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MARCH 1999

## Can of Worms



***Diplocardia mississippiensis is a hardy, muscular earthworm found in the Florida Panhandle and prized by fishermen. For years locals gathered and sold these earthworms with little federal interference. Now the situation has changed***

by [Kenneth Brower](#)

*(The online version of this article appears in three parts. [Click here to go to part two.](#) [Click here to go to part three.](#))*

### Insurrection

**I**N the peak months of March, April, and May earthworms bring \$25 to \$28 a can to the baiters who grunt for worms in the sandy soils of [Apalachicola National Forest](#). In the flatwoods of the Florida Panhandle baiting is not the act of threading worm on

hook but an earlier step -- the extraction of the worm from the ground. To "grunt" -- or "scrub," or "rub" -- for worms, the baiter drives a wooden stake into the earth. The stake, carved from black gum, or cherry, or white hickory, is called a stob -- a fine old word, a Medieval English survival by way of Scots dialect transplanted to the southern woods. The baiter drives in the stob one-handed, with blows from the long bar he calls his iron. Then, kneeling, he grips the iron firmly at both ends. Leaning his weight into the task, like a man planing wood, he strokes the length of the iron repeatedly and rhythmically over the top of the stob, producing a deep metallic croaking. The sound is vibrant, interrogative, lovesick, alien, like the mating call of some giant amphibian in an iron mine on Mars.

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From the archives:

["The Rancher Subsidy,"](#) by Todd Oppenheimer (January, 1996)  
The West's

East of the Ochlockonee River, in the soft soil of Wakulla County, the stob is huge. The baiters there -- "those Sopchoppy boys," as they are known on the other side - - use a flat, heavy iron with a kind of paddle grip cut into one end. Around the little [Wakulla County](#) town of Sopchoppy heavy gear seems to work best. West of the Ochlockonee, in the firmer, more resonant soil of Liberty County, the stob is smaller, and the iron more delicate and graceful -- a curving length of steel cut from the leaf spring of a car or truck. On either side of the river the technique is the same. With his iron held edge-on, the baiter knocks in his stob. Turning the iron flat side downward, he commences [grunting](#). When he has hit the stob five or six licks, a magical thing

fabled ranchers are in trouble. The damage done to the land by cattle has become a contentious environmental issue. The ranchers' greatest enemy, though, is the free market.

**"The Pig War,"**  
**by Kenneth Brower**  
**(August, 1985)**

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An article about what "grunting" in Apalachicola can teach researchers about the natural history of native earthworms.

happens. For reasons unknown to science but resonatingly clear to worms, the song of the iron drives pale legions of annelids from the safety of their tunnels. The baiter becomes a Pied Piper of worms. The finest bait in the entire South -- finest, some say, on the planet -- begins appearing everywhere on the surface of the ground.

When, some time ago, the National Forest Service announced an increase in the permit fee for grunting, the baiters rebelled. For many years they had been paying \$30 annually for a permit to harvest an unlimited number of worms. Henceforth they would be required to pay a tax of \$3.00 a can (each can holds 500 worms). A few weeks after the announcement an angry crowd of more than a hundred gathered outside the Apalachicola District Ranger Station, in the little town of Bristol. Andrew Colaninno, the district ranger, was stunned by the size of the gathering. He had underestimated the number of men and women who grunt under the longleaf pines of his district. He had completely misjudged their mood.

In announcing the fee increase, Colaninno had accomplished a kind of grunt of his own. A host of baiters appeared magically, as if out of the ground.

The mob of baiters had dwindled to about forty by the time I arrived. Among them were two old black men, one black woman, and a dark-haired woman with a trace of a

From *Research Reporter*, a publication of the University of Georgia.

**Annelid Worm Biodiversity Resources**

"A guide to information on annelids, and current worm research and researchers." Posted at the Biodiversity and Biological Collections Web Server -- a site "devoted to information of interest to systematists and other biologists of the organismic kind."

harelip who looked part Native American. The rest were white folk with origins mainly in the British Isles, I would guess: Scots and Irish faces altered in some recognizable but indefinable way by several generations in the southern flatwoods. A television truck was parked at the curb. The reporter, a youngish man in a three-quarter-length leather coat, was holding a microphone up to a baiter named Charles McCranie, who seemed to be the spokesman for the group. The other baiters had formed a circle and were leaning in to hear.

"When we first heard about the increase, my wife called over here to Bristol," McCranie was saying. "They played pass the buck. They told her to call Tallahassee. So I called Tallahassee and talked to a Mr. Riser, and Mr. Riser passed the buck back to Bristol. He told me that Mr. Colaninno, the head sergeant at the work station in Bristol, he is the one that instated this rule. All by his little self. So I called back over here to Bristol. And I asked him, 'What qualifies you to set the fee? What do you know about bait harvesting? The bait business? The condition of the earthworm in the forest?'"

McCranie was a man of middle height, in his late twenties. He had an Elvis-like abundance of auburn hair that brushed the back of his collar, and his face culminated in an impressive nose. He appeared to have shaved very close that morning. The preternatural smoothness of his cheeks set

him apart from the other male baiters, who tended to be stubbly. He wore a thin gold chain around his neck and a shirt of a lightweight, silky synthetic. His teeth chattered a little, partly from the thinness of his shirt in the cool of the morning, I guessed, and partly from the adrenaline of debate.

