Forging a Sustainable Southwest

The Power of Collaborative Conservation

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STEPHEN E. STROM

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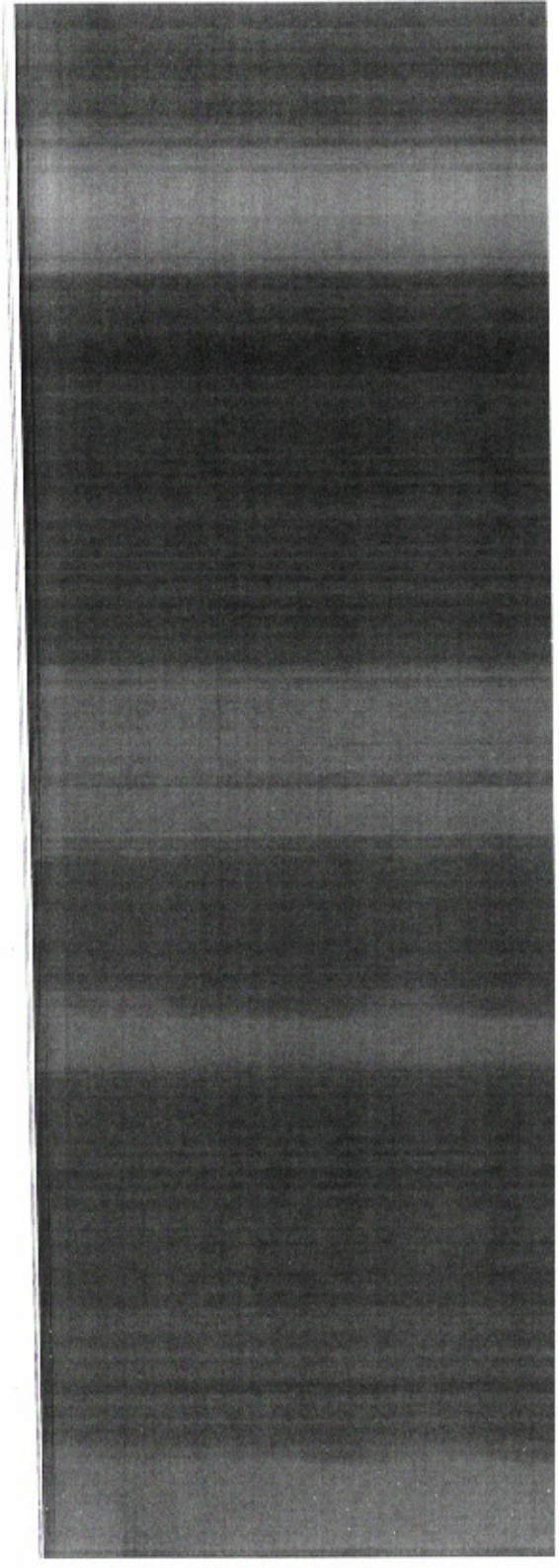

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CHAPTER 5

Cienega Ranch

What's the value of a Chiricahua leopard frog? Of a Yaqui topminnow, a fairy shrimp, or a Triops? Of native pollinators? What's the value of dark space so you can actually see the sky? Keeping land like this in ranching is one of the best options to keep those open spaces and to protect wildlife that rely on this country. It is really important to me that Cienega stay wild and undeveloped in the future.

— JOSIAH AUSTIN

The Natural Setting

The Sulphur Springs Valley lies just to the west of the Malpai Borderlands region. Bounded by the Chiricahua and Dos Cabezas Mountains on the east and the Dragoon and Mule Mountains on the west (see fig. 1.11), the valley contains one of twelve priority grasslands in the Southwest borderlands identified as prime targets for conservation and potential restoration by The Nature Conservancy and the National Fish and Wildlife Foundation.[1]

Cienega Ranch lies in the southern part of the Sulphur Springs Valley along the eastern flank of the Chiricahua Mountains, adjacent to the Coronado National Forest and the Fort Bowie National Historic Site, and just to the north of the Chiricahua National Monument.

The mapping tool HabiMap, developed by the Arizona Game and Fish Department, shows that Cienega Ranch contains habitat that supports more than sixty species identified by the department as having the greatest conservation need.[2] Moreover, the ranch's strategic location relative to nearby protected areas provides wildlife with long, unfragmented movement corridors between the Dos Cabezas Wilderness Area; Fort Bowie National Monument; the Bowie Mountains, a BLM scenic area of critical environmental concern; and the Coronado National Forest.[3]

E 5.1 Entrance to
nega Ranch in the
r Springs Valley.
by Stephen Strom.)

But just twenty miles to the west of Cienega Ranch, an ever-increasing area of once grass-rich bottomlands have been converted to vineyards, nut trees, and irrigated cropland. Agriculture in the western Sulphur Springs Valley has proven far more lucrative than ranching, which at the best of times operates on the slimmest of margins.[4]

Moreover, the valley and environs provide winter homes and stopovers for an enormous number of bird species. As such, it is a veritable mecca for bird enthusiasts, and over the years, many birders as well as other visitors to the valley have retired or built second homes in the area. Sales of 5-acre lots, along with 20- and 40-acre ranchettes, have grown steadily as rangeland is sold off piece by piece.[5]

Michael Patrick of the Trust for Public Land emphasizes the importance of keeping the Sulphur Springs Valley grasslands healthy and intact: "The grasslands in this valley, where Cienega Ranch is located, contain critical habitat for endangered wildlife, support large working cattle ranches for America's food supply, and provide substantial amounts of carbon storage to help mitigate climate change."

