MURRELET *from page 1A*

Nelson, a researcher at Oregon State University, has been studying the marbled murrelet since the 1980s. Often referred to as a mysterious seabird, the murrelet's nesting behaviors were unknown until about the '70s, when the first murrelet nest was found in California. Despite nearly 50 years of study, breeding behavior and other details about the murrelet are still unknown. In fact, it was the last North American bird to have its nest officially discovered.

It was 1991 when Nelson and her survey crew were with Paul Engelmeyer, a member of the Portland Audubon Society and a tree climber by profession, who climbed a tree to set up a camera for bird watching. It was then that he found the first murrelet nest in Oregon.

Native to the North Pacific, the marbled murrelet has been listed as threatened on the Endangered Species Act in Washington and Oregon and state-listed as endangered in California since 1992 — and populations continue to dwindle. For Oregon in 2018, the marbled murrelet population ranged between 5,800 to 12,000.

The Central Oregon Coast has the largest population of murrelets, with Cape Perpetua being home to the largest reserve for murrelets anywhere, according to Nelson. The nearby forests provide good nesting habitats and right offshore of Cape Perpetua is a marine reserve, which allows fish to survive and grow into prey for seabirds, creating the best scenario for murrelets. For this reason, Nelson and her team hold the annual community science survey at Cape Perpetua.

In addition, every year the team surveys from Alaska to California at the same locations to get a year-by-year comparison for how the murrelet populations are doing — but at the Cape Perpetua location, they invite the public to join.

Nelson says this is her favorite part about the surveys.

"The murrelet is a mysterious and hard-to-see bird, so for many this might be their only chance to see the bird," she says. "People get to learn and participate in science, and it's really fun to share this knowledge. When someone gets excited about seeing the bird, it's really fulfilling."

This year, the first survey took place July 22 to 23, and the next one will be July 29 to 30.

After 30 years of researching marbled murrelets, Nelson has only found 78 nests in Oregon.

"It's hard research and every year we end up with more questions than answers," Nelson says.

PHOTO COURTESY PHOTO DAN CUSHING AND KIM NELSON, OREGON STATE UNIVERSITY

**The marbled murrelet is a seabird that dives up to 100 feet into the waters of the Pacific Ocean to catch fish. Numbered at just 6- to 12,000 in Oregon, the birds are considered threatened or endangered in California, Oregon and Washington states.**

The team annually conducts population surveys of murrelets during their egg-laying season, which is April through July. As part of the Oregon Marbled Murrelet Project, which is funded by the Oregon legislature, Nelson and her team focus on demographic monitoring. They go out on OSU's research vessel, the Pacific Storm, launching out of Newport and going north or south along the shore at night to briefly capture any murrelets they find for measuring, tagging and tracking populations.

On land, her team conducts surveys to determine if part of the forest is "occupied," which means murrelets exhibit behaviors pointing to a possible nest. Behaviors that might indicate a nest include circling the area and flying low through the tree canopy, as the murrelet wouldn't take these risks of being hunted by predators without a reason, such as feeding a chick.

This is crucial research as it determines where Oregon loggers are allowed to cut down trees. Currently, logging is a major threat to the murrelet, which depends on a dense tree canopy within old-growth forests to hide them as they fly to and from their nests feeding their young.

The Portland Audubon Society, the Sierra Club and Oregon Wild brought their concerns about the reduction of the tree canopy to the Forest Service last week; the Forest Service is looking to reduce the tree canopy to 40 percent coverage in the Deadwood Creek area, beginning near Mapleton.

Forest Service representatives say this reduction helps grow trees faster, thus creating more habitable trees for the bird. However, Engelmeyer fears that during this time of only 40 percent coverage, murrelets will be susceptible to increased predation.

"I want to err on the side of conservation," says Engelmeyer, who recommends maintaining a buffer or screen that will help keep predators of the murrelets out of the newly thinned canopy.

The marbled murrelet is in the puffin, auks and murres family of birds. About the size of a robin and weighing about 8 ounces, they have a 15- to 20-year lifespan within their major ecosystems of both the ocean and forest. Murrelets forage in the ocean, diving up to 100 feet to find food such as anchovies and crustaceans.

Nelson says that ocean conditions lately have been horrible for murrelets because of a lack of what's called "upwelling," which brings cold water from the deep ocean towards the surface to replace the water that has been pushed away by winds. This cold water is rich in nutrients that fertilize the surface waters, making it perfect for schooling fish to feed, and typically occurs in the spring and summer.

Murrelets feed on these schooling fish normally within a half mile of shore during breeding season. Because they can only dive up to 100 feet into the water, they rely on these fish coming close to the surface.

