash a few years ago while conducting fish surveys on the Umpqua River in southern Oregon.

The drones used in this year's experiment on the North Coast cost about \$1,700 apiece,

according to Burnett, although the thermal sensor adds another \$3,500 to the cost of the system.

As darkness gives way to dawn, the first of two drones is prepared for flight. It is jet black in color, with flashing red night lights on the sides, and thermal imaging equipment on board. Its job is to detect elk hidden in the trees by keying in on their heat signatures with a heat-sensitive infrared camera.

A second drone — white, and equipped with a high definition video camera — will fly as soon as the black one gets back from its mission.

The video camera is mounted on a gimbal that lets the drone operator tilt, turn, and pan the camera with a joystick that can also steer the aircraft.

After a turn at the end of one run along the serpentine-shaped run, the camera swivels from pointed directly at the ground to straight ahead toward the next GPS waypoint. The recording is set to overlap video from each pass so the video from each stretch can be "stitched together" with imaging software to so that every inch of the survey area is pictured.

The drones can fly essentially the same survey areas as helicopter in a single flight, according to Biederbeck, but

likely take more passes because cameras do not have the same field of view as humans, who are able to scan the whole horizon and turn quickly from side to side with a simple twist or turn of the head.

With takeoff just minutes away, Burnett double-checks the flight path glowing from a laptop in the back of his SUV. A yellow line on the computer screen shows the exact course the aircraft will follow, a series of switchbacks. The route is made by programming GPS coordinates into the drone's navigation system ahead of time.

Each flight lasts about 30 minutes, and the drone follows GPS coordinates automatically, although the pilot can override the navigation software to assume control the vehicle manually.

FAA rules require a designated spotter be present and maintain visual contact with the aircraft throughout the flight. The aircraft are battery-powered and are programmed to return to base automatically whenever they detect their batteries are getting low.

This technology is a potentially powerful tool for conducting scientific inquiry, according to Burnett, although many regulatory barriers to

effective implementation remain, notably Federal Aviation Administration (FAA) rules.

"Throughout this study there have been two major regulatory limitations to assessing the true cost-benefit of using UAS for elk survey," said Burnett. One limitation is the current 400-foot altitude ceiling. The other is the requirement to maintain line of sight on the aircraft during its flight.

Higher altitudes and greater coverage area on each flight would translate to fewer flights and lower odds of counting the same animals more than once, according to Burnett.

"This technology demonstration is one small step in bridging the gap between what we currently can do and what we ultimately want to do," he said.

Biederbeck and Burnett expect to extend this research by seeking FAA waivers and perhaps acquiring a fixed-wing UAS with up to three-hour flight endurance that may be equipped with both thermal and color cameras.

"There is more operational technology out there. We'll have to see how costs and FAA regulations affect our ability to use them," said Biederbeck.

Tickets available for SportsTown Awards dinner

The second-annual SportsTown Awards, presented by the Eugene, Cascades and Coast Sports Commission will be held Thursday, June 1, with returning master of ceremonies Jordan Kent.

The dinner and recognition night will be at the Valley River Inn in Eugene. Awards

categories include Male and Female Student Athlete of the Year, Athletic Trainer of the Year, Athlete with Heart, Sustainable Sports Event of the Year, Inspirational Coach of the Year, Sports Promotion of the Year, Fan of the Year, Mascot of the Year and the SportsTown Legacy Award.

The ceremony will introduce a new interactive Student Nominee Recognition Exhibit sponsored by FastSigns and Long's Meat Market.

Tickets are on sale now and are available for purchase at SportsTownAwards.com.

Tickets are \$35 per person and include admission to the

event, complementary soft drinks and small plate appetizers.

For more information, contact Janis Ross, Executive Director Eugene, Cascades and Coast Sports Commission, 541-743-8753 or email her at Janis@EugeneCascadesCoast.org.

Oregon Hatchery Board seeks two new members

ALSEA — The Oregon Department of Fish and Wildlife is seeking two new members to represent the agricultural industry and the Columbia River gillnet salmon fishery on the Oregon Hatchery Research Center Board.

The successful candidates will each serve a three-year term.

