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Portable electric fences are bear barriers

By CRAIG MEDRED
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No one can know if a portable electric fence could have saved Richard and Katherine Hoffman from a deadly tragedy along Alaska's Hulahula River this summer, but there is evidence it might have bought them time to react before a grizzly bear ripped into their tent.

The Hoffmans carried a rifle for bear protection but never got a chance to use it. They were also carrying heavy, bear-proof containers designed to protect their food from grizzlies.

Those containers more than outweigh the portable electric fences the National Outdoor Leadership School has been using in the Rocky Mountains for several years to protect food from bears.

"We've used them (the fences) 7,000 nights at NOLS,'' curriculum manager John Gookin said by telephone from Lander, Wyo. "They work like a champ.''

Tom Smith, a bear researcher in the Biological Science Office of the U.S. Geological Survey in Anchorage, is another fan of the fences. He has 10 different models, which he regularly loans to people doing extended trips in areas with high bear densities, such as Kodiak Island or the Katmai Coast.

"I've been an advocate of these for a long time,'' Smith said. "I think it's a highly underutilized resource.''

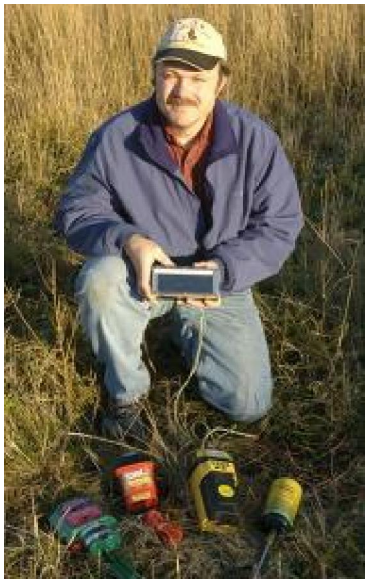
Ralph Tingey, a veteran of the National Park Service in Alaska, thinks that might soon change. Tingey is married to outdoor-gear guru Sherri Tingey of Alpacka Rafts in Anchorage. Together, they've begun experimenting with ways to create an electric fence system weighing only a couple pounds to protect camps.

At such a weight -- less than just one of the bear-proof canisters backpackers are required to carry in Denali National Park and Preserve -- the system could gain notice.

Weight, along with bear protection, originally attracted NOLS, Gookin said.

"Down here, grizzly bears are an endangered species, so it's a whole different deal,'' he said. "Grizzlies are an endangered species. We are required (by government agencies) to do things to protect them.''

Curious bears that tear into tents, food and equipment can be a nuisance and danger to backcountry travelers. The use of electric fences to deter bears is becoming more practical as better, lightweight technologies are introduced. *(Photo by BOB HALLINEN / Daily News archive 2002)*



USGS wildlife biologist Tom Smith displays a selection of battery-powered electric fence energizers that can deliver a 6,000-volt charge if touched and are used to secure a campsite in bear country. "I've been an advocate of these for a long time," Smith said. "I think it's a highly under-utilized resource." *(Photo by BILL ROTH / Anchorage Daily*

That once meant packing food in bear-proof canisters to ensure grizzlies didn't get a taste of human food. But the heavy containers only hold enough for a few days.

"How many of those are you going to carry on a long trip?'' Gookin asked.

NOLS hit on a portable electric fence powered by D-cell batteries as an alternative. The system the organization has used, both in the West and in Alaska, is significantly heavier than the AA-cell-powered fencing the Tingeys are developing.

Even so, it beats bear-proof canisters, paws down, Gookin said.

"Carrying a 7-pound fence for a big group of people is no big deal,'' he said.

Do the math: Two bear-proof containers weigh slightly more than 7 pounds. Yet together they provide only 1,432 cubic inches of storage space -- similar to what you can put in a good size day pack.

An electric bear fence, on other hand, can surround and protect a huge amount of food.

NOLS tested the fences by using them to surround horse and cattle carcasses. The fences kept bears off even those attractive enticements.

"But we haven't stopped every bear,'' Gookin admitted.

During testing, he said, two bears managed to get through the fence. One, he said, made it in because the fence was shorting out in 18 inches of snow. NOLS later solved this, and other potential grounding problems, by replacing single-strand wires with a "volley-ball like" mesh of alternating hot and ground lines so a bear that hits the fence will always get a shock.

