# Mucking Around in Mammoth Proportions

## Chained sagelands, transplanted goats, cloned Ice Age species — what's the limit of a "good idea"?

BY JULIA CORBETT

If you've tuned out all things biological this spring, you might not have heard of the campaign to pink up the Great Salt Lake. And I'm not talking high saline concentrations. A group of pink flamingo enthusiasts wants to buy some friends for "Pink Floyd" – the Chilean flamingo that winters there since his escape 15 years ago from a local aviary – so he won't "get lonely." In addition to the benefits of flamingo friendship, these folks believe a showy pink flock would attract tourist dollars, and heck, with a changing climate, it might happen in another 100 years anyway.

The flamingo flap is notable because discussion is taking place before the tinkering. Often we examine our good ideas only after they've gone awry and their consequences spread. Although Floyd's escape has produced few consequences (that we know of), the escape of other exotics has produced severe impacts.

Headlines a couple of summers ago concerned the snakehead fish – an evil-looking creature right out of a bad B movie, able to walk on land, with ferocious teeth and a killer appetite. The snakeheads in the news were released by an Asian man who ordered two live fish to make a soup for his ill sister. By the time the fish arrived, the sister had recovered, so the man released the fish in a pond near his house – an ignorant but well-intentioned act. But given that snakeheads have been found in six states and thousands are imported by seafood sellers and aquarium shops, he's not the only one who released his "good idea." Southern crayfishes escaped from California fishermen using them as live bait now devour native tree frogs, newts and salamanders. A seaweed that was a good idea in saltwater aquariums slipped down someone's drain and now smothers ocean habitat.

Some exotic imports we get very attached to. In the late '70s, I was a naturalist at Olympic National Park. Sometimes on my days off, I'd climb the steep switchbacks to Klahani Ridge to help my friend Peter, who was studying the ecological impacts of mountain goats. I'd help him measure their wallows, expansive dust bowls

carved out of luxuriant high alpine meadows. But mostly, I wanted to see the goats and help rope them. We set loop snares and waited in the shrubbery for an unsuspecting goat. Yank! and we'd dash out with a blanket for the eyes and lengths of garden hose to cover the sharp black horns. Measurements were shouted out for length, girth, teeth, age and sex. Blood was drawn. If there were enough "goat ropers" that day, the animal was hoisted into a sling and weighed. The final touch: fastening a brightly numbered tag in one ear.

The mountain goats were the good idea of Seattle newspaperman E.B. Webster and his mountaineer club 80 years ago. They convinced the national park to trade some of its endemic Roosevelt elk (named for the president who established the park) for 12 goats from Canada. At their peak, the 12 grew to 1,200, making mush of the alpine vegetation and eroding entire hillsides with their wallows.

But the visitors loved them. The goats looked like they belonged there, trim white creatures with solemn eyes and striking profiles on snowy peaks and rocky crags. Once a week, I'd lead hearty visitors up to see the goats. My message was one of stern environmental education: how the goats were bad for alpine habitat, what other creatures they were hurting, how the park was conducting research to determine ways to "manage" them. The park spent thousands of dollars and hours on the goats, first shooting them (which caused a public uproar) and later capturing and relocating them to states that agreed to take some. (A recent proposal to reintroduce the park's missing predator, the wolf, didn't go over well either.) Despite my solemn message, the tourists just wanted some good pictures and were glad the goats were there.

Though I never admitted this to my superiors, I was glad, too. I enjoyed seeing them, being close to them. Each spring, I collected their winter wool off bushes. My mother carded and spun the wool and wove it into a wall hanging for me. The stiff bristles of the outer guard hairs poke out from the downy undercoat threads and still remind me of the goats that weren't supposed to be there.

Granted, what we thought were good ideas a century or two ago now seem blatantly foolish. Explorer Hernando DeSoto liked hogs so he brought about a dozen to Florida in 1539. Now more than two million feral porkers are uprooting plants and crops and preying on birds.

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Someone in 1853 thought it would be a good idea to have house sparrows in this country, and in 1890 a few dozen starlings were released in Central Park in New York City, supposedly by Eugene Schieffelin, who wanted to introduce people to the birds he read about in Shakespeare. A few wealthy Easterners imported mute swans to decorate ponds on their estates. The birds are pretty and graceful, but also big and aggressive. In Chesapeake Bay, mute swans now eat nine million pounds of submerged vegetation each year – greenery that should feed and house crabs, fish and diving ducks.

