

# Inroads being made into Alzheimer's, ALS

By Linda Fine Conaboy

RENO – To claim that ethnobotanist Paul Alan Cox has discovered a cure for ALS, sometimes called Lou Gehrig's disease, Alzheimer's and other neurodegenerative conditions would be a wild stretch of any imagination; but to say he and his team could be close is spot on.

It is estimated that every day an average of 15 people are diagnosed with ALS – more than 5,600 people per year. As many as 30,000 Americans may currently be affected by it. Annually, ALS is responsible for two deaths per 100,000 people.



Paul Alan Cox

Add to that the estimated 5.3 million Americans who have Alzheimer's; this becomes a huge medical dilemma.

"ALS is a terrible disease," Cox said during last week's lecture at UNR's College of Science 2016 lecture series. "Stephen Hawking can now only move his eyebrow. And no new drugs have been discovered to treat it since 1994."

Alzheimer's, he continued, is one of the top 10 causes of death. "There have been 455 clinical trials of Alzheimer's drugs," the doctor said. "They all failed. It's time to start thinking outside the box."

And that's what he's doing in his small lab, the Jackson Hole, Wyo.-based Institute for Ethnomedicine where he's been working to discover new cures from plants and where he and his colleagues are studying the results gathered from people in remote Pacific Island villages that have high incidences of ALS and Alzheimer's.

"We started looking at populations of people who have these diseases—up to 25 percent have died of ALS—it has killed a quarter of all the village adults," Cox said.

What they discovered is that cycads, plants found in tropical and subtropical regions, produce neurotoxins called BMAAS, substances that are poisonous or destructive to human nerve tissue. These substances are found in the plants' seeds. For years, people have eaten the seeds, usually in the form of flour dumplings, a food popular in the region.

The indigenous people also like to eat flying foxes, who also find the cycad seeds tasty, resulting in still another dose of lethal neurotoxins, hence, the overwhelming incidence of ALS and other diseases.

Cox also learned that in certain areas around Lake Michigan, these same neurotoxins flourish. Armed with their discoveries, Cox and crew began studying the results in earnest. There's a sense of urgency to his studies, he said during his lecture. "People just don't have time to wait." He added, "I focus on patients, not profits." He also said he targets cures and prevention rather than symptoms.

As he delved into his research, he decided perhaps there are areas in the world that are free of these neurodegenerative diseases. A remote area in Japan yielded such a place.

"The people here live very long lives. Nobody wears glasses and they have total recall even at 104-years-old. The median age is 86," he said.

The key to the longevity turned out to be seaweed containing a substance called L-serine, a plant Cox called an environmental trigger.

Internet research shed more light on L-serine. In an interview, Cox said that laboratory experiments showed that the seaweed substance can block BMAA (the substance found in the Pacific Islanders) from entering body proteins thus preventing the tangles found in the brains of those with Alzheimer's.

Based on the findings, the Food and Drug Administration granted permission for human clinical trials on L-serine in Alzheimer's patients. With trials nearly complete, patients tolerated the oral doses well, although no conclusions have been reached.

During the lecture, Cox called the findings "breaking news" in ALS and Alzheimer's. "We discovered that L-serine in animals produced an 85 percent reduction in Alzheimer's. It is my hope that everybody can jump on this," he said.

Over the years, Cox has received numerous awards, including prizes for his efforts to preserve Samoan rainforests. Of the people living in those forests, he said, "We must ensure equitable return to indigenous people. We guaranteed an equitable sharing of results to those countries losing their rain forests so quickly. We must form profitable partnerships for them so they will continue to cooperate with us."