Larry Minden

Above, a domesticated wild pig showing the sharp tusks, erect ears, and agouti fur characteristic of the European wild type, introduced to California earlier this century. Above right, wild pigs at large on Dye Creek Ranch near Red Bluff in northern California.

WILD HOG IN THE WOODS

ERIC HOFFMAN

There is a wild hog in these woods,
Diddle um down, diddle um day.
There is a wild hog in these woods,
Diddle um down, today.
There is a wild hog in these woods,
He eats man's flesh and
he drinks man's blood.
Cut him down, cut him down,
Catch him if you can.

—Traditional folksong

Larry Minden

LIKE IT OR NOT, it's a fact: wild pigs and their telltale rootings are becoming commonplace in California. There's probably a wild hog, with piglets, snorting its way through your favorite woods right now. On Mount Tamalpais in Marin County. In the Napa and Sonoma valleys. In pockets throughout the Sierra Nevada foothills, the Santa Lucia Mountains of Big Sur, and the Mount Hamilton Range above San Jose. Wild pigs are now known in at least twenty-eight of California's fifty-eight counties—and their numbers and range are still expanding.

Although the pigs fare best among oaks in grasslands, they have adapted readily to every California habitat except the deserts and the mountains above snowline. Just what this spread of wild pigs means to native plants and animals, as well as agricultural interests, is hard to assess because there have been no statewide studies and only a few regional assessments. But judging from the available information—from Department of Fish and Game biologists, game wardens, ranchers, and recognized wild pig experts—there's plenty of reason for concern. Pigs are now irrevocably altering the California landscape, and people are deliberately helping them along.

Hunting statistics provide the best of the generally shaky figures on statewide demographic trends for wild pigs. According to the most recent figures, compiled by the California Department of Fish and Game for 1983, at least 35,000 pigs were killed in the state that year, putting pigs slightly behind deer as the state's most hunted big game animal. The 1983 figure represents a 35 percent increase over 1982 and a *150 percent increase* since 1970. Unofficially, pigs may actually be the high-ranking big game animal in California because they are often hunted illegally—by trespassing poachers and by private property owners who don't report their kills. Further, legal hunters are not required to purchase special tags in addition to their hunting licenses, as they are in deer hunting, to enable the state to monitor the annual take. Regardless of the censusing methods, the population trends of the last ten years now seem to assure pigs an inevitable number-one status.

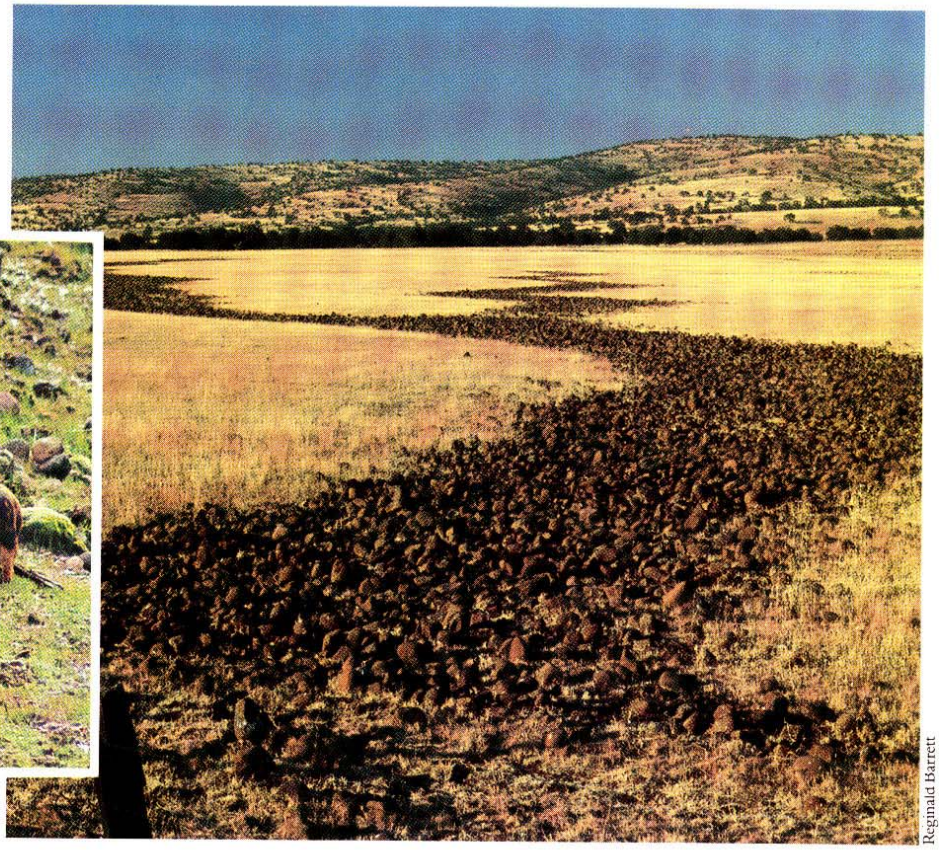
The existence of wild pigs in a half dozen California counties is nothing new. Historical accounts cite pockets of free-roaming pigs as far back as the Spanish period, and even more in the years following the Gold Rush; but until recently wild pigs apparently never populated the state in large numbers. It's only been in the last twenty years that wild hogs in the woods have become as plentiful as hotdogs in a supermarket.

