dikes enclosing the harbor. A conflict developed when commercial gear interfered with sport fishing in the harbor. Since this area is easy to fish from either a boat or the bank, regulations were set to exclude commercial fishermen from this 82-acre harbor during the months of April, May, and June.

In 1954 many threadfin shad concentrated in the inlet harbor of the steam plant. These shad were so thick that the screen over the inlet line became obstructed. The cost of cleaning out the shad and the loss in power generation amounted to $18,000.00. The temperature of the water in the steam plant inlet harbor is the same as the lake proper. No reason for this concentration is offered although dead shad may have been sucked into the harbor during a regular winter mortality.

Fish populations in the steam plant harbor during the winter differed greatly from those in the main lake. Gill netting studies were conducted four miles downstream from the steam plant harbor in connection with another phase of this project. From November through February, 96 sets of 24-hours each were made. Only three sauger and six skipjacks were captured. Species commonly collected were river carpsucker, blue catfish, drum and carp. The fish populations of steam plant harbor during the winter months consisted pricipally of those species which feed principally on shad. The regular lake fish populations consisted of species with varied feeding habits. White crappie, largemouth bass, and white bass were not active during the winter months and were not commonly captured at any location.

Creel census information collected in the main lake during the spring months showed predominant catches of white bass, white crappie, and largemouth bass. The catch in the steam plant harbor consisted of principally channel catfish and bluegill. This variance in catch occurred because fishermen in the steam plant harbor were fishing with minnows and artificial lures. Other steam plants in Tennessee are being investigated and observations indicate they are also important as fishing areas during the winter and spring months.

REFERENCE

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# TECHNICAL EDUCATION SESSION

## SOME OBSERVATIONS OF INTRA- AND OUTRA-PERSONNEL DIFFICULTIES IN AUDIO-VISUAL RELATIONSHIPS BETWEEN DEPARTMENTAL AND PUBLIC VARIETIES OF THE HOME SAPIENS

*By* DAN SAULTS
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*Dear Fellow-Sufferers in This Vale of Exploitation:*

I assume that I am here addressing a bunch of pros. We all work in the field of conservation, so I'm going to talk about conservation in the fish and game field—with some side glances at the timber problems—without trying to kid myself, delude you, or get mystical about good sportsmanship. There are so many cute phrases, so much tried and true triteness, in the hunting and fishing departments that we need to be strictly professional when we get together away from the public. We ought to be like baseball players—talk about how to pitch to Mantle rather than go into inky ecstasies about baseball being part of the American way of life. Are hunting and fishing "the American way?" Are they repositories of special virtues? Maybe. But . . .

Let's start getting practical by defining what the hell we are talking about when we say *conservation.* In the first place, we don't *work* in conservation, because this is basically a philosophy, an idea or a concept of behavior . . . we work at trying to develop more fish and game so more people can go after wildlife while we collect money from them for the privilege.

But we temper this purely commercial aspect with two things: first, we *have* to learn something about soil relationships, ecology . . . the facts of nature . . . or we do a lousy job of getting more wildlife (which we call managing resources). Second, in learning *facts,* we may get interested enough to search for *Truth.* Facts and Truth are very different things.

Conservation has been called "wise use," and the "relationship of man with his environment"; these are good enough for a short-term discussion. I particularly like "wise use" in our case, since any fish and game agency is charged with serving the exploiters of wildlife as well and wisely as they will permit the agency to serve. In a good many cases, this is better than the exploiters deserve.

Let me point out here that I, too, am an exploiter of wildlife, and I do not use the term loosely for that reason.

There isn't much wrong with "wise use" on the short-term plan, and if we really mean that by "conservation," well and good. But the word has come to be adopted by a lot of people. We publicists in this field have succeeded here; we've made "conservationist" so eminently proper a cognomen that it ranks only a little bit below "mother." You've all seen the dipsomaniac sobbing on a bar stool about his pore li'l gray-haired maw when he has just kicked her last tooth out for sneaking a buck from him for gin. It's almost as depressing as the "sportsman" who tells you what a conservationist he is because he put all those poor li'l crappie back in that one-acre pond.

But why be bitter? Let's just be professional.

Up in Missouri we used to preface addresses with a phrase like: "All life begins with the soil." It was a good phrase, too, even if it did get trite as hell. And it's an approach to philosophy, something that we've got to develop in this field of wildlife use if we're ever going to amount to anything other than a whipping boy for the guy who didn't get his limit and just *can't* have had a lousy dog. No reform is any good without a philosophy, because you can't change the work without changing man's approach to the world.

