Restoring Life to the Lordsburg Playa

At the Lordsburg Playa, restorative ecologists hope to tame deadly dust storms by teaching stressed-out soil how to blossom and thrive.

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Seen from above, the land reveals a multitude of work—and of problems.

IN THE FIRST BLUSH of dawn, the Lordsburg Playa conjures a mirage—a layer of dew rising from its fractured, elephant-skin crust, glistening with bright promise. *Maybe the land has learned something,* I think. But I'll soon realize that there is no dew, only tiny particles of sand catching the light's low slant. Months have passed since a drop of rain has fallen on this 60-mile-long dry lake bed in New Mexico's far southwestern corner.

The consequences of that scarcity seem insurmountable. Native plants have died off, their deep roots no longer nourishing and holding down the soil. What rain does fall sluices across the land, incising it into channels that hasten the lifeblood's journey over and away. Dust storms roar with such terrible power that at least one resident called on the state to move nearby I-10 out of harm's way, trillion-dollar cost and all.

From my spot in the unofficial "City of Dust" encampment, north of the playa, I look down at its whitish surface. In the far distance, the Pyramid Mountains backdrop the traffic of semitrucks on the highway—international commerce already hard at work.

The Lordsburg dust storms are severe, causing traffic fatalities and disrupting essential deliveries.

My back sufficiently stretched from a cold night in a small car, I hike to the camp's alfresco kitchen. There I learn what a hardy group of optimistic ecologists intend to accomplish. It sounds both rational and ridiculous: Teach the land to accept whatever rain may come so that it heals itself from the inside out. In doing so, they hope to tame the dark and dense dust clouds that regularly close I-10 and cause crashes that have claimed 40 lives since 1965.

Most of the dozen or so workers polish off plates of eggs and bacon and bowls of granola and yogurt as Mike Gaglio unfurls a map to dole out the day's work. Gordon Tooley, he explains, headed out an hour earlier to clear the previous day's dust from the tractor that pulls his keyline plow, which contours the soil before he seeds it with native plants.

One team, Gaglio explains to the group, will repair a fence where cattle—perpetrators of much of the land's damage—threaten to trample their work. Others will join Van Clothier to craft erosion controls, some as simple as one strategically placed rock, to help rain and snowmelt soak into the soil.

Gordon Tooley takes a break from contouring the land.

Gaglio references one of the larger eroded parts of the 3,000-acre project site, north of the playa. "We nicknamed it Burning Man," he says. "Seen from above, it looks like a guy lying on his back, hands and legs spread out and his head on fire. It's hard not to anthropomorphize this land."

As the three leaders of the "Dustafarians," Gaglio, Tooley, and Clothier each carry stellar ecocredentials. Gaglio owns **High Desert Native Plants**, in El Paso, Texas, and has helped recover damaged lands in and around that city. Tooley, a fruit tree expert and owner of Truchas-based **Tooley's Trees**, has built a second career reclaiming overused soil in places throughout New Mexico. Clothier leads **Stream Dynamics**, in Silver City, which studies how water moves and then persuades it to slow down, spread out, and soak in.

The blades of Gordon Tooley's keyline plow open the soil without upending it.

They came together through the unlikeliest of partners. The **New Mexico Department of Transportation**, an agency more accustomed to solving road problems with concrete, culverts, and walls, looked well beyond its right-of-way to address the root of the I-10 dust problem. It formed partnerships with the federal **Bureau of Land Management** and the **State Land Office**, which control most of the land on and around the playa and lease it to nearby ranchers.

Planning for a 185-acre dust-mitigation project, southeast of the Road Forks exit off I-10, began in 2017. "We got a lot of side-eye," says Trent Botkin, acting manager of DOT's Environmental Bureau, who developed the strategies with Bill Hutchinson, co-manager of the agency's **Dust Storm Mitigation Program**. "A BLM range manager told me, 'A playa it is, and a playa it will always be.' " Somehow, the re-contoured and seeded land overcame the deprivations of sparse rain and high heat. "Now, everyone can see there's grass," Botkin says. "And where there's grass, the soil is being held down."

Gordon Tooley's work in the Lordsburg Playa involves using a keyline plow to contour the soil and seed it with native plants, creating a "living sponge" that helps restore the land and mitigate severe dust storms.

Whether that will prove true on this larger site could hinge on DOT persuading the BLM to wade into one of the oldest debates in the West by applying for an **Area of Critical Environmental Concern** designation. If that happens, it would require a special management plan for grazing, mining, and other uses—in short, protecting public health and safety through ecological restoration.