Wild pigs are of two origins: free-roaming domestic forms, or feral farm animals, and introduced European wild boar. (Both are varieties of the species *Sus scrofa*.) California's wild pigs should not be confused with the small native peccary of the Southwest. The wild pigs more and more commonly glimpsed crashing through the underbrush in California wildlands are introduced animals, usually of mixed heritage.

The pigs of one region, Monterey County, seem to have played an especially important role in the entire proliferation scenario. In 1923, two dozen European wild boar—originally part of a population most likely from Germany—were cap-

Below, wild pigs rooting in a wooded area of Dye Creek Ranch. Right, the aftermath of an evening's feeding by a herd of pigs in one of the ranch's open pastures. Facing page, a feral sow with piglets.

Reginald Barrett



Reginald Barrett

tured at a private preserve in North Carolina, transported across the continent, and then released on the San Carlos Ranch in Carmel Valley. The wild boar were game animals, imported expressly for recreational hunting. Quickly, these European boar—with their protruding tusks, thick gray and brown (agouti) coat, long snout, and straight bushy tail—became favorite hunting animals.

One way or another free-roaming domestic hogs joined up with their long-legged, more mobile European cousins; and in time their unions begat mostly boarish hybrids in ever-increasing numbers. It wasn't long before wild hybrids began popping up far from the Carmel Valley in areas to which it's unlikely they would have migrated on their own. And now, even though many wild populations in California still retain mainly domestic features, the statewide trend is toward genetic mixing and physical expression of the European wild boar characteristics—what biologists call the "wild phenotype."

The physical appearance of wild pigs is a subject of vast misunderstanding. If someone repeats to you the old story that domestic pigs allowed to breed in the woods will magically evolve into razorbacked wild boar, don't believe it. Dr. Reginald Barrett is a wild pig specialist on the faculty at the University of California, Berkeley. He explains, "Pure domestic bloodlines released into the countryside may look different than their barnyard siblings, because their famished bodies change in appearance. They become 'razorbacks' when their spines protrude at the top of their emaciated bodies and their heads look unusually large, allowing people to conclude they've regressed to a different kind of animal. It's usually an illusion born from the animal's poor condition."

And what about tusks? Barrett says that all male pigs grow tusks as they mature. Then why don't barnyard male pigs have tusks? Their owners simply cut them off.

Regardless of their appearance and genetic heritage, pigs turned loose in the wild don't take long to show just how adaptable they are. Pig are omnivorous, opportunistic, broad-spectrum foragers that continually change their eating habits to consume just about anything available. This is not an exaggeration. Wild pigs survive by raiding barley fields, orchards, and vineyards; by grazing like cattle in pastures; by munching down acorns during fall months; and by rooting with their tough snouts to find, dislodge, and consume herbs, roots, tree seedlings, mushrooms, worms, birds, bird eggs, lizards, snakes, salamanders, turtles, frogs, carrion, and in some documented instances, their own piglets.

