TUMBLEWEEDS TRIUMPHANT
How the Russians conquered the West

by Ray Ring

Sky clear, westerly breeze. A fine day to be out flying tumbleweeds. I’ve come equipped with fishing rod and reel, heavy test line, leather gloves, sun hat and shades and, most important, the crazy belief it can be done.

Could be that someday I’ll be remembered as the originator of the West’s quintessential sport, or more likely, as just another fool, but I’ve scouted the perfect site for finding out — one of the subdivisions snipped into the desert foothills outside Tucson, where hundreds, thousands of tumbleweeds have sprung up on the cleared land, broken loose of their roots and piled up against the ranks of houses and fences. Atop a hill where the breeze is more energetic I round up three choice specimens: a small, a medium and a large — prickly monsters that can only be handled safely with the gloves — that’ll give me some good baseline data on tumbleweed aerodynamics.

My rod — a fly rod, what else? — is six feet long, graphite-core, medium action; a more limber rod might snap, a stiffer one would rob me of the sporting feel, or so I imagine, because there are no experts to consult, no manuals on the finer points or even the basics of how to fly tumbleweeds.

No hook necessary, just tie off around the stalk of the medium tumbleweed, lift and the rod comes alive, quivering, bending sharply at the tip — got a tumbleweed on the line, and it wants to go, now, even in the little wind it angles out sideways free of the ground, trying. trying to fly. It just might, I admit. I break loose into a sprint against the wind, red over my shoulder, playing out line as the tumbleweed bobs behind and strains to take off.

I’m laughing, gasping, running so fast down the street that I lose my sunglasses and hat, and people driving by are swerving at the spectacle — what do they know?

So out of proportion to its size is the weight of the big plant that it will lightly fly in the air during a hard gale. Children in the Dakotas, Montana, Wyoming, Colorado, Idaho and Utah find tumbleweed a splendid late fall playfellow. Two big weeds are harnessed to a string, and in front of a wind they go hurtling down the street "driven" by shrieking, happy boys and girls. At other times, the weed becomes a kite, attached to a long cord dangling from a fish pole.

— Scientific American, in 1959, on tumbleweeds

When it comes to weirdness in the natural world, the tumbleweed has to be right up there. This bit of freaky biology run amok has inspired everything from sport to mythology to gourmet cooking. So maybe it’s fitting that the tumbleweed has come to symbolize the American West.

We, Westerners live in the region of the surreal, of cactus and (Continued on page 10)
Balls of tumbleweeds stuck against fences, got covered in blowing sand, and created ramps for the cattle to walk to freedom, or at least into the neighboring field.

Tumble... (Continued from page 1)

Researchers divide Western history exactly into two very different ages: B.T. (Before Tumbleweed) and A.T. (After Tumbleweed). (You get the idea.)

They point to the exact place where the old age ended and the new age began, and to the culprit: A few peach farmers who ran out of opportunity in the steppe of the Russian Ukraine, and imagined a better world on the windrows-prairie of Butte County, South Dakota. It was spring 1873. The new arrivals got busy doing their thing, planting crops—and starting one of the all-time ecological blunders.

Lurking by mistake somewhere in their stacks of flat seed from back home were seeds of another and far less desirable plant: salvia kuli, a.k.a. salvia pennisetifolia, salvia iberica, or just plain old tumbleweed, which lost its growing root.

A round the West, people up to their hips or higher in their bed of tumbleweeds have tried burning, mashing, discing, poisoning and even loosing moths against the plants. Nothing has worked.

Tumbleweed is actually a poor plant competitor — its strategy is to invade ground that's already been disturbed by agriculture, grazing, construction or more extreme means.

"Guess what?" says Young. "The first species that invaded the above-ground nutrient-blitz sites in Nevada was tumbleweed."

So much more than tumbleweed is a symptom of a degraded environment in the West (see accompanying story). There seems to be a direct relationship as to the condition of the land, the tumbleweed also grows worse, as illustrated by the history of the struggle against tumbleweeds in the southern Arizona desert. Since a decade or so ago, Tucson's city crews and residents fought isolated skirmishes against whatever tumbleweeds happened to blow into town. But there was a major escalation when the city started buying land up the Avra Valley to the South where the ground water couldn't be pumped out. Without water the crops disappeared, and the tumbleweeds conquered.