"This three-dollar-per-can cost," the reporter said. "What kind of increase is that over what is already being paid?"

"You cain't ... ," McCranie began, his voice rising. "You cain't ... ," He brought his indignation under control and lowered his pitch. "You can't even compute it. Until now we've paid thirty dollars for a year-round permit, an unlimited-harvest permit. *Three dollars a can!* There's no way we can afford to do that and stay in business. I mean, there's no way. Period. This is a nickel-and-dime business. You make all your profit in nickels and dimes. If you start cutting a nickel and dime here and there, you don't make any money. Period."

The crowd of baiters murmured their assent.

"My wife and I are buyers," McCranie went on. "We're paying twenty-five or twenty-eight dollars a can, and we're making about thirty. We end up making about two or three dollars a can. If Mr. Colaninno takes three dollars a can, that kills the bait business. Period. You can't pass that on to the consumer, because the market won't bear it.

It's already high enough when they get to Georgia, South Carolina, North Carolina, Tennessee, south Florida, because there are so many middlemen along the way. What we're upset about is nobody come to us and asked us. Mr. Colaninno made his decision on his own. Nobody asked us if we thought we should put it to a vote. They just said, 'This is the way it's gonna be, and it's best for you to go along with it.' None of us can. We can't afford to. We're not going to."

The reporter and his cameraman exchanged glances. This about wraps it, their eyebrow language suggested, and the reporter allowed the microphone to drop a little from McCranie's mouth. The dip of the microphone did not go unnoticed by the baiters. Their fifteen seconds of television fame were over.

"When you say you're not going to put up with it, what do you mean?" I asked.

With a speed that surprised me, the crowd began dissolving around the videocamera and reassembling around me.



"We're not gonna pay it," McCranie answered. "We're gonna go out anyway. Everybody here will tell you. We're gonna go as long as we want to. We're willing, just like I told Mr. Colaninno, to work with them any way they want us to. I'm willing to go with the biologists to the forest -- to take 'em where I bait, and show 'em how. We're willing to do anything. We don't want to work outside the law. Like I told him, we want to be in line with the laws of the forest. We don't litter. We don't tear up fences. We don't want to be outside the law. But it's got to be something reasonable that we can all live with."

Junior Coxwell, the biggest bait buyer in Calhoun County, approached the crowd from across the street. Fifty yards away Coxwell seemed to notice the television van for the first time. He stopped abruptly, turned, and walked back the way he had come. A small, pale baiter named Raydell observed Coxwell's pirouette. Interrupting McCranie, Raydell called the crowd's

attention to Coxwell's departure: "He seen the TV man here, so he left."

Raydell wore an odd little stingy-brim hat and a beard trimmed carefully along the angle of his jaw. He seemed to take a grim satisfaction in the defection of Junior Coxwell. A few of the baiters chuckled at Coxwell's retreat, a few smiled fleeting sardonic smiles, but no one seemed to feel for Coxwell quite the animosity that Raydell felt. Charles McCranie watched the buyer's departing back without expression and then continued.

"Mr. Colaninno told me on the phone, 'We don't expect one hundred percent compliance.' I said, 'Well, you're gonna get zero percent compliance.'" McCranie seemed offended that Colaninno should expect a certain amount of lawbreaking by the baiters. The new fee was all about revenue for the Forest Service, in McCranie's opinion. "There's no doubt in my mind that the population has declined," he said. "You can ask anybody that's baited all their life. When they were little kids, it was nothing to get a thousand or fifteen hundred worms to the grunt. Now you hardly ever see that many. But *we* don't want to exterminate the earthworm. This is our livelihood." The real threat, McCranie suggested, came less from baiters than from the Forest Service itself. If anything had the potential to exterminate the worm, it would be the agency's prescribed burning in short cycles. Here Raydell leaned in to agree



fervently.

"They're hurting earthworms just as bad as we are!" Raydell cried. "The gov'ment!" Raydell's gaunt face had gone rigid with anger, and his jaw muscle squirmed, vermiculate, inside the angle of his beard.

"We bait on the burns," McCranie explained. "We all can bait on the grass, too, but we like to stay on those burns. It's easier for us. We can see the worms better. When they burn a piece of property every two or three years, they need to close it -- because everybody goes there and baits it. In springtime there might be a thousand people on that burn in one morning. In three or four days the baiters have harvested the vast majority of the worms that's on it. If the Forest Service burns that same piece of property again within two or three years, those earthworms haven't had time to raise back. They haven't had time to reproduce and repopulate that area. Then it gets hit again, so there's hardly any left. What the Forest Service has got to do is wait five or ten years between burns. If they do burn a piece of property every three years, they got to close it. And when they close it, they're gonna have to put somebody there to set on it. They need to post it and enforce it, or somebody's gonna bait it."

Annette McCranie, listening to her husband hold forth, smiled and shook her head.

"They could of had this meeting with just Chuck," she said. "He ain't gonna shut up."

"I don't want him to shut up," said one of the black men, a seventy-five-year-old baiter named Charlie Williams.

"He's good at talking, ain't he?" Annette McCranie said.

"Yeah," Williams said. "I don't want anybody to shut him up."