Of these multitudinous food sources, the most critical is oak mast—that is, fallen acorns. Acorns are often the wild pigs' only staple in autumn, when the dry, hardened ground makes rooting nearly impossible and when the parched grasses have lost their nutritional value. Martha Schauss is a biologist who studied wild pigs for her Master's thesis at San Jose State University and now works with wild pig specialist Reg Barrett at UC Berkeley. Schauss acknowledges that the opportunistic pigs are nonetheless vulnerable to seasonal and climatic shifts:

"In drought years, when the acorn

Reginald Barrett

crop is meager, pigs often experience die-offs. The availability of summer forage and acorns is the primary natural variable controlling population."

Even so, wild pigs have been enormously successful in California. Largely responsible for this success is their astonishing fecundity. With adequate nutrition, sows can breed for the first time at the tender age of six months and from then on can produce from four to ten piglets twice a year. This characteristic alone has allowed them to withstand extremely heavy hunting. When Reg Barrett first studied population recruitment among wild pigs he was astounded:

"Viable pig populations can withstand as high as 70 percent annual hunting losses and still maintain a stable population. There's no other large animal with this same ability."

Because of their reproductive powers, pigs can readily populate new areas. And where pigs have thus established themselves, pig hunting becomes a nonstop operation. Wild pigs are now the only big game animal that can be legally hunted year-round. Once a hunter buys a hunting license from the California Department of Fish and Game, for just $14.00 (or $49.25 for out-of-state hunters), he can legally shoot one pig every day for a year.

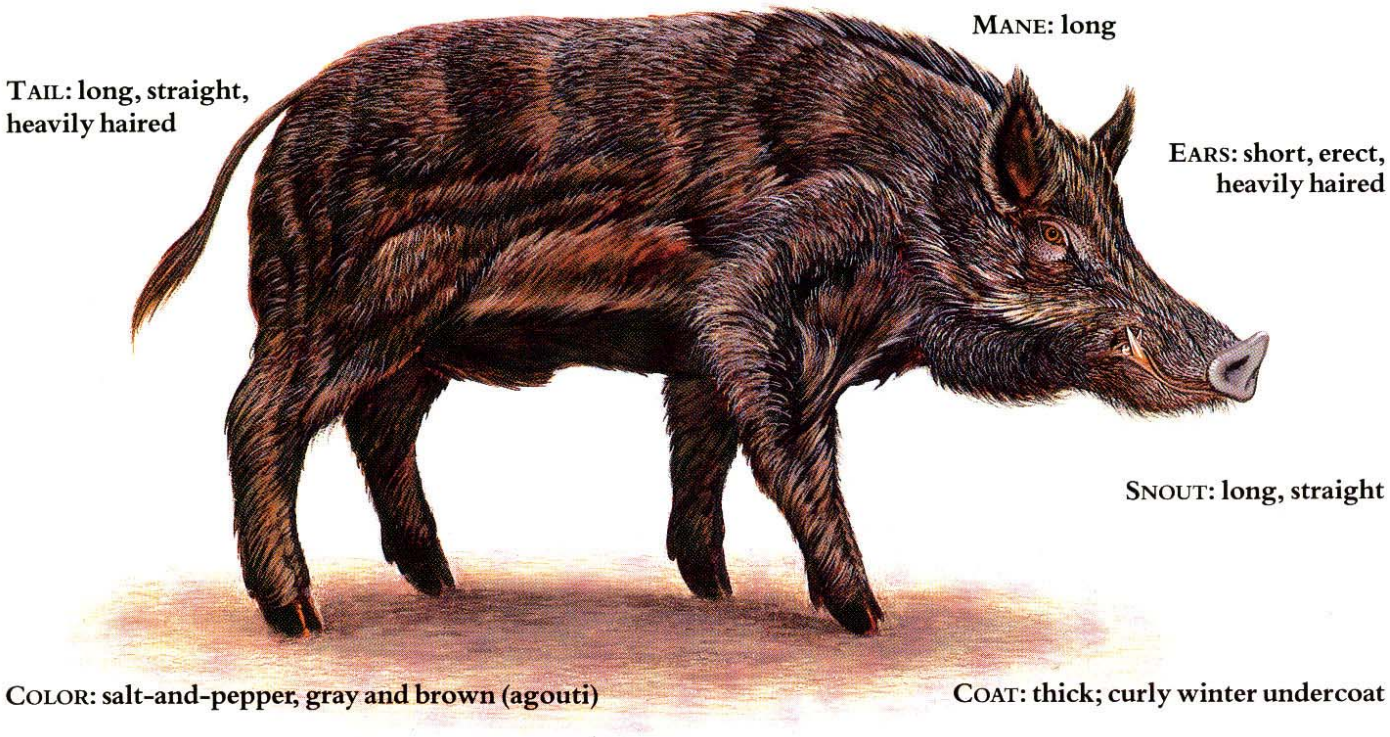
In part, the spread of pigs from their original release sites is a consequence of the animals' intelligence and their willingness to seek new areas when food and water become scarce. In severe conditions —as when drought has diminished the acorn crop—pigs have been observed to travel 30 miles or more to colonize new territory. According to Martha Schauss, however, they only go as far as they have to: "Generally, they limit themselves to a habitat of a few square miles that always includes a source of water and food, with a strong preference for cover for hiding and avoiding the sun during daylight hours."

