

# Mosquito-borne diseases on the rise

Problems may continue as planet temperatures grow warmer

By **KATHY ANEY**  
STAFF WRITER

The deadliest creature in the animal kingdom doesn't have teeth or claws — it's smaller and far more benign looking than bear, boa constrictor or shark.

"The number one most dangerous animal in the world is the tiny, tiny mosquito," said mosquito expert Sascha McKeon. "Mosquitos are the worst vectors. They transmit bacteria, viruses and parasites like protists and nematode worms. Mosquitoes can carry multiple infectious agents."

Mosquitoes can pass along malaria, Dengue fever, chikungunya, encephalitis, yellow fever, West Nile virus and zika, among others. Now, thanks to climate change, some of these ailments could someday come to a neighborhood near you.

McKeon spent three years as a field researcher in the Brazilian Amazon and even discovered a previously unknown mosquito species — the *Anopheles rickwilkinsoni*. The Blue Mountain Community College biology instructor spoke last week at the monthly Science Cafe hosted by the Eastern Oregon Climate Change Coalition (EOC3) at the Prodigal Son Brewery & Pub in



Mosquito expert Sascha McKeon spent three years in the Brazilian Amazon and discovered a previously unknown mosquito species - the *anopheles rickwilkinsoni*.

Pendleton. McKeon likes to refer to a mosquito researcher as a cross between Indiana Jones and Buffy the Vampire Slayer. Instead of gold, however, mosquito researchers chase down larval breeding sites and genetic information.

McKeon flashed on the screen a chart showing numbers of people killed by various animals. Sharks kill about 10 people in the world each year. Crocodiles kill 1,000. Snakes kill 50,000. Humans murder around 425,000.

The mosquito stood alone in its lethality.

"About 725,000 deaths a year can be attributed to mosquitoes worldwide," McKeon said.

The mosquitoes transmitting all those viruses and diseases aren't found only in distant Africa or South America, McKeon said. They already live right here in the United States.

"There are 3,500 different species of mosquitoes," McKeon said. "They span all seven continents. There are mosquitoes that live in Antarctica. They are everywhere."

She ticked off the names of the three main types of mosquitoes on the planet — *Culex*, *Aedes* and *Anopheles* — and said all reside here.

So why isn't the U.S. swamped by deadly mosquito-borne diseases?

"What's really holding back the diseases is that pathogens need a certain

temperature to transmit," McKeon said.

She said mosquitoes can go full-throttle in places where the temperature is 84 degrees and higher year-round like the tropics. As long as we continue to have seasons, mosquitoes will die off and new uninfected batches will emerge, she said. But if we become like the tropics, then there will be no die-off.

"Let's flash forward 60 years from now," McKeon said. "If our climate estimates go as predicted, by 2080, it'll be 84 degrees almost year-round (in much of the U.S.). This will be the new tropics. Oregon will have pockets."

Malaria has visited us before. McKeon flashed on



A ground crew at the West Umatilla Mosquito Control District fills an aerial application bucket system with the larvicide, VectoBac G, on Thursday in Hermiston.

the screen a photo of the Centers for Disease Control in Atlanta.

"This was not built to be the CDC," she said. "It was built (in 1942) to be the Office of Malaria Control."

The office was placed in Atlanta because the South had the most malaria problems. The National Malaria Eradication Program sprayed, drained mosquito breeding sites and used other

methods to eliminate malaria from the country by 1949.

It will likely return as global temperatures rise.

McKeon isn't all gloom and doom. She hopes mankind will find a way to combat climate change. There are ways to control mosquitoes, and the arsenal is growing.

She said mosquitoes are also an integral part of several ecological systems.

## Mosquito control is a constant fight

By **KATHY ANEY**  
STAFF WRITER

Responding to the sound of chopper blades, the five men looked toward the sun and the silhouette of small helicopter heading their way.

The order of the day, as it is almost every summer day for them, was mosquito control.

Four of the men — Andrew Ross, Dalton Hughes, Mark Wilkerson and Rylie Smith — work as mosquito control technicians for the West Umatilla Mosquito Control District, based in Hermiston. The other, Dan Long, is an employee of South County Helicopter.

The helicopter landed next to a cone-shaped bucket to be hooked to the chopper's belly by a trio of cables. In the bed of a nearby pickup truck, bags of VectoBac sat ready for loading into the bucket.

The helicopter would spray nearby water bodies to kill developing mosquito larvae.

Wearing dust masks, they hauled 10 of the bags to the bucket and dumped them in. Pilot Cliff Hoeft took

off and flew a short way to the Power City Wildlife Area, where he made a pass, releasing his load of granular larvicide. Before day's end, Hoeft would treat water bodies in multiple locations, including Cold Springs, Stanfield/Echo Meadows and the Irrigon Wildlife Area.

Combating mosquitoes by air is only one method. More often, the attack is by ground.

These men spend many of their workdays trudging through swampy areas in hip waders or riding four-wheelers to spray with the aid of backpack hoppers. It's hot, humid work.

"We get up at 5 a.m. and get to work early to beat the heat," Ross said.

Thwarting West Nile virus is one of the WUMCD's aims, said Ross, the crew's field supervisor. The crew detected the mosquito-borne virus in three samples collected along the south bank of the Cold Springs Reservoir earlier this summer.

The weapon of choice at the moment is a granular formulation of a bacteria called *Bacillus thuringiensis*, or Bti.

"It's a naturally occurring bacteria found in the soil," Ross said. "The mosquitoes ingest it and it crystalizes in their gut."

The mosquitoes stop eating and eventually die.

Some could say such attempts to crack down on the millions of mosquitoes in the area is like trying to empty the ocean one bucket at a time. Ross has heard this before but says targeting the worst areas keeps the insects at bay. He recalls conversations with old-timers from the area who remember mosquitoes making their lives miserable in years past.

"They talk about going to a football game and being covered by them," Ross said. Randy Gerard, manager of the mosquito control district, said the district has

identified 13 different species over the years. He said surveillance is a huge part of what the district does.

"No spraying of any kind is done without surveillance," Gerard said. "There are roughly 600 sites that I know of."

Workers trap adult mosquitoes to identify species and gauge how well they are doing. They test for West Nile. Most of their focus, however, is on the larvae. With fewer hatching, there's less chance of disease spreading.

"The whole goal is to control mosquitoes from hatching out of the water," Gerard said. "It's a constant fight."

People can do their part by keeping standing water, such as clogged gutters, to a minimum on their property.

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