The crowd generated a peculiar electricity. In the faces I thought I could detect a new euphoria in combat with an old fatalism. This morning appeared to have been an awakening. The baiters were all acquaintances, yet they seemed only now to have realized their fraternity -- to have sensed that they had a collective power. Today felt like the beginning of something, yet at the same time it was anachronistic -- a scene from the 1930s, something out of Steinbeck. "There are thousands of us," McCranie said. "There was probably a hundred here this morning, but that's a drop in the bucket. All of us baiters, whether we buy bait, sell bait, or whatever, we all need to be together on this thing."

The TV reporter and cameraman were long gone, having entered the ranger station to record the Forest Service's side of the story. Reluctantly the crowd of baiters began to break up. Men would start off and then sidle back to hear some more. Four or five were talkers, the rest listeners.

"Well, I'm gonna leave, y'all," Charlie Williams announced finally. "I'm going on."

"All right, I'll give you a call," McCranie said. "Let me get your phone number, Charlie."

After an exchange of numbers, Williams and McCranie shook hands warmly and then embraced. A general search for pens and slips of paper and a scribbling of phone numbers followed. I lost several sheets of my notebook to the cause. Everyone promised to keep in touch. In his enthusiasm, Charlie Williams threw his big black arm around the narrow shoulders of Raydell, the angry white baiter in the stingy-brim hat. Raydell stiffened visibly in his grasp.

In the dry forests of the Far West, insurrections against the Forest Service and other land-stewardship agencies have been collectively called the Sagebrush Rebellion. The Apalachicola is subtropical forest, completely devoid of sage. Some other emblematic plant was needed. Maybe what had rung out this morning, I decided, was the first shot of the Palmetto Rebellion.

### **Continued...**

*The online version of this article appears in three parts. [Click here to go to part two.](#)  
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**Kenneth Brower** is a frequent contributor to *The Atlantic*, specializing in ecological issues.

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Illustrations by Barry Blitt

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MARCH 1999

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## Twelve Hearts of Mississippi

**A**NDREW Colaninno, the district ranger, sat on the edge of his desk facing the press, such as it was -- the TV reporter, his cameraman, and me. Colaninno was a scaled-down version of a big, bearish, bearded type that is common in the Forest Service. He stood about five feet seven, more a yearling black bear than an Alaskan brown bear. His close-cropped beard was somewhat more grizzled, perhaps, than one would expect in a man of forty-three. Colaninno was explaining the formula by

which he had arrived at his \$3.00-a-can tax on worms.

"When we sell timber, we use exactly the same procedure. We say, 'What's the price of lumber FOB at the mill? What's the cost of felling, what's the cost of skidding, what's the cost of transportation?' The price of the timber minus those costs, which is called the stumpage price in forestry, is the basis for the fee charged. We would use that procedure regardless of what we sold -- whether it was deer moss, or palmetto berries, or any other minor product that we might sell off the forest."

I could detect no trace of southern drawl in the ranger's accent. Colaninno was born well above the Mason-Dixon line, in the Bronx, yet I heard no Bronx nasalities either. He spent most of his childhood in southern Florida and his adulthood in national forests across the nation. He spoke in the regionless inflections of a television news anchor.

"What other forest do they do this in -- harvest earthworms?" the reporter asked.

"We're the only one, as far as we know. So you can understand our dilemma. I'm a forester, and I have a degree in silviculture - how trees grow, the ecology of trees. I never had a course in earthworms. Everything I know about earthworms I've learned in the four years I've been in this district. I've learned by working very

closely with earthworm researchers from the University of Georgia. We make an annual pilgrimage up there to Athens and spend three or four days. They share data. It's like an intensive short course in earthworms."

Colaninno gave us an abbreviated version of that short course. We learned that the bait marketed all over the eastern United States in small plastic cups labeled EARTHWORMS is not a single species but many. Some are red worms grown commercially in sawdust or horse manure. Others are night crawlers harvested from the wild in various ways, often by electroshocking. Fishermen generally favor night crawlers over red worms, and they prefer the worms of Apalachicola to anything else that crawls. "The species of worm here is called *Diplocardia mississippiensis*," Colaninno said.

The reporter laughed merrily. "I don't think anybody can get *that* one out on the air," he said.

Colaninno smiled, but I found myself irritated that the worm's scientific name should seem somehow comic, or beyond the reach of a television audience. *Diplocardia mississippiensis* was a noble, euphonious name, in my opinion -- "Twin-heart of Mississippi," if my translation was right.

"Diplocardia would mean two hearts," I said. "Double hearts."

"It means twelve hearts," Colaninno replied. "What it means is they have two hearts per segment. There are six segments that have hearts. The worms are hermaphroditic. They have both sexes on the same worm. They choose their sex based on population dynamics that aren't very well understood right now. We do know that they play an important role in calcium cycling. They have a gland in them, the calciferous gland, that sucks calcium out of the environment. Little nodules of calcium form in this gland and then go to the gizzard and help grind up food. Where chickens eat pebbles as millstones for their gizzards, these guys -- the worms -- make their own pebbles. Their excrement is four or five hundred times richer in calcium than the surrounding soil. That calcium is very important in the ecology of this area, because the soils here are so poor in nutrients."

Earlier, Charles McCranie had asked rhetorically what Colaninno knew about earthworms. As it happened, he knew quite a bit.

