

# Stitching the rips in the Sandhills

Stream erosion alters the area's delicate balance. ■ By Ann Toner

**D**anger wears a disguise. It looks like a clear-running little Sandhills stream, meandering from bank to bank down a grassy valley until it joins with a bigger stream.

But the stream is a dagger, cutting ever deeper into the heart of the Sandhills. The little streams are draining away the water that is the area's lifeblood during a seasonal dry spell. It could cause tremendous loss of hay and grazing for ranchers.

And, if the drought lasts a decade or longer — or even a 100 years — as it has in the recent geological past, the cutting action of little Sandhills streams could turn them back into a desert on the move. That would be an economic disaster for cattlemen, the State of Nebraska and the entire region.

The danger has a name. It's called **downcutting**.

It has some ranchers and natural resource officials worried. Downcutting is one of several issues being addressed by a coalition of public agencies, ranchers and landowners taking part in the Sandhills Task Force. Through various partnership arrangements, one aspect

of the task force is trying to halt or reduce stream downcutting.

Sandhills stream downcutting occurs when the flow of water off one of the many wetland areas becomes great enough that an actual stream is formed rather than a shallow, grassy, water-conveying depression.

As the stream starts to cut into the fragile sands, water from the wetland flows into it, according to Gene Mack, Sandhills coordinator for the U.S. Fish and Wildlife Service, a task force participant. As the volume of water carried by the stream grows, so does the downcutting action until the stream has sliced a groove several feet deep.

The eroding stream pulls water not only from the sur-

face of the wetland, but from several feet below the surface as well. That adds even more water to the volume carried by the stream.

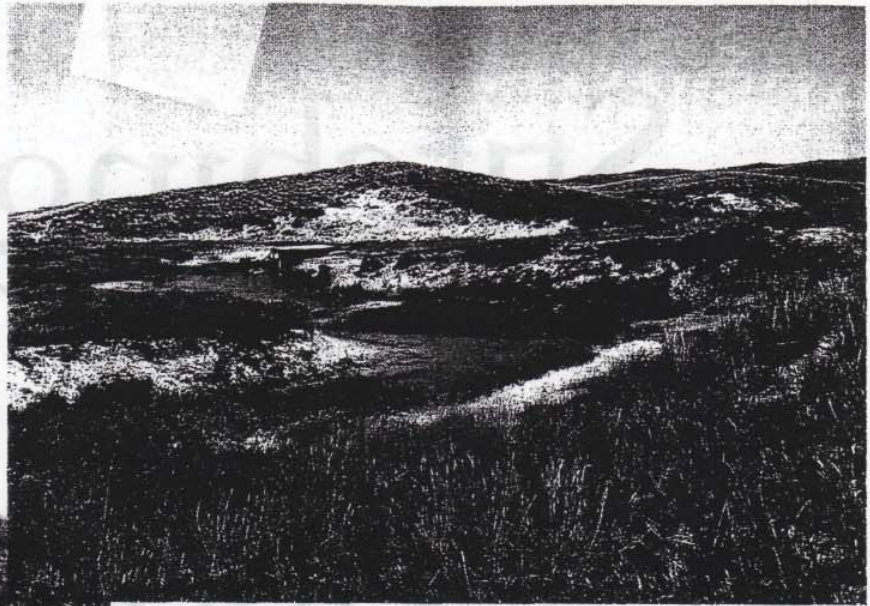


**Whitewater is something rancher Jim O'Kief of Wood Lake, Neb., doesn't like to see, because it means the restless water is gobbling its way back into the next wetland area.**



As the wetland drains, it loses its water-holding capacity, so it can no longer hold snowmelt and runoff from heavy rains, Mack says. That extra volume of water adds further to erosion. Then, before you know it, the stream cuts its way back to the next wetland. And so it goes.

Worse yet, a drained wetland interferes with the hydrostatic relationship it had with the surrounding hills of sand, Mack says. Water from rain or snowmelt



As the stream bites deeper, carrying more water and sand, it drains the surrounding hills of water, turning them into areas of poorer vegetation — and causing erosion.

