



# The Arizona Riparian Council Newsletter

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## Buffelgrass - Sonoran Desert Nightmare

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A plant taxonomist's nightmare is coming true in Sonora. A single, alien plant has taken over the landscape. The same plant is permanently changing the entire Sonoran Desert. Over the next few decades it may destroy untold areas now populated by the cacti, the trees, the shrubs, the herbs, that make our desert so appealing.

The alien is here in Arizona because myopic agronomists and bureaucrats in the U.S. Department of Agriculture (USDA) Soil Conservation Service (SCS) brought it here, using our tax money. In Sonora, Mexico, the plant is steamrolling through the desert, thornscrub and tropical deciduous forest, thanks to subsidies paid by Mexican taxpayers. It is ravaging native plants. Nuisance aliens such as tumbleweeds and saltcedars are benevolent by comparison.

It is a grass from Africa called buffelgrass, *Pennisetum ciliare*. In the 1940s a South African researcher collected the grass near Lake Turkana in Africa's Great Rift Valley to improve forage in his country's drylands. The

plants were tested and released in South Africa and shipped to the United States in 1946. These were successfully established in Texas and only three years later, in 1949, SCS released a strain of the grass labeled T-4464. Today it is established in about 10 million acres in Texas, 14 million acres in Mexico and nearly 20 million acres in Australia.

It was imported to foster range improvement. The idea was to produce more beef. Buffelgrass arrived in the United States free of its natural enemies, organisms that keep it in check. It was tested in Texas, then in Monterrey, Mexico.

The results appealed to ranchers. Big increases in beef - they found. It grew into a bully grass - tough, aggressive, mean. Cows ate it and grew fat. It was tried it in

Arizona and California, but Mexico, it turns out, has a better climate for the grass. In a humid climate, the grass is subject to devastation by insect and fungal infestations. In harsh desert it does not receive sufficient moisture. In the more moist portions of the Sonoran Desert, however, and in thornscrub and tropical deciduous forest, the rainfall is usually sufficient and long dry seasons kill most disease-bearing organisms.

Mexican agronomists at SARH (Mexico's equivalent of USDA), with help from their counterparts in the USDA, took buffelgrass to Sonora and planted it 30 or so years ago. It produced better weight gain per acre on cows than native grasses did. It has been so successful in Sonora that around

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## Buffel - from Page One

Hermisillo and throughout central and southern Sonora—everywhere below 2900 feet in Sonora (its upper limit) it has changed the landscape. The hills formerly dressed with ocotillos, elegant Willard acacias, burseras, and giant cacti, are now covered with a uniform, dense mantle of buffelgrass, except where cows have gnawed it to the ground.

Mexican researchers found that the buffelgrass grows even better if they strip all other vegetation from the land, scoured it clean, and planted just buffelgrass. It worked - for cows, at any rate - worked so well that ranchers have torn up immense amounts of desert, scrub forest, tropical forest, bulldozed every native plant from the earth, and planted buffelgrass. They've rooted out the desert, scraped away the scrub. When they found it won't grow in the forest, they've cut down the forest. A new industry has been spawned by woodcutters who follow the bulldozers: they cut up the downed and uprooted trees and roast them into charcoal - some of it for export to the United States. The rancher may earn enough by selling firewood rights to *carboneros* to cover the cost of the *desmonte*—clearing.

Now the cows can eat everything that grows. No nonedible plants, far fewer birds and furry mammals. After a rain the pasture looks pretty, a rich green. When it dries out it's stiff, tough and nasty, of little value as forage; it pokes cows in the eyes, some ranchers say.

But the bulldozers are still tearing away. Two million acres in Sonora have been offi-

cially cleared, heading for fourteen million, by government estimates. That's every bit of the Sonora below 2900 feet with rainfall in excess of 8 inches. The Sonoran government now offers to pay one-third the cost of stripping away the desert, scrub or forest. The combination of the government subsidy and the firewood concession are too good to resist. Everyone is invited to join the buffelgrass express.

Recently, however, SARH issued a regulation called "directives for the improvement of the range." In this footnote, Mexican government technicians mention the value of winter forage provided by desert trees at a time when buffelgrass is dry stubble with no food value. In other words, they've suggested to ranchers that it would be a good idea to have something for cows to eat in the winter. This directive makes the recommendation of leaving some trees and not bulldozing the arroyos. This futile attempt to stop the wanton destruction of the desert comes too little and too late, after 2 million acres have been ravaged. Once the bulldozer gets rolling, swerving to avoid trees and shrubs is a nuisance. Trees of the thornscrub and the tropical deciduous forest cannot survive in isolation. They suffer sunburn, are buffeted by winds and more prone to disease. Few survive more than a couple of seasons after the *desmonte*. Once the desert legumes are gone, nothing is left to enrich the soil. Without the trees, cows have no shade and may suffer severely from exces-

sive exposure to the sun.