Gookin doesn't know why the second bear breached the fence.

Smith has an idea.

"There are limitations,'' he said.

If a grizzly bear wants to get at something badly enough, nothing short of death will stop it.

Generally, he added, bears don't have much interest in human encampments. But curiosity can lead them to investigate.

A strong jolt of electricity will just as quickly convince them human camps should be avoided.

He distinctly remembers an occasion at Hallo Bay in Katmai National Park and Preserve when the fence around his camp turned back at least five bears.

"You'd hear them huffing and stomping brush because they were

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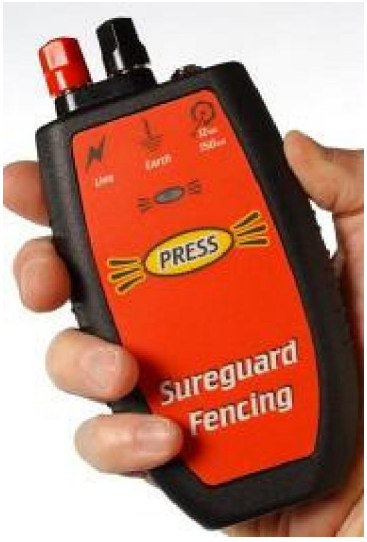
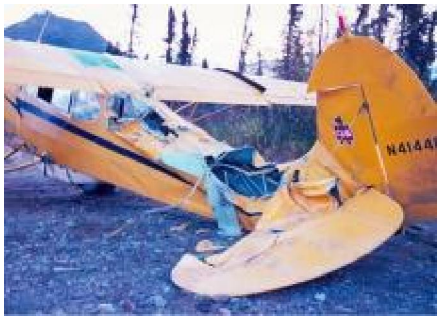


The Sureguard electric fence energizer will, according to the manufacturer, power two kilometers of electric fence continuously for several days, yet it weighs only about half a pound. *(Photo by EVAN R. STEINHAUSER / Anchorage Daily News)*



This Piper Cub plane was destroyed by a brown bear at Lake Clark. *(Photo courtesy Tom S. Smith)*

Battery-powered electric fence energizers can deliver bears a 6,000-volt charge if touched. *(Photo by BILL ROTH / Anchorage Daily News)*

startled,'' he said.

Hallo Bay, about 250 miles southwest of Anchorage, boasts one of the densest concentrations of grizzlies in the world. Bears can be seen grazing the sedge grass in the Pacific coast marshes the way cattle graze pasture.

It was in this area, after constant problems with bears in camp, that Smith first began experimenting with electric fences. At the time, he was supervising a bear research project, and bears were so often in camp at night that the research was suffering.

"It was closer to a sleep deprivation study'' than a bear behavior study, Smith said.

He went looking for a solution and stumbled into the electric fences used to contain horses, cattle and sheep. If they could keep horses in, perhaps they'd keep bears out.

Not everyone needs an electric fence, Smith points out. In areas where bear numbers are low, he said, the effort required to put up the fence probably isn't worth it unless someone suffers from severe bearanoia and won't consider camping in bear country without it.

Meanwhile, in places with lots of bears, Smith envisions plenty of situations in which an electric fence could prove a good investment.

Among them: preventing damage to expensive or vital equipment. Smith has seen $100,000 airplanes trashed by curious bears. He can think of plenty of places where if a bear ripped up an inflatable raft, people could find themselves stuck a long way from help.

For a few hundred dollars, an electric fence can protect those assets.

Gookin, who worked with grizzlies in a Lower 48 bear park when testing the fence being used by NOLS, said the animals are quick learners. Once they've been shocked, he said, the sight of the fence is often enough to deter them.

NOLS has taken advantage of this by making its wire mesh a mix of white (hot wire) strands and black (ground wire) strands. He added blinking LED lights too.

"Since we've done that, we've had no knockdowns,'' he said.

Smith said he hangs a few pieces of surveyor's tape on his wire and gets almost the same results. Sometimes, he said, a bear is drawn to the tape, mouths it and get a serious, attitude-altering jolt.

In the West, Gookin said, NOLS uses electric fence only to protect food caches, but the organization may attempt broader uses in Alaska.

"Up there," he said, "we're a little more interested in using it in a camp sense."

Large parts of Alaska wouldn't need a safety net around camp because bear numbers are so low, Smith said. But where bear numbers are high, he said, it's a different matter.

