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Army Corps levee tree rules rattle Sacramento flood agencies

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If a tree grows on a levee, is it bad?

According to a recent scientific review, there's no way to tell by reading federal policy.

In 2007, in the wake of Hurricane Katrina in New Orleans, the U.S. Army Corps of Engineers began enforcing national levee maintenance policy in California for the first time. The policy allows only grass on levees; trees and shrubs are banned.

The corps' rules have caused alarm in the Central Valley ever since, where trees and shrubs growing on levees provide the only remaining riverside habitat. Critics say removing that vegetation poses not only huge fiscal and environmental burdens, but would also drastically change the region's iconic scenery.

The levee maintenance policy has never been applied uniformly in California. In fact, local Army Corps officials have worked with the state for years to plant more trees on levees.

The corps commissioned a scientific peer review of its policy last year. Finished in December, the corps provided The Bee a copy last week.

"The policies and guidance lack scientific foundation, as evidenced by broad anecdotal assumptions and lack of (non-Army Corps) literature citations," the three-member review panel wrote. "The document is from the single perspective that vegetation on levees is bad and should be removed. Some vegetation may help stabilize ... levees."

This echoes the consensus of a science symposium on the subject hosted in 2007 by the Sacramento Area Flood Control Agency. Numerous experts said there was little proof that trees threaten levees. On the contrary, they cited a large body of research that trees may actually strengthen levees by binding loose soils together with their roots.

The federal policy relies largely on field experience rather than scientific studies to justify its conclusions.

The corps stands behind its policy and rejects the critique of its scientific merit.

"We don't agree with that at all," said Eric Halpin, Army Corps special assistant on dam and levee safety. "Our primary mission is to keep public safety forefront, and not everyone has that mission. Certainly the folks that are solely focused on the benefits of trees don't have that focus."

The peer reviewers also criticized the corps for failing to consider experience from other regions of the nation and world. The corps has stated previously that the policy is based on conditions and experience in the American Midwest, which differ greatly from California.

In California, levees were built close together after the Gold Rush, intentionally narrowing the rivers to flush out sediment deposited by hydraulic mining.

That was shortsighted: It not only gave rivers less room to flood, but eliminated virtually all riverside habitat.

Today, the only habitat left along hundreds of miles of Central Valley rivers grows on the levees themselves.

No one knows how many trees grow on California levees. A cursory survey in 2007 found 5,100 trees growing on just 25 percent of the levees in Sacramento. This represents a tiny fraction of the 1,600 miles of Central Valley levees affected by corps policy.

Last year the state Department of Water Resources reported the results of a trial inspection using the new criteria. It found that 64 of 107 levee maintenance districts would fail inspection, compared to just six under the old criteria.

Failure means the loss of federal money to rebuild levees after a flood.

Gil Labrie, a levee engineer in Walnut Grove, said removing trees poses an enormous burden on levee maintenance districts, which struggle to fund basic upkeep now.

"We couldn't even get there," he said. "That would be very expensive."

The peer reviewers said the corps also failed to consider other pros and cons of tree-covered levees. There is evidence, for instance, that plants may prevent erosion.

One example: recent research at UC Davis shows that native shrubs "lay down" against the soil during a flood and prevent erosion, while causing little restriction in flows. The shrubs also sheltered juvenile salmon from currents, allowing them to remain in preferable habitat.

The research focused on floodplains, but similar results may be possible on levees.

"It definitely highlights that there are attributes of plants we should be taking advantage of in our designs that we've ignored in past, and we can't really ignore in the future," said Stefan Lorenzato, watershed program manager at DWR and lead author of the study.

State and local officials have worked with the Army Corps to develop a temporary exclusion from the rules. Finalized in March, it allows trees to remain on levees as long as branches are pruned 5 feet off the ground to ensure access for inspections.

The exemption lasts until 2012, when state law requires the Central Valley Flood Protection Board to adopt a comprehensive new flood management plan for the region.

At that point, the state will likely seek a permanent variance from the corps rules. What that will require is unknown, said Jay Punia, the board's executive officer.

"We have dodged a bullet on a temporary basis," Punia said.

Halpin said the corps is willing to consider the variance. It is also conducting additional research on its own to refine the vegetation policy.

