

# The Weed

## That Won the West

*How did an invader from the Russian steppes become a symbol of the American West?*



*Skeletons of Russian thistle, better known as tumbleweed, pile up in a yard in Lancaster, California.*





ROAD  
CLOSED

*Two western icons: the towering cliffs of Monument Valley in Arizona and the lowly tumbleweed. The latter is an impostor, an opportunistic Eurasian species that sneaked into the country almost a century and a half ago.*



*Each Christmas season a tumbleweed snowman, built by New Mexico's Albuquerque Metropolitan Arroyo Flood Control Authority, rises along Interstate 40. At 13 feet, the 2012 snowman was the biggest yet.*



By George Johnson

Photographs by Diane Cook and Len Jenschel

**T**he trouble begins around sundown, when a couple of city slickers out for a drive in the desert become stranded along a lonely canyon road. It's silent and windless. Yet one by one, like wolves in the night, tumbleweeds start gathering around them.

"They're following us," the heroine cries. When her husband tries to intervene, one of the tumbleweeds leaps at his eyes.

"It was just like an octopus!" he shouts, after tearing it from his face. "There was living strength in it!... Where did all that energy come from? How can you animate a dead weed?"

There were scarier moments in *The Outer Limits*, the old black-and-white science fiction series. But this episode, "Cry of Silence," holds a special horror for me.

My own encounter with these monsters began one autumn when my wife and I decided to buy some land—a couple of acres for horses on the outskirts of Santa Fe. We had noticed a few brittle tumbleweed skeletons lying around. But that was to be expected. *Salsola tragus*, as it's properly called, or Russian thistle, has become ubiquitous in the West. A few months later, after purchasing the property, we found more: piles of tumbleweeds that had accumulated against a stand of piñon and juniper trees during the March winds.

I tried not to worry. I had fought weeds of all kinds at our house in town, including the occasional tumbleweed. There was also kochia and flixweed, a wild mustard that seemed to resist

both fire and herbicides, and yellow toadflax, which exudes a skin-burning chemical (a *Homo sapien-icide*) to fight off human pickers like me. The names we give these creatures are a testament to humanity's disgust: pigweed, dogbane, horseweed, sow thistle, stink grass, ragwort, poverty sumpweed. Programmed by evolution to eke out a living in the harshest regions of the planet, they find life anywhere else like retiring to Florida.

*Salsola*, I would discover, is their Genghis Khan. An invader from the Eurasian steppes east of the Ural Mountains, Russian thistle has shown an appalling ability to thrive in its adopted land. Every winter the plants die, and the stems become brittle, breaking with a gust of wind. Then they go rolling and rolling, merging into masses of ugly, brown thorn clouds that can bury a house or feed the fury of range fires. Good for almost nothing, the biggest plants—they get as large as Volkswagen bugs—can scatter as many as 250,000 seeds along a path extending for miles. The seeds

---

*Science writer George Johnson has lived in Santa Fe for 19 years. Diane Cook and Len Jenschel shot gardens at night for the March 2013 issue.*



*A couple of tumbleweeds make their way across the top of a sand dune near Sand Springs in Monument Valley. Round and lightweight, a single tumbleweed can roll for miles, scattering thousands of seeds along the way. Come springtime, a new crop will grow.*

then lie in wait, preparing for the next wave of the invasion.

*With the spring snowmelt and the first summer rains on the ranch, thousands of Russian thistle seeds began to erupt into the sunlight, appearing against the brown earth like tiny blue-green stars. They looked so pretty and innocent, the young ones, basking in the sun. Then they began to transmogrify. In a few days they were the size of my hand, their rubbery, purple-veined fingers pulling back troll-like as I tried to yank them from the ground. They weren't yet ready to go.*

*In another week some of the plants had grown as big as bowling balls. Knowing they would soon double and triple in size, we hacked them with hoes, loaded them into the back of my Jeep, and hauled them to the dump. Two weeks later they were back again.*

*Throughout the summer we would spend most Saturdays stuffing 40-pound trash bags with the latest crop, trying to interrupt the ancient cycle by*

*preventing the young plants from setting seed. I'd canvass every square foot of the property, and one week later I'd have to do it all over again. Salsola was everywhere.*

*For the next few months the weeds and I fell into a cycle of prey and predator, and I acquired the instincts of a hunter. The tiniest glimmer of Salsola would catch my attention, and I'd have to chop a whole patch dead. I tried mowing them down with a weed whacker, burning the babies with a propane torch. I tried herbicides—chemotherapy—that were supposed to suppress the seedlings before they sprouted or disrupt the metabolism of those already born. No remedy was more than marginally effective. Salsola was always a step ahead.*

