Reported By Arizona Republic News

Stranglehold

Arizona's deserts are choking to death

Aug. 7, 2005 12:00 AM

Invaders are destroying the Arizona desert.

The enemies are aliens - not creatures from another world but aggressive plants that aren't native to this area.

Weeds on steroids.

These invasive plants can out compete native species and fuel devastating wildfires.

They're burning and strangling the Sonoran Desert to death.

The postcard views are disappearing: chollas glowing in the sun, spiky ocotillos tipped with scarlet flowers, saguaros standing like sentries.

And the invaders, especially non-native grasses, are taking over. Up the Beeline Highway toward Payson. Out U.S. 60 toward Superior. Around Roosevelt Lake.

More and more places have lost their familiar cactus-studded landscape and now resemble the African savannah.

"It's like turning the Sonoran Desert into a farm for grass," says April Fletcher, Southwestern invasive species coordinator for the U.S. Fish and Wildlife Service.

The wildflowers are going, too.

This spring, a plant called Sahara mustard stormed into desert fields that should have displayed a rainbow of wildflowers.

Instead of a bright mix of purple owl's clover, blue lupine and yellow desert marigold, acre after acre was nothing but solid green mustard. At Lake Mead National Recreation Area on the Nevada-Arizona line, the density reached levels as high as 3 million plants per acre.

This is far more than a loss of scenery, although that's serious enough in state where tourism is a $30 billion industry. Invasive plants steal wildlife habitat. They reduce property values. They feed wildfires, which threaten lives, destroy property and cost millions to fight.

Just how bad can a weed be?

Other states know all too well. The toll of just one plant, leafy spurge, on grazing and wildlands in Montana, North and South Dakota and Wyoming is estimated at $129.5 million a year.

For many reasons, including our harsh climate and the barrier of the Grand Canyon, Arizona has had fewer weed problems than other states.

But advance troops of exotic plants have been moving into the state for years.

Seeds hitch rides on vehicles. They come mixed in with feed and seed mixes from out of state. Some problem plants, like fountain grass, are sold in nurseries for decorative use and then escape into the wild.

The University of Arizona's Tumamoc Hill research station in Tucson had just three non-native species in 1906. By 1983, it had 56.

This year's heavy winter rains gave invasive species a shot of adrenalin. Weeds that seemed a minor problem became a major menace.

These plants may be harmless in their native environment. But they go bad when they hit a place that lacks their natural predators and diseases. Other factors give them an edge, too.

They grow rapidly. They produce massive quantities of seeds that remain viable for a long time - a single Sahara mustard can have 9,000 seeds.

Many weeds seize turf by germinating earlier than native plants and outstripping them. By the time a sand verbena, a delicate wildflower, has grown an inch wide, Sahara mustard is a foot across.

Buffel grass, one of the nastiest invaders, sucks moisture out of soil so efficiently that even trees can't compete. Paloverdes in thick stands of buffel grass become so parched that they "self-prune," dropping branches to reduce their need for water, eventually pruning themselves to death.

Weeds aren't just choking the desert, they're torching it.

Unlike some eco-systems, such as forests, the desert didn't evolve with fire. Adapted to survive the very driest years, native plants have sparse vegetation and are spaced far apart, leaving most of the landscape open. Lightning occasionally starts a blaze, but it doesn't travel far.

Invasive species fill in all the spaces, ready to carry a fire for miles. Red brome, a non-native grass, is a major culprit in stoking fires in the Phoenix area. It fueled the lower elevations of the recent "Cave Creek Complex" fire, searing about 50,000 acres of Sonoran Desert and racking up $3.6 million in fire-fighting costs.

Saguaros and other plants of the Sonoran Desert never developed tough skins, flame-resistant seeds or other strategies to deal with fire. Invasive plants, on the other hand, come back thicker than ever.

Buffel grass forms dense bunches that have more than 10 times the fuel load needed to carry fire in the desert.

"The more it burns, the more frequently it will burn and the hotter the fire will be," says Travis Bean, a researcher at Tumamoc Hill.

Buffel grass will fuel wildfires in winter, when we didn't have them before, predicts Julio Betancourt of the U.S. Geological Survey. We're poised for more transportation disruptions from highway fires, like this year's closures of Interstate 17 and the Beeline Highway.

