USA: Dust Bowl Blues and Climate Change

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A severe drought in the Southwest is devastating crops and farm communities—and sending a warning about climate change.

Ed Moore's ranch sits on the flatlands of the Texas panhandle, east of Lubbock, just outside the tiny town of Ralls. On a clear day, you can see for miles in any direction. Most days, however, the dust blows—and when it does, the sky becomes a dull orange haze and the scene becomes impressionistic. The high gray towers of grain elevators dot the landscape. Cattle graze in silhouette. Farmers ride through the gloom on tractors with vast "sand fighters" that gather the earth into big clods so the soil won't blow away. It's daytime, yet it's dark—not as black as it gets during the worst of the dust storms, like those that tore through southeastern Colorado in the spring and the ones that swept across Phoenix a few years ago, and maybe not as bleak as the land-destroying Dust Bowl days of the 1930s, but nevertheless eerily subdued. Something clearly isn't right.

In a typical year, the winds ease up in mid-spring, and the dust tamps down. In the past three years, however, as the rains have failed and the land has dried up, the winds have continued into the searingly hot summers. As they blow, the soil disintegrates, and what little moisture there is in the earth evaporates. The soil quality is now so poor that on the few occasions when it does rain, the next day's wind simply blows the newly moistened topsoil away. Across the area you can see rows of cotton, black and dead in the orange earth—entire fields burned by the static electricity generated by the sandstorms.

Locals have started calling the storms by their Arabic name, haboobs—presumably a nomenclature brought back by returning Iraq War veterans. Lately the haboobs have been visiting themselves on the High Plains with a depressing regularity. They are no longer considered an episodic menace but rather a fixture of the landscape, the calling card of an emerging climatological crisis.

Moore, who was born in a farmhouse on his family's land just north of Ralls, is 73 years old. His balding head is deeply tanned, his forearms mottled by the sun and wind. When he was a young man, he got an aeronautical engineering degree and headed to Seattle to work for Boeing. In 1971, however, his heart called him back to West Texas. It was, after all, the land to which his mother and her family had trekked in a covered wagon in the 1920s. Moore recalled being told that his mother, at age 5, had walked alongside the wagon all the way from Comanche, Texas, 250 miles away. They were lured to the region by the promise of cheap, fertile land—the promise that drew so many to the High Plains during the boom years that preceded the catastrophic onset of the Dust Bowl.

"This land, I love it," says the old farmer softly, his eyes staring far off in the distance. "It means essentially the world to me. I want to make sure I take care of it and make sure my sons can have it. The only thing we worry about is the water supply."

Last summer, the water table in Moore's area dropped by about a foot. The White River Reservoir, which supplies water to four towns in the area, is at its lowest point since it was built in the 1960s, Moore says. About ten feet at its deepest, "it's just pollywog water." His two wells, which used to

pump up to 500 gallons per minute, are putting out only about 150 gallons per minute.

Like the haboobs, water scarcity here is starting to seem like something other than a passing concern. It's a troubling sign of a long-term trend, a problem exacerbated by drought but more complex than annual precipitation. After decades of overuse—tapping into aquifers and removing more water than nature could add back in, even during the abnormally wet 1980s and '90s—the water-credit system in this part of the country seems to be running out. "We've used much more water in the last couple years than we normally would because of the drought," explains Robert Hagevoort, a dairy specialist at New Mexico State University's agricultural science center. Water tables have dropped quickly, he says, and as a result irrigated agriculture is under severe threat.

Moore largely uses dryland farming techniques, since there isn't enough water to irrigate his fields. If it rains, he can grow crops and keep cattle. If it doesn't, he can't. "I like a challenge," he explains. "Every day is different. That's what farming is. Do we plant cotton? Do we plant milo? Do we fight sand? When do we quit it all and get on a horse and ride?"

The question is not merely rhetorical. As Moore and his neighbors confront the grim possibility that this year's rains will again fall far short of the twenty-five inches he says are necessary, with dwindling underground reserves to draw from, they are simply facing the facts. "We hope the rains start up again," he says. If they don't, "these little towns will disappear."

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A similar lament can be heard across the Southwest, in bone-dry communities in Texas, New Mexico, Oklahoma and Kansas. Thanks to record drought and heat, Arizona and Colorado have been plagued by fierce forest fires in recent months—nineteen elite forest firefighters died in an Arizona blaze in late June. And it's not just rural areas under threat; cities are also at risk. Las Cruces, New Mexico, has to drill wells 1,000 feet deep to extract water. Smaller municipalities like Magdalena, south of Albuquerque, are trucking it in.