Even well-behaved bears can damage remote camps and equipment, Smith said.

"Bears that destroy tents aren't being aggressive," he said. "They're just being ... well, bears. They ask questions with their jaws and claws.

" 'What's this?' 'Crunch.'"

'' 'What's this?' 'Smack.'"

"A little Q and A session like that can reduce my field camp to ruin in minutes, putting me out of business.''

He recommends electric fences for long-term field camps, hunting camps where meat is stored, high-density bear zones and places where "problem bears have been known to frequent.''

Smith said he once got into a discussion about this with bear advocate Timothy Treadwell out at Hallo.

"Treadwell chewed me out,'' Smith said. "He accused me of being afraid of the bears.''

The biologist countered that teaching the animals to avoid humans -- in a shocking but undamaging way -- was good for both.

"Bears are curious,'' he said. "If they learn to avoid human stuff, that's a good lesson, because we're not going away, and their curiosity is not going away.''

The Tingeys, having done backpack and wilderness float trips in areas with high bear densities, believe a lightweight electric fence could make Alaska safer and more enjoyable.

Ralph has been working with Sureguard Fencing (www.sureguard.com.au), an Australian company that produces a 9,500-volt energizer almost exactly the size of an avalanche transceiver. Sureguard advertises this unit as "small enough to fit in your pocket, yet powerful enough to power 2 kilometers of fence wire.''

It weighs about 7 ounces and runs off two AA batteries or a solar panel. Gookin said he's used a similar AA energizer, and it had enough juice to knock down a bear.

Short battery life was a problem, though. Sureguard claims a run time of 75 hours continuous or 2,000 hours standby on standard alkaline batteries. That's a little over three days of continuous operation. Lithium AAs would, however, probably come close to doubling the run time while reducing the weight.

Some people, Smith said, have had trouble getting electric fences to work -- usually because the fence is poorly grounded. Smith carries a portable tester to check his fence after installation.

Only in large, rocky, dry cobble has Smith had trouble getting the fence to work. Gookin agreed such soils are a problem but wondered who camps on that kind of ground anyway.

In moist soils the fences are easy to set up. A ground can be obtained with something as simple as an aluminum tent peg.

Smith said he has been able to assemble his own fence for less than $100. Tingey hopes to be able to put together a complete, marketable system -- including detailed instructions -- for under $300, perhaps less.

Jim Gavin, maintenance supervisor for the Katmai park, put together a system of his own for about that $300, Tingey said, and it worked almost too well. Gavin was using it at Brooks Camp when a grizzly cub slipped under the wire. The sow was afraid to enter to get her offspring and caused a ruckus around the perimeter until the cub could be chased back under the wire.

Smith was at Hallo Bay one summer working with noted bear authority Stephen Herrero, who bumped into the fence, got no shock and announced it wasn't working. Smith, barefoot at the time, grabbed the wire and got knocked back into the brush by the surge of electricity.

Only as he was putting himself back together did he notice that Herrero was wearing rubber boots, which prevented closure of the circuit between the hot wire on the fence and the ground.

Smith thought for a moment that Herrero might have been playing a prank. He wasn't. The Canadian biologist, Smith said, "felt just terrible.''

Smith added he's not worried about bears failing to get a jolt as long as the system is well grounded.

"Have you ever seen a bear with rubber boots on?'' he asked.

But users need to beware of where they set up.

Conductivity is good in well-drained soils, great in any sort of damp soils, and superb in wet, spring snow. It's not so good in dry, old snow, however, or in those dry, cobbly soils.

That's a large part of the reason NOLS has now gone to alternating hot and ground wires in its "volley-ball like'' net fence.

"You could use that in outer space, and it would work,'' Gookin said.

Still, there is one place where Gookin wouldn't use the fence: a developed campground.

When a bear hit an electric fence, he said, "they cry like a baby and run away. What you don't want is to be right in the way of that bear.''

Gookin noted the U.S. Forest Service has begun letting select outfitters use electric fences as bear deterrents in the Rockies, and he expects that to grow.

"We have to wait for these things to catch on,'' he said, adding that interest mushroomed after NOLS put a video on how the fences work on its Web site.

"Right now, my voice mail has about 200 messages from people interested in bear fences,'' Gookin said, "(But) this isn't our business.''

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