It gets worse. Sonorans have learned one peculiar and painful fact about buffelgrass: it loves fire and burns like a torch. It even burns when still green and sprouts anew immediately after the flames die down. The burning grass torches fenceposts, so ranchers have to replace wooden posts with concrete. For smalltime ranchers this can be a backbreaking expense. The electric company has had to fit all wooden power poles with a skirt of galvanized steel sheeting to protect them from fire. Buffelgrass roots flourish in the ashes. Wildland fires, almost unheard of a few years ago, are now extremely common during the dry months of the year. From Sonora come reports of a 3000% increase in wildland fires for the City of Caborca. During April to June 1994 a wildfire occurred in the Hermosillo area every three days, invariably fueled by buffelgrass growing in city lots or in nearby fields. In the desert the fires, rarely seen before, burn whatever else is growing.

Most native desert plants do not survive fire. Saguaro, chollas, palo verdes, ironwoods, all of them die when burned, some quickly, others experiencing a slower, creeping death. Buffelgrass, by contrast, needs fire, invites the fires that threaten to kill our Sonoran desert. The dried grass helps fires spread. Then it moves in when the competition has died, choking out all other aspiring plants. It hates company.

The Sonoran Desert doesn't burn naturally. This spring's fire in Saguaro National Monument killed desert plants where fires were

previously unknown, probably because invading, non-native grasses (in this case an introduced Mediterranean grass called red brome (*Bromus rubens*) provided fuel. Unlike plants that have evolved in different parts of the globe, Sonoran Desert plants have no resistance to fire. Where fires occur, the familiar desert is gone, perhaps forever.

A decade or so ago buffelgrass showed up in some yards in Tucson. It formed dense clumps, a pretty green that turned harsh yellow-brown when it dried. It was hell on a lawn. It couldn't be mowed. People cursed the stuff. Some dug it up. Then it disappeared with hard freezes. Now it has returned following several years without a hard freeze.

Before long it started appearing on Tumamoc Hill, near downtown Tucson. It has grown all over the Hill, sprouting and spreading among the desert plants as it has all over Sonora, providing excellent fuel for wildfires. Then it appeared in the Tucson Mountains, later in Saguaro National Monument, where park officials try to root it out. In the absence of frost, which makes the grass die back, it has flourished in the Tucson Basin. Now it is found throughout the Sonoran Desert except where it is too dry. Buffelgrass is on a roll.

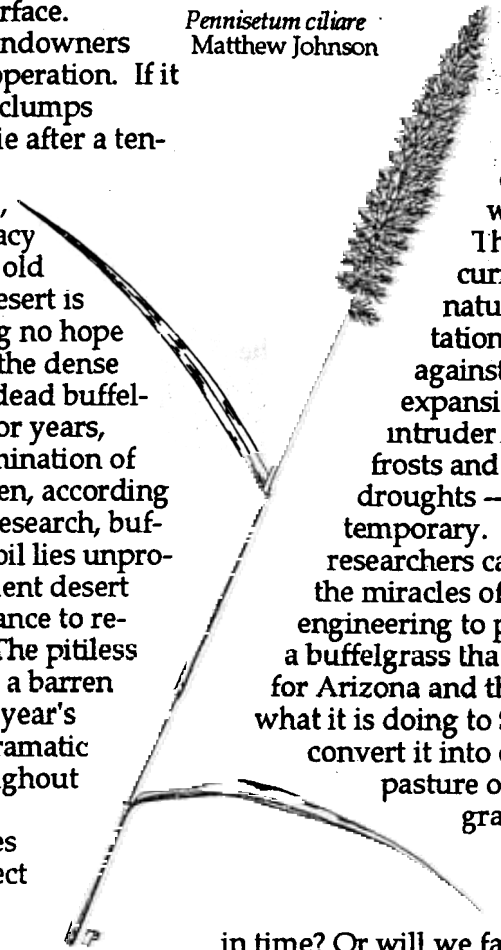
Nothing is free. After a few years of using buffelgrass the grazing has sucked away most of the soil nutrients, so the rancher must resort to prescribed fires, subsoiling, and reseeding. In other words, the entire range must be deep-plowed again to bring nutrients deep in the

soil up to the surface. Only wealthy landowners can afford this operation. If it is not done, the clumps deteriorate or die after a ten-year suicidal mission. Behind, they leave a legacy of sterility. The old growth of the desert is removed leaving no hope of return while the dense root mat of the dead buffelgrass survives for years, preventing germination of other plants (even, according to preliminary research, buffelgrass!). The soil lies unprotected. The ancient desert cover has no chance to re-establish itself. The pitiless desert sun sears a barren landscape. This year's drought gave dramatic testimony throughout Sonora as the buffeled pastures took on the aspect of dust bowls.