But above and beyond the pigs' ability to disperse themselves, hunting interests have played a major role in methodically adjusting the California hog population's growth rate, geographic range, and even genetic makeup. In some areas, as at the 35,000-acre Dye Creek Ranch near Red Bluff, pigs are culled in favor of the European wild boar phenotype. The ranch is a fully legal hunting preserve—hunters pay for the right to shoot pigs there—and its operation is carefully managed under guidelines that keep the pig population within desired levels.

Others are not so scrupulous. Direct and indirect evidence suggests that pigs have been deliberately transported throughout the state for the pleasure and financial gain of persons who have little regard for neighboring agricultural concerns or for natural wildlife habitat.

Although it is illegal to trap, transport, contain, sell, and release wild pigs without a special permit, ambiguities in the law make enforcement difficult. Part of the problem arises because pigs, unlike all other big game, have a dual status. They are classified as both big game animals and as domestic farm animals. Amazingly, the law distinguishes between wild and domestic pigs solely by the presence or absence of man-made indications of ownership. Those pigs with "marking . . . or some permanent manner exhibiting dominion" are classed as domestic. Those without "marking" are wild. Thus, under

EUROPEAN WILD PIG



the law, a rotund pink Yorkshire hog that slips out of a pen without an ear tag or skin brand is technically wild, while a tenth-generation free-roaming European wild boar that has been captured illegally and then tagged becomes a domestic animal suddenly exempt from big game laws.

Despite these easy regulations, it's doubtful that many people even go to the trouble of tagging the wild boars they capture for sale, slaughter, or release. There's little need to play it safe because the law is rarely enforced. Wild boar phenotypes without "marks" are sold openly in public auctions in the Salinas area and to migrant labor camps in many places.

It's not that making arrests and getting convictions is impossible. Henry Coletto, wildlife officer for Santa Clara County's regional parks, has at times arrested both poachers and property owners for containing unmarked wild pigs. And based on the absence of marks and the pigs' European wild boar appearance he has repeatedly obtained convictions of persons illegally containing wild game.

The most telling evidence of the illegal transplanting of wild pigs is the continuing spread of wild phenotypes to new sites around the state, far from the nearest established wild stock. And corroborating the indirect evidence, many farmers and hunters will gladly explain the role they have played in developing "good pig hunting" in their areas. In some cases, just a few European boar hybrids have been released into an existing feral domestic population to alter its overall apearance. In other areas, pigs were simply dumped off and allowed to establish themselves.