What we're seeing in these regions is a harbinger. Around the world, as climate change accelerates and population growth bumps up against natural limits, water access is becoming increasingly important—and increasingly precarious. The economic impact is immediate and severe.

"Right now, there ain't anything underneath that dry land," says Johnny Shepard, who manages a cotton gin near Lubbock. In 2011, the drought was so extreme that 60 percent of the state's cotton crop was lost, according to the Department of Agriculture (USDA). The numbers have improved since then, but only marginally. More than 40 percent of the Texas cotton crop was lost in 2012, and given current conditions, the losses are likely to be similar this year. Nationally, cotton production declined from 18 million bales in 2010 to 17 million in 2012—with much of that drop in the Southwest.

As hay and alfalfa prices skyrocket in response to the drought, farmers are selling off animals they can no longer afford to feed. The cattle herd in Texas is down by more than 1 million. Nationally, the figure has declined from more than 98 million head a few years ago to about 89 million. The tight supply sets up the prospect that consumers will pay far more for beef in the years to come. In eastern New Mexico and the Texas panhandle, about 20 percent of the dairies have gone belly up for similar reasons. Milk production costs have risen 50 percent in recent years, a portion of which has been passed on to consumers.

Last year the corn crop was about 25 percent shy of its potential. After years of heady expansion (fueled in part by the introduction of genetically modified crops), US corn production has dropped to

its 2000 level, according to the USDA. The production of many strains of wheat has also declined since 2011, largely because of crop failures in the High Plains, and soy production in 2012 was nearly 10 percent down from its 2010 level.

These days, much of the nation's corn crop is being used not for food but for ethanol fuel. Not coincidentally, as competition for the produce has increased since 2008, corn prices have jacked up sharply. This has led to rising food prices and, as important, put a strain on exports—which has ricochet effects, especially in poorer communities around the world.

Because US food production anchors the international food system, a drop in exports leads to price inflation in countries where poorer populations spend a larger percentage of their income on staples. Markets overseas have also been hit by US drought–induced shipping disruptions. Sixty percent of all grain exported through the Gulf of Mexico is shipped to ports via the Mississippi River. But for a few weeks late last year, the river levels around Thebes, Illinois, fell so low that barges filled with grain destined for export had to lighten their loads. Much of the $7 billion in commodities that the American Waterways Operators and the Waterways Council estimate normally travel down the Mississippi in December and January either backed up or had to be transported by more expensive methods.

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American agriculture is extraordinarily resilient, engineered to withstand regional droughts and even prolonged national weather crises. Even so, farmers who must adapt need time to familiarize themselves with new crops, and scientists need time to learn what grows best during years of extreme water scarcity. But with weather patterns shifting more rapidly and water resources drying up, time isn't on their side.

There is no consensus on how much of today's drought in the Southwest can be attributed to climate change. But there's little doubt among climatologists that a warming planet is at least partly to blame. The journal Nature Climate Change has published studies suggesting that the United States is likely in for a series of severe droughts over the next thirty years. In 2010 Climate Central chief climatologist Heidi Cullen explained that "the weather of the future is going to be more extreme. That means more extreme heat, extreme storms, extreme drought." When a drought devastated Russian agricultural production that year, European researchers concluded that human activity–induced climate change had made it three times more likely to occur. An EU commission also predicted that severe heat waves of the sort that hit much of Europe in the summer of 2003 could become a biannual occurrence by 2040.

According to USDA meteorologist Brad Rippey, the lack of snow and rain in 2012 was caused by a confluence of factors, including, in 2010 and 2011, back-to-back Las Niñas, a North Atlantic high-pressure system that blocked moisture from the eastern half of the country, and a Pacific oscillation resulting in a drier West—as well as the broader changes produced by global climate change. By the end of 2012, the USDA had declared 2,245 counties (representing 71 percent of the country's landmass) disaster areas because of drought. No other year in history has come close to having so many USDA-designated disaster areas. Although the drought broke in much of the country last spring, those conditions still hold across the Southwest.

"The water supply conditions we have right now are by far the worst we've had in the last hundred years," explains New Mexico State University professor of civil engineering Phil King. In a normal year, the Rio Grande Project releases 790,000 acre-feet of water to farmers and rural communities. In 1964, until now the worst year for releases from the project, only 206,000 acre-feet were released. This year, says King, only 163,000 acre-feet are likely to be released, making it the worst

year on record for local farmers. “We just had the river dry for eight months,” he adds. “Next year it could be dry ten months.”

The drought has led to increasingly bitter legal squabbles over water rights. Each state designs its own water-access rules, so the feds can do little more than sit back and watch as the battles intensify. In New Mexico, the districts within the Rio Grande Project have been fighting over how much water should be allocated to farmers in each area. Texas has gotten into legal tiffs with New Mexico and Oklahoma over water access. And an increasing number of lawsuits are being filed between farmers competing for limited access to rivers.