The list of such "good ideas" is long and the impacts even lengthier. Mongooses from India are decimating nesting water- and sea-birds in Hawaii. Nutria, a large rodent with orange teeth that looks like a rat with a big head, were brought from South America decades ago to prop up the fur industry. Nutria now overrun marshes throughout the South, mowing vegetation down to the roots, vegetation that provides food and shelter for thousands of waterfowl. Efforts by Southern chefs to get people to develop a taste for nutria have failed.

Tinkering by the Bureau of Land Management has been massive and mighty. In the 1980s, the "preferred alternative" in every grazing EIS that I edited recommended some combination of tinkering that we labeled range improvement – typically burning, chaining and seeding. Chaining — dragging a gargantuan chain between two D-9 Caterpillars — ostensibly removed dense sagebrush stands, yanking them out by the roots, but it also obliterated everything in its path, including fragile cryptobiotic soils. Seeding often meant spreading cheatgrass. Initially, cheatgrass was not a good idea but a mid-1800s hitchhiker from Eurasia in a shipment of grain; its moniker came from its propensity to invade crops and lower yields. But for a while, cheatgrass was the solution of choice for BLM range managers needing a quick reseed. For a brief time in spring, cheatgrass on Western ranges is green and succulent, so cows and wildlife will eat it. But by June, the spiky seed-heads are dry and unpalatable, readily clinging to fur and hair for a transplant. I remember several trips to the vet to remove cheatgrass seedheads from deep in my dog's ears that could have made her deaf if not removed.

The flammable, fast-spreading annual is turning the sagebrush grasslands of the Great Basin into fire-prone wasteland. When land is disturbed from overgrazing or fire, cheatgrass outcompetes native perennial bunch grasses and even sagebrush. Cheatgrass has already taken over a third of the sagebrush grasslands in Nevada and more than 100 million acres across the West. Not just sagebrush – that symbol of Western plains – is at stake, but entire Western ecosystems. Sage grouse, pygmy rabbit, sage thrasher, sagebrush lizard – all depend on sage. As if our ignorant tinkering were not enough, the BLM's latest plan to fight cheat is to introduce even more exotic grasses and shrubs from Eurasia. Range scientists are excited at the prospects of crested wheatgrass (a perennial grass) and forage kochia (a shrub) to be more resistant to fire, compete better with cheat-

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grass, and of course, provide more forage for livestock.

It's not the first good idea in the name of science. The gypsy moth now devastating forests nationwide was brought to the U.S. from Europe and Asia by a researcher hoping to breed it with other moths. The dust bowl conditions of the 1930s prompted scientists to import a slew of good ideas. To help states curb erosion, scientists planted kudzu, a woody vine from China and Japan that grew so fast in the hospitable South that it wiped out all other vegetation. On his Iowa woodlands, my older brother waged an ongoing battle with multiflora roses, native to Japan and imported decades ago to reduce erosion and provide wildlife cover. Each year, he and his wife would prune the dense and spreading vines, reaching over 15 feet tall, that would take over all available open space if left alone. Tamarisk and Russian olive, planted to stabilize soil and provide windbreaks, now clog waterways throughout the West.

Siberian elms were imported to replace the hundred-year-old stately American elms lost to disease, the elms that formed shady arbors over avenues in innumerable towns. What a great idea, an exotic elm that grows quickly to immense height. But the very qualities for which it was sought – quick, big, and resistant – make it the scourge of homeowners, utility crews and plumbers. Every spring, thousands of round papery disks of elm seeds come raining down with a light clatter. Those that fall close to a fence-line, escaping the mower or notice, take root clandestinely, sending roots far and wide into water and gas lines, ignoring property boundaries. The weak wood of these exotic elms took down its share of power lines in the heavy snows last winter.