In 1976, in the only study of its kind, Reg Barrett and Fish and Game biologist Don Pine attempted to analyze the dynamics of pig proliferation by studying the phenomenon in San Benito County. The county had undergone what appeared to be a rapid increase in wild pigs. Through questionnaires and interviews Barrett and Pine found that the pig population had spread from occupying just 8 percent of the county's land to 54 percent in a twenty-year period. About 50 percent of the ranchers surveyed felt pigs were pests, with no redeeming qualities, while about 40 percent judged them to be both pests and an asset. Six percent judged them entirely an asset.

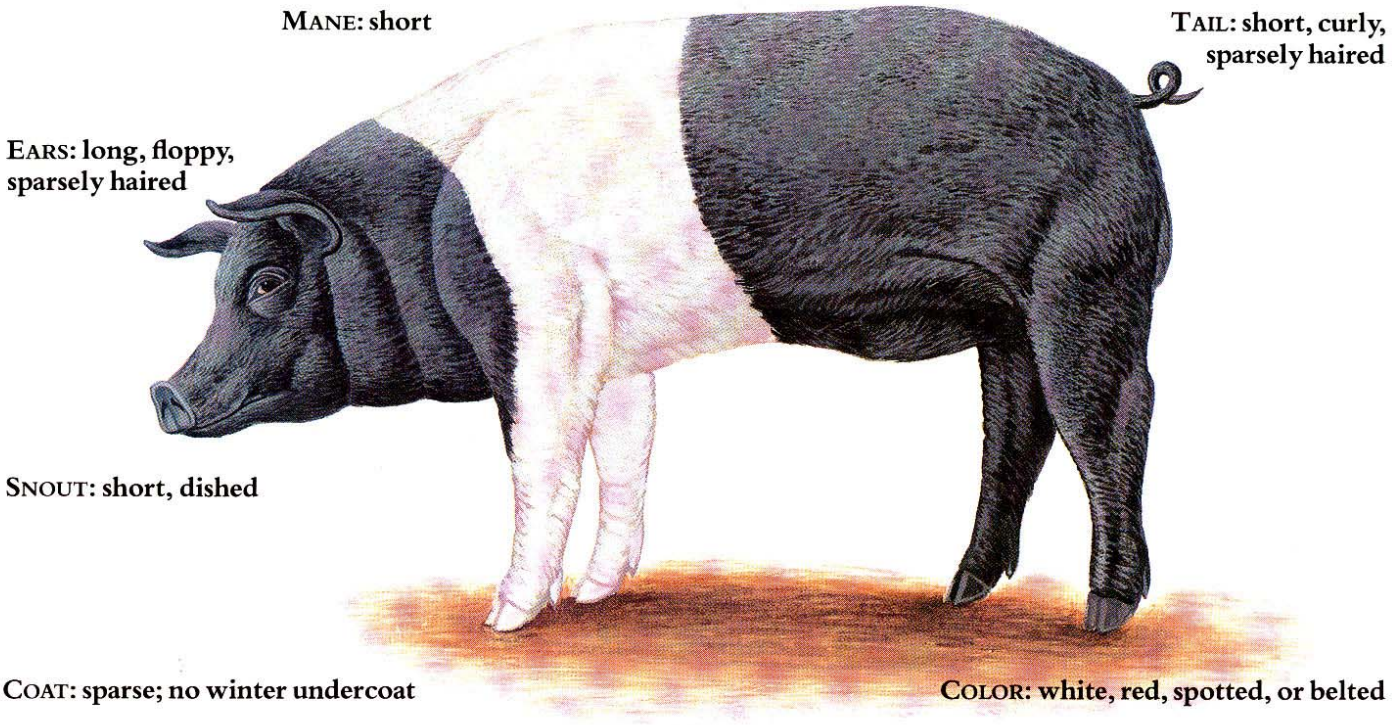
It's not surprising that some ranchers have come to favor the pigs. Fees for trophy-quality boars often bring from $400 to $750, with the fee being split between the hunting guide (if one is hired) and the property owner. Still, some ranchers who don't want hunters on their property shoot every pig they see—a practice that's legal only if the rancher gets a special depredation permit.