Protecting and Preserving Grasslands in the Sulphur Springs Valley of Arizona

Enter Josiah Austin. Raised on a farm in Maryland, Austin began his career as a financial analyst. He soon grew tired of city work and yearned to return to open spaces and to working the land. On a vacation trip to Arizona in the early 1980s with his then-wife, Valer, Austin became enamored with

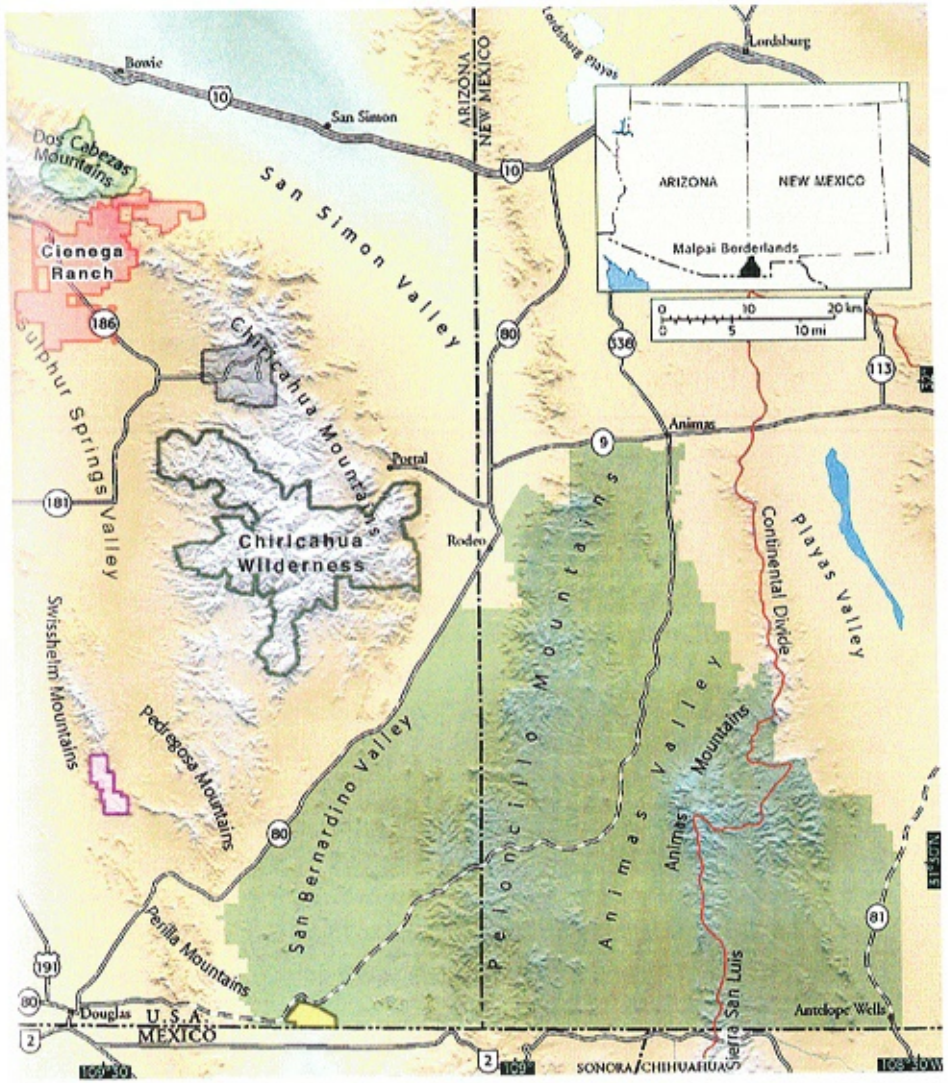


FIGURE 5.2 Cienega Ranch and nearby federally protected areas. From top to bottom, the enclosed polygons mark Dos Cabezas Wilderness (light green); Cienega Ranch (red); Chiricahua National Monument (gray); Chiricahua Wilderness (white with green outline); Leslie Canyon National Wildlife Area (light purple polygon); and San Bernardino National Wildlife Reserve (yellow polygon). The Malpai Borderlands region is shaded olive green. (Map adapted from Nathan F. Sayre, *Working Wilderness: The Malpai Borderlands Group Story and the Future of the Western Range* [Tucson: Rio Nuevo Press, 2006].)

IRE 5.3 Aerial view of Cienega
h. (Photo by Stephen Strom.)

the open rangelands in the Sulphur Springs Valley. Starting in 1982, he and Valer began to purchase ranches—the HYL, Bar Boot, and El Coronado—along the western slope of the Chiricahua Mountains with the goals of preserving healthy grasslands and improving ranches that had fallen victim to the effects of overgrazing. Over the years, the combined acreage of the ranches in the valley purchased by both Josiah and Valer Clark Austin grew to more than one hundred thousand acres. The Austins' vision was to demonstrate that properly managed working ranches could be both economically viable and provide habitat favorable not only for cattle grazing but for wildlife.[6]

"Josiah and Valer Austin are more than simply neighbors of the Malpai Borderlands Group," writes chronicler of the Malpai Borderlands Group Nathan Sayre. "Although they . . . fall outside the primary planning area [of the MBG], they have been supporters, partners, and exemplars for the group from its inception."[7]

Acquiring Conservation Easements

In 1989 Austin purchased Cienega Ranch, and over the years he has collaborated with the Trust for Public Land and the New Mexico Land Conservancy to put conservation easements on the property. "I just would hate to see the area I'm in now developed," says Austin. "That's one of my motivating factors in putting easements on the ranch. I pretty much have all the ranch under easement, and as a result, [Cienega Ranch] will never get developed."[8]

Most of the funds to purchase the initial easements on the ranch came from the Department of Agriculture's Natural Resources Conservation Service's ACEP (Agricultural Conservation Easement Program). ACEP is designed "to help private and tribal landowners, land trusts, and other entities such as state and local governments protect croplands and grasslands on working farms and ranches by limiting non-agricultural uses of the land through conservation easements." However, the ACEP provides only a portion of the funds needed to purchase an easement. The remainder must come from private sources.[9]

Michael Patrick notes that "normally the NRCS will provide up to 50 percent of the land's assessed value. However, if you can qualify for a category called 'grasslands of special environmental significance,' NRCS will provide up to 75 percent of the purchase price for the easement. The Nature Conservancy maps depicting the status of grasslands in the southwest made it fairly easy to convince the NRCS Arizona state office that Cienega Ranch qualified for that category," as the Cienega Ranch is centered on one of the conservancy's priority grasslands. "So then the trick was, how do we get the matching money?"