Bigtime ranchers plant the buffelgrass on thousands of acres of their estates, right up to the edge of Sonoran Indians' lands. The original Sonorans report unanimously that it is now hotter and drier and that game and wildlife have dwindled since the advent of the grass. The former cover of forest or scrub absorbed the heat. The yellowed grass reflects it, driving temperatures higher. There is no refuge for animal life in the one-plant sea. Climatic change brought about by buffelgrass planting is an area the cries out for research.

SCS has spent millions of our tax dollars searching for new grasses to import, for strains of buffelgrass that will be frost hardy and drought tolerant. If buffelgrass will yield more beef there, then

*Pennisetum ciliare*  
Matthew Johnson



why not here? Why not everywhere? The current natural limitations against the expansion of the intruder — hard frosts and long droughts — are but temporary. SCS researchers can use the miracles of genetic engineering to produce a buffelgrass that will do for Arizona and the West what it is doing to Sonora — convert it into one vast pasture of one grass. Can we stop them

in time? Or will we face a desert of buffelgrass that grades into a grassland of pure Lehmann's lovegrass?

Will SCS continue to bring in more alien plants, willing to sacrifice every other consideration on public and private lands alike to the appetites of cows? Or will they turn their attention to correcting the damage caused by imported grasses? The Mother's Day fire in Saguaro National Monument, for example, destroyed untold saguaros and thousands of acres of desert. A crash program to control the culprit red brome grass would save huge areas of desert from conflagration. It is not unreasonable to steer SCS in the direction of intensive research to heal the harm their programs have wrought. SCS has filed no environmental assessments, held no

## RIPARIAN COUNCIL FALL GET-TOGETHER

This year's Arizona Riparian Council Fall Get-Together will be held on the property of Planet Ranch on October 15 and 16. The purpose of our annual get-together is to have a camp-out and meet informally with resource managers and people involved in the area to know more about riparian issues in Arizona. There are many interesting issues that are occurring in that watershed which includes the Bill Williams River and the Santa Maria River and we have several speakers lined up to tell us more about them starting At 1:00 Saturday afternoon.

Eric Swanson of the Arizona Game and Fish Department (AGFD) will talk about the work of the Interagency Committee on their studies on the Bill Williams River and Alamo Dam. The Interagency Committee is made up of AGFD, Bureau of Land Management (BLM), U.S. Army Corps of Engineers, and the U.S. Fish and Wildlife Service (USFWS). Two other people involved in those studies, Sara Hooper and Cliff Bobinski will discuss the Ecological Site Inventory that BLM is doing on the Bill Williams and wilderness issues in the area.

An overview will be given on the City of Scottsdale's role on Planet Ranch. Nancy Gilbertson, Preserve Manager of the Bill Williams U.S. Fish and Wildlife Refuge, will present current topics involving the refuge and the USFWS Ecosystem programs. Someone from the National Biological Survey (NBS) will discuss the interests NBS has for this area.

In the evening, Matt Pierce and Jon Kennedy will talk about the Santa Maria, "the forgotten river." They will discuss such topics as grazing issues, burros, and management plans for the watershed. On Sunday morning, Tim Tibbitts of the USFWS will provide an update on the Southwest willow flycatcher inventory and lead a two to three hour hike along the Bill Williams River. Bring binoculars, water and lunch and be prepared to get wet feet.

CH2M Hill and the Design Center are sponsoring dinner on Saturday night. Bring your own camping gear and food for other meals. Restrooms will be provided at the ranchhouse. Dogs are allowed on the Planet Ranch property and you may bring alcohol.

The southwestern part of the state has many issues and activities related to riparian areas. Make plans now to attend and return the enclosed registration form by October 3.

**Please see the insert in this newsletter for a map and registration form.**

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held no public hearings, requested no public comments when introducing a new grass. Their actions can have more devastating environmental consequences than any other program of the U.S. government, but that has not deterred them. Will they turn their efforts to improving our ravaged rangelands by developing better management techniques or will they attempt to squeeze ever more production from the land, thus mortgaging our ecological future? They need pressure from us to change their ways. If you would like to help, contact Matt Johnson at (602) 749-2547. He is forming an action group called "S.O.B., Stamp Out Buffelgrass!" S.O.B. hopes to hold a conference in Fall 1995.

**In the Winter Issue of this Newsletter, SCS will be invited to present its viewpoint.**

### Wildlife 2000 Survey

A new Arizona Game and Fish Department (AGFD) survey reconfirms results of previous surveys by State Parks, AGFD, and the Morrison Institute. People want open space and riparian habitats preserved. For example, 89% of respondents agree that "Arizona's wetlands are important to the survival of wildlife and should be vigorously protected." The results are only slightly less for rural areas (76%) compared to Maricopa County (84%) and Pima County (93%). When asked to prioritize land uses, 71% ranked wildlife protection first, followed by recreation, grazing, mining, logging and urban development. Many other interesting questions were asked in this survey, which was conducted by the Behavior Research Center.