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Mapping the carnage of roadkill, and looking for solutions

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Portola, where state officials famously poisoned the invasive northern pike, has just earned a new wildlife distinction: roadkill royalty.

A stretch of Highway 70 near this Plumas County community has claimed a whopping 343 animals of 25 species in just five years. It is among the deadliest roads in the state, says Fraser Shilling, co-director of the [Ecology Center](#) at UC Davis.

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Local drivers are no more to blame than the rest of us who use California's 112,000 miles of roads and highways. What makes the Portola region a hotspot for flattened fauna is its vast wildlife habitat. Poised on the northern Sierra Nevada crest, the city of 1,200 residents is surrounded by four state game refuges, five state wildlife areas and a swath of national forest land stretching for 200 miles from Interstate 80 in the south to the Oregon border. It is home to deer, black bears and mountain lions as well as wolverines, martens and minks.

Highway 70 slices through this habitat like a two-lane guillotine. Many animals make it safely across. Other species, such as ringtails, are road-adverse, keeping their distance

from the bright lights and traffic buzz. Their reluctance to cross highways may save them in the short term, but it forces them into smaller territories and isolates them. This fragmentation takes an enormous toll on biodiversity. A recent study published in [Science Advances](#) found that detached habitats worldwide lose half their plant and animal species within 20 years.

Shilling and co-worker David Waetjen are California's roadkill warriors. Their [California Roadkill Observation System](#) has been collecting [data](#) on statewide hotspots since 2009. It generates maps that display the worst areas of carnage like throbbing red bulges in the state's highway arteries. Other high accident regions in Northern California include Interstate 5, where barn owls are colliding with vehicles between Willows and Williams and brown bears are getting slaughtered near Mount Shasta. Highway 101 along the Pacific Coast is also deadly, claiming deer, skunks and opossums.

Shilling calls roads and traffic a "lethal sampling device." Roadkill can tell us something about wildlife population distribution, he says. The data he collected comes from 5 percent of California's paved roads between 2009 and 2014. The actual deaths are certain to be exponentially higher.

To avoid fragmenting habitat, the state Transportation Department and other road agencies build structures that allow animals to pass over or underneath highways. Canada built some of the earliest overpasses at Banff National Park, a World Heritage Site where vehicles on the Trans-Canada Highway were slaughtering 200 large animals annually. The overpasses have reduced collisions with mule deer and elk by more than 90 percent. Underpasses and barrier fences in southern Florida have cut endangered panther mortality to almost zero.

Caltrans officials are uncertain about the number of wildlife structures on California roadways, says Amy Bailey, chief of the agency's biological studies. With costs up to \$2 million apiece, only three a year are actually built. At that rate, it will take centuries to solve the problem, Shilling says: "We're in the slow lane when we need high-speed rail." And while Caltrans has recently given wildlife issues more consideration, its roadkill data is limited to carcass collection and collisions reported primarily by the California Highway Patrol.

Roadkill is clearly a public safety issue. Accidents involving wildlife nationally caused a collision every 26 seconds and resulted in nearly 200 deaths in 2013, according to the insurance industry. Caltrans should be doing more to implement its public safety mission. “We expect safety when we drive on highways,” Shilling says.

His data show roadkill increasing in 2013 and 2014, with deer fatalities nearly doubling last year. The statewide drought may be to blame, Shilling says, forcing animals to move around more in search of water. But his 2015 observations so far point toward a troubling decline. Shilling’s chilling speculation is that roads and vehicle carnage are playing a significant role in reducing wildlife statewide: “It’s just increasingly challenging for these animals to live.”

Caltrans should take more responsibility for roadkill. Wildlife and drivers alike would benefit from fences and more elaborate structures in place in high carnage areas. Meanwhile, we are all empowered with a less expensive deterrent to roadkill – a solution that is ultimately the best way to avoid splattering carcasses: We should all just slow down.

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