Over several years, Michael Patrick and Josiah Austin raised private contributions to match ACEP funds for the first two easement purchases from the Nina Mason Pulliam Charitable Trust and the National Fish and Wildlife Foundation's Acres for America program, supported by Walmart. "We're always struggling to find matching non-federal funds," says Patrick. "On our most recent easement purchase on Cienega Ranch, we received some money from a friend of Josiah's who really loved what he was doing. Then we got money from the Malpai Borderlands Group, and the final piece we needed from The Nature Conservancy of Arizona."

Cattle rancher and MBG board member Rich Winkler explains why the MBG enthusiastically supported Austin's efforts to protect Cienega Ranch and environs: "The Malpai Borderlands Group decided to get involved in this project because it supports all the same values that the Malpai Group stands for: sustaining wild, working landscapes by helping ranchers protect their private lands."[10]

Austin uses some of the proceeds from his sale of conservation easements on the Cienega Ranch to purchase nearby ranches as they come on the market and to add their lands to those already protected on the Cienega property. The ranch has grown in size from the nine thousand acres originally acquired in 1989 to around sixty thousand acres in 2022.

The additions have enhanced habitat connectivity for endemic and migrating species. "This whole valley contains some spectacular grassland that is home for birds, bats, jaguar, deer, and, of course, cattle," says Austin. "I hope people understand that keeping land like this in ranching is one of the best options for our society to keep those open spaces and protect the wildlife that rely on this country. It is really important to me that Cienega stay wild and undeveloped in the future. I want to protect the lands *for* future generations and *against* future generations."

Restoring Rangeland

Protecting grasslands is only one of the goals Austin hopes to achieve. The proceeds from each easement sale have also been reinvested in programs to restore ranchland damaged by overgrazing and drought, and to provide habitat for threatened and endangered species. Water and its interactions with the grassland ecosystem has been a primary focus of Austin's work over the years. He says, "One of the things I've been concerned with since I came into this part of the country forty years ago was the water cycle: slowing down runoff and trying to get the runoff into the ground versus taking topsoil when it flows over the ground. So that's one of the major restoration tools that I've been doing for the past forty years."

Austin continues,

> I've done a lot of it with earthen dams I call gully plugs. I've put in thousands of loose rock structures, probably thousands of gully plugs over the years, quite a few rock and cement structures, and gabions [wire baskets filled with rocks]. When I walk the land, I'm always looking at ways to improve the water cycle. I'm always looking at canyons with rocky steep sides that could be used for either loose rock structures or gabions or cement-and-rocks. When I look at washes, I always look at areas that I could slow the water down with a gully plug. The intention is not to impound water but rather to slow the water down, repair erosion, to get the water into the ground.

FIGURE 5.4 Josiah Austin. (Courtesy Josiah Austin.)

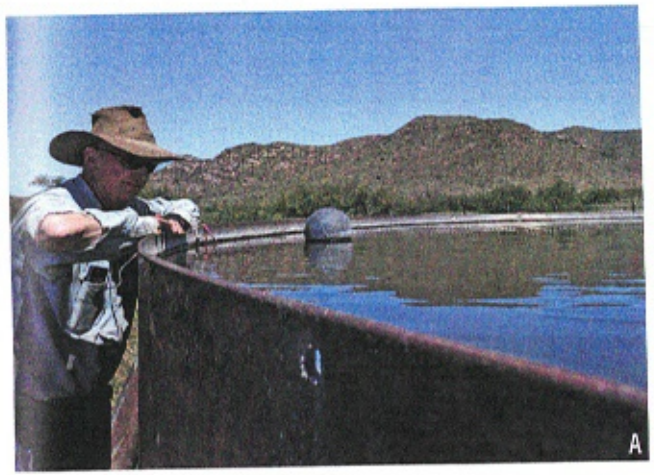


FIGURE 5.5 (*a*) Josiah Austin inspects one of the cattle and wildlife drinkers on Cienega Ranch. (*b*) Josiah Austin inspects cement-rock structures (leaky weirs) fitted into channels to slow surface water flows. (Courtesy Josiah Austin.)

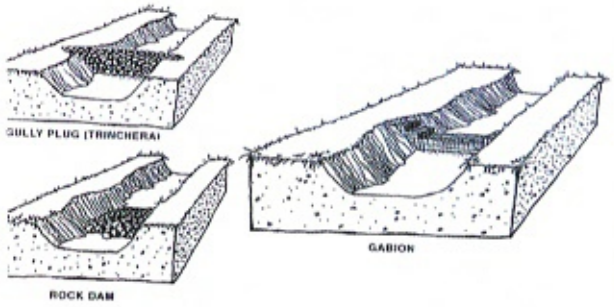


FIGURE 5.6 Three rock detention structures installed to slow the flow of water over the landscape and to prevent erosion. (Courtesy of U.S. Geological Survey, drawing by Chloe Fantel.)