*Soon I found myself spending hours with books like *Weeds of the West* and *Fundamentals of Weed Science*. There is satisfaction in getting to know an enemy: its habits, its ethology—sometimes, it seemed, its psychology. By now I was sure the plants had learned to hide from me, hunker-*



*A crew removes tumbleweeds the size of compact cars from a slope in East Los Angeles. Bone dry and filled with air pockets, dead weeds can be ignited by a discarded cigarette—a hazard worsened by persistent drought.*







ing down beside a rock and bursting into seed before I caught them. By November, when the infestation had finally subsided for the winter, I'd see Russian thistle when I closed my eyes. I'd hear Gene Autry in my head singing that horrible song "Tumbling Tumbleweeds."

*Tumbleweeds around me sing their lonely song,  
Nights underneath the prairie moon,  
I ride along and sing this tune.  
See them tumbling down  
Pledging their love to the ground...*

Pledging their love to the ground! Pillage and plunder is more like it. The next spring, after all of that work, the *Salsola* was as fierce as ever. And of course I was hardly the only one fighting this unwinnable war. How had this come to pass?

IT WAS IN OCTOBER 1880 that the Department of Agriculture in Washington first received word of a strange plant that had begun appearing in the newly tilled farmlands of South Dakota. Included with the report was a sample that had been found near the town of Yankton on the Missouri River. The information was filed away and forgotten until, a little more than a decade later, more specimens

began arriving in the mail. One came from Aberdeen, 200 miles northwest of the earlier sighting, and another from all the way up in North Dakota. The march was already becoming relentless. In the early 1890s a legislator proposed that a fence be built around the state to stem the incursion. It was too late. By this time the weed had already found its way to Canada.

While tracking down its history, James A. Young, a USDA scientist, gathered letters documenting the invasion. "The greater portion of South Dakota east of the Missouri is infested," one farmer wrote in 1891. "This obnoxious weed has become so formidable in some portions of the state...that many farmers are driven from their homes on account of it."

Another correspondent wrote that "intelligent Russians" told him the weed grew abundantly back home around Odesa, "and it is supposed to have been brought to America by Russians in some manner not known." Some farmers suspected it had been introduced intentionally by subversive Mennonites.

Lyster Hoxie Dewey, assistant botanist, was sent from Washington to investigate. He interviewed anyone he could find who could provide information on the invasion. I imagine him on



*In California's Central Valley tumbleweeds are ready to roll into an irrigated orchard (left), where their offspring will hog as much water as they can. Once a weed is stopped by a barrier, like this abandoned car (above) near the Great Salt Lake, it can seed a new infestation.*

horseback clutching WANTED posters with mug shots of the weed. He dispatched questionnaires to the county governments in seven states asking when the plant had first been noticed and how far it had spread. He was appalled by what he found: "one almost continuous area of about 35,000 square miles which has become more or less covered with the Russian thistle in the comparatively brief period of twenty years."

Iowa, Nebraska, parts of Wisconsin—all were being overtaken. The infestation, Dewey was quick to assure his superiors, was not part of a conspiracy. Sometime in 1873 or 1874—that is how precise Dewey was—contaminated flaxseed from Russia had been sown, quite accidentally, on a farm near the town of Scotland, South Dakota.

"The rapidity with which the Russian thistle has spread, both in infesting new territory and in thoroughly covering that already infested, far exceeds that of any weed known in America," Dewey reported. "Very few cultivated plants even, which are intentionally introduced and

intentionally disseminated, have a record for rapidity of distribution equal to that of this weed."

Taking root along roads, irrigation ditches, and railroad tracks, or stowing away inside shipments of grain, *Salsola* quickly spread across the West. By 1885 it had reached California. Within a few years *Salsola* had been sighted in more than a dozen states. Rollicking across its new homeland, *Salsola* was a frighteningly efficient seed-sowing machine.

It hardly bothers with leaves, putting its energy instead into producing small, spiny scales called bracts. Tucked in the cleft between bract and stem are small, barely visible flowers that give forth seeds. Inside each, coiled like a snake, is the *Salsola* embryo, ready to unfurl into a seedling as soon as daytime temperatures rise just above freezing. Given only a few drops of moisture, the weed begins to grow, pushing down a root that can extend six feet deep, with tentacles reaching out even farther.

