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## The Case of the Vanishing Quail

Texas researchers identify a new threat to the bobwhite

by J. R. SULLIVAN

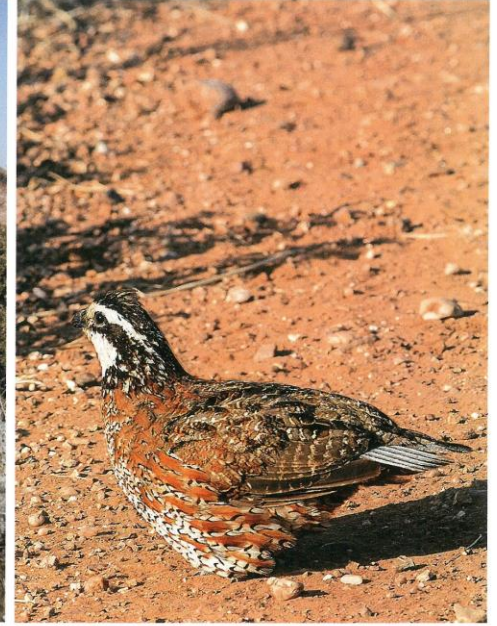
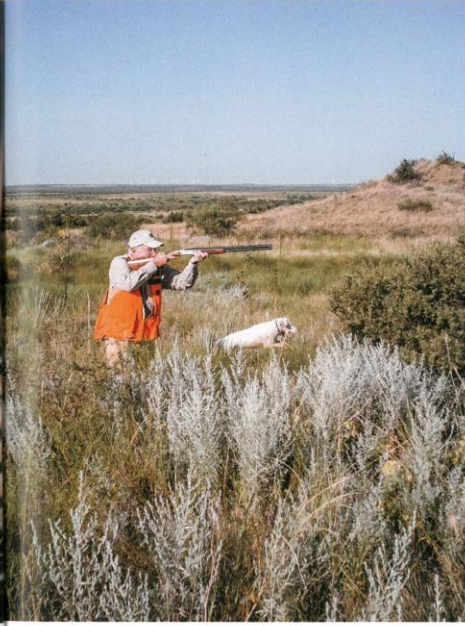
NO ONE COULD EXPLAIN WHY THE birds disappeared from the Rolling Plains of West Texas. It was the autumn of 2010, and for the past thirty years that Rick Snipes had hunted there, the twenty-four million acres of grasslands boasted, without question, one of the state's most abundant populations of wild bobwhite quail. He could cross the prairie on horseback and, cresting a ridge, know that birds awaited him as far as he could see; his dogs regularly pointed thirty coveys before lunch. "I have a buddy who called it the Augusta National of quail hunting," says Snipes, a rancher and the president of the Rolling Plains Quail Research Foundation, a nonprofit conservation group based outside of Abilene. But after a summer that seemed to signal good hunting come fall, the birds were gone. "It was pretty damn drastic," Snipes says. "On my ranch, we had an estimated six thousand birds in July; by November, we had about one thousand."

Nationwide, reports commonly point to a 60 to 80 percent drop in bobwhites since the 1950s, much of it blamed on pesticides, land development, and increased predation. But in the Rolling Plains, none of these factors seemed to account for such a swift decline, and seasonal temperatures and rainfall had been nothing but favorable. "We had no clue what had happened," Snipes says.

Snipes and his colleagues at the foundation turned to academia for an explanation,

### ON THE HUNT

From left: An English setter at the Rolling Plains Quail Research Ranch; professor Ron Kendall in the field; a native bird.



but they could unearth no applicable, peer-reviewed studies. This prompted them to fund, with sportsmen-donated money, their own research, which turned up reports of parasitic infections among red grouse, a European upland bird that had suffered similarly rapid population declines. The parallels between the die-offs offered the first hint at a potential cause. On a hunch, the Texans sought to determine whether parasitic disease plagued the local quail as well—an inquiry that, in 2011, led them to Dr. Ron Kendall, a professor at the Wildlife Toxicology Laboratory at Texas Tech University.

Kendall was no stranger to bobwhites. He grew up hunting the birds in South Carolina and, through previous research, knew the struggles they faced. Over the next two years,

his team embarked on what has become the largest documented investigation of quail disease of its kind, encompassing more than twenty million acres in Texas and Oklahoma and multiple universities. "If something wasn't done," Kendall says, "I was worried we might wake up one day and have no wild quail in West Texas."

In 2013, after testing hundreds of birds, the toxicology lab made its breakthrough: the discovery of eyeworms and eyeworm larvae behind wild bobwhites' eyes, where the parasites cause inflammation and compromise vision. (Before that, researchers thought eyeworms existed only under quails' eyelids and slightly agitated the birds.) Spread throughout the Rolling Plains by insects such as crickets and grasshoppers—whose populations swell

after heavy rains—the infections could reach epidemic levels in a matter of weeks, affecting up to 90 percent of the area's quail. What's more, cecal worms, nutrient-absorbing nematodes also found in the birds' intestines,

"We've looked at every other possible explanation and discounted them all. What we're doing here, with the eyeworms, is big-time science. And we think it'll have implications beyond the Rolling Plains." No one can say

**"If something wasn't done," Kendall says, "I was worried we might wake up one day and have no wild quail in West Texas"**

seemed to further weaken the quails' defenses.

"Bobcats, hawks, raccoons—they'd all like to eat a quail," Kendall says. "The birds don't have a lot of room to make mistakes."

Snipes, who remains intimately involved in the project, thinks the evidence is persuasive.

for sure yet, but parasite-borne infections like those that plagued West Texas may account for hard-to-explain declines in other quail strongholds, as well.

Now, nearly five years and more than \$5 million spent on research since the bob-

whites first disappeared, their numbers are beginning to fully recover, thanks to a mix of traditional land-management practices and natural repopulation cycles. Next time, though, Kendall and Snipes worry they might not be so lucky. They hope to curb future die-offs with science-backed initiatives, such as a medicated feed, currently in development, to combat parasites. In field trials so far, the feed has reduced infections in as little as a month. If it continues to prove effective in the Rolling Plains, as Snipes suspects, the treatment could well find applications across the bobwhite's historic range.

"It's just a hell of a lot of work," Snipes says. "But whatever it takes to examine this to the nth degree, regardless of the money or where it leads us, we'll do it." ●