By slowing down the water, it no longer incises the land. Instead, silt washing downhill accumulates behind the gabions or plugs and over time serves to support and nourish new vegetation. The newly vegetated areas in turn further slow rushing waters, allowing them instead to infiltrate into the ground rather than erode the land.

Gita Bodner of The Nature Conservancy explains that by installing these structures, "the net result is that you prolong the availability of a big rainfall on the landscape. You end up with the plants having access to the water longer, the animals having access to the water longer, either in pools or in moist soil or in the plants themselves."

She continues: "The biggest and broadest benefits are to soil moisture and everything that depends on [it]—the whole world of plants and animals that depend on soil moisture. With erosion control, there are places where rivers [like the San Bernardino River] are flowing on the surface for miles longer than they used to. Erosion control, watershed enhancement . . . that's the kind of intervention I feel very positive about."

Gully plug by gully plug, gabion by gabion, Austin has restored eroded washes, slowed runoff to allow water to seep into the ground, and created pools, re-created wetlands, and reestablished creek flows. As aquatic conditions are restored, aquatic, amphibian and avian wildlife will return and flourish.

As we wandered across the Cienega Ranch on a mid-November afternoon, Austin pointed to an area behind one of the gully plugs he installed:

> There's no water in there now, but after a rain it will contain Triops and fairy shrimp. It's just fascinating coming over and just looking down in there and seeing this little Triops in there. It's just so neat. You look at people that just think of landscapes, and they think of cows, and something that's productive,

FIGURE 5.7 Grass filling in the area behind a small earthen structure (outlined by the black ellipse) created to slow the flow of water over the landscape and create conditions where vegetation can flourish and thus further slow stormwater and prevent soil erosion and incision by gullies. (Photo by Stephen Strom.)

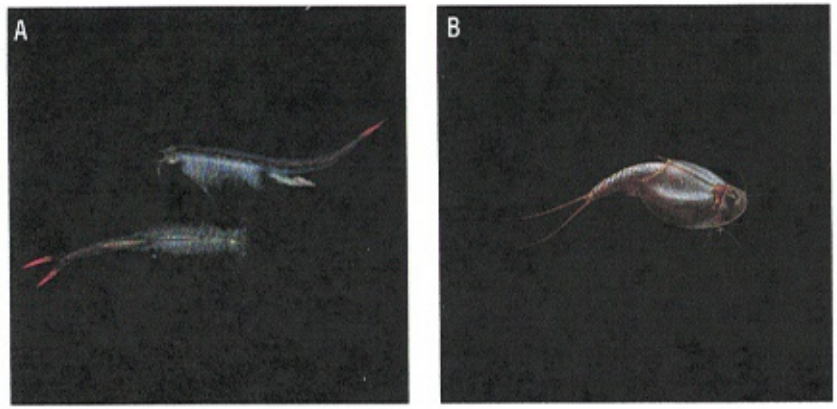


FIGURE 5.8 (*a*) Fairy shrimp; (*b*) Triops. (Photos by Bruce Taubert.)

and they don't look at these fairy shrimp and these Triops. I personally think they're as important as everything else. They've [survived on earth] for two hundred million years and haven't changed.

I remember talking to somebody about what excites me about the land and I was about ready to say "fairy shrimp." It's just such a unique creature. They said, "How can you be excited about a fairy shrimp?" I'm thinking, how can you *not* be excited about a fairy shrimp or a Triops, which has been around hundreds of millions of years and hasn't changed?

Using Science to Guide Restoration Work

Before beginning any major work on the ranch, Austin consults with experts or staff members from various agencies, NGOs, and universities:

> For example, I'll be talking to a native bee guy, Bob Minckley, from the University of Rochester. I'll say, "Bob, I'm thinking about moving a lot of this mesquite. Is it going to affect the solitary bees?" Or I'll ask Randy Babb [Arizona Game and Fish biologist], "When I'm grubbing out [mesquite], is there anything I need to be careful about?" And Randy said, "Yes, leave the rat dens. Don't disturb the rat dens." So when I grub out a field I try not to grub out the mesquite that are growing through a kangaroo rat den, because you'll disturb turtles and snakes and vertebrates and everything like that in there. I do ask people, "If I do this, what are the consequences?"

During the time Austin has owned the ranch, he has worked with biologists to reintroduce threatened or endangered species, including the Chiricahua leopard frog and the Gila and Yaqui topminnows. In collaboration with the National Wild Turkey Federation, Austin has introduced flocks of Gould's turkey on the western slopes of the Chiricahua Mountains. He has also planted large numbers of agave, whose springtime blooms provide nectar for rare species of bats. As of this writing, prairie dogs have been reintroduced on the ranch, and Austin is discussing the prospect of reintroducing pronghorn with Arizona Game and Fish biologists.[11]

Funding Restoration Projects

While a significant fraction of the funds used for restoration on Cienega Ranch come from proceeds from the sale of conservation easements, the

FIGURE 5.9 (*a*) Gould's wild turkey. (Tuvas, Wikimedia Commons.) (*b*) Black-tailed prairie dog. (Joe Ravi, Wikimedia Commons.)

Natural Resources Conservation Service has also provided funds through its Environmental Quality Incentives Program.[12] Through the program, "NRCS works one-on-one with producers to develop a conservation plan that outlines conservation practices and activities to help solve on-farm resource issues. Producers implement practices and activities in their conservation plan that can lead to cleaner water and air, healthier soil and better wildlife habitat, all while improving their agricultural operations."