"We're trying to get a major study off the ground," Colaninno went on. "A six-year study of red-cockaded woodpeckers that will either confirm or refute a link between woodpecker success and earthworm abundance. Woodpeckers need calcium to make eggs. One hypothesis holds that the availability of calcium in the environment directly influences how many eggs a given



female woodpecker lays. If earthworms fix calcium -- and right now it appears they are the major fixers of calcium here -- then the number of earthworms you have may be directly related to the number of woodpeckers you have."

Colaninno also told us that regulations put in place to implement the National Forest Management Act of 1976 require the Forest Service to safeguard forest resources. "Can you imagine how the baiters would react," Colaninno asked, "if a court order directed me to issue no further permits because we were threatening the viability of the species? They'd be shit out of luck. They could go complain to Congress until they were purple and it wouldn't make a damn bit of difference. We've been working behind the scenes to keep them in business. When you hear rumors that we're trying to drive them *out* of business, that's just crowd talk.

"Unfortunately, we could not go to the earthworm community, badly organized as it is, and say, 'Listen, we've been working for four years, we spent thirty-five thousand dollars of our own money, and we've got an NSF grant for a hundred and fifty thousand, all to keep your industry in business.' We don't have any intention of jeopardizing their livelihood. But we're getting so much pressure to receive a fair return, a businesslike return, on anything that we sell off the national forests that the permit fee is going to have to go up."

"It really is a can of worms," the reporter said.

## Grunt

**A**T six in the morning Charles McCranie's Toyota truck swung off the highway, its headlights illuminating the curtains of my room in the Snowbird Motel, the only inn in Bristol. I climbed into McCranie's cab. We drove to a Bristol convenience store, where McCranie bought soft drinks and ice for his cooler. We waited a few minutes for his nineteen-year-old stepson, Eddie Lee, who was to join us grunting that morning. When Eddie showed up in his own Toyota, we set off in a two-truck convoy for the forest.

"This is good weather for baiting," McCranie told me. "Moist and warm. Seems like there's something about the leading edge of a front. Any other organism -- fish, game, everything -- seems to be real active before a big storm. Bait's the same way. They come up easier and they come up more. Most of us believe a worm is affected by a lot of different things, atmospheric pressure being one of 'em. I'm sure that he is. He's a very sensitive little animal. I mean, he's nothing but tissue. And he's the easiest thing in the world to kill."

We followed Eddie Lee's red taillights down long straightaways through the darkness of the forest. No headlights came

at us from the other direction. We overtook no unknown taillights. The Apalachicola was all ours. We were the early birds after the worms this morning.

"They's a lot to baiting," McCranie said. "It takes a long time to learn a little bit about it. That's why Mr. Colaninno didn't understand, first of all, the kind of people he's dealing with. We're all real independent. We set our own hours. We don't work with a boss. I've worked in the bait business and nothing else for the past five years. My wife and the rest of her family have done it forever. My brother-in-law, Ruben Hill, was the one who first took me out. I love it. I wouldn't do anything else. It's the quiet, and the solitude, and the peace down here. A lot of it is the game -- trying to elude everybody, hide from everybody. It's the hunt. It's the let's-find-the-worm game. It's going to the right place at the right time. Knowing how to hide your track. Knowing how to hide your truck. Because I'm just not gonna be where there's a big crowd. They catch you getting some worms, you know, the blacks, and people from Sopchoppy, and they'll just surround you. If they ever catch you."

We spoke of the demonstration in front of the ranger station, and I reminded McCranie of his performance there. If he wasn't careful, I suggested, he might wind up an organizer. He grimaced but did not seem entirely opposed to the idea. He took a sip of coffee.

"We're gonna have to form some kind of loose confederation and kind of hang together," he said. "And be aware of what's going on in the forestry department, and what's going on in Congress."

Some miles into the forest we left the pavement for a dirt road, left the road for a double tire track across the black ash of a prescribed burn, and finally pioneered a track across the charred ground. It was still dark when McCranie stopped the truck. Dawn showed in the sky, a pale light in the canopy of longleaf pines, but night persisted on the forest floor. So it goes in any forest, of course, but here the lag time was exceptionally long, owing to the carbonization of the burn. The charcoal-blackness of the forest floor swallowed light. It was difficult to make out details. Eddie Lee walked toward us from his truck like Claude Rains in *The Invisible Man*. His jeans were out at the knees, frayed from constant kneeling to grunt, and his white cotton long johns showed through. There was nothing to see of Eddie but cotton kneecaps in motion, aglimmer.

The burn smelled acrid and clean and wonderful. Burned land should smell sad, I thought, but the scent of these flatwoods was pungent and exciting. Maybe this burn smelled "good" from species memory. The torch was one of our earliest tools; the prescribed burn is a prescription as old as humanity. *Homo pyro* we might have called

ourselves.

McCranie took up his iron and selected a couple of stobs from the back of his truck. He generally carries fifteen to twenty stobs into the field. A few of these are new, and being tested. Some stobs prove to be duds, resonating at an ineffectual frequency. A baiter cannot tell bad stobs by ear, but the worms will inform him immediately: they refuse to come up. If some stobs are duds, then others are Stradivariuses, causing the entire audience of worms to rise thrilled from their burrows. The effectiveness of any given stob varies, too, with the firmness and wetness of the soil. For all these reasons McCranie likes to have a wide selection. He took up a flashlight, a bait can, and his iron.