Long term, there’s a strong prospect for broader social disruption brought on by resource scarcity. What scares King and other hydrologists is that the Southwest is becoming the epicenter of several overlapping crises. Rapid climate change is occurring amid a huge population shift. Agriculture (which in a state like New Mexico has traditionally accounted for more than three-quarters of all water use) is competing with oil, gas and other industries for increasingly scarce water. And all players, whether small-town water districts or state governments, cities booming on oil revenues or rural hamlets struggling simply to stay alive, are jostling for access to aquifers that aren’t generating anywhere near the amount of water they used to.

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During the big storms, the farmers wage a Sisyphean fight against the sand. When the sand isn’t blowing so hard, many tally up the fields they’ve lost and file crop insurance claims. Fourth-generation Texas farmer Ray Johnston simply decamps to one of his favorite sports bars on the outskirts of Lubbock, where he drinks Coors Light and ponders his situation.

“It’s kinda depressing,” says Johnston, who lost his crop last year to drought and planted 500 acres of cotton again this year, only to watch as eighty-five-mile-per-hour winds brought in a June hailstorm that destroyed his crop. “You sit out here and do all this hard work, and you’ve nothing to show for it.” In the past three years, the amount of land Johnston has been able to farm has declined from 1,200 acres to about 600. He spends between $10,000 and $15,000 per month to irrigate the half that’s left.

The luckier farmers, Ed Moore among them, are surviving in relatively decent financial condition because there are oil derricks on their land that pump up and down nonstop, indifferent to the dust storms. But even those sitting on oil are increasingly reliant on payouts from their crop insurance simply to cover basic operating costs. And water has to be pumped in to keep the pressure of the oil wells constant. In many parts of the country, including Texas and New Mexico, the introduction of water-intensive fracking techniques has worsened this problem. Entire towns are springing up overnight to cater to the oil and natural gas boom. In these areas, population growth and the rise of heavy industry are dramatically increasing pressure on already strained agricultural water supplies.

Hundreds of miles southwest of Ralls, on an alfalfa and small-grains farm near Roswell, New Mexico, Craig Ogden is facing a similar set of challenges—and a similar risk of heartbreak. The 55-year-old relies on irrigation from the Carlsbad Irrigation District to water his 800 acres. But the water allotments are pitifully small. In the past few years, he has been able to grow on only about 10 percent of his acreage.

“We had eighteen months of no rainfall,” says Ogden, whose curly gray hair, ready smile and blue eyes make him look startlingly like the actor Gene Wilder. “We sold a lot of equipment last year. When you’ve had people who have worked for you, it’s hard to let them go.” As he considers what will happen to his family if his farm fails, he starts to cry. “I’ve got college degrees, but with my age

it’s going to be hard to find something in this job market.”

Ogden’s friend Matt Rush is also struggling to make ends meet. He recently took a job with the New Mexico Farm and Livestock Bureau in Albuquerque, four hours from home. He, too, cries as he considers his prospects. “This is who we are,” he says. “When your livelihood becomes your identity, you can’t just stop.” He pauses, tries to talk himself into optimism. “It’ll take a while to get her Sunday clothes on,” he says, referring to the land. “But she’ll look good. It’s so wide open. You can see the sun coming up and the sun going down. You can see every star in the heavens at night. When it’s green, it just feels so alive to me. When it rains, you can see it in everybody’s faces—how relieved they are. Contributions go up in church on a Sunday after it rains.”

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Eddie Speer homesteads a small farm outside Lubbock. His wells have almost run dry; his wife, Laura, worries that she might not have enough water for cooking, washing the dishes and bathing. “We wake up every morning, and if we didn’t know God was taking care of us, we couldn’t get through the day,” he says. “We pray for rain—in church and privately. We ask God to bring rain and bless our farms.”

Speer walks me down his rows of dead crops, showing me the texture of the soil. It’s dry, as fine as the red desert sand in Utah’s Arches National Park. “That won’t grow a seed,” he says resignedly. To make it through the year, Speer has had to sell off his cattle and file a crop insurance claim. He pays more than $30,000 per year to insure his crop. But he can’t leave his land. It’s his home. It’s where his grandfather died, of a massive heart attack, and where his father died.

Thanks to the national crop insurance system, which grew out of the wreckage of the Dust Bowl and the Great Depression, farmers can buy insurance worth up to 75 percent of the value of their crop, averaged over a set number of years. They buy it from private companies, but those companies are guaranteed by the government, which covers more than 60 percent of the cost. Like all insurance programs, it works as long as it isn’t chronically overused. Right now, it’s being used as never before.