Austin uses funds from the Environmental Quality Incentives Program along with monies from the sale of conservation easements to remove fences, reintroduce native plants, disperse water drinkers throughout the ranch for both cattle and wildlife, and adopt grazing patterns that provide for long rest periods for pastures. To ensure that his range management practices on Cienega Ranch take account of the best available science, Austin speaks regularly with individuals from the NRCS, The Nature Conservancy, Arizona Game and Fish, U.S. Fish and Wildlife Service, and the Forest Ser-

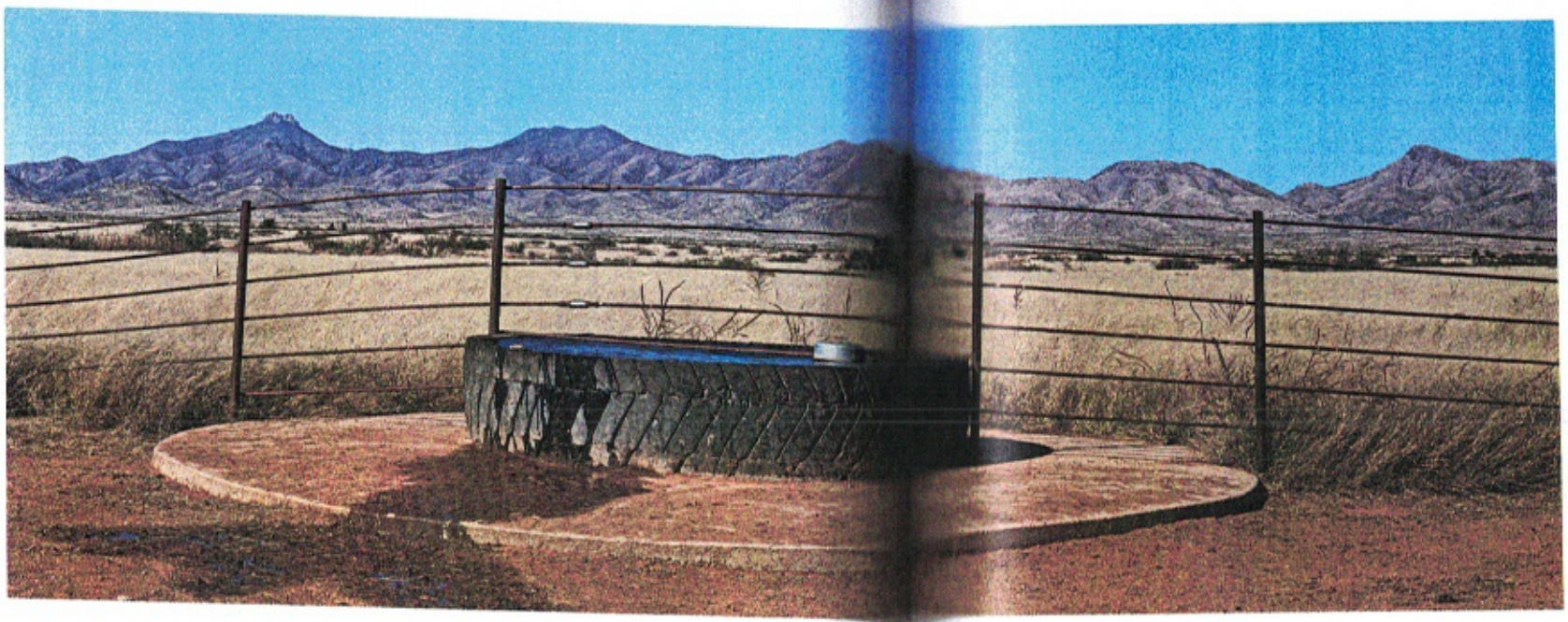


FIGURE 5.10 One of the drinkers on the Cienega Ranch constructed from discarded mining truck tires. According to rancher Josiah Austin, "Cattle now don't have to walk more than a half mile to water because of the pipelines I've put in to fill those drinkers. Every tire tank goes in with a wildlife ramp. Wildlife booms around these tire tanks." (Photo by Stephen Strom.)

vice. He also makes a point to keep in close touch with the Malpai Borderlands Group, attending their annual science meeting as well as the regularly scheduled meetings of the MBG Board.

The Environmental Significance of Protecting and Restoring Grasslands

Overgrazing, drought, altered fire regimes, shrub and woody plant encroachment, conversion to farmland, and introduction of invasive species over the past 140 years have dramatically altered grasslands in the Southwest. Of the 13 million acres of native grasslands that filled the valleys of southeast Arizona and southwest New Mexico before American settlers arrived in the 1870s and 1880s, only 2.6 million acres remain intact.[13]

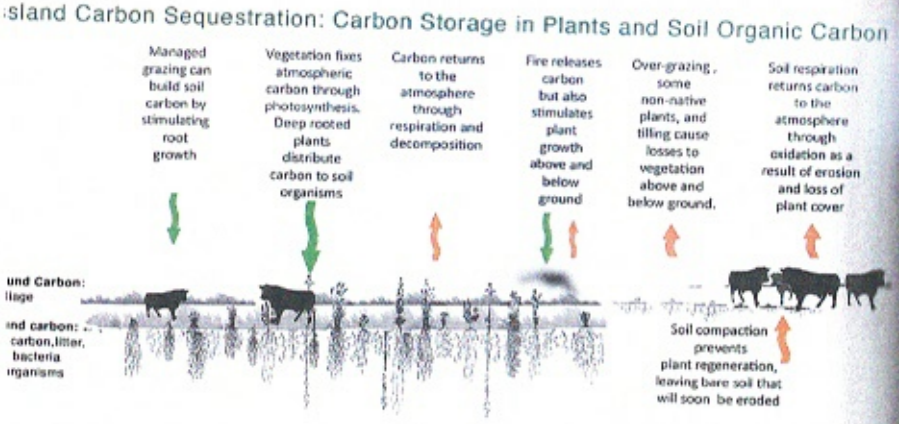
Today, increases in temperature and changes in precipitation patterns along with encroaching developments threaten remaining grasslands in the borderlands region. Loss and degradation of grasslands is hardly restricted to the borderlands: it is a worldwide problem that has raised alarm among ecologists who identify grasslands as one of the planet's most endangered ecosystems.