Late in the autumn, when the mature plant



*Like an army on the march, hundreds of windblown tumbleweeds crowd a flood-control ditch in the suburbs of Lancaster. A chain-link fence is hardly enough to stop the juggernaut.*





is pregnant with seeds, a layer of cells at the base weakens like the stem of an apple to allow easy detachment. Then comes the inevitable wind. The plant breaks and rolls and reseeds. Rich soil, poor soil, wet or dry, clay or sandy, alkaline or acidic—wherever it finds an opportunity. As long as the ground has been loosened by a plow, a shovel, or the hooves of a cow, *Salsola* will grow. In 1959 it was collected for the first time in Hawaii. Today the USDA Plants Database lists Russian thistle growing in every state except Florida and Alaska.

The weed has also continued to thrive in its native land, spreading throughout the dry parts of Europe and Asia. Canada, Australia, Argentina, South Africa—all have been conquered too. During the early 1960s, after aboveground nuclear testing finally ceased at the Nevada Test Site, the first thing said to grow back was Russian thistle. Radioactive *Salsola* has come tumbling out of the old Hanford Nuclear Reservation in Washington, where plutonium was manufactured during the Cold War. I half expect to hear someday that Russian thistle has been found on the moon.

LATE THIS SPRING, wanting to see where the whole mess started, I flew to Sioux Falls, rented a car, and headed south to Bon Homme County,

where those hapless South Dakota farmers had let the genie escape. As I drove along the farm roads, I thought of that *Outer Limits* episode. A half-mad old codger finally rescues the couple from their weedy attackers, and they take refuge in his farmhouse. On a table is a copy of his journal: “There is a malignant intelligence behind these weeds,” he wrote, before losing it completely. “No, not behind them, *in* them.”

A sign on the outskirts identified the village of Scotland, population 891. There was no arch over the road, like the one in Castroville, California, “artichoke center of the world.” Being the home of Russian thistle is not something you advertise. A purple water tower rose over Main Street, which led to a park where children were playing. Off to one corner, beyond the zone of maintenance, several tumbleweeds crouched, waiting to come in. Most of the region is now cultivated for corn and soybeans, so I didn’t see as many Russian thistles as I had expected. They appeared mostly along roadsides, in neglected hollows. Given fewer open spaces to travel and the heavy use of industrial-grade herbicides, *Salsola* has moved to a friendlier land farther west.

I drove on to Vermillion, where I had arranged to see historical samples at the University of



*Tumbleweeds thrive where they can get a foothold in loosened ground, like the vacant lot at the edge of a bankrupt subdivision in Wasco, California (left), but have trouble taking root in cultivated lawns. An abandoned house near Lancaster (above) is easy game.*

South Dakota’s herbarium. James Robertson, a graduate student who oversees the collection, laid the weeds out on a table like a rogues’ gallery. The oldest was dated August 1892—more than a hundred generations ago.

“I had an adviser who used to say that ‘a weed’ is a loser’s term for a winner,” Robertson said. “I think tumbleweeds won.”

Not everyone is ready to surrender. To keep *Salsola* in check, scientists with the USDA have been working for years with colleagues in Russia, Uzbekistan, and Turkey on experiments with pests—mites, weevils, moths, and fungi—that prey on the weeds in their native habitat. Imported to the United States, biological controls like these “should help reduce the populations of this weed to innocuous levels over extensive regions,” Lincoln Smith, one of the researchers, has predicted. But he has yet to receive federal permission for a release in the field. Federal regulations like these are a good thing, I suppose. I just wish they had been in place to stop the

*Salsola*. For now the weed’s only real foe is us.

We’re not a very unified one. At Christmas the citizens of Chandler, Arizona, erect a tumbleweed Christmas tree. In Albuquerque a giant tumbleweed snowman looms menacingly over Interstate 40. Prairie Tumbleweed Farm, in Garden City, Kansas, actually grows *Salsola*—on purpose!—in long, neat rows: “Quality tested Tumbleweeds!” It ships them in boxes for \$15 to \$25 each as decorative items. (A special Web page caters to Japanese customers.) A man at Curious Country Creations in Utah proudly told me his tumbleweeds have been used in storefront displays by Ralph Lauren, in Broadway plays, and in Western-themed weddings. For \$14.99 the guy will sell you a pack of tumbleweed seeds.

Maybe there is something to be admired about collective and commercial enterprises like these—something about making the best of things, embracing the inevitable. But I’m not buying it. To me, this is just consorting with the enemy. □