And there are other conflicts. San Miguel cattle rancher and barley farmer Stanford White estimates his annual loss to pigs at $20,000. He says also that "the poaching has gotten much worse. I'd estimate one [poacher] in a hundred gets caught or run off. Often they've been drinking and are the kind of people that will shoot a calf if they can't find a pig. Or, if you get in their way, they might even settle for you."

Responding to the sound of gunshots in the middle of the night, White once found himself confronted by five armed men. And though he doesn't admit to being easily intimidated, he explains, "It's

Character identification paintings by Michael E. Cole, adapted from a table by Martha E. Schauss

DOMESTIC PIG



unhealthy to continually be put in a position of dealing with armed people who are breaking the law. I've had to hold a gun on some of them for three hours before help arrived."

Fish and Game warden Ray Azbill, who works in southern Monterey County, arrests as many as 100 poachers a year and is sometimes amazed at what he comes across. "Some of them use police scanners to track our activities. Some wear army fatigues, blacken their faces, hunt with dogs, and kill the pigs with a knife or spear. When we've run checks on them we often find they have records of everything including murder."

Wildlife officer Henry Coletto patrols Santa Clara County's regional parks. He describes a blood-cult of sorts that is attracted to pigs: "It's a game to them. They want to get in and out without leaving a trace. One night I caught two guys in a truck with a bunch of hunting dogs wearing thick leather vests. [The hunters] had a dead pig with a dozen stab wounds in its side. They explained that while the dogs occupied the pig, one of them jumped on its back, straddled it, and stabbed it until its lungs gave out. Bizarre as it may seem, it's fairly common, and the people who do it see it as macho."

The resurgent popularity of pig hunting coincides with several related trends. The number of people wanting to hunt big game in California has been steadily increasing, while the overall availability of game has been decreasing: deer populations have declined statewide; mountain lions and bighorn sheep are still fully protected; and only several hundred bears can be taken annually. The wild pig is becoming California's game animal of choice, and pig hunters now come from as far away as New York and Texas.

For those who need a ferocious adversary to confront in the wild, pigs seem to fit the bill. Common among pig hunting circles are stories of life-threatening charges by enormous wild boars with glistening, razor-sharp tusks. Ironically, the animals' putative ferocity is largely a myth. Fish and Game biologist Bruce Elliot calls the stories of deadly encounters with wild pigs "about 90 percent hyperbole. Sure, pigs are capable of inflicting serious injury, but they'd rather run than fight."

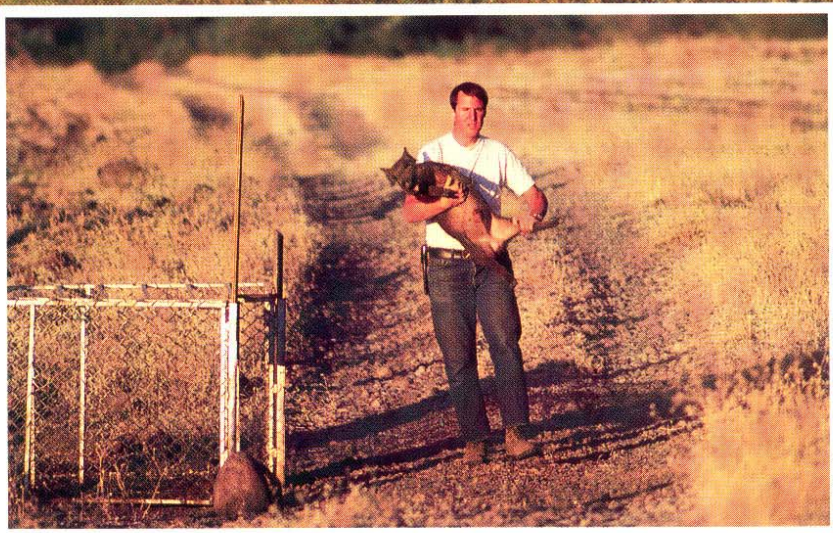
Don Pine, a biologist who has hunted more than 400 pigs, elaborates: "Most of the verified encounters are a result of people unwittingly standing in a scared pig's escape route, or an animal that must fight after being crippled or attacked by a pack of hunting dogs."