In thinking about value to humans, grasslands' role in providing forage for livestock comes first to mind. However, grasslands provide a number of critical practical benefits, among them sustaining healthy watersheds, controlling erosion, sequestering carbon, hosting pollinators essential to the survival of a wide variety of plants, and supporting a large and diverse population of flora and fauna.[14]

Watershed Function and Erosion Control

In grasslands degraded by overgrazing or covered by woody plants and shrubs, when rains come, water rushes across the land, carries away topsoil, and pours through gullies, leaving little water to seep into the ground.[15]

In healthy grasslands, both grass above ground and its root system below intercept storm water as it courses across the land and slow its flow. Instead of removing topsoil and eroding the land, rainwater infiltrates the soil and over time recharges the aquifer. Moreover, as water slowly makes its way to the aquifer, it passes through layers of soil and loose rock that act as filters to remove any pollutants. Well-functioning grasslands serve as nature's water purification facilities.



IGURE 5.11 Illustration of how grasslands sequester carbon. Vegetation fixes atmospheric arbon through photosynthesis and stores the carbon in the soil. Some carbon returns to the tmosphere via soil decomposition, plant respiration, and fire. The green arrows indicate the flow f carbon to soil and plants, while the yellow arrows indicate flow of carbon back into the atmo-)here. The size of the arrows is proportional to the magnitude of sequestration and loss for each ·ocess. Note the negative effects of overgrazing and the positive effects of carefully managed 'azing. (Illustration adapted from "Carbon Sequestration in Grasslands," Minnesota Board of ater and Soil Resources, https://bwsr.state.mn.us/carbon-sequestration-grasslands.)

Carbon Sequestration

ealthy grasslands trap carbon and can thereby contribute to mitigating sing atmospheric carbon dioxide levels, a primary contributor to global arming and climate change. Figure 5.11 is worthy of careful examination: details the positive carbon sequestration provided by carefully managed azing in contrast to the negative effects of overgrazing on carbon storage.[16] Healthy grasslands thus serve as an important carbon sink, and their im-rtance may grow as the earth warms. At present, grasslands store about percent of the world's carbon stock, with forests accounting for much the remainder. However, forests sequester most of their carbon above)und in leaves and wood, while grasslands primarily store carbon under-)und. Both forests and grasslands are subject to fire. But when forests rn, most of their stored carbon is released back into the atmosphere. contrast, while grassland fires release some carbon when shoots above und burn, most carbon remains stored in root systems and in the soil. reover, grasses recover quickly after a fire and soon begin to remove car-ı dioxide from the air and again start to store carbon in the soil. By contrast, regrowth of forests and restart of carbon sequestration by new growth takes place on a much longer timescale.[17]

As forest wildfires are anticipated to become more frequent with rising temperatures and aridity in the West, it would be unwise to overlook the significance of preserving expansive, healthy grasslands as a dependable carbon sink. Moreover, partially degraded grasslands offer the possibility of providing additional carbon storage if steps are taken to restore them to a fully healthy state. Based on its study of priority grassland landscapes in the borderlands region, The Nature Conservancy estimates that perhaps a third of the grasslands there could be restored through shrub and woody plant removal, reintroduction of fire, and managing water flow over the landscape. Combining such restoration efforts with modern rangeland grazing practices would provide a nature-based solution to the challenge of storing carbon and reducing atmospheric carbon dioxide.[18]

Gita Bodner of The Nature Conservancy suggests that efforts to preserve open grasslands should start with those areas least affected by encroachment of shrubs and woody plants and by takeover by nonnative African grasses:

> In terms of restoration that's designed to sustain open grasslands and all the species that depend on them, the best results tend to come in places that have not already been heavily impacted. So focusing first on maintaining those as open grasslands will tend to be more beneficial, and certainly provide higher return [on investment, rather] than focusing on areas that have already been really, really changed, where there's been a lot of shrub encroachment, and where it's already shifted to exotic grasses like Lehmann's lovegrass.

Healthy Pollinator Populations

Native open grasslands, with their rich mix of grass and forb species and expansive range, provide critical habitat for thousands of pollinators: bees, butterflies, beetles, bats, birds, and moths, to name a few. Pollen transferred between flowering plants produces fruit and seeds that serve to nourish a wide variety of species, while pollinators themselves serve as an essential food source for birds and other vertebrates.

Loss and degradation of native grasslands has reduced both foraging and nesting habitat for pollinators and as a result has had a devastating effect on pollinator populations.[19] Moreover, the numbers of pollinators and the species that depend on them have been drastically reduced in areas where

URE 5.12 (*a*) Flowering agave. phen Strom.) (*b*) Mexican long-ued bat. (Bruce Taubert.)

native grass and forb mixes have been replaced by monocultures of invasive grasses.[20]

Sustaining existing native grasslands is critical to maintaining pollinator habitat. Restoring grasslands by reducing shrub and woody plant populations offers the possibility of mitigating the alarming decline in the number of bees and other pollinators.

Species Diversity

The eastern Sulphur Springs Valley is located at the heart of the Madrean Archipelago ecoregion: a biological hotspot noted for its impressively large variety and richness of floral and faunal species.[21]

A number of rare or sensitive species depend on the region's grasslands—the black-tailed prairie dog, white-sided jackrabbit, lesser long-nosed bat, yellow-nosed cotton rat, and white-sided jackrabbit—as do a suite of grassland birds, including Botteri's, Baird's, and Cassin's sparrows, the northern Aplomado falcon, and the western burrowing owl.