Research indicates ocean temperatures are rising, primarily due to climate change. This affects the distribution abundance of prey as warmer water temperatures and changes in the jet stream don't allow for upwelling.

"The best ocean conditions for the past two years have been down in California — and the worst conditions were off Oregon and Washington," says Nelson.

On land, the murrelet only nests on large old-growth tree branches in conifer trees, making old-growth forests here in Oregon vital to the murrelet's survival; the older the tree, the larger and more stable the branch. Murrelets don't actually build nests, but rather mash moss on large branches to create a nest. The birds fly as far as 50 miles inland to nest and can fly at speeds up to 100 mph, which makes birdwatching for the murrelet a bit of a challenge.

Adding to that challenge is the fact that murrelets tend to fly during low-light times, such as early morning, in order to avoid being sighted by predators — peregrine falcons, various hawks and owls, ravens, Steller's jays, American crows and Canada jays. That's why Nelson surveys the murrelet so early in the morning.

Last Tuesday, the fog made murrelet watching ideal, due to the birds being forced to fly closer to the ground because of the fog.

"I like birds because, if you pay attention, any day is special. It makes my life richer," says Em Scatterajia, a camper at last Tuesday's survey, who was eagerly awaiting a marbled murrelet sighting. "I introduced my two boys to birdwatching when they were little. Now, they're expert bird watchers. It's a way to stay connected to my boys even though they're far away."

Marbled murrelets are unique in that they don't begin breeding until two to three years of age, and only lay one egg per season — unless the egg fails early enough in the season, such as May or June, at which point they will lay another. However, 70 percent of all murrelet nests fail annually primarily due to predation, and Nelson says this is not sustainable for the population.

So far this year, she has found only four nests in Oregon; one contains a chick, but the other three have failed.

Meg Ruby, another survey attendee last Tuesday, says the marbled murrelet is especially interesting to her because of its connection to both the forests and the sea.

"The marbled murrelet occupies a special niche of the sea with their food and nesting in the old-growth forests. I find that fascinating," she says. "I love learning about the ecosystems through birds, and Oregon is rich in ecosystems."

Fortunately, campers were able to spot murrelets easily during Tuesday morning's survey.

"I hear one!" Nelson says. Shortly after, straight down the middle of the clearing between the trees, a small brown body with pointed wings zooms across. Volunteers who had been waiting anxiously craned their necks, turning in circles slowly to not miss a single angle where a bird could fly by.

"Oh wow, there's one! Oh my gosh there's three!"

Searching for life in the sky, campers spent about two hours helping Nelson to record any detections of murrelets, whether through a sighting or hearing a call.

"These birds are important because we know very little about them," Nelson adds. "It's exciting when we have new questions and when we continue to learn new things about them."

To participate in the next community survey on July 29 and 30 at the Cape Perpetua Campground, contact Engelmeyer at 541-547-4227 or Lon Otterby at ottercruz@aol.com for more information about camping with the group.

Because the area provides the ideal land-sea connection, the Cape Perpetua Marine Reserve has formed a collaborative with numerous state parks, Audubon's Ten Mile Creek Sanctuary, U.S. Forest service areas such as the Siuslaw National Forest, and many other organizations and sites that provide habitats for seabirds, marine animals, native fish and wildlife.

Together, they plan to coordinate conservation efforts and help inform the public about the value of the region to Oregon and all its beings. More information on Cape Perpetua and how to get involved can be found at www.oregonmarinereserves.com/reserves/cape-perpetua/.

PLASTICS *from page 1A*

Precious Plastic, a worldwide movement, essentially provides communities with the tools they need to implement a method to deal with excess plastic that they are unable to recycle locally. Started by Dave Hakkens in 2013, the Precious Plastic website includes blueprints and informational videos on how to build machines that will shred various plastics, melt the plastic and mold it into reusable items such as bowls, tile backsplashes or anything else that won't come into contact with heat.

Today, there are hundreds of Precious Plastic branches globally that are working towards a solution to our plastic pollution, including one here in Florence.

"We are using this as a demonstration project to show others that those with an entrepreneurial spirit can take this and run with it. Here's what can be done with minimal resources and it's not that difficult. It doesn't take that much of a capital investment and there's no reason that plastic cannot be repurposed locally," said McSweeney, who sees PPF as an example of a long-term solution that can be implemented locally and in other communities as a solution to plastic waste.

The group in Florence was started by Ruth Miller, Eileen Angilletta, McSweeney and two other women who are no longer involved in the group.

"Our steering committee was five women over 50," McSweeney said.

PPF holds a nonprofit status and debuted at the 2018 Power of Florence, where the group raised $2,300 in direct donations; a donor has pledged to match the first $5,000 they bring in, which means the group has had $4,600 to work with for its first year.

