

Sierra Bruins — Appealing Scourge

By David Graber, Research Scientist
Sequoia and Kings Canyon NP's

Many a veteran camper remembers the way it used to be for bears in places like Yellowstone, Sequoia, or Yosemite National Parks. There were the dumps, often called "bear pits," and operated a little like the Roman coliseums. The Park Service thoughtfully provided bleacher seating for visitors, and a burly ranger supervised dumping the day's garbage and kept a semblance of peace among as many as a dozen or more bears. Visitors got an entertaining show while the bears got fat and maybe even happy.

All was not sweetness and light, however. Black bears, the "gentler" of our two species, were responsible for more than 60 injuries to Yosemite visitors one year; bold bears regularly had to be trapped and relocated, or simply dispatched with a bullet. But these were also the days before ecological sensitivity and lawsuits, and there were few complaints.

In many ways we have come light years since then. Natural features, including *Ursus americanus*, are no longer treated by the Park Service as spectacles, but rather as integral — and integrated —

elements of natural ecosystems. The dumps are long closed; Yellowstone's famous "bear jams" are no more, and the rare visitor who intentionally tempts a bear is slapped with a fine. Even the garbage cans have special bearproof tops. But to the intense frustration of resource managers and Park visitors alike, the smart, strong, sometimes scary bruins have resisted mightily a return to pre-park ways.

In the National Parks of California's Sierra Nevada — King's Canyon, Sequoia and Yosemite — biologists have been scrutinizing the ecology and behavior of black bears for seven years. One goal was to recommend refinements in bear and human management that can lead us closer to park bear populations that live as they did before Europeans arrived, as free as possible from influence by the millions of visitors. (Sequoia and Kings Canyon NP's constitute a World Biosphere Reserve, where unperturbed populations of plants and animals are perpetuated.)

From 1974 through 1978, as a graduate student at the University of California, I collected data on nearly 300 different bears in Yosemite. Park Service bear technicians and my own crew worked cooperatively to trap, dart and snare bears in campgrounds and backcountry areas. By using brightly colored vinyl ear flags and radio collars, I accumulated almost 2,000 "fixes" on my marked animals. Even visitors helped by noting the flag pattern of the bear that had helped himself to their food.

During the course of my five years in Yosemite, bear-proof tops were installed on garbage cans and dumpsters; bear-proof food lockers were supplied experimentally to one beleaguered campground;



Radiotracking bear sends Research Scientist Graber scrambling over Vernal Falls trail in Yosemite.



Research Scientist Dave Graber holds a tranquilized cub, captured at Tuolumne Meadows, Yosemite, for marking and measuring. "You bet he was tranquilized," says Graber. "Some of my worst injuries have come from trying to handle untranquilized cubs."

bear-resistant cables for suspending supplies were strung in the most trouble-prone backcountry campgrounds.

As if the Park Service efforts were not enough, pressure on the bears, 1976 and 1977 saw one of the most severe droughts ever recorded for the Sierra Nevada.

It is expensive and time-consuming to collect data on solitary animals with low population densities (less than one for each 3 km² of good Sierran bear habitat) and long life spans (four individuals I "met" in Yosemite were more than 20 years old). I also learned, to my dismay, that I was starting too late to be getting good baseline information. The mobs of bears that marauded Yosemite Valley had mostly dissipated by 1975 with the new intensive "Human/Bear Management Program." That year marked Yosemite's nadir in bear incidents as well, with nearly a thousand reported.

But as the crisis appeared to fade in the campgrounds, park managers and rangers intensifying their survey of backcountry problems were shocked to find that hundreds, perhaps thousands of backpackers were having their food swiped by persistent, sophisticated ursines. Whether the backcountry problem was increasing dramatically or simply was being freshly revealed by better sampling was unclear.

Meanwhile, I found that some longstanding and reasonable assumptions about the connections between bears and human food were not supported by the mounting evidence. While very few bears were primarily dependent upon human foods, nearly all bears whose home ranges intersected with a campground or backpacking area were supplementing their diets from these sources of largesse.

It took a relatively modest quantity of concentrated, high protein camper food, combined with the bulk of low quality herbs and grasses, to transform a previously unusable high country area into good summer bear habitat. Human food — with some bizarre exceptions — does not seem to be physically bad for bears; indeed, Yosemite's population was breeding at close to its biological maximum rate and some females were going into the baby-making business at the tender age of three.

Increased food supplies seem to contribute to lowering the reproductive age by one full quarter (from four to three years). Lowering age is a more powerful factor for raising populations than increasing litter



A mother black bear at Organization Campground in Yosemite shows her cubs (off camera) how to pull down coolers that are incorrectly hung. This mother and her three offspring consumed in one hour the food intended to feed 12 members of a Boy Scout troop for five days.

sizes. When you start pumping out new generations in 3/4 of the time, the arithmetic implications for management are profound.

These bears were also the biggest anywhere, with adult males in the fall often exceeding 400 pounds — occasionally, 500. As individuals they were thriving, but as a population they were showing some severe perturbations from the natural order the Park Service was after.

By the time I finished my work in Yosemite it was apparent that even a small "leakage" of food from the human system to the bears' was enough to have a rattling ecological impact and to keep the level of "incidents" unacceptably high. Closing off that nutrient flow has been and continues to be the No. 1 item in bear management. Among other courses of action, capture and relocation was expensive and usually resulted in the bear's eventual return. Killing bears, like relocating them, introduced its own, possibly extreme, disturbance into bear society.

The work I am now doing as a research scientist in Sequoia and Kings Canyon National Parks is designed to answer some of the thorniest questions still plaguing managers. Using radio telemetry, I will be following the fate of a sample of relocated nuisance bears, to determine what becomes of the ones who do not return. Do they become established successfully in new areas, or do they die? From my tagging in Yosemite I found that young bears, especially males one and two years old, seem to disappear at an amazing rate. Again using radio telemetry, I will try to determine if these animals die or disperse. We may find that certain age and sex classes in bear populations can be relocated or even destroyed without markedly disturbing the remainder.

Finally, by closely monitoring sub-populations of bears in heavily and lightly visited areas of these Parks, I hope to learn more details of the extent of the changes we have wrought on bear ecology and behavior.

Together with the findings of bear biologists in other places, we may at last be able to tell managers what actions will enable bears and people to live together in reasonable harmony, and how to accomplish that goal in the least disruptive and most cost-effective manner. It won't come easily or cheaply; years of struggle with our treasured ursine adversaries and thousands of ruined vacations that continue as I write this have taught us there is no quick fix.