

Zeal to ensure clean leafy greens takes bite out of riverside habitat in California

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Meticulous attention to food safety is a good thing. As consumers, we like to hear that produce growers and distributors go above and beyond food safety mandates to ensure that healthy fresh fruits and vegetables do not carry bacteria or viruses that can make us sick.

But in California's Salinas Valley, some more vigorous interventions are cutting into the last corners of [wildlife habitat](#) and potentially threatening water quality, without evidence of food safety benefits. These policies create tensions between wildlife preservation and food safety where none need exist, say scientists for The Nature Conservancy, writing in the [Ecological Society of America](#)'s journal *Frontiers in Ecology and the Environment*. The study will be published online ahead of print on Monday, May 6th, 2013.

"[Farming practices](#) for [food safety](#) that target wildlife are damaging valuable [ecological systems](#) despite low risk from these animals," said lead author Sasha Gennet.

Check the back of your bag of spinach or prepackaged [salad greens](#), and you'll probably find that they came from the Salinas Valley. Salad is big business in California.

In the aftermath of a deadly 2006 [Escherichia coli](#) serotype O157:H7 outbreak traced to California spinach, growers and distributors of [leafy greens](#) came together to create the California [Leafy Green Handler Marketing Agreement](#) (LGMA) on best practices for the industry,

enforced by third-party auditors and inspectors. The LGMA established standards for farm work hygiene, produce processing and transport, and proximity to livestock. About 99 percent of California leafy greens now come from participating farms.

But produce farmers in the Salinas Valley report pressure from some powerful buyers to take additional precautions not mandated by government or industry standards. These buyers insist that swathes of bare ground wider than a football field is long separate the leafy greens from rivers, wetlands and other wildlife habitat.

Other precautions include treating irrigation water with chemicals toxic to fish and amphibians, and setting poisoned bait for rodents.

"The California Leafy Green Handler agreement is transparent, flexible and science based," said Gennet. "Going above and beyond it just creates costs for farmers and doesn't improve safety."

It also creates costs for wildlife. Although scant evidence exists of risk of food-borne disease spread by wildlife, the risk of rejection of produce by major buyers is too much for most growers to bear, say Gennet and her co-authors. They measured changes in wetlands and riverside habitat in the Salinas Valley between 2005 and 2009, finding 13.3 percent converted to bare ground, crops or otherwise diminished. Widespread introduction of fencing blocked wildlife corridors. Low barriers even kept out the frogs.

Unlike the LGMA standards, individual corporate requirements for farm produce are generally not transparent to the public. But in surveys, farmers report pressure from auditors to implement fences and bare ground buffers around [spinach](#), lettuce, and other leafy greens.

Such pressures have set back years of collaboration between growers and

environmental advocates to make farm edges slim sanctuaries for wildlife, as well as buffers between agricultural fields and waterways. Fallow strips along streams and rivers provide corridors for migrating animals and birds.

"This is an area that is already 95 percent altered – the habitat that remains is critical," said Gennet. "Removing 13 percent of what is already heavily-impacted habitat and cutting off wildlife corridors is a significant loss."

The Salinas River and its tributaries are an important rest stop on the Pacific Flyway, a major migration route for neotropical songbirds, and home to raptors and shorebirds. The waterways are also corridors for deer and other big animals moving between the high country of the Diablo Range and coastal Big Sur mountains that flank the valley.

Wetlands and buffers of trees, grasses, and shrubs help to keep runoff from fields out of the waterways, slowing erosion of soil and blooms of algae downstream. An overabundance of fertilizer has created problems for domestic drinking water as well as the ecosystems of the Salinas River watershed and its outlet, Monterey Bay.

"California has a big problem with concentrated nutrients in waterways, and there is a lot of pressure on growers to reduce those inputs – so to the extent that riverside wildlife habitat could be a benefit all around, a coordinated approach to agricultural management and policy makes the most sense," said Gennet.

"The policies that these distributors are forming are very narrow," said Lisa Schulte Moore, an agricultural ecologist at Iowa State University who is not affiliated with the Nature Conservancy study. Nervous distributors are looking at specific risks in isolation, she said, and not asking "does the food system create a healthy human environment?"

Schulte Moore works with Iowa farmers to incorporate native grassland habitat alongside corn and soy fields. Her experiments look for native grass mixtures that don't tend to invade the crops and are highly attractive to beneficial native insects, including the natural enemies of agricultural pests. "If we design the systems right there could be substantial benefits to the agricultural system as a whole," she said.

The key word, Gennet says, is "co-management." As a community, we need to approach food health, wildlife health, and water health in the Salinas Valley as parts of an integrated system. She would like to see California growers, buyers, and consumers rely on standards like the LGMA. "We think it's been a good process, using the newest science and trying to take a constructive approach. If everybody stuck to those standards, that would be a good outcome," said Gennet.

More information: Farm practices for food safety: an emerging threat to floodplain and riparian ecosystems. (2013) Sasha Gennet, Jeanette Howard, Jeff Langholz, Kathryn Andrews, Mark D Reynolds, and Scott A Morrison. *Frontiers in Ecology and the Environment* (e-View 05/06/2013; print publication June 2013) [doi:10.1890/1202443](https://doi.org/10.1890/1202443)

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