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# The Ecological Society of America

# NEWS

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## MEDIA ADVISORY

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*Sandra Banack's presentation, "ALS-PDC and flying fox declines in Guam: Linkage of a human health crisis to wildlife extinction," is one of several in the Biodiversity and Ecosystem Function III session. This session will take place from 1 – 3:45 pm on Thursday, 8 August in the Coconino Meeting Room at the Tucson Convention Center.*

### **Guns, Bats, and Cash** **How Economic Changes Affect Disease**

"Plop!" You drop one in the pot of boiling coconut milk. The delicate aroma of wings and fur rise into the air. While not everyone's ideal food choice, the Chamorro people of Guam regard the flying fox - a type of bat that can grow up to a four foot wingspan – as a delicacy. Mostly consumed by men, the entire animal, including the fur and all the insides, are eaten during social gatherings and certain important events. Women sometimes eat the bat as well, but only the breast meat. Yet, this delicacy may have been a leading cause of death for Chamorro adults in the 1940's.

For many years Guam has been the focus of major studies, as a neurological disease known as ALS-PDC, which exhibits itself with symptoms and fatigues in common with Lou Gehrig's, Alzheimer's, and Parkinson's disease. The presence of the disease in the population of the Chamorro increased at alarming rates, and then just as mysteriously, decreased. Investigations have looked at everything from the water they drink to the air they breathe, but no solid evidence has been linked to the disorders.

Earlier studies that showed the toxins of the cycad plant caused neurological disorders. The Chamorros knew of the plant's toxicity as well. Although they ate part of the cycad in the form of flour in tortillas, the plants were washed repeatedly, and the amount of toxin they were exposed to was minimal, even on a repetitive bases.

Paul Cox, Director of the National Botanical Gardens in Kauai Hawaii, and Oliver Sacks of the Albert Einstein College of Medicine, first proposed a connection between the disease and flying foxes in a recent paper in the journal *Neurology*, where they hypothesized that the consumption of flying foxes may be the source of the ALS-PDC disorder. The bats are known to forage on cycad seeds, which contain much higher levels of neurotoxin than the rest of the plant. According to Cox, "when the people consume the animals, the effects of the toxin could be

biomagnified,” leading to high enough levels of the neurotoxin for people to show signs of ALS-PDC.

At the joint meeting of the Ecological Society of America and the Society for Ecological Restoration, Sandra Banack an ethnobotanist at California State University in Fullerton, California, will describe the biological, social and economic aspects of the problem. Working with Cox and University of Hawaii geographer Clark Monson, Banack has interviewed and studied the practices of the Chamorro, and is now examining flying foxes to see if the bats contain high levels of the cycad toxin.

“This is just a start,” said Banack in a recent interview, “Bush-meat has the potential to contain many kinds of toxic chemicals. People should be cautious eating it.”

According to Banack, the incidents of ALS-PDC took a rapid turn for the worse with the introduction of firearms and monetary value for the animals. The island was taken over by the US military after World War II and used as a base, leading to a new economic system, disposable income, and trade in the bats. One species of flying fox has already been wiped out on the island, and another is on the verge of extinction. In her presentation, “ALS-PDC and flying fox declines in Guam: Linkage of a human health crises to wildlife extinction,” Banack will discuss the links between the disease and the changes in lifestyles of the Chamorro.

For more information on Banack’s presentation, visit the ESA’s 87<sup>th</sup> Annual Meeting website: <http://www.esa.org/Tucson>. Held in sunny Tucson, Arizona, the theme of the meeting is, “A Convocation Understanding and Restoring Ecosystems.” Close to 3,500 researchers and conservationists are expected to attend.

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*The Ecological Society of America (ESA) is a scientific, non-profit, 7,800-member organization founded in 1915. Through ESA reports, journals, membership research, and expert testimony to Congress, ESA seeks to promote the responsible application of ecological data and principles to the solution of environmental problems. ESA publishes three scientific, peer-reviewed journals: Ecology, Ecological Applications, and Ecological Monographs. Information about the Society and its activities is published in the Society’s quarterly newsletter, ESA NewSource, and in the quarterly Bulletin.*