Past land-use restrictions have fueled reactions such as the Sagebrush Rebellion of the 1970s and '80s. But Botkin says he's hopeful, mainly because of how well three public agencies have worked together and with local ranchers. Already, safety experts and international scientists have begun to track this wild experiment in the desert, which blends back-to-nature techniques with a hint of magic.

"Ecological restoration," Botkin says, "is 30 percent science, 30 percent art, and 30 percent witchcraft."

A diagonal fence line shows the stark difference between treated land and areas open for grazing.

ROUGHLY 100,000 TO 11,000 YEARS AGO, during the Pleistocene epoch, the playa gleamed with water and wildlife. Given enough rain, it can still hold water and attracts bird-watchers in search of northern shrikes, peregrine falcons, American avocets, sandhill cranes, and black-necked stilts.

It called to ranchers more than a century ago with good reason, Tooley says. "There was probably grass taller than me before cows were here," he adds, as I ride along in his tractor. "I found an old sidebar sickle out here that was probably for haying."

A sense of the Old West vibrates around us. The road leading to the project was once part of the Butterfield stagecoach route and passes sites with names like Doubtful Canyon and Rustler Draw. Distant mountains—the Pyramids to the south, the Peloncillos to the west, the Gila to the east—ring us in a bowl of big sky and profound silence.

Except for the slow chug of Tooley's tractor, that is. His "huge Willy Wonka machine," as Botkin calls it, hits an average speed of 2.1 miles per hour, meandering in sweeping arcs that leave a corduroy effect on the soil. The tractor pulls a keyline plow with long blades that break deeply into the soil's surface without turning it over, to preserve its structure. Behind the plow sits a seeder that drops a mix of 10 beneficial plants, including western wheatgrass, side oats grama, white prairie clover, and alkali sacaton. Tacked onto the seeder is an imprinter—rolling drums with blunted cones that leave 12-inch depressions in the soil to trap seeds and capture water.

Gordon Tooley's "Willy Wonka machine" tracks patterns in the soil.

"I'm armoring the upland soil so water can percolate, and grasses can grow," Tooley says. "The goal is to keep water as high as you can on the landscape for as long as possible to get a cover crop—grass and woody plants. That's the living sponge."

Within that sponge lies Tooley's heart. As his fruit tree expertise grew, he began studying what happens below the trunk. Consider soil as a layer cake. Each level holds key ingredients: microbes, earthworms, clay, silt, sand, air, and more. Drought starves the earth. Plows upend it. Livestock and farm machinery trample it. As it loses integrity, healthy soil turns to dust. With climate change, this scenario is playing out everywhere.

"I view this landscape as tattered, worn out," Tooley says. "It's our job to be weavers and repair it."

As the tractor twists through what will become a bulwark against erosion, Tooley enraptures me with soliloquies about quantum agriculture, paramagnetic rock, biodynamic farming, and fractal broadcasting of plants and minerals.

Mike Gaglio, owner of High Desert Native Plants in El Paso, Texas, is a key figure in the ecological restoration of Lordsburg Playa, teaching the land to absorb rain and self-heal.

Such tractor talks are among the most cherished memories of Santa Fe–based photographer Esha Chiocchio, who began documenting the Lordsburg work in 2020. "Gordon has so much deep knowledge of land and plants and geology and how it all works together," she says. "He's absolutely brilliant."

Chiocchio's work, partly funded by a *National Geographic Explorer* grant, grew out of her interest in regenerative agriculture. Her eye sees the land as a living canvas, and her images play off its stark geography and sensual contours, as well as the workers' muscle-wearying labor. Last year, Evoke Contemporary, a Santa Fe art gallery, mounted her solo show. This year, the Roswell Museum includes her images in a group exhibition, ***Regenerative Actions***, on view through October 13.

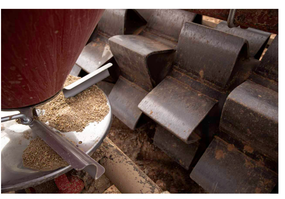
"The patterns are amazing," Chiocchio says of what the playa reveals through a lens. "Part of it looks like the veins in a human body. Water moves through us just as it moves through the land. What we do to the land affects us all. It affects the planet. We're all connected."

Mike Gaglio inspects a seed head.

BESIDES CAUSING TRAFFIC FATALITIES, I-10 DUST storms disrupt the delivery of food and medicine, damage side roads when semitrucks exit onto them, and tie up every emergency responder in the region. The problems extend far beyond southern New Mexico. This past April, the Spring Southern NM Dust Symposium, held in Las Cruces, drew speakers from Albuquerque's **Environmental Health Department**, the **National Weather Service**, and both **Texas Tech** and **George Mason** universities.