On finding a spot he liked, McCranie drove the first stob in and then knocked in the second alongside it.

Many baiters use a single big stob. McCranie prefers two smaller ones. The pressure of grunting drives a stob slowly down until it is buried too deep to vibrate properly. McCranie has found that two little stobs sink more slowly than a single big one, and thus are easier to knock out when it is time to find a new spot. McCranie knelt and, planting one knee against the nearer stob to firm up its vibration, commenced grunting. Standing about eight feet from the singing stobs, I felt my boots tingle with each grunt. After four or five, worms began appearing. One moment I saw only the

black of the burn, and the next moment the pallid lines of worms were everywhere.

Some distance away Eddie Lee began his grunt. The croaking now resounded in counterpoint -- first McCranie's call, then Eddie's answer. Occasionally came a reversal, a kind of syncopation as Eddie croaked and McCranie answered. In duet the baiters sounded otherworldly, or like very old terrestrial music: a primitive call-and-response from a time when giant salamanders ruled the earth.

The grunting rhythms and phrasings of each baiter in the Apalachicola are unique. Charles McCranie knows his stepson's grunt as well as any mother seal knows the bleat of her pup. He could recognize the iron-on-stob "voice" of his mentor, Ruben Hill, a mile away. He remembers the voices of most of the baiters he has ever crewed with, and their distant croaking will bring a small, involuntary smile. He can still recollect the alien, Wakulla County grunt of a big old Sopchoppy boy, blond and burly, with whom he once nearly came to blows in the woods. The Sopchoppy boy had threatened to shoot him. He has heard that grunt several times since, and it causes his hackles to rise.

On emerging, that morning's worms lay long and straight on the surface. It was as if they found in linearity some relief from the low-frequency waves of the stobs' vibration. They did not curl and twist until McCranie

dropped his iron and we began to pick them up. At the touch of our fingers they came out of their trance and squirmed.

We retrieved all the keepers we could see within a radius of thirty feet from the stob, leaving only baby worms that were too thin for a hook. McCranie knocked his stobs loose, and we walked on, looking for a new spot. By the time he began a second grunt, not five minutes later, day had dawned in an unequivocal way. The longleaf pines were beautiful: their open crowns, sparse and irregular, with long needles in big bunches, stood in silhouette against the pearl gray of the sky.

"Any theories about why the worm comes up?" I asked.

"There's something about that vibration that tickles him," McCranie said. "It rubs him the wrong way. You can tell if you're grunting right. If you're really getting the bait to come up good, that worm will just come spoolin' out of there. That's when you're grunting like you should be."

Charles Darwin, in his book *The Formation of Vegetable Mould Through the Action of Worms, With Observations on Their Habits*, reported a common belief that "when the ground is made to tremble," earthworms think they are being pursued by a mole and leave their burrows. I asked McCranie for his opinion. Could the worms' behavior be an adaptive response to some underground

danger? Was there any vibration in nature that grunting might approximate?

"The rain will beat 'em out of the ground. That's the only thing I can think it would be. And rain doesn't bring 'em up in the numbers that come up when we grunt. I've grunted up some little grubworms and stuff, so there's other things that will respond to that vibration. If I buried you in the sand up to your neck and grunted beside you, chances are you might want to come out. You felt it under your feet just now. You can imagine how it would feel to your whole body. It would give you a little shock."

Daylight had by now clarified the understory. Each longleaf pine was singed a bit at the base of the trunk, but otherwise appeared undamaged. Almost everything else in the forest had been reduced to black ash. Here and there were the blackened, pear-shaped stem tubers of palmettos. The leaf-scars on the tubers were charred. The palmetto fronds were gone, having burned all the way down to the little nubbin that botanists call the hastula -- that center from which the fan of fronds radiates. It was through this inky, blasted, Hiroshima-like landscape that we hunted, stooping, for worms.

"Worm sign," Eddie said, indicating a patch of low white-sand mounds in the black ash. These sand piles, the tailings from worm burrows, were everywhere. Fire had brought



out the pattern, demonstrating the industry and ubiquity of the worm. Darwin noted that in many parts of England more than ten tons of dry earth annually pass through the worms inhabiting a given acre, to be deposited on the surface. This Florida soil was poor and pale, not Darwin's dark and rich Britannic sod, yet excavation on a similar scale seemed to be under way. I rubbed my fingertips together. They were slick with a black plaque formed of the carbon of the burn and the muscilaginuousness of worms. This plaque would prove impervious to soap and water alone, but with a little elbow grease and a washrag it would come right off.

"Walk over here and I'll show you what a sandworm looks like," McCranie called. "See this worm right here? You feel of him. See how he turns just kind of mooshy?"

I picked up the sandworm, which had an unpleasant, mucous flaccidity, slimy and effete.

"When you pick him up, he'll turn kind of milky. Some people call 'em milk worms. Or rotten worms. All kinds of different names. They're zero use commercially."

"They're too soft to stay on the hook," Eddie Lee explained.

"And they won't hold up," McCranie said. "When you get 'em, you can get some big fat ones that look pretty -- but when you put

'em in the can for a while, they just turn to strings -- a stringy bit of nothing. Now shine your light over here, and I'll show you what a real worm feels like. Now feel this worm."

I felt.

"He's hard," McCranie offered.

"He's hard," I agreed. "Hard and firm and muscular."