Moreover, grasslands in the eastern part of the valley have for the most part not yet been significantly fragmented. As a result, habitat patches are relatively intact and connected by long movement corridors. Here, bears, mountain lions, and wildcats find the space they need to hunt and to find mates drawn from diverse gene pools.

Elsewhere in the Southwest, mammals that depend on large habitat patches and unfragmented landscapes are disappearing, and many grassland birds are declining as grasslands are degraded or heavily severed by encroaching development.

Aesthetic and Spiritual Value

Grasslands offer deep satisfaction to the senses and the soul: silence, serenity, solitude, and communion with earth and sky. On some days, the only sounds are those of birds, the occasional insect, and grass rustling and swaying in response to a gentle breeze. Grasslands are a place whose near-infinite horizons invite introspection and humility and a renewed recognition of connection to things much larger than oneself. Perhaps the aesthetic and spiritual power of grasslands lies not only in their vastness but in their evocation of deep memories of the African savanna from which we emerged as a species eons ago. Could the sounds of a grasslands be a call to return home?

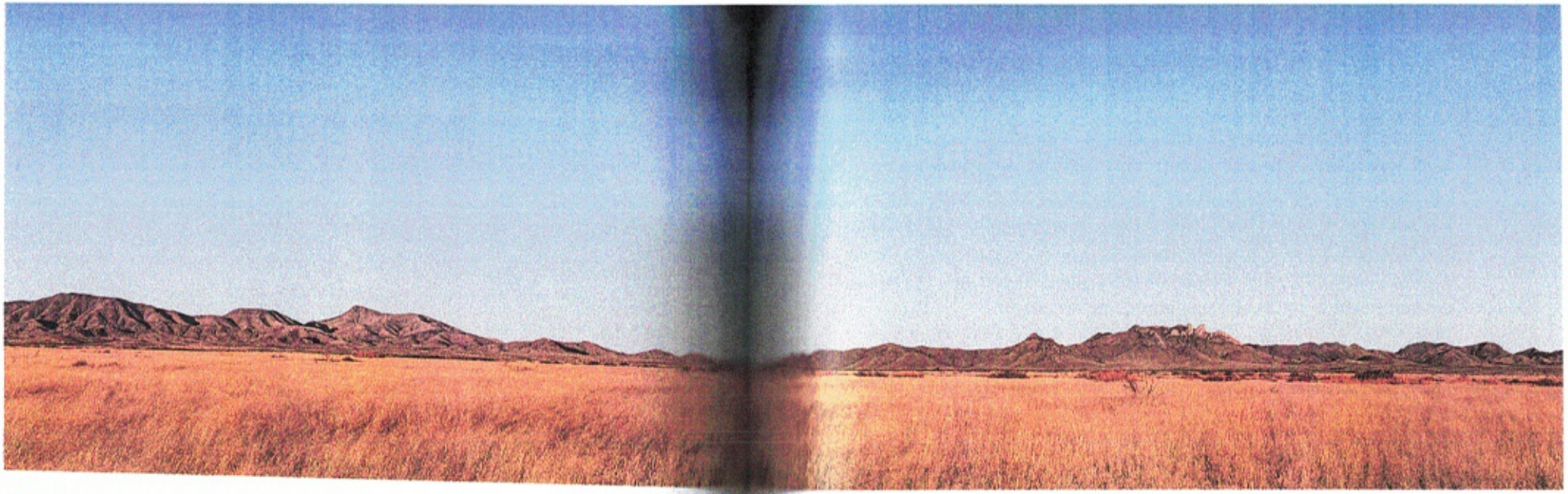
The Challenges of Protecting Grasslands

In the southwest, preserving grasslands depends on keeping large, contiguous rangeland intact and healthy. Most of the grasslands in southeastern Arizona and southwestern New Mexico are owned by ranching families. But sustaining a living by raising cattle is not only incredibly hard work; it is also economically challenging.

Josiah Austin captures the difficulties inherent in running a profitable cattle operation:

> Ranching is a terrible business. The average ranch in the United States makes minus 1½ percent on its assets. That's the average ranch. So there are many more ranches that lose even more and there are ranches that make a little better. I'm trying to figure out how to make it, I won't say profitable, I'll say sustainable. What I've done has resulted in my ranching losing quite a bit more than 1½ percent on current assets. The main reason is because of the restoration efforts I'm doing and the infrastructure that I'm putting in, the pipelines, the wells, the solar pumps, the earthen gully plugs.

Bill McDonald, Malpai-area rancher and former president of Malpai Borderlands Group, reinforces Austin's point: "If an average guy wants to go out and buy a ranch, you just can't do it. There's just no way you can buy a real ranch and pay for it with cattle."



URE 5.13 Cienega Ranch grasslands at sunset. (Photo by Stephen Strom.)

FIGURE 5.14 Malpai Borderlands grasslands viewed from the Krentz Ranch. (Photo by Stephen Strom.)

Austin then summarizes the difficulty in keeping ranchland intact: "It's a tough way to make a living and pretty much anybody who owns a ranch free and clear could take that ranch, sell it, and put the money into something that pays 3 percent and you'll make 3 percent consistently forever. It would be a lot more than you will make ranching."

What keeps him going is a deep love for and connection to the land and a commitment to conserving and improving his ranch:

> Every day I drive down Arizona State Route 186 or drive through my ranch, it puts a smile on my face. It just makes me feel good to see this open space. When I sit where I'm sitting right now, I'm looking all the way over to the Chiricahuas. I'm looking all the way down to the Swisshelm Mountains. I can see all the way to the Huachucas. To me that is a tremendous dividend. Can it be converted? I mean, I can't eat that dividend. I can't take that dividend out and buy groceries or buy hay but it certainly is one of the dividends that this ranch pays me.

