

# New fault lines found along San Andreas'

## Mendocino County discovery reported at centennial earthquake conference

By David Perlman

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Scientists tracing fresh evidence from ancient dead-end streambeds along the far northern reaches of the San Andreas fault system have discovered at least three active seismic faults that were previously unknown.

Although the moving faults pose no imminent threat of earthquakes, the ground on either side of them is slipping at rates comparable to the San Andreas itself — as much as 10 millimeters, or nearly a half-inch a year, said Dorothy J. Merritts, a geology professor at Franklin and Marshall College in Lancaster, Pa., and her colleagues.

They presented their report at the 100th anniversary Earthquake Conference in Moscone Center on Wednesday, where 2,500 earth scientists are exchanging new findings from their works.

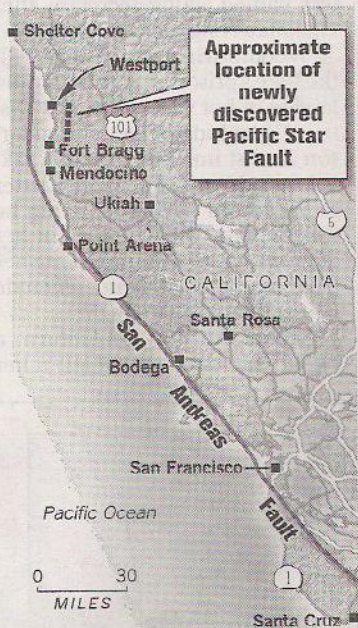
The three newfound faults are all located between Fort Bragg and Westport in Mendocino County, and a trace of one runs directly beneath the Pacific Star Winery, whose 40 acres of vineyards lie along Highway 1, overlooking the Pacific Ocean some 12.5 miles east of the San Andreas

Fault. That fault lies beneath the seabed in that region, leaving the land at Point Arena to the south and rejoining it near Shelter Cove to the north.

Merritts, with Caitlin Lippincott of San Diego State University and their colleagues, have named the new fault the Pacific Star Fault. They are calling another one the Pudding Creek Fault. That's because they found evidence for it near a small creek bearing that name that runs into the ocean just north of Fort Bragg. A third, whose traces are still not clearly defined, remains unnamed; it is located near the outfall of the well-known Ten Mile River, which harbors the last known population of coho salmon in Mendocino County.

According to the evidence, Merritts said, all three faults run parallel to the San Andreas and are among the many fault strands that mark the boundary between the great Pacific and North American tectonic plates.

Merritts said she began studying the geology and earthquake evidence in the region when she was a graduate student at Stanford. She now takes her own students there every year to study the



Source: ESRI, TeleAtlas, USGS *The Chronicle*

geology of the broad, flat marine terraces atop the oceanside cliffs that have been uplifted there for hundreds of thousands of years.

Merritts and her students and colleagues from other research institutions noticed that some ancient streambeds appeared to be offset by 3 feet or more and realized, she said, that they were looking at evidence of seismic faults that had been highly active in the past — as long ago as 330,000 years and as recently as 10,000 years or even less.

Offshore at the southern end of the faulted area, Merritt said, her group has even found ancient corals — more evidence for the antiquity of at least one of the faults, because those corals must have been alive and growing during a major interglacial period of warm climate known to have existed more than 300,000 years ago.

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