Cities are likely to see ferocious new blazes. In Phoenix, buffel grass infests the slopes of Piestewa Peak so heavily that you can see the tan patches from downtown high-rise windows eight miles away. Fountain grass has fed half a dozen fires at South Mountain Park this year.

The way we're headed, says Mark Dimmitt, director of natural history at the Arizona-Sonora Desert Museum, "a few decades from now, I would expect huge areas of the desert to be reduced to wasteland."

Most of the animals won't be there anymore. Not Gila woodpeckers, elf owls, hummingbirds or javelinas.

The transformation is lethal to desert tortoises, which perish in fires and lose the cover that protects them from predators.

It doesn't have to happen. But we must mobilize quickly on several fronts:

• **Education.** We have a lot of catching up to explain the threat and help people recognize invasive plants on their own property. Reports about desert fires should emphasize that they aren't natural and identify the non-native plants that fueled them.
• **Information.** Infestations must be mapped and analyzed. We need a better idea of the most effective modes of attack and more research on biological controls.
• **Structure.** Arizona is just starting to get organizations and cooperative frameworks in place to deal with invasive plants. Another urgent job is to set priorities on which plants to fight and where.
• **Resources.** Of course, we need more money. It's especially critical to step up weed management along roads: Runoff and the warmth from asphalt create ideal conditions for invasive plants to grow and spread. Volunteers can also play a big role, if there's an effective way to mobilize them.

Some people will say that this invasion is too expensive and difficult to fight.

But the costs and risks of doing nothing are far higher than the price of eradicating weeds.

If we give up, some of the most breathtaking views of the Sonoran Desert will only exist on old photos and postcards.

Pretty killers

Strong backs and big bucks needed to fight those bloomin' weeds

Aug. 8, 2005 12:00 AM

You might mistake Malta starthistle for a wildflower. The bright yellow blooms look pretty enough.

But this weed is a disaster for Arizona.

It can poison livestock. It degrades wildlife habitat. It increases erosion, because its taproot does little to hold soil in place. It's pushing out native plants, including the endangered Arizona cliffrose. It's ruining campgrounds in the Tonto National Forest, taking them over in spiny thickets.

When there's a flood or an earthquake or hurricane, we pull out all the stops.

But weeds?

It's hard to get people to take them seriously.

Yet weeds like Malta starthistle are laying waste to Arizona's distinctive landscape. They're replacing native vegetation and fueling vast wildfires that wipe out desert plants for good. More and more stretches of the Sonoran Desert are losing saguaros, chollas, ocotillos and palo verde trees. The magical scenery that exists nowhere else on earth, with its strange creatures like javelinas and Gila monsters, is disappearing.

Arizona needs to mobilize. We need all the strategies for confronting a disaster: good information, adequate resources, public awareness and a sense of urgency.

The first step is understanding the problem.

We don't need to worry about every weed and non-native plant. The threat comes from invasive plants, which aggressively displace existing native varieties. The invasives were introduced to Arizona in various ways, maybe intentionally as ornamental plants or accidentally mixed in with other seeds.

With no pests to rein them in, they outcompete native plants: germinating earlier, growing faster, grabbing nutrients and putting out massive quantities of seeds. Dense stands of red brome, a non-native grass that fed the recent "Cave Creek Complex" fire, can produce 83,600 seeds per square meter.

The spread of invasive weeds, experts say, is like an explosion in slow motion.

Tracking down weeds

To defend Arizona, we need to know where the infestations are. Unfortunately, our tracking system falls short.

A regional database and mapping project, the Southwest Exotic Plant Information Clearinghouse, was set up in the late 1990s. It's a joint effort of the U.S. Geological Survey, National Park Service and Northern Arizona University. But it runs on a shoestring. And the entire setup is voluntary, so the data are spotty and haphazard.

We must invest the resources to make the clearinghouse a more effective tool.

Vast stands of Sahara mustard, for instance, have smothered out other plants along Highway 93 northeast of Wickenburg. We need to know how far the weed has advanced and how much it has invaded the picturesque forest of Joshua trees.

Overall, Arizona is just getting organized to fight weeds, while other states have well-developed systems. Colorado, for example, not only has a state weed-management plan, but also requires each county and municipality to have one.

Gov. Janet Napolitano signed an executive order April 1 creating a 27-member invasive species advisory council, which will make recommendations for a statewide strategic plan. But the council still isn't up and running.

