

FROM THE DESK OF DAVID L. SCHUTZER

COLUMN ONE

FINDING JUSTICE IN THE FLESH

Wildlife sleuths use DNA to convict— or clear— animals suspected of attacks on humans. Poachers are also being snared by the science.

By Rone Tempest, Times Staff Writer
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Orick, Calif.—AN hour before dusk, when the redwood shadows on the popular Brown Creek hiking trail are long and dark, a mountain lion sprang from a huckleberry bush onto Jim Hamm's back, gripped his face with giant claws and tore at the back of his skull with its fangs.

Looking at the ghastly photographs a few hours later, wildlife forensics specialist Jim Banks shook his head. "Damn near scalped him," Banks muttered.

Miraculously, the 70-year-old Hamm survived, largely because of the courageous intervention of his wife, Nell, a slightly built 65-year-old who struck the mountain lion repeatedly with a heavy branch and stabbed it with a ballpoint pen until it released its hold.

After the attack, hunters summoned to the scene in Prairie Creek Redwoods State Park north of Eureka had shot and killed two mountain lions. The urgent task for Banks and his colleague, geneticist Jeff Rodzen, was to determine if one of them was the attacker.

Like the popular TV crime show, Banks and Rodzen form a kind of wildlife CSI team, cracking cases in their state Department of Fish and Game forensics laboratory outside Sacramento.

In 1995, the lab became one of the first state wildlife facilities in the country to use DNA evidence to positively identify wild animals that attack humans and livestock, and to prosecute poachers.

In recent years, Banks, 69, and Rodzen, 31, have used DNA to track illegally harvested bear gallbladders and Sacramento River sturgeon caviar thieves. Having built a comprehensive DNA file on the state's deer population, their next project is to genetically map depleted red abalone populations.

In animal-attack cases, their work exonerates animals nearly as often as it convicts them.

In fact, one of the first things that worried Banks about the Jan. 24 mountain lion attack was that it would spawn a rash of false reports in other parts of California. Sometimes, he said, these are coverups for human foul play. A number of alleged bear and mountain lion attacks that Banks has investigated over the years actually turned out to be homicides.

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In one 2003 incident in Trinity County, officials were ready to classify the victim as a mountain lion casualty. The man, found partly devoured on an alpine ledge, had supposedly been a hunter. But when Banks examined the scene, he noticed that the dead man was wearing tennis shoes instead of boots and had no backpack for his supplies and ammunition. The body was surrounded by bear and coyote scat, but none from a mountain lion.

Banks recommended an autopsy—and the grateful coroner discovered three bullet holes in the man's head. The carnage to the body was done by coyotes and bears after his death.

In Jim Hamm's case, the type of perpetrator was never in question. According to game warden Paul Welden, the first on the scene, the mountain lion or mountain lions were still lurking nearby.

Welden and a park ranger walked into the darkened forest, each carrying a flashlight and a 12-gauge shotgun. Welden was startled when the ranger blurted suddenly: "I've got eyes in the bushes right there."

Soon, both men saw a mountain lion moving in the huckleberries and ferns only 30 feet away.

They contacted local professional hunters Jace Comfort and Blue Millsap, and Millsap released his coonhounds into the woods. The dogs treed two mountain lions, a male and a female, both of whom Millsap killed with his .30-30 rifle.

But until blood, hair and saliva samples taken from the mountain lions and the victim could be matched, supervising game warden Lt. Rick Banko had to assume that a dangerous big cat was still at large. He closed the section of the popular state park where the attack occurred.

Another warden, Paul Cardoza, drove all night in his pickup to reach the forensics lab with the first Millsap kill—the 68-pound mountain lioness—and Hamm's blood-soaked clothing and backpack. He was waiting outside the Fish and Game gate in Rancho Cordova when Banks and Rodzen arrived the next morning.

The mountain lioness measured 6 feet 6 from tail tip to head. Wearing surgical gloves, the two investigators hovered over the cat's body, stretched out on a stainless-steel table in the lab's necropsy room. They swabbed samples from the lioness' mouth and chest and from under the leathery folds of skin at the base of her retractable claws.

"Cats are meticulous about cleaning themselves," Banks explained, "but they have trouble reaching this area around their claws. If we find human blood, this is the most likely place."

Banks had hoped there might be some obvious physical sign linking the lioness or the larger male lion—who arrived later in the day on a Fish and Game plane—to the attack. The

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investigators had the bent ballpoint pen that Nell Hamm had used to fend off the attack but could find no mark on either animal.

“This could be a tough one,” Banks said.

“A real whodunit,” said state wildlife veterinarian Pamela Swift, who ordered both animals tested for rabies.

Inside the Fish and Game regional headquarters on the American River east of Sacramento, opinion was divided among those who thought the attacker was the lioness, the lion—or neither. Banks, who has 35 years’ experience in criminal and wildlife forensics, favored the lioness. Swift was betting on the male.

Mountain lion attacks on humans are extremely rare. In California, which has 5,000 to 7,000 mountain lions, only 16 attacks have been recorded since 1890. The last fatal attack, on Orange County off-road bicyclist Mark Reynolds, 35, occurred in 2004.