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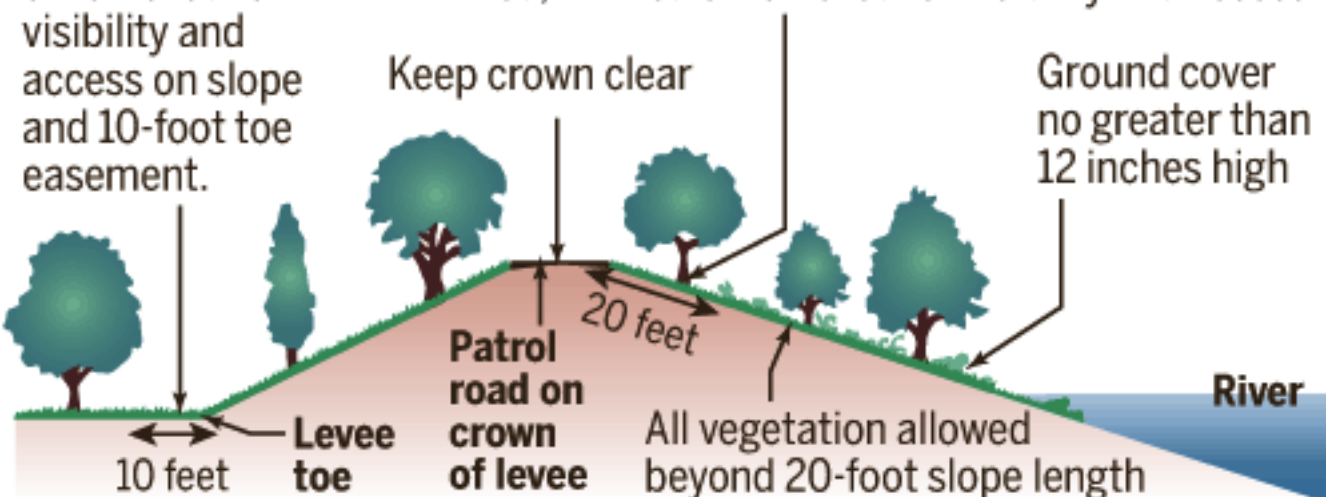
LEVEE VEGETATION POLICIES

U.S. Army Corps of Engineers rules, applied for the first time in California, allow only grass to grow in a "vegetation free zone" blanketing levees. This could require that hundreds of thousands of mature trees be removed from California levees. California officials earlier this year reached a compromise with the Army Corps that allows properly pruned trees to remain through 2012.

CURRENT STATE LEVEE VEGETATION POLICY

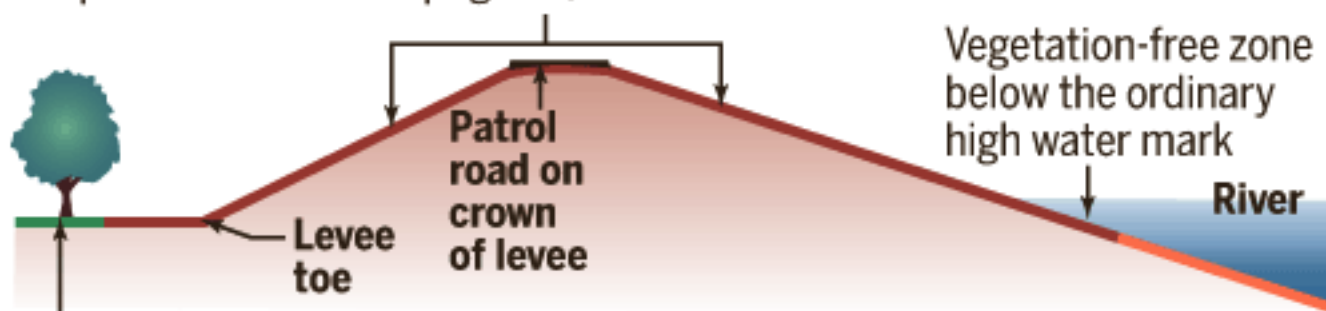
Brush and weeds trimmed, thinned or removed for visibility and access on slope and 10-foot toe easement.

Top 20-foot slope length: Trees trimmed 5 feet above ground level and thinned. Brush and weeds trimmed, thinned or removed for visibility and access.



ARMY CORPUS OF ENGINEERS LEVEE VEGETATION POLICY

No plants allowed except grass, maintained at no more than 3 inches tall



Trees are allowed here if they are trimmed 8 feet above ground.

■ Conservationists argue that trees atop levees provide the only riverside habitat in most of the Central Valley.

■ A new Central Valley flood management plan, in which new permanent rules are expected to be adopted, is expected in 2012.

Source: U.S. Army Corps of Engineers, California Levees Roundtable