McCranie liked my appraisal, and he nodded with satisfaction. "That's a real worm," he said. Dropping the real worm into his can, he tossed the sandworm away. "That's a whole nother breed of worm, the sandworm is."

Picking up another real worm, a big one, I admired it for a moment and then held it toward McCranie. "It's an interesting animal," I said. "I mean, you can't say it's a *handsome* animal, but I almost want to say it's a handsome animal."

"Right," McCranie said. He seemed pleased with me. "It's clean. I mean, when you look at your hands, they look filthy, but that little ole worm, he looks clean. And pretty. *Clear!* Like I say, it's an honest way to make a living. It's a very honest way."

### **Continued...**

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**Kenneth Brower** is a frequent contributor to *The Atlantic*, specializing in ecological issues.

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Illustrations by Barry Blitt

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MARCH 1999

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## The Question of Burns

**A**NDREW Colaninno, dressed in his Forest Service greens, led me from the midday warmth of Florida winter into the cool of the Apalachee Restaurant. We wended our way between the tables where a few hours ago, at breakfast, the main topic of conversation had been the foolish policies of the Forest Service. Now, at lunchtime, the ranger was just another person who wanted a meal. The waitress arrived and addressed me as "honey," as she had earlier. When she departed with our order, I summarized for Colaninno the complaints I had heard here at breakfast. The biggest gripe of the morning crowd had been that the Forest Service wastes its time studying insects in the savannas.



"Yeah," Colaninno confessed. "We're studying just about any component of the ecosystem you can put a finger on. We're studying insects in the savannas. We're studying the effects of uneven-age management on RCWs -- red-cockaded woodpeckers. And this is the fourth year of the study on earthworms."

I repeated Charles McCranie's complaint that the baiters should have been consulted about the change in the permit fee.

"We would have talked with them if we knew how," Colaninno answered. "I could have put an ad in the paper and said we were going to have a public meeting to talk about baiting policy. I can guarantee you that the turnout would have been zilch. These people don't read the paper. They don't pay attention to public meetings. We don't have any kind of mailing list for baiters, because we don't know who they are. The information on the permit doesn't include their address and phone number, because baiters are paranoid about being contacted by anyone from government."

I summarized McCranie's complaints about the Forest Service's burning policy: the agency burns too much, burns on too short a cycle, and is negligent in failing to close, post, and then guard its burns to prevent baiters from overharvesting them.

"Yeah, I hear what he's saying *now*," Colaninno replied. "But it's not what the

baiters were saying before." Prior to the era of large-scale prescribed burning, he said, the Apalachicola had a huge arson problem -- 300 or 400 fires each year, many of them set by baiters. When the Forest Service posted those burns and closed them to baiting, the arson started to decline. When the agency began burning large tracts on its own, the number of arsons plummeted. "It's a very recent thing for us to hear that we're burning too much," he said. "We were hearing just the opposite a few years ago." Colaninno would love to guard posted burns, he said, but he had only two law-enforcement officers to patrol the entire forest.

Speaking of the baiters' rebellion, he said, "I was really completely surprised. Generally I try to avoid making regulations that are likely to piss off a bunch of people. There's no gain in it. You waste your time. I honestly thought we had it pretty well scoped out, based on what the public had told us. When we encounter baiters in the field, we stop and talk with them. We're not quite as ignorant as the baiters claim we are."

"Did it hurt your feelings?" I asked.

He shook his head. "I don't take it personally. I've been a district ranger for about ten years of a seventeen-year career. I've had angry mobs before. There's ways of handling them and there's ways of not handling them."

Of all the communities and ecosystems in which he had worked, he liked this one best. "The folks here are willing to accept you as a neighbor," he said. "Accept you as someone working for an organization that has to make tough decisions, not as an enemy. Nobody here has ever been personally ugly to me because I worked for the Forest Service." As for the land, he said, "I've worked in big, towering mountains. When I was on the Six Rivers, in California, you could go up into the highest peaks and see Mount Shasta off in the distance to the west. It was really beautiful. You could see why people fell in love with it. But the Apalachicola has a subtle beauty that kind of grows on you. You become attached to it. You feel more of a rhythm with it -- at least I do. That may be because I grew up in the South. I have an affinity for beautiful flat wetland swamps." He laughed. "Mountains to me are so obvious."

## Superworm

**C**HARLES McCranie handed me a stob and an iron, indicated a likely-looking spot, and suggested I have a go. I drove down, as we say in the Apalachicola. When the stob was one-third buried, I dropped to my knees in the soot of the burn and commenced grunting. My first few strokes were squeaky and pathetic. I did not lean enough weight on the iron, and it skipped over the top of the stob. If every baiter has a distinctive rhythm, mine was a stutter.

Embarrassed, I bore down harder. Suddenly my stammering stob found its voice -- just the sort of stentorian, boot-tingling grunt I was after. I hit it four or five resonant licks, and worms began issuing from the ground. As we stooped to pick them up, McCranie and Eddie proclaimed me a natural. They made a fuss over me, as one does to encourage a child. McCranie held up one of my biggest worms.