Further, it's rare for a wild pig to live the three years to maturity. Martha Schauss says, "Most wild pigs meet their demise before maturity—to starvation, predation, natural injury, exposure, and hunting. It's not that common to see a fully grown boar because most of them don't live that long."

Reg Barrett also agrees generally, but says he has run into a few spontaneously aggressive pigs: "I remember one that just didn't like me. He simply charged. I jumped up on the truck and sat there watching him tusk the tires for the next fifteen minutes. You should never take a pig for granted."

Martha Schauss herself has live-captured hundreds of pigs in her studies. Reg Barrett's experiences notwithstanding, she has never been charged by the animals

Reginald Barrett



Peter Pavlov

Larry Minden

In the Santa Lucia Mountains of California's Big Sur region, wild pigs are abundant, although uncommonly sighted in the rugged landscape, above. At Dye Creek Ranch, above right, UC Berkeley biologist Reg Barrett releases a feral piglet trapped during his ongoing population studies at the private hunting preserve. Below right, researcher Martha Schauss inspects rooting damage left by wild pigs in Santa Clara County's Henry Coe Regional Park. Facing page, a hunter proudly displays a trophy-quality boar's head from an animal taken at Dye Creek Ranch.

Reginald Barrett

she released, even though she has often pricked them to draw blood. "After I collect the data I need, I just open the trap's door and make sure I'm not standing between the pig and freedom. Invariably, they squeal and race towards the closest cover." She remembers an incident that illustrates the "hyperbole factor" in pig hunting stories.

A pig Martha Schauss trapped took to being captured. "Apparently the pig felt I wasn't a threat and decided that getting the bait from the trap was worth the temporary confinement. Often, after I'd set the trap, he'd come trotting from the bushes even before I got into my truck. He'd patiently lie down in the trap and wait to be released. Eventually we got to know each other." Schauss admits that even though biologists work to separate affections from scientific attitudes a glad-to-see-you relationship developed. One morning it came to an abrupt end.

That morning Schauss received a telephone call from a hunter who reported he had shot a wild boar and was now calling in the number on a tag in the animal's ear. Without being asked, he volunteered a story about the boar—the worst he'd ever encountered. He described its suicidal charge and explained that if it hadn't been for a well-placed shot he and his dogs might have lost the battle. Schauss politely didn't tell the man what she thought of his story.

"Chances are," she says, "the pig came out of hiding because it associated the vehicle with food, which the man may have interpreted as a charge. Naturally once the dogs were released, the dumbfounded pig put up some kind of a fight. The guy probably could have caught the pig just as easily with a banana. If he'd been able to, the pig would have jumped into his truck for a morsel and traded a meal for a ride to market with a lot less trauma to everyone involved."

WITHIN THE patchwork of public and private properties that make up modern rural California, the wild pig has now become many things to many people: a popular game animal, a prime source of revenue for state agencies and private landowners, an agricultural pest, and a nearly inexhaustible source of meat. But even though attention is now beginning to be focused on law enforcement problems and on damage to private property, little attention is being given to the pigs' influence on native plants and animals.

It's easy to conclude that such a prolific, broad-spectrum forager would have adverse effects in an adopted habitat, but there have been few studies that document the impacts. Many questions need answering. For example, is the decline of the state's deer population directly related to the growing pig population? Pigs and deer both rely on acorns, especially in the fall of lean years. At what population levels is competition for this food source detrimental to the less aggressive deer?

Reg Barrett notes that "deer populations vary with the acorn crop. Intuitively, I believe that competition for the acorn crop, particularly in years of acorn shortages, has adverse impact on deer and probably on other acorn-dependent wildlife such as wild turkeys, squirrels, and black bear. How much impact is contingent on population densities and availability of food."

A herd of rooting pigs can turn a pristine streambed into a mudhole in a single night's feeding.

Fish and Game biologist Bruce Elliot offers another possibility: "It's purely speculative at this point, but we know pigs eat fawns because we've found the evidence. What we don't know is if they eat them after they've succumbed to something else, or if they eat enough of them to influence the big demographic picture."