Bill McDonald, Josiah Austin, and others in the Malpai Borderlands Group who share their commitment to preserving grasslands have ensured that their ranches will remain intact forever by placing their land under conservation easement.[22] But Austin and the ranchers involved with the Malpai Borderlands Group have also demonstrated a path forward for others aspiring to preserve large, intact landscapes. Well-written conservation easements can be an effective tool for both helping ranchers sustain their way of life and also ensuring that land practices that support a healthy ecosystem are carried out over expansive areas now and into the future.[23]

As we gaze over the grass-covered rolling hills of his ranch, Austin reflects on the mindset required to undertake efforts to restore grasslands to full health: "It takes a long time. A lot of what I'm doing now, people won't start feeling the benefits until I'm long dead and gone. Sometimes you see immediate results and sometimes it might take 30 or 40 years before you really see it. It's like planting a tree. It's not really going to look good for 100 years." As the sun sets, Austin smiles, and says, "Look at that native grass coming up. The sun shining on it. This is one of the things that makes it worthwhile. Just looking out here, just seeing the beauty of these grasses."

SYNOPSIS

OVERVIEW

Cienega Ranch is located in Sulphur Springs Valley of Arizona, an area containing one of twelve grasslands in the Southwest identified by The Nature Conservancy as prime targets for conservation and restoration. Along with nearby protected federal lands, the eighty-thousand-acre ranch provides habitat for more than sixty threatened or endangered species, and long, unfragmented wildlife movement corridors.

Owner Josiah Austin has raised cattle on the Cienega for almost forty years. During that time, Austin has worked with the Trust for Public Land and the New Mexico Land Conservancy to place conservation easements on much of his rangeland, and with federal agencies and NGOs to carry out extensive restoration projects to improve grassland health and watershed function.

CATALYSTS FOR ACTION

Over the past fifty years, much of the grass-rich bottomlands in the Sulphur Springs Valley have been converted to vineyards and irrigated cropland or been populated by houses for retirees and part-time residents. Wildlife habitat in those regions has been fragmented.

MEETING THE CHALLENGE

In 1982 Josiah Austin and his then-wife, Valer, began to purchase ranchland in the Sulphur Springs Valley with the twin goals of preserving remaining healthy grasslands and improving ranches that suffered from overgrazing.

Over the years, the couple worked with NGOs and land trusts to place ranchland under conservation easement, and to then use the funds received from the easement transactions to restore lands damaged by soil erosion and improve habitat for wildlife.

The North Star guiding the Austins' efforts is the belief that economically viable working ranches represent one of the best options for protecting open spaces and wildlife habitat.

ELEMENTS OF SUCCESS

- Access to personal funds and willingness to invest in land restoration and protection
- Successful collaboration with NGOs in raising funds for conservation easements
- Funds reinvested from purchase of conservation easements in further land acquisitions and in restoration efforts

- Collaboration with the Malpai Borderlands Group in advancing conservation goals and experimenting with rangeland management practices recommended by the MBG science advisory team

ACCOMPLISHMENTS

- Arresting soil erosion and incision of grasslands by gullies and arroyos
- Installing forty thousand rock structures and dams designed to slow runoff from rainstorms
- Enhancing habitat connectivity for endemic and migrating species
- Installing drinkers for both cattle and wildlife
- Reintroducing threatened or endangered species
- Planting large numbers of agave to provide nectar for rare species of bats
- Reintroducing the black-tailed prairie dog, once an apex species in Southwest grasslands

FUNDING

- Land trusts: Trust for Public Land; New Mexico Land Conservancy
- NRCS funding for conservation easements through the Agricultural Conservation Easement Program
- NRCS funding for land restoration through the Environmental Quality Improvement Program
- Foundation funding from the Nina Mason Pulliam Charitable Trust and the National Fish and Wildlife Foundation's Acres for America program, supported by Walmart
- Donations from the Malpai Borderlands Group
- Donations from private individuals

ONGOING CHALLENGES AND THREATS

- Sale of Arizona State Trust land: Cienega Ranch operations depend on leasing rangeland from the State Land Department
- Finding matching funds for the Agricultural Conservation Easement Program

CHAPTER 6

Restoring and Stewarding Lands

Humanity is a biological species, living in a biological environment, because like all species, we are exquisitely adapted in everything: from our behavior to our genetics, to our physiology, to that particular environment in which we live. The earth is our home. Unless we preserve the rest of life, as a sacred duty, we will be endangering ourselves by destroying the home in which we evolved, and on which we completely depend.

—E. O. WILSON

Overview

Achieving Large-Landscape Goals Collaboratively

In the past, conservation goals have frequently been achieved in the wake of pitched battles between environmentalists and other interest groups; from top-down, agency-driven planning processes; or by executive action. The previous chapters provide examples of how a different approach—collaborative conservation—can successfully integrate human and environmental needs on ecosystem and regional scales while creating a positive social context for long-term cooperation among stakeholders.

- **Establishing a federally designated conservation area:** A broadly based collaborative, the Sonoita Valley Planning Partnership, worked for more than five years with the Bureau of Land Management to develop a plan to manage the Empire Ranch at the heart of the Cienega Creek watershed. The partnership's efforts culminated in establishment of the forty-two-thousand-acre Las Cienegas National Conservation Area. Once designated, the NCA protected large tracts of native grasslands, riparian areas and cienegas, watershed function, and an unfragmented wildlife movement corridor spanning more than fifty miles in the Sonoita Valley. The citizen-