MINING DATA FROM THE MOUTHS OF BABES

Anthropologists can learn a lot from ancient teeth, including a civilization’s diet, environment and stress-inducing events.

“Teeth grow like tree rings,” said Dr. Samantha Blatt, visiting assistant professor in the Department of Anthropology, pointing to distinct ridges on a tooth that is hundreds of years old. “They grow in a circadian rhythm. During the day they are active and at night they rest. Each line represents about a week’s growth, and it continues until the tooth is done growing.”

Her focus is on childhood because that is when people are most susceptible to disease. “Adult stress doesn’t show up in teeth,” she said, “but during growth, accentuated tooth rings form during stressful events, like sickness, famine or conflicts.” Tooth rings can be used to determine an individual’s age during stress events.

Blatt has casts of teeth from civilizations across the world, including many from Native American communities that thrived 5,000-8,000 years ago in the Ohio Valley. Because they preserve better than bone, teeth tend to be more abundant in the archaeological record.

She also studies the bacteria and plant remains preserved in tooth plaque, to tease out clues about ancient diet. The DNA in dental calculus can also tell researchers where an individual was born and migrated. She’s particularly interested in how diet and hygiene changed as cultures transitioned from hunter-gatherers to farmers, and how that contributed to disease and growth disruption.

Currently, Blatt is using ancient teeth to create the first-ever database of early civilizations in Idaho. – Kathleen Tuck

HOW CHEATGRASS IS CHANGING THE LANDSCAPE OF AMERICA

*Bromus tectorum*, more commonly known as cheatgrass, was first reported in the United States in 1790 in Pennsylvania. As newcomers poured into the land of opportunity and moved west, cheatgrass stowed away on wagon wheels and in contaminated seed stashes. Today, it has become a devastating invader.

So what’s the big deal? It has to do with how cheatgrass grows, said Dr. Steve Novak, professor of biology. It germinates early in the fall and spreads easily, crowding out native vegetation. The grass depletes moisture and nutrients from the soil. It then dries up in mid-summer and becomes fuel for intense wildfires.

The problem is so pervasive that it has altered the fire cycle, leading to almost total eradication of some of the native plants in affected areas. Previously, fingers of fire pushed through the sagebrush, allowing some plants to survive. Now, with cheatgrass and others invasive plants, a wall of fire can decimate the landscape.

While Novak believes it may be too late to totally eradicate the species in North America, he does hold out hope that determining its origins can help to control it.

“Using genetic markers we have traced its geographic origins, and this information can be used in its management,” he said. “We are currently using such data to search biological control agents within native source populations.” – Kathleen Tuck