Congress has an opportunity to address this crisis through the farm bill, which is currently the topic of robust debate in Washington. On July 11, with help from the powerful agribusiness lobby, the House passed legislation giving large farms the ability to buy “shallow loss insurance,” which would guarantee up to 90 percent of their income—thus providing a perverse incentive for agribusiness to try to cultivate land manifestly unsuited to the crops in question. The House also set up new profit insurance systems for large-scale dairies. But it provided no funding stream for the federal food stamps program. To appease right-wing conservatives, nutritional assistance—a central pillar of previous farm bills, which remains at the heart of the proposed Senate bill—was stripped out.

The White House has promised to veto the bill. But the proposal to expand short-term subsidies to agribusiness on the backs of tens of millions of food stamp recipients reveals a fundamental problem with US agriculture. The current model relies on two sets of subsidies: to farmers during years when crops fail, so that they have an incentive to produce enough food even when it’s not profitable; and to the tens of millions of Americans who otherwise could not afford to feed themselves. Take either of these props away, and producers as well as consumers get hurt.

Even if funding for food stamps is ultimately approved, the crop insurance model may be in jeopardy. As droughts become longer and more severe, and as the agribusiness lobby skews policies even further in favor of big combines, the program could become unaffordable to small-scale farmers like Moore and Johnston—and unsustainable for the government.

By the end of spring, 597 counties had been declared disaster areas, which qualifies them for low-interest federal loans and other financial assistance. US Drought Monitor maps show most of the center and west of the country in moderate to extreme drought conditions. The rains have returned to the eastern and northern regions; the Mississippi River flooded in the late spring, and in San Antonio, so much rain fell in May that it, too, was inundated. But in the West and Southwest, the drought is getting worse, and too often the remaining water is getting saltier and thus less suitable for growing many kinds of crops.

At the moment, farmers are surviving on grittiness, technological creativity and crop insurance. But the payouts are subject to a law of diminishing returns: each year's payout is based on the average value of the previous ten years' crops. Meanwhile, because insurance companies are disbursing record amounts to farmers, premiums are going up. It's not uncommon to hear stories of farmers receiving $150,000 in payouts only to return more than $30,000 in premium payments. That makes sense for large agribusiness enterprises concerned with protecting revenues rather than protecting fields, but it's a heavy burden for small farmers. And while agribusiness has the means to pay for supplemental coverage options that protect up to 90 percent of the value of its crops, such options are beyond the means of men like Eddie Speer.

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The effects of this transformation go far beyond the farms and ranches. In January, Cargill announced it was closing a huge beef-processing plant in Plainview, Texas, because so few cattle remained in the area. With only two weeks' notice, about 2,300 workers lost their livelihoods. Overnight, Hale County's unemployment rate spiked from about 6 percent to nearly 13 percent. Texas A&M's Agrilife Extension Service estimated that the loss of jobs at Cargill, combined with secondary effects as related businesses suffered and residents bought less in local stores, would cost the county more than $97 million.

Many of the unemployed workers—who used to earn good wages and enjoy strong union benefits in a largely nonunion, low-wage state—now make a daily trek to the Workforce Solutions office, in a run-down strip mall on the edge of town, to look for jobs. Others have turned to service sector jobs at Walmart and other superstores. "It was a big old shock," says Rachel, a young woman standing with friends in front of Workforce Solutions. Rachel used to work for a sanitation company that was brought in every evening to clean the slaughterhouse. "It was the end—the end of life in Plainview as we know it. A lot of people left, a lot weren't able to leave because of family. When God said in the Bible we need to live day to day—boy, He wasn't kidding."

Just like in the days of the Dust Bowl, a way of life is under threat here, as are the livelihoods of millions of people. If the weather chaos of the past few years becomes a new norm, the stability of the US and global food systems could come under threat—tightening supplies, increasing prices and pushing the Eddie Speers of the world into uncertain futures separated from the land they love.

I want Speer's prayers to be answered. But I fear that Ed Moore might be more realistic. Moore looks over the land on which he rides his 15-year-old Appaloosa, Lady, at the end of each workday. You can almost see the sigh forming in his chest. "I don't think we'll ever run out of water [entirely]. But it'll get so expensive we'll have to quit," he says. He stops to gather his thoughts. "You ask about this land. I don't have a clue why I love it. It's flat. Very hard to make a living. If I were really smart, I'd go somewhere where the average rainfall is forty inches. But this is home. And I don't like to fail."

Sasha Abramsky

P.S.

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