Anyone who suffers from allergies or asthma can already attest that New Mexico's spring winds no longer confine themselves to a month or two. Tim Brice, of the El Paso National Weather Service, confirmed that the dust storms he tracks have blown in sooner than ever and require a host of new tools and models to predict when they'll happen.

Botkin and Hutchinson described the variety of warning signs their agency has installed along I-10, part of a $4.5 million program that includes high-tech weather monitors, pull-offs for motorists, and enhanced striping visible during storms. Early "Dust Storms May Exist" signs holler to east- and westbound travelers. Each one is more urgent and informative: *in a dust storm/pull off roads/turn vehicle off/feet off brakes/stay buckled.*



The tractor's seeder and imprinter work together to bury seeds and create divots for water.

The pair then presented the Lordsburg project, which thus far has seen 1,200 acres contoured and imprinted with seeds, 1,500 erosion-control structures built, and 3,000 State Land Office acres fenced to keep out cattle, at least temporarily, while ranchers and the land-management agencies develop a restoration-focused grazing plan. The cost, about $3 million, would have covered only an engineering study for a more traditional fix of silt ponds, riprap, and scads of cement.

"We're trying to restore natural systems to reduce the severity of dust storms," Botkin said at the symposium. "Desertification is a worldwide, slow-motion disaster. We know it's an issue all around the West, but even Illinois has had a big pileup from a dust storm. Africa, Australia, and Asia are struggling with it. It's easier to get to Lordsburg than Africa, so the playa is getting lots of international interest from scientists. It's like a little laboratory on dust storms."

The storms still blow in, but none has caused a fatality since 2017. Ranchers with leases continue to cooperate with the project and participate in its planning. But two lithium mines now hope to install extraction wells on top of the playa. Still, Botkin and Hutchinson promised the work of Clothier, Gaglio, and Tooley will continue this fall, and they hope its success inspires other agencies to adopt their methods.

"Heal the watershed," Botkin said, "and you won't need a big engineering solution."

Slowly but surely, vegetation returns to the landscape.

FUTURE FUNDING WAS YET UNCERTAIN WHEN I visited the site last fall for the final work session of the year. It lent an element of melancholy to my second evening that not even plates of beans and enchiladas prepared by the camp cook, Silver City resident Dustin Hamman, could quell. Conversation around the campfire turned to a land project in Korea, the population crisis in China, and the potential for new jobs in the emerging field of restorative ecology. Eventually, the gang settled into the more typical gross-out humor of those who endure long days under a sullen sun.

The next morning, as I packed up my gear and watched the crews head out, Tooley's soliloquy in the tractor echoed in my head.

"Seed is really smart," he said. "It knows when to sprout. It might wait four years or 200 years—a blink in time, geomorphologically. The hardest thing possible is to change human behavior. We can change the behavior of water easily, but people have to change their own behavior. When we're gone from here, how long will it be before this land goes back to the way it was?"

Public land agencies hold a mandate to make money, generally through grazing, mining, logging, and drilling. But they also must preserve and protect the lands that they oversee. Will they continue to give weight to that side of the equation? Bigger questions loom: Will it rain and will it do so gently enough to help a seed sprout? Or will the land rise up into a final fury and scatter it all to oblivion?

Somewhere out there, Tooley's tractor etches a new pattern in the barren dirt. Two teams of people move both earth and rock to slow the water's flow. To their south, semitrucks and cars traverse the flat horizon. The wind has picked up.

Read more: Facing threats from climate change, population shifts, and even the U.S. Supreme Court, our waterways and their advocates are finding new ways to restore the habitat, protect endangered species, and let it flow to all.

EARTH ART

Esha Chiocchio's images of the Lordsburg Playa are featured in ***Regenerative Actions***, a group exhibition at the **Roswell Museum** on view through October 13. Curated in partnership with the Santa Fe Art Institute, the show also features works by Paula Castillo, Gabriel Fries-Briggs, Tintawi Charaka Kaigziabiher, the Submergence Collective, and Jessica Zeglin.

On August 24 and 25, Chiocchio leads a museum workshop on gilding images to achieve an orotone effect. Participants will make a piece of their own and receive materials to take home. Reservations are required; see **roswell-nm.gov/1678**.

The New Mexico Department of Transportation plans to debut an improved website dedicated to the Lordsburg Playa project this summer. See it at **dustmitigation.nmdotprojects.org**.

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