"I think most people picture a couple of tumbleweeds blowing along... I'm talking about a field that could be a square mile so dense with (growing) tumbleweeds that it looks like somebody planted it—you don't even see the soil surface," says Martin Karpilow, another only-slightly-mad tumbleweed scientist (his mailbox at the University of Arizona's Office of Lands Studies has attracted at least one letter addressed simply to "Dr. Tumbleweed").

Actual estimates of tumbleweeds from surrounding farmers and residents—or rather, farmers and residents surrounded by tumbleweeds. Farmers who tried various unsuccessful countermeasures such as importing mice from Pakistan (Coleoptera, parthenica) that had evolved along with the tumbleweed, and were supposed to chomp enough of the plants to keep the population under control. But the mice, also given a try elsewhere in the West, couldn't eat fast enough, says Karpilow, in keep up with the tumbleweed ever here.

Tucson's least ineffective plot was to form a crack anti-tumbleweed patrol that remains active much of the year. "We've got two tractors with 14-foot windboots to beat down the tumbleweeds in constant use, summer, fall and winter," says Grand Parker, property owner who estimates the tumbleweed war is being waged on 10,000 to 12,000 acres in the Avra Valley, "but you just have to think you know where the hope of success lies...

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Researchers are divided about where the tumbleweed is headed. Some say it will be a "stabilizing influence" on the landscape. Others say it will spread like wildfire, wiping out entire regions. The tumbleweed is a survivor, a plant genius for screwing things up. Tangles collected in deep ditches against houses and other buildings, blocking access to fire hazards. During wildfires, rolling balls ignited and blew far ahead of the advancing flames, spreading the blaze.

Another problem is the tumbleweeds acting as litter collection far two days and hauled houses. Municipal Golf Course, where, as at many other courses, tumbleweeds are mowed in the rough. Not that golfers have to worry about the blowing tumbleweeds — "it's more like they're dodging 'em with their golf carts."

Probably nowhere in Arizona does the tumbleweed loom larger than in the western part of 30,000 square miles of land, from the main street, Fry Boulevard, casing sharp-saws and amazed eye-ribboning. "I get up to 40 calls on tumbleweeds," says Mayor Carl Frieder, who's gone out himself with a pitchfork to clear away the invaders.

In some Sierra Vista neighborhoods, at times the blowing tumbleweeds "fill up the pasture wall so tall and up to the rooftops of the houses," says the mayor. City crews do evacuate missions, clearing doorways so people can get in and out of their houses. They also aid a nursing home where "the tumbleweeds were blowing directly into the front and back, and stacking up pretty high."

Despite the fact that the tumbleweeds have become familiar with it... "The problem is... a once a tumbleweed grows and starts rolling, it's very difficult to tell whose tumbleweed it is..." — a city councilman in Sierra Vista, Ariz., on the difficulty of enforcing an anti-tumbleweed ordinance.

A round the world, the idea has spread to Australia Each tangle is geometrical in shape and size. "Mystery in the heart is a song, carrier on the range I belong."

Be sure they tumble down.

Held up in the small ground, Lone-tree but not free I'll be found, Drifting along with the tumbleweeds... I'll keep rolling to the... Deep in my heart is a song, carrier on the range I belong.
Drifting along with the tumbling tumbleweeds...

Cowboy crooner and old-time movie star Rex Allen Sr. is singing over the telephone from his tumbleweed-infested ranch outside Sonoita, Ariz. He's singing the Western classic "Tumbling Tumbleweeds"—evidence of how the plant, even while it's been battled, has generated the world of music. The song was written as a poem in 1927 by Bob Nolan, who lived in Tucson around that time and then defined himself as a tumbleweed to Southern California, where he made the original "Tumbleweeds: evidence of felonious assaults on land around here those 100 years ago."

"It's probably the number one problem we have in managing natural resources," says James Young, a landscape ecologist at the U.S. Department of Agriculture's research station in Reno, Nev. "People have the idea they're looking at a pristine environment."

The reality is, invading plants—of which tumbleweed is well known as Russian thistle—is only one of many examples that have dramatically reshaped the appearance of the landscape in a very short time, and often for the worse.

The invaders tend to be aggressive, "woody" species that crowd out native plants or occupy their ecological niches, and the ultimate responsibility often lies in land-degrading practices such as marginal farming, overgrazing and development of sensitive lands.

