

## Sea Grant research makes connections with prehistory

A few flakes of stone, a fragment of charred wood, a tiny piece of bone: Are they byproducts of natural weathering and animal predation, or artifacts left by prehistoric people as they traveled, camped, and hunted on Oregon's coast?

Carefully labeled in plastic bags and boxes piled high in an Oregon State University archaeology lab, this detritus is evidence—evidence

that's helping shake the foundations of what we thought we knew about how and when humans first came to the western shores of North America.

Many of us learned in school that humans had crossed over a great "land bridge" from Siberia across what is now the Bering Sea to Alaska, at the end of the last ice age some 14,000 years ago when enough ice had melted to allow passage but before the area was again flooded by the sea.

But there have always been problems with that theory. A handful of archaeological sites in North and South America—in particular a site in Chile reliably



Sam Willis displays pieces of stone that are among the latest finds in a long-term study of a site on the southern Oregon coast.

dated to 14,700 years—suggest either that the land bridge theory is flawed, or that people found more than one route to the New World.

Over the past half-decade, a team of researchers led by OSU anthropologist Roberta Hall, with support from Oregon Sea Grant, has helped lend credence to the theory that at least some early visitors came by water, traveling in small boats northward along the coast of Asia, around the Pacific Rim and then south along the western North American coast. Known as the Coastal Entry model or Pacific Rim Hypothesis, their work is causing a stir in archaeological and anthropological circles.

"People in the field are really very excited about it," says Hall.

Searching for clues to where—and how, and most especially when—prehistoric people lived on Oregon's coast is no easy matter. Carbon dating techniques, considered the most reliable way of determining an artifact's age, work only on organic materials. But the acidic soil of the Oregon coast makes short work

of decomposing plant and animal matter, leaving only the slightest, most enigmatic evidence of human habitation.

If researchers find a deposit of seashells, they count themselves lucky. The alkaline shells of clams, oysters, and other sea creatures can neutralize the acid soil, effectively preserving bits of wood and bone.

The problem, says Hall, is that during the period she's most interested in—the late Pleistocene-early Holocene—the sea coast of what would become Oregon was miles farther west than it is now. The retreat of the glaciers and subsequent rise in sea level inundated what human habitations

there might have been under many fathoms of salt water.

So researchers must look for other clues. Localized deposits of burnt wood fragments for instance, could be signs of ancient camp sites.

“We have a big job to learn to understand these enigmatic pieces,” says Hall. “They do mean something—but we have to figure out what that is.”

Looking back in time isn’t just about looking for the traces left behind by ancient people, Hall said. It’s also about understanding the world they lived in.

“The environment and the people are all the same thing, really,” she said. “You can focus on the environment as it affects human culture and the way people made their living. Or you can look at the people as those who organized their environment and preserved glimpses of it in the sites where they lived.”

Hall’s team has taken the latter approach, attempting to find sites they could date to the Pleistocene-Holocene transition and, once having found them, looking for evidence of human presence.

“These really old sites look very different from what people have been looking for,” says Hall. “They might be very hard to decipher. Figuring out how old they are first—that’s a very different approach. And it takes a lot of persistence.”

Knowing that sites where ancient seafarers might have made landfall would surely be submerged

now, Hall and her fellow scientists looked for something that might have drawn visitors inland. They found such a site, dubbed Indian Sands, in Boardman State Park, about 12 miles north of Brookings on the southern Oregon coast.

The site sits on a rise, and during Pleistocene times would have been a low hill a mile or more from the coast. Geologic tests indicated it would have been a good source for tool stones. Loren Davis, field director on the project and a geoarchaeologist who is an instructor in OSU’s anthropology department, picked the spot after

Willis, a graduate student who did the lithic analysis for the project, almost 3,000 pieces of rock bearing obvious evidence of human handling were unearthed from the proper levels of the dig. They show clearly that humans were using the site as a source for stone tools at a much earlier date than had previously been considered likely.

Further, the researchers found traces of obsidian flakes that analysis shows came from the Klamath Basin and northern California. These indicate a degree of mobility and knowledge of the region that is exciting, Willis said, because it indicates that whoever

was making that tool might have been a settler, rather than a brief visitor.

“They either knew the region or they knew people who knew the region,” he

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two years of studying, including soil and radiocarbon testing.

The first excavation in 2002—a one-by-two-meter hole—yielded pay dirt in the form of bits of charcoal, which was radiocarbon-dated to 10,430 years (radiocarbon tests typically understate actual age, Hall said, so the 10,430-year RC result corresponds to about 12,000 actual years ago). Also found were some 130 flakes of stone that showed clear signs of having been chipped away from a larger stone in the making of a tool. The news made headlines, and the team returned to the site the following summer.

The 2003 excavations yielded plenty of results. According to Sam

said. Either way, it’s an exciting piece of evidence to add to the puzzle.

Hall, who retired in 2004 but continues to work on follow-up studies with the team, said the research has revealed much useful information about coastal geology and geologic processes—as well as climate—that will be useful to future researchers. While she won’t go so far as to say that the land bridge theory has been proven wrong, or the coastal migration theory right, Hall sees her work as providing one more link in the chain of evidence that’s helping piece together the puzzle of where the first Americans came from, and how they settled this continent.

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