The day after the Hamm attack, reporters and TV producers besieged the lab with questions.

“When these things happen, we drop everything else,” said Rodzen, a Maine native who received his doctorate in genetics from UC Davis. On the floor of the necropsy room was one of those dropped projects, a decapitated deer that was evidence in a poaching case.

The wildlife detectives knew that a lot was at stake. A speedy determination would keep public fears in check. It might even save the lives of other mountain lions. “If we don’t get the right cat,” said Swift, “then everyone out there will be packing guns and shooting cats and claiming self-protection.”

For Banks and Rodzen, the first step toward solving the mystery was to determine whether human blood was on one of the mountain lions.

They placed fur samples from both lions in the wells of special gel plates and “challenged” them with human antibodies. If a white precipitate formed on the plates, it would mean the samples contained human blood.

When the scientists arrived at the lab the next morning, they had the good news they had hoped for—and they had narrowed the investigation to a single mountain lion.

The human antibodies had reacted to all of the samples from the mountain lioness. The male lion’s samples were negative.

Based on this result, Banks was able to call game warden Banko at Mad River Community Hospital in Arcata, where Jim Hamm was being treated for his wounds.

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“We are now certain that it is the female lion,” Banks told him. “Most of her front paws had human blood. We don’t know for sure yet that it is the victim’s blood, but what are the chances of a lion walking around with another human’s blood on its paws?”

The results were enough to reopen the trail and reassure the public. “Once we had this, I knew we were golden,” Banko said.

Several days later, DNA samples tested at the Fish and Game lab and, for extra confirmation, at UCLA’s Department of Ecology and Evolutionary Biology, produced conclusive evidence.

Hair found on Hamm’s shirt was from the mountain lioness. Blood found on the lioness’ chest and paws matched Hamm’s. “Everything turned out as we expected,” Banks said.

Banks’ introduction of forensic science into wildlife management has made him a hero to the state’s 250 game wardens—and the bane of poachers. Today, wardens say, most poachers faced with DNA evidence just plead guilty.

“Jim Banks is God,” said Welden, who works out of Crescent City. “When Jim gives an answer, it is the answer. When Jim says it, it is the truth.”

BEFORE Banks and DNA, said Banko, “all we had was a gut pile that some poacher had left behind. Now we can say for sure that it is the same animal as the meat we find in someone’s freezer. It’s changed the whole ballgame.”

In fact, it was a “gut pile” found in 1993 on Shasta County’s Rising River Ranch, then owned by actor Clint Eastwood, that sparked the development of California wildlife DNA forensics.

A big mule deer buck lived on Eastwood’s property, and the actor loved to watch it run free. One day the stag was gone, and nothing was left but a pile of innards. The trophy-quality stag, identified by nearby ranchers, showed up at a taxidermy shop in another part of the county, where a hunter claimed to have killed him legally.

With Eastwood’s prodding, state officials sent samples from the stag and the gut pile to the National Fish and Wildlife Forensics Laboratory in Ashland, Ore., at the time the only wildlife lab in the country capable of DNA testing.

The DNA from the buck and the remains found on Eastwood’s ranch matched. The hunter pleaded guilty to poaching. He was fined \$2,500 and had his hunting privileges suspended for three years.

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Banks used this case to raise money for California's own DNA lab. According to the federal wildlife service, four other states—Wyoming, Idaho, Pennsylvania and Texas—have labs with DNA research capability.

Over the last decade, Banks and Rodzen have used DNA evidence to break elk poaching rings, round up sturgeon caviar collectors on the Sacramento River and investigate the mysterious drowning of several hundred immature terns in Long Beach Harbor.

They also conducted a major DNA study of the state's deer population that allows them to determine within a few miles the home habitat of a slain deer. In the next year, faced with the proposed reopening of commercial abalone fishing on San Miguel Island off the Southern California coast, they plan a similar DNA census of the abalone fishery from Oregon to the Mexican border.

SCIENCE has made a believer out of Ronnie Vaughn, a 39-year-old Orick resident who was one of the first poachers convicted in California through DNA evidence.

Vaughn's case dates to 1995, when the head of a protected Roosevelt elk was found on the beach outside Orick. Banko, then a junior warden, was assigned the case but was at a dead end until someone tipped him off that Vaughn was serving elk steaks at his Orick home.

Banko went to Vaughn's trailer park home, where he found a "bloody elk steak" on a plate inside the refrigerator. At the lab, Banks was able to match the DNA from the steak with the head found on the beach.

"That was the first time I went to jail in my life, 30 days and a \$1,250 fine," said Vaughn, who has had subsequent run-ins with the law, including being caught harvesting redwood from state parkland.

"I'm an outdoorsman," shrugged Vaughn as he fished for steelhead in the creek near his home on a recent afternoon.

"Me and game wardens have been having run-ins and playing hide-and-seek all my life," he said. "A lot of us around here are that way. But this DNA has caught us up and passed us by. Anyways, I'm through with poaching, that's for sure."

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