**Still water runs deep. This down-cut stream chewing at the overhanging bank doesn't look it, but it's 5 or 6 feet deep and getting deeper. The water scours away the sand, draining what was once a marshy meadow.**

whittles away at a stream bank, cutting wider and deeper as it carries the richness of the Sandhills away forever.

In a drought, downcutting could lead to not only drier lowlands, but drier hills as well. The hills pull water up through them and that waters the deep-rooted grasses that clothe them. If the hills dry to the point where the grass fails to thrive, the sand could blow.

That's bad news to ranchers, whose land would be able to support fewer cows. And it's bad news for the many species of wildlife that depend on the current Sandhills wetlands ecology for some phase of its existence, says Mack.

"Streams can drain a huge number of acres," says Wood Lake, Neb., rancher Jim O'Kief, who is concerned about the downcutting problem. He and his brother, Jerry O'Kief, a Valentine, Neb., attorney, have been working with officials and agencies to halt or correct downcutting on their ranch.

The O'Kiefs have striven for many

years to manage their ranch for maximum grass production, and to benefit wildlife. Their efforts have garnered statewide conservation recognition.

"You can't believe the bounty of birds and (other) wildlife that use these areas for spring migration," Jim O'Kief says.

But past conservation efforts haven't been enough to spare the O'Kief ranch from downcutting. He points to a clear little stream narrow enough in many places to jump across. Where the wet meadow funnels to become a stream, there is a little rill of white water — where the initial downcutting is occurring on the stream.

"On ranch maps from 40, 50 years ago, this stream didn't exist," says O'Kief. "We used to be able to drive a two-wheel-drive pickup across it." Now the stream is about 5 feet deep. They had to build a bridge to cross it. "It's cut back 300 yards in four years."

One way to halt downcutting on smaller streams is by installing small dams or weirs that will stabilize water levels behind the dam to preserve wetland areas, while allowing the stream below the dam to drop to the lower water level the stream has carved for itself.

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wicks down through the sandy hills and into the wetlands in times of moisture abundance.

As the season turns dry, the hills reabsorb moisture from the wetlands at their feet. The hills can't soak up the moisture effectively if the valley is being drained by a downcutting stream.

Downstream from the area of new downcutting action is a stream made bigger and wider than before by the larger volume of water and sand it carries. It deposits a sandbar here, and



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First focus of the task force is stopping further downcutting action. But if ranchers could see the need to install a series of small dams, the structures could re-establish some of the wetlands and habitat lost to downcutting. And that, in turn, would provide for more hay and grazing for cattle.

"We need to stop downcutting and preserve and restore these shallow wetlands," says Mack. "Otherwise, all we'll have is a lot of high, dry pasture with a stream down the middle of it."

Mack says both drainage and ditching to enhance hay production from wet meadows can contribute to stream formation and downcutting. But another factor is that the eastern Sandhills is in the midst of about a 20-year wet cycle.

"I've seen the Sandhills drier than heck, too," Mack says. ♦



Gene Mack, Sandhills coordinator for the U.S. Fish and Wildlife Service, shows how a weir can be used to halt the downcutting action of small streams, thus preventing drainage of adjoining wetland.

This horseshoe-shaped weir is a fix for bigger streams that carry more water. It can reduce the force of the water and stabilize the water level on the upstream side of it to prevent further downcutting.

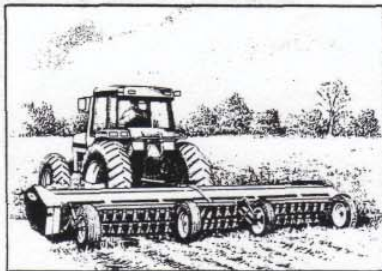
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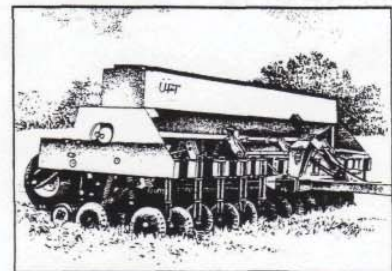
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