Candidates must submit an application and provide three references by June 30, 2017.

The ODFW Director will appoint the new members in the summer of 2017.

The application is available at www.dfw.state.or.us/fish/OHRC/recruitments.asp.

The board is charged with advising the OHRC Director on operational, budget and research priorities at the research center.

As directed by Oregon House Bill 3441, the OHRC Board is required to include 12 members representing a

variety of groups including agriculture and Columbia River commercial fishing.

Additional details about the Board's responsibilities can be found in HB 3441, available at www.dfw.state.or.us/fish/OHRC/docs/2013/HB_3441.pdf.

The OHRC is a cooperative research project between ODFW and OSU.


The center's mission is to develop an understanding of the mechanisms that may create differences between hatchery and wild fish, and devise ways to reduce and manage the differences so that hatcheries can be used responsibly in the conservation and management of Oregon's native fish.

For more information about the OHRC Board or how to apply, contact Kerrie Tarkinton at kerrie.j.tarkinton@state.or.us or call 503-947-6226.

GROCERY OUTLET

bargain market

2066 Highway 101, Florence
541-997-0343




Woody Woodbury
Independent Owner/Operator
Florence Grocery Outlet

Produce • Dairy & Deli
Health & Beauty
Frozen Foods • Fresh Meat
Housewares • Beer & Wine
Organic & Natural Foods and much more!
We have ample RV parking!

BUD'S UPHOLSTERY

Boat Tops & Cars



- Complete Auto & Boat Interiors
- Canvas Work

10 am-6 pm Mon-Sat.
Be ready for Summer.
We're booking appointments now!

4981 Hwy. 101, Complex B
541-997-4856

Over 41 yrs Experience

Let me Showcase your property.



Tim Sapp
Owner /
Principal Broker
541 999-8230



1749 Highway 101 • 541-997-1200



Oak St. #1302 – Commercial opportunity near Fred Meyer with all city services available at the property line. Flexible highway zone allows for many commercial and multi-family residential uses. Adjacent lot .6 acre with Highway 101 frontage is also for sale. #250,000. #2695-17282628

VOICE YOUR OPINION!

Write a Letter to the Editor:

EDITOR@THESIUSLAWNEWS.COM

RV's, we are your complete RV and Automotive Repair Facility

Florence RV & AUTOMOTIVE Specialists



PARTS SERVICE **On Site Repairs**
In shop or Mobile

ASE CERTIFIED TECH
for Truck, Auto and RV Repair

541-997-8287

WALLY'S SEPTIC TANK PUMPING

Has it been 5 years or more since your tank was pumped? Then it's time!

Call us to today to schedule an appointment.

Check Saturday's paper for a coupon good on your next service.

Lowest Prices Guaranteed—We will match any competitors price !

541-997-8885

Florence Heating & SHEET METAL, INC



Heating Systems • Heat Pumps
Sales / Service

Steve Wolford • CCB#64
P.O. Box 148 • 1645 Kingwood St. **541-997-2422**

HECETA HEAD LIGHTSTATION SEEKS GUIDES FOR SEASON

The Heceta Head Lightstation and Keeper's House needs tour guides for 2017. Guides greet visitors and share the rich history of this special Oregon treasure!

Dedicate 50 hours and earn a free night stay at the Keeper's House Bed and Breakfast. More than 24,000 people from across the globe visit the lightstation every year.

Considered the most photographed lighthouse in the United States, the Heceta Head Lighthouse is the brightest on the Oregon coast. Opening in 1894 the Heceta Head Lighthouse can be seen 21 nautical miles off the

Oregon coast. The free public tours are filled with people who want to learn about the lightstation and the Oregon coast.

Tours continue from Memorial Day weekend through Labor Day.

Tours occur daily (except Wednesdays) from 11 a.m. to 3 p.m.

Tours during special events and by appointment occur throughout the year.

For more information about tours or volunteering at the Lightstation, contact Misty Anderson at misty@heceta.lighthouse.com or call 866-547-3696.



Let Paul show you a new car or truck. Stop by today!

JOHNSTON MOTOR COMPANY

2150 Hwy. 101 • Florence
(541) 997-3475 • 1-800-348-3475