"This is what we're looking for today," he said. "That's what the market wants this time of year -- a real big, big worm that will live good. None of the buyers expect a worm that lives forever, but you have to give them a worm that holds up." He ruminated a moment over my worm. "The biggest, prettiest worms are the hardest worms to get," he said. "My pet theory about this is -- well, I'm a big Darwinian. I believe in natural selection and survival of the fittest. I think that the worm that is the toughest, that can lay under the ground the longest, survives. You don't get all the worms in a given place. They don't all come up. Only the toughest, most vibration-resistant worms are left to breed. Therefore their offspring are genetically programmed to resist that vibration."

"So you baiters are selectively breeding a superworm," I suggested. "And you're selecting yourself out of business."

"Well, it's going to become harder and



harder and harder over the years. That stands to reason. The worms that respond most easily and quickly are the first ones got."

Creationism is strong in his neck of the woods, McCranie conceded. Darwin is not a popular figure among his neighbors in the Florida Panhandle. Yet McCranie remains committed to Darwin's great theory.

"There's no arguing against it, unless you're a complete idiot. Whatever religion you are, you have to believe in natural selection."

McCranie admitted that he had not read Darwin's treatise on earthworms. "I've read some of his theories on coral reefs," he said apologetically.



*The Formation of Vegetable Mould Through the Action of Worms, With Observations on Their Habits* remains a current text in soil biology. "Worms do not possess any sense

of hearing," Darwin wrote. "They took not the least notice of the shrill notes from a metal whistle, which was repeatedly sounded near them; nor did they of the deepest and loudest tones of a bassoon. They were indifferent to shouts, if care was taken that the breath did not strike them." Between these lines are wonderful images, I think: Darwin serenading earthworms with his bassoon, shouting at them like a drill

sergeant, hailing them with face averted, so as not to offend with his breath.

Investigating the folk belief that vibration of the ground signals *Mole!* to earthworms, Darwin conducted a simple experiment: "I beat the ground in many places where worms abounded, but not one emerged. When, however, the ground is dug with a fork and is violently disturbed beneath a worm, it will often crawl quickly out of its burrow."

Darwin, then, was a baiter himself. His technique was a little crude, but he had tried his hand at grunting.

Where Darwin's worm research was pure science, Charles McCranie's is applied. As we wandered deeper into the woods, McCranie laid out his own treatise. It was, in effect, *A Natural History of Worms and the Human Beings Who Hunt Them, With Observations on the Habits of Both*.

"They used to bait commercially in Taylor County, south of here. But the worms played out. And Calhoun County! Calhoun County was the capital for baiting in Florida, period. The whole worm business started in Calhoun County. That was the home of the worm. That's where the very prettiest, very best, ever come from. But now they have planted so many soybeans, sprayed so much pesticide, planted so many pine trees, they've exterminated the worms for commercial purposes in Calhoun

County. When they couldn't bait there any longer, they moved here to Apalachicola National Forest -- to Liberty County and Wakulla County."

In the Apalachicola, last stronghold of *Diplocardia mississippiensis*, the earth is sometimes so turgid with worms that they burst forth at the mere clang of the stob being hammered down. The baiter must drop his iron and begin picking up worms before he has properly started grunting at all. In the most prolific of "honeyholes," those around Sopchoppy in particular, worms sometimes completely cover the ground around the baiter, blanching earth as passenger pigeons once darkened sky. When the ground is dry and hard, worms will surface as far as thirty yards from the stob. On dry hills -- or on those imperceptible rises that are called hills in the Apalachicola -- the vibration of the grunt seems to carry particularly well, causing worms to rise sixty yards away. In wet ground the vibration is damped, and the circle of the effect is much smaller. Smut, as the baiters call the dry soot of freshly burned land, is abrasive until rain has softened it. Earthworms cannot define smut, but they know it when they feel it. To the moist skin of the worm, which serves it simultaneously as tactile, respiratory, and seismographic organs, smut evidently is a greater irritant than the vibration of the grunt, for on smutty land the baiting is terrible. "If the wind is blowing across smut, you might as well forget it,"

McCranie said. "You can grunt until your eyeballs pop out. They won't come up." Many baiters profess to prefer baiting on grass, because it is aesthetically pleasing and the work is cleaner -- but the pragmatic reality is that whenever land is burned, all the baiters in the Apalachicola fly toward it. A grunt that raises fifty worms on scorched earth is more profitable than a grunt that raises 150 worms on grass, because the baiter can retrieve those fifty worms so much faster. Many of the up to 40,000 miles that Charles McCranie puts on his truck each year are logged in search of burns. "Scouting smut," he says, "just to see what's there, for later, after it rains. The forest is a big, big place. If you just stumble around, you'll be as lost as a convict. You'll never be where you need to be."

### **Priestess of Worms**

**A** YOUNG woman knelt beside her stob under the long-leaf pines, slender and graceful, with long hair as black as the burn. In the endless flatwoods, in the dimness of dawn, genuflecting raven-haired at the altar of her stob and iron, she looked like some Creek priestess of worms. She was the only beautiful baiter I had seen in the Apalachicola, but her music was bestial, echoing harsh and ogreish through the dark woods. McCranie watched her for some moments through the open window of his idling truck. She was baiting a burn where he and Eddie had baited some days ago.

"See, she's getting worms over there," McCranie said. "She knows we've baited it before. She can look there and see stob holes. But see, she's still gettin' a few."

She retrieved her worms in a desultory way, knocked out her stob, and straightened to search for a better spot.