Deer are not the only native organisms to feel the impact of California's burgeoning wild pig population. A herd of rooting pigs can turn a pristine streambed into a mudhole during a single night's feeding. In the process, plants, amphibians, bird eggs and hatchlings, reptiles, and insects are consumed.

Such disturbance is not always harmful. Some scientists believe that limited rooting may actually benefit some kinds of vegetation and associated animals by loosening soil and keeping plant growth in a transitional state.

But severe rooting can wipe out local populations of rare plants and initiate erosion. In Hawaii, for example, high concentrations of wild pigs have permanently altered the native flora and allowed exotic species to flourish. On California's Channel Islands pigs have destabilized coastal sand dunes by consuming dune vegetation. In Marin County wild pigs on Mount Tamalpais have rooted their way through fragile populations of rare orchids and lilies. "When there are pigs around," says Barrett, "anything with a bulb on it won't stand a chance."

There's the disease angle too. In 1983 Fish and Game veterinarian Dave Jessup and researchers from University of California, Davis, conducted a serologic survey of wild hogs from four different populations. By testing for antibodies they were able detect the diseases carried by the pigs. Wild pigs, it turns out, carry a great many. In their study the scientists found evidence of potentially fatal brucellosis, leptospirosis, tuberculosis, pseudorabies, and the plague, leading the researchers to conclude that "people entering these [pig] habitats and handling these animals are at risk."

AS THE CONCERNS mount, so do the pressures on the California Department of Fish and Game. Many observers now feel strongly that the private and public management practices, enforcement efforts, and legal structures surrounding wild pigs are in need of reform.

Martha Schauss, for example, has developed a point system that would define the European wild boar phenotype for enforcement officers. Confronting an unmarked pig in the back of pick-up truck, officers would use Schauss's index to tally up points for wild boar physical features: hair, ears, snout, tail, and so on. A fully wild-type pig would receive 100 points, a fully domestic-type, zero. Most California wild pigs would rank somewhere in between.

"Enforcement people probably wouldn't touch anything that would rank less than eighty," says Schauss. "With the trend to European boar phenotypes, drawing a line between what is wild and what is not would help eliminate the double standard that has made enforcement difficult and illegal pig proliferation a low-risk undertaking. Sure, a visual indexing would breakdown where domestic-type feral pigs are still dominant, but indexing would certainly draw some lines that need to be drawn in many areas."

Rancher Stanford White also thinks changes in the law are necessary: "Chances are, hunting won't eliminate these pigs. They breed too fast and can breed places hunters can't find them. Fish and Game should sponsor legislation that allows carefully monitored mass trappings during the fall when pigs congregate around water. The animals could be butchered and the meat used by prisons and public institutions. Presently, ranchers' hands are tied. We have to fight pigs because of unintelligent laws that don't allow efficient management, and we have to fight poachers because the law won't allow us to resolve the problem."

Where to? No one is certain. The economic and social forces that have led to the proliferation of wild pigs in California now pose perplexing problems to wildlife managers and landowners. Both groups currently benefit from the pigs' popularity among hunters: The Department of Fish and Game collects hunting license fees, with minimal enforcement effort. Meanwhile, ranchers profit by charging hunters fees for the use of their land and the taking of their animals.

But both groups also suffer from the pigs' destructive influences. For the Department of Fish and Game, wild pigs are now abundant enough to disrupt native populations such as deer, quail, and other wildlife species. Ranchers, on the other hand, must deal with armed, trespassing poachers and with landscape and crop disturbances wrought by the pigs themselves.

Events in the next decade will undoubtedly bring into confrontation hunting and agricultural interests, as well as environmental and wildlife protection groups. Stuck in the middle will be the California Department of Fish and Game and other resource management agencies. Henry Coletto sees proposals for uniform enforcement, with stiff new deterrents for offenders, as a big step in the right direction. "The same people are arrested over and over again," he says, "apparently because the fines don't negate the gain. But poaching is symptomatic of the bigger problem of people transporting, capturing, and selling wild pigs. That problem still isn't being addressed."