"We currently have no way to utilize plastic waste products. Apart from bottles, there is no place to send our recyclable plastics," McSweeney said.

PPF aims to fix this.

The Precious Plastic website also includes access to the worldwide network of Precious Plastic branches, where anyone can sell the plastic shredders to others, exchange ideas or sell the items they've made out of recycled plastic. Precious Plastic is a nonprofit and offers resources for anyone who wants to start upcycling plastic to do it affordably. This is how PPF was able to get started.

"We have persevered in the face of some discouragement with the slowness of the process. We would like to be able to tell the public, 'Yes, we make all these things and you can order them online' but we are not there yet," McSweeney said. "We just really hope that the community has patience with the slow pace of our progress because it does represent forward motion."

With the money PPF raised at last year's Power of Florence, they were able to order a full-size plastics shredder, which will arrive in August; an injector which melts plastic and injects it into a mold; a hexagonal mold for making tiles; a small shredder for demonstrations with the public; and six months of rented space inside the Florence Maker Space on Kingwood Street, as well as liability insurance for the remainder of the year.

"We now have a place to put our equipment when we get it," McSweeney said.

PPF participated in a plastics round-up with the Master Recyclers in September 2018 and again in March of this year, using it as a blueprint for what they hope to help the Florence community implement within each neighborhood.

VICTORIA SANCHEZ/SIUSLAW NEWS

**Precious Plastics Florence's booth at Power of Florence helped show residents how they can reduce their plastic usage, save plastic waste and recycle it into reusable products.**

Because of the recent recycling restrictions for the Pacific Northwest, many plastics have to be thrown out, further worsening the Earth's plastic pollution upsurge. PPF plans to designate willing community members as individual neighborhood organizers who will plan with others in their neighborhoods to collect these unrecyclable plastics. Once each neighborhood has a large enough load of plastics, they will contact PPF to schedule a drop off. PPF will then shred the plastics, sort them by color and upcycle them into new items.

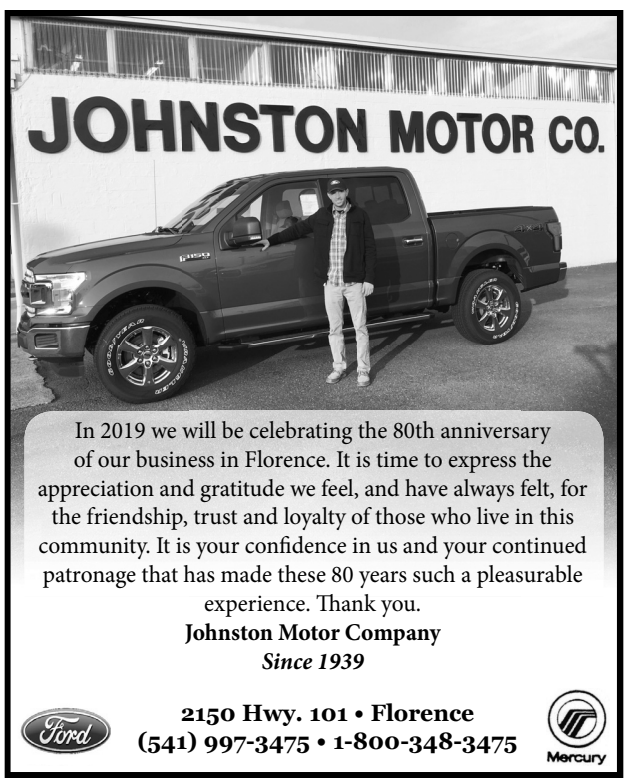
Short-term goals for PPF include educating the public on which plastics are currently able to be recycled by Lane County, helping to implement neighborhood plastic collections and showing Florence how it can redesign the community's plastic consumption.

As for the long-term horizon for PPF, plans involve eventually buying an extruder that will allow members to make beams out of plastic that can be used for park benches and other, larger structures that will benefit the community on a larger scale.

"Our goal is to be able to shred any type of cleaned plastic," Miller said.

PPF sees the possibility of Florence being an eco-tourist destination, which means tourists visit not only for the food, sites and culture, but also for the fact that the city is focused on finding eco-friendly solutions to the plethora of environmental hazards that currently plague the planet.

"If we all did a little, it would make a huge difference," McSweeney added.

This year, PPF set up a booth at the Power of Florence Party in the Parking Lot, where members played the Precious Plastic videos and handed out more information to visitors. They raised $77 and a donor matched that amount for a total of $154 in donations from this year's Power of Florence — which means their goal of removing plastic from Florence's waste is still on track.

For more information on Precious Plastics Florence, visit www.ppflorence.org.