Ironically, as some researchers have noted, probably no single force was more destructive than the absence of the homestead acts (1862, 1909, 1912 and 1916), which had the good intention to offer a stake in the land. The acts encouraged farms and ranches in marginal locations, where conditions were arid and the soil poor. The native vegetation was stripped or trampled, much of it replaced by invasive species quickly taking over the ground ready for invading weeds.

Some of the most common plants in the West today are invaders from central Asia: crested wheatgrass, halogen and cheatgrass (Bromus tectorum)—which, as Young has written with fellow researcher Raymond Evans, "involutionalized" plant succession on millions of acres of degraded rangelands. The needings of native perennial grasses were virtually excluded from the environment by the advent of this aggressive annual grass.

Native grasses such as Indian rice grass and Basin wild rye. Young says, "used to grow up to the stirrups" of riders in the Great Basin, and have suffered greatly.

Other invaders, sometimes preferring land in towns, include Canadian thistle (Cirsium arvense), from Eurasian crabgrass (Digitaria sanguinalis), from March of the tumbleweeds through Tucson, Arizona (Europe); barnyard grass (Echinochloa crus-galli, from Eurasia); plantain (Plantago major, from Europe); cocklebur (Xanthium pennsylvanicum, from Eurasia and Central America); curly dock (Rumex atrosa, from Europe); dandelion (Taraxacum officinale, from Asia); chickweed (Stellaria media from Europe); white, purple and red clovers (from Europe); and timon weed (Daucus stramonium, from India or the tropics).

Without human interference, tumbleweed itself (Russian thistle) is all but certain to compete with native vegetation. The root emerging from its germinated seed is unable to penetrate the soil unless the surface has been disturbed. In a natural setting, a prairie dog digging around here or there might provide an opening, but that's nothing compared to the disturbance of an entire region by farming practices, tumbleweeds thriving as more farms are abandoned because of marginal conditions, continues to thrive as more farms are abandoned. Farm land that's been "retired" and left fallow, is the "ideal" environment, says Young. Now the tumbleweed has arrived in the desert, but it's not alone. The root emerging from its germinated seed is unable to penetrate the soil unless the surface has been disturbed. In a natural setting, a prairie dog digging around here or there might provide an opening, but that's nothing compared to the disturbance of an entire region by farming practices, tumbleweeds wouldn't have spread.

Around the West, tumbleweed continues to thrive in regions where farms have been abandoned. In the spring come in and clear 'em out of my place. Oh God yeah, they're horrible when they grow up. If you're on a homestead and can't do anything about them, you're stuck with them there."

"The tumbleweed just symbolizes the cowboy's attitude in life," says Tom Chambers, cowboy singer and president of the Western Music Association, founded a few months ago in Tucson to reach ranchers. Farm land that's been "retired," and left fallow, is the "ideal" environment, says Young. Now the tumbleweed has arrived in the desert, but it's not alone. The root emerging from its germinated seed is unable to penetrate the soil unless the surface has been disturbed. In a natural setting, a prairie dog digging around here or there might provide an opening, but that's nothing compared to the disturbance of an entire region by farming practices, tumbleweeds wouldn't have spread.

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"The tumbleweed sums up life in the West," says Allen. "It's used to grow up to the stirrups" of riders in the wide-open spaces and liberty—"it was flourishing right in natural settings, but only where land had been torn up and depleted of native vegetation." The tumbleweed really symbolizes falling farm...

(Continued on page 12)
A tumbleweed fence-jam problem with the 10,000 so-called "Tumblelogs" that were produced and distributed for home burning: While one-third of the people who tried the logs thought they smelled nice in the fireplace, an equal number thought they literally stank. "We were considering scanning (the logs) with something like pine or oak, so people would think it of wood."

After spending about $150,000 in federal and state funds, Arid Lands had to abandon the project when the price of more conventional fuels plummeted and undercut tumbleweed. "With oil at $40 a barrel, tumbleweed looks good as an energy source," says Karpiscak. "At $20 a barrel, it doesn't."