What seems to escape the good-idea folks is that when you introduce a non-native plant or animal, you bring none of its predators or natural controls with it. Putting one exotic creature in a new place is like turning a cat loose in an aviary – naturally, it will take advantage of the lack of competition and prey upon or out-compete the original residents. Just as the physics lesson tells us, for every action, there's a reaction. Catfish farmers in Mississippi took action to control plants and animals in their catfish ponds by importing carp. The carp escaped (some say were released) into the Mississippi River and have swum all the way to Illinois. These carp – grass carp, bighead carp, and silver carp from Asia and Russia – grow to enormous size, are voracious eaters, and hang out on the bottom so no one knows their numbers. There are stories by sober fishermen who have gotten busted heads and split ears from neurotic silver carp that leap at boats and the people in them when frightened. Chicago has erected an electric fence, hoping to keep the monsters from reaching Lake Michigan.

Of course, many non-natives and even a lot of "good ideas" coexist peacefully with the locals. Most of our agriculture crops and garden plants are after all imports. Some are recent arrivals like tropical fruits; some like corn arrived centuries years ago. Some people argue that what was "natural" all ended a long time ago anyway and we have changed our world so profoundly and irrevocably that we can never go back. Even so, I don't believe that gives us license to continue mucking around with habitats and tender relationships we don't fully understand.

There's a dangerous temptation (some would say a "need") for tinkering to become one continuous cycle, as the foolhardiness of the original good idea, and the next one, and the next one, becomes apparent — like bringing in new Eurasian exotics to deal with the original Eurasian problem. The planet is not our guinea pig.

If we could put any one habitat in a bubble – like Biosphere II – the guinea pig metaphor might work. We could have the classic controlled experiment, where every possible element is carefully and precisely controlled and manipulated. But even in the Biosphere bubble, they couldn't replicate the original. There were parts of the puzzle the scientists couldn't fit or decipher, elements that defied precise control. And of course, it would be hard to anticipate how nature's baffling cycles — wet years, a string of droughts, a flood, a fire, an early frost — act as additional finely tuned controls. To us, it may appear as mere chaos, but then the word "ecology" only became recognized a few decades ago by us American colonizers. We haven't begun to comprehend the immense complexity of the grand plan, the exceptional timing, the magnificent piece of design that is our natural world. It's a mighty orchestra of infinite members, for which there is no score – at least one that is fully known to us. So what makes us think we can direct the players? Who gave us the baton?

A man from Japan obviously thinks he has the baton. Shoji Okutsu and his technology patenting business have spent hundreds of thousands of dollars on his good idea: to bring back the woolly mammoth. He's hoping it won't be an obstacle that the animal has been extinct for millennia because of the wonders of cloning. All his team of scientists needs is for one of the mammoth bones they've found in the permafrost to have some DNA that hasn't been damaged by time and climate changes. They're hoping for a sperm cell, but any somatic body cell will do. The unwitting recipient would be an elephant, impregnated to produce a hybrid ele-mammo, but after several

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generations, Okutsu says they could produce a mammoth similar to the original. The chairman of the Mammoth Creation Project, Kazutoshi Kobayashi, said they won permission five years ago from Russia's Sakha region to use a 52-square-mile preserve in Siberia should they succeed. The director of a zoo in Japan said keeping a mammoth alive would be a challenge because so little is known about the animals, and the scientists would only be recreating the mammoth, not the environment in which it lived. "I don't think they've deliberated that enough," he said.

Doomsayers warn us of the real world consequences of all our mucking around: we face rapid mass extinctions around the globe, the likes of which have not been seen, say, since the ice age that took the woolly mammoth. Due to shrinking habitat and competition by non-native species, one in eight of the world's known bird species and one in four mammals face a high risk of extinction in the very near future.

Although far too many people think of our city's namesake as that big, buggy, salty, and stinky body of water out west somewhere, the Great Salt Lake is a complex, diverse, and dynamic ecosystem like no place else on earth. Millions of birds – bald eagles, sandhill cranes, tundra swans, white-faced ibis, avocets, white pelicans, snow geese, and scores of species of ducks, grebes, and terns — rely on it for food, rest, shelter, nesting and rearing before journeying, quite literally, to the ends of the earth. The lake already faces a laundry list of threats from humans: water diversions and dams, shoreline development, wetlands encroachment, that highway plan, and barriers to the mixing of saline and fresh water — to name a few. What makes some think that plopping some pink flamingos into this picture is going to help, not hurt?

Some say cockroaches will inherit the earth, but it might be starlings, kudzu, carp, and all the other species that adapt more readily and compete where we have misplaced them. Even if that's so, it's not justification for mucking around in such mammoth proportions. ♦

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