We're behind the curve at the local level, too. States such as Colorado, Idaho and Montana have county weed districts, whose authority may include the ability to levy taxes.

Arizona has a handful of voluntary regional weed management associations. The association for central Arizona was just established in October. The associations are an important step forward for coordination among land managers, but they lack dedicated resources and legal authority.

'Catch it early'

We can't afford to sit back until all the systems are in order.

The cost to control an invasive species doubles or triples for each year that control efforts are delayed, according to the U.S. Government Accountability Office.

"Catch it early," advises Sue Rutman, plant ecologist at Organ Pipe Cactus National Monument. And don't be afraid to start small.

She knows.

Back in 1994, Rutman noticed an invasive plant, buffel grass, growing along the road through the monument. And she could picture the future: Buffel grass would spread throughout Organ Pipe, muscling out native plants. It would burn easily, fueling ferocious wildfires.

Rutman didn't have money or staff to go after buffel grass. But she just couldn't let it go.

She started with the visitor center, tapping volunteer help to clear out the buffel grass there. The tools: strong backs and shovels. Over the next few years, with a boost from a small federal grant, they managed to dig out all of the major patches of buffel grass in the monument.

And they've kept it out with vigilance and quick attacks on any new infestations.

Rutman's project got a big lift from 16 college students, who surveyed a square mile and removed the invading grass in three days.

There are other creative ways to get brawn. The city of Globe put inmates to work when county extension worker Meckenzie Helmandollar warned that Sahara mustard was taking over hillsides. The crew took out 3 tons.

A place for herbicides

Muscle power isn't enough, though, if the invading weeds have spread too far or gotten into sensitive places, such as archaeological sites.

That's when herbicides make sense.

At Saguaro National Park outside Tucson, restoration ecologist Danielle Foster turned to Roundup after years of hand-pulling failed to make a dent in the buffel grass.

"It took me a while to come to the realization that herbicides are good when done appropriately," she says. With a modified recipe and carefully timed applications, she's been able to eliminate large stands of buffel grass and let native plants grow.

Since so many invasive plants are grass, grazing might seem like a logical tool.

It's not. Grazing actually encourages grass to grow, and it opens the way for other nasty plants like Malta starthistle. Invasive grasses are moving into places where we couldn't put cattle anyway, such as rocky slopes and roadsides.

The Holy Grail of weed control is some biological agent - a lethal disease or a voracious insect - that would kill off the target without harming other plants. We should support research to find it, while realizing how difficult the job is. Sahara mustard, for instance, is closely related to broccoli and other food crops, which could become collateral damage.

The hard truth is that we can't get rid of invasive plants everywhere. We have to make tough choices and set priorities. When the infestations are too far gone, the only option may be to set a perimeter, making sure the weeds don't spread beyond it and, over time, beating them back. We can also take extra steps to protect parks and other special places.

The dollar gap

Unfortunately, there's one thing tougher than invasive plants: Getting the money to fight them.

On that point, Arizona trails many other states. Montana, which has a detailed weed-management plant, spends $19.3 million a year to fight noxious weeds. The weed program in its agriculture department has four full-time employees and a $277,000 operating budget.

Arizona has no budget for controlling weeds, although the Arizona Department of Transportation uses a chunk of its $3.7 million natural-resources budget on the job. Our Department of Agriculture has a single position of noxious weed program coordinator, and it's been open for more than a year.

Land managers in Arizona have to scrape up snippets of weed-control money through grants, which often limits how they can use the funds and fails to provide a consistent stream of dollars.

The federal government is finally waking up to the threat of invasive species. Not just in Arizona, but across the United States. Weed infestations are increasing 8 to 12 percent a year on U.S. Forest Service lands alone.

Starting in fiscal 2005, Congress authorized an extra $15 million annually for grants to fight noxious weeds. That's a 40 percent increase over the money available before. Considering the scale of the threat, though, it's awfully puny - less than the cost of adding a single freeway interchange on Interstate 17 in the north Valley.

To tap the federal funds, Arizona must be ready to put up matching funds.

We can do it. But we need the public will.

Too many people don't understand why they should worry about noxious weeds, says Jim Horsley of ADOT's natural-resources section.

Until an aggressive vine called camelthorn comes up through their driveway. Until Malta starthistle keeps their kids from playing in the back yard. Until buffel grass fuels a wildfire that threatens their home.

Written and researched by Kathleen Ingley.