The young woman's father was one of the men McCranie wanted to recruit for his loose confederation of baiters. McCranie's plan was to try to get all the baiters together to decide what would be a fair price for a permit, and then come back to the Forest Service with a proposal. He planned to argue, further, that disabled people and folks over sixty-two should not have to buy a bait sticker.

"The black man in the crowd the other day," he told me, "the big man, Charlie Williams, is *seventy-five years old*. And slow. Very slow. I don't see why he should even have to buy a permit. I mean, even if he goes regular, he's not gon' get very many worms. Ever. You know? And he's an old man. I think he's paid his dues to the government. I think it's his turn to draw a little bit. He's probably trying to live on a little Social Security, and a little welfare, maybe around six or seven hundred dollars a month in all. Baiting, he might make another three or four hundred. Enough to *sliiide*, you know what I mean? Just enough to slide on through."

At the same time, in McCranie's opinion, any able-bodied young baiter caught in the woods without a sticker should face serious consequences. "We've bandied about the idea that someone caught without a sticker should be kept out of the forest for a year," he said. "The worm is a renewable resource. It's going to have to be managed that way if we're going to continue on to the future."

## Epilogue

**A** MONTH later I called the Apalachicola District Ranger Station to learn how things had turned out. The worm controversy was close to resolution, Andrew Colaninno informed me. For the past several weeks his negotiations with the baiters had occupied about a third of his time. Those talks had just concluded.

"We had a meeting yesterday to draft a new policy."

"Complicated?"

"Actually, it's pretty simple -- I think." He laughed. "Under the new policy we will issue the permit just to the person who's grunting the worms, not to the people picking them up. The guy with the steel has the permit. If the operation is so big that they have someone bringing worms to the wholesaler in a separate vehicle, then that person's going to need a permit too. This way we can control both the act of grunting and the transport of commercial quantities

of worms on national forests."

A new fee structure had been devised. The baiters had accepted a higher permit fee but were adamantly opposed to a tax per can of worms, and on this they had been accommodated. The old fee of \$30 a year would be raised to \$12.50 a month, or \$150 annually for full-time baiters. For his side, Colaninno won agreement on an escalating fee schedule, which would eventually be adjusted by the Consumer Price Index rounded to the nearest dollar.

The baiters had argued for stiffer enforcement, and here, too, they had been accommodated. The higher annual permit fee would itself help to discourage illegal baiting. Because the permit would now exceed \$100 a year, a violation would be a misdemeanor, requiring a mandatory court appearance. Instead of a \$25 fine and a slap on the wrist, violators now faced a maximum penalty of \$5,000 and six months in jail. McCranie had made his pitch for the disabled and the elderly, and it had been successful, Colaninno said. "Only the guy running the steel needs to have a permit. If a person is truly elderly and truly handicapped, then that's not the job they would do. Unless the old folks are sitting out there on their hands and knees runnin' that steel, which is pretty strenuous work, they should be pretty happy."

I asked the ranger whether he had come to know McCranie any better. For largely

sentimental reasons, I'd hoped the two might work out a rapprochement. I liked and admired both men, and valued what they'd taught me.

"Yeah, he's been in contact with me," the ranger said drily. "And he's pretty much in that same role as spokesman."

When I called the McCranies at home, Annette McCranie answered the phone. Baiting season was now in full swing, and she had been up since four-thirty that morning: first on a pre-dawn drive to the woods to pick up four and a half cans of bait, and then back home to cup twenty cans. (As noted, each can contains 500 worms. Each cup contains twenty.) She sounded remarkably fresh for someone who had cupped 10,000 worms that day.

"We're very satisfied," she said of the new permit arrangement. "The only person that he's requiring to have a permit is the person who's actually using the tool. So I personally would never need another one. I just go pick up the worms." The force of law now intervening between Annette and her iron seemed to cheer her considerably. Recently she had had surgery for carpal-tunnel syndrome, brought on by a lifetime of grunting and the vibration of the stob. She was still able to grunt for a short while, but then her arm would begin to bother her, and she would have to quit. Now all temptation had been eliminated by Forest Service fiat. She would have to pay a



substantial fine if she ever touched iron again and was caught.

"Things have turned around pretty much just like we wanted them," Charles McCranie said when he came to the phone. Where Annette had sounded relieved and upbeat, however, Charles sounded almost blue.

"You guys sort of won, didn't you?" I said.

"I guess. It wasn't really a win or lose thing, but we did come out like we wanted to."

I asked him if he had come to know Andrew Colaninno any better in the course of their negotiations.

"Yessir, I got to know him a little better. And I have a lot of respect for Mr. Colaninno. He has his beliefs, just like I have mine. He's willing to stand up for what he believes in, just like I am."

"Did you two learn anything from each other, do you think?"

McCranie laughed a dry, diplomatic little laugh. "He's a very intelligent man. He's very well schooled. He gave me some very good ideas. But you couldn't say we're the best of friends."

I asked if McCranie had made any progress in uniting his comrades.

"No. No. Like I tried to tell you before, it's not that kind of business."

"So there's no kind of team feeling anymore?" I asked.

"No."

This was McCranie's last word on the subject. It was just a monosyllable, but a resident of the Florida flatwoods can pack a whole hilly topography of feeling into one of those. A small wind of desolation blew through the vowel, but I heard resignation there too. McCranie had dreamed that the baiters might become a community. In his heart he had always known it would not be so.

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