Still, Karpiscak sees a future in the idea. "When you burn fossil fuels, you release carbon that's been removed from the atmosphere for millennia, adding to the greenhouse effect and overall pollution," he says. On the other hand, tumbleweed "recycles the same carbon, year after year," as each new crop grows and fixes carbon from the atmosphere. But pollution and recycling "aren't figured into the economics of it" — yet.

One sign of that implied potential came from the research efforts, Karpiscak says, as Arid Lands "had inquiries from literally all over the world" from countries interested in investigating the energy of their tumbleweeds.

An even more ambitious project at New Mexico State University in Las Cruces aimed at ending world hunger among livestock, and eventually humans, by breeding an edible super-tumbleweed. "We were really optimistic for a couple of years," says Hageman, whose genetic experimentation and chemical analysis indicated strains of tumbleweed could be bred to emphasize protein content and nutritional yield (in past drought emergencies, Western farmers had fed their livestock on both green and dried tumbleweed).

Hageman was part of a team that collected tumbleweed seeds from around the West. "At first we just drove along the roadsides looking for the biggest debris we could find, and we'd throw them in the bed of the pickup and throw them with a boom," he recalls. Eventually the project had a five-acre plantation thick with various strains of tumbleweeds, and was negotiating with private companies about the possibility of extracting valuable chemicals and food additives from the plants.

Tumbleweeds' ability to thrive in arid conditions, and even on brackish or saline water useless for other agriculture, could make it "a solution" to spreading desertification and starvations in Africa and other places, Hageman says. Also, in diversifying agriculture away from the few worldwide food crops, "it's a good idea from an ecological standpoint. We were basically working on domesticate a wild plant, and it takes time."

The New Mexico experiments, and a few elsewhere in the West, proved that tumbleweed can produce, acre for acre, about the same tonnage and protein yield as alfalfa, Hageman says. Sadly, within the past year, funding for edible tumbleweeds has also dried up, and the New Mexico plantation was weeded to avoid further spreading the weeds. "That was hard," Hageman says. "The problem is, you can't motivate anyone" to support research on perfecting tumbleweeds.

"They wonder why we need more tumbleweeds in the Southwest... The ranchers are a lot more interested in seeing this developed than the agricultural (research establishment) is. They see the cuticle eating it. We had ranchers call us up and ask for us to come out and plant it."

Still, some of Hageman's students did whip up a batch of tumbleweed cookies. And Arid Lands put out a recipe for "cream of tumbleweed soup." Not to mention the cookbook, The Tumbleweed Gourmet.

**LETTERS**

Dear HCN,

Publisher Ed Masters's thought-provoking editorial (HCN, 6/19/89) condemning ecocentric, America's third largest sport after sex and substance abuse, reminded me that the saltiest place to be during a crisis is behind a typewriter. Better to risk handcramps than handwringers. Still, the brevity of the essay did not preclude broadsheets, but ran the illegal (and often nocturnal) underground railroads. "We need to retool a nation created not by conciliatory loyalists (conscriptionary traitrists), but in Sons of Liberty and Minutemen. Should Paul Revere have waited dawn to rouse the countryside?

Ray Ring is a freelance writer in Tucson, Arizona.

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**PRAISES BLM**

Dear HCN,

We've just read the article, "Did the BLM give too much for too little?" (HCN, June 19). National Parks and Conservation Association joins with other environmental organizations, such as Audubon, The Nature Conservancy, Sierra Club, and the Wilderness Society in commending BLM in Arizona for its aggressive, visionary, and innovative land-and-mineral exchange program which has been successfully bringing a whole array of environmentally priceless lands and biologically diverse resource values into public ownership, over the past several years.

Regarding allegations that BLM is not getting enough money return for lands traded into private ownership, we suggest that it increasingly appears BLM is being vindicated ... by the rising number of real estate foreclosures, the downward slide in much of Arizona's real estate market, and the overwhelming crisis of the SAL's — speculative and unrealistic appraisals as are mentioned in the article. We suspect that such projects and exchanges into BLM exchanges will confirm the agency's vindication.

We'd like to call your attention, if we may, to Kathleen Stan's article, "High and Dry," appearing in the June 14, 1989 issue of HCN (page 15, Tucson). In it, she details just such a grossly speculative situation, regarding the so-called Valley Diablo proposal, west of Phoenix. "San Valley has become not Phoenix's New Frontier," says Ms. Stan, "but the latest example (Continued on page 13)