I'm not going to define that philosophy in the next few minutes, because I've been working at it for eight years now and haven't even satisfied myself yet. But we've got to have a working belief that can be accepted by us professionals and then sold to the public, a stop-gap philosophy that might be this: NOTHING IS TRUE UNTIL IT'S PROVEN.

But let's get down to fundamentals. I'm from Missouri, where we have a setup that may confuse you in my later terminology, so I'd better explain it briefly—not because it's better than yours—but because it will help you understand some of my expressions.

In my state, a four-man commission—two Democrats and two Republicans each appointed for staggered six-year terms by the Governor—not only is the policy-making head of our wildlife and forestry agency but also is the personnel-hiring body and, most importantly, the wildlife legislature. Under our state constitution, the Commission's wildlife regulations are *law,* subject to review only by the courts, and with precedence over legislative statues relating to wildlife.

These regulations can be changed on ten-day notice, don't require the signature of anyone except the four commissioners and cannot be vetoed. The commissioners control all seasons, bags, methods—just about everything relating to hunting and fishing.

Besides this legislative power, the four commissioners also operate the department with funds that *only* they control, and since they alone can give the authority of arrest to the conservation agents which they themselves hire, it is obvious that these are very powerful men indeed in Missouri's hunting and fishing circles. It is almost startling how cautiously they wield this power.

All funds from sale of hunting or fishing permits come to the Commission—which sets the amount these permits sell for. All Federal funds provided for wildlife or forests come to the Commission; so do all receipts for sale of timber from state forests—and title to all state forests is vested in the Commission. The Commission does its own budgeting of these funds, which run between three and four million dollars yearly. The four commissioners theoretically hire all employees, and, in actual fact, personally interview all applicants for administrative jobs.

Under these four men are a director, an assistant director, five division chiefs, nine section chiefs and about 450 Indians; photographers and foresters, cartographers and carpenters. The setup is controlled pretty thoroughly from Jefferson City. There are seven Conservation agent (game warden) districts under supervisors, but these supervisors have authority only over agents and are themselves directly under orders from their section chief at Jefferson City. Each of these districts has one or more field service agents, who represent the Commission in agricultural circles and field public relations, but they report directly to a chief in the central office, and each district has one educational advisor, also ruled from Jefferson City.

Even our fire protection districts, under the Forestry division, are closely controlled from headquarters. We've got ten of these districts, ranging from 600,000 to a million and one-half acres in size, mostly located in the Ozarks.

Our Information Section does the publicity for Forestry, from printing bulletins to doing radio shows, just as it does for the Fish and Game Division or any other branch. We're tied tight at the top.

Now this may not seem the ideal setup to you, and I admit certain faults in it, but it's working pretty well for us in the most important problem facing any conservation department: public acceptance. This public acceptance is terribly vital, because we can't manage game in Missouri and you can't manage it in your state. All we can do is try to manage *people.* We can try to regulate the take—but that's managing people. We can recommend cover practices and talk about habitat—but that's managing people. We can claim title to wildlife—but the game and fish don't know about it; we're making our claims to the people who hold title to the land on which the game lives or the banks from which the fisherman must approach his watery prey.

In forestry we can't put out timber fires on the land of a man who forbids us access, nor ban the unwise cutting of young pine, nor haul a corporation into court for logging off a hillside it owns.

Basically, any wildlife and forestry agency has *to convince enough people that it's on the right track so that those people not only will let us get on with our work but will join us in applying our findings to their own activities.*

We may call this process "education" but we're dodging facts when we do. We can't educate people for conservation until we agree on what it is; we can't teach it in the schools when the teachers themselves don't know anything about the subject; we obviously can't make everyone now attending classes into a zoologist, botanist or ichthyologist—and even if we could, they might not have the slightest understanding of the conservation concept.

But we *can* keep putting out information, advice, suggestions. We *can* work for public understanding. Last fall I got a letter from a woman who'd been attending a fair in Missouri where Woody, The Singin' Forester, was appearing twice daily at our exhibit. She wrote:

"I don't understand anything about your tree-growing program but I know that it must be a good one when I heard Woody sing a hymn."

That's acceptance. Woody's hill-billy show *proves* that the Missouri Conservation Commission has a soul, that this legal concept is really "good"—and that maybe we know what we're talking about when we ask people to keep fire out of the timber.

I'm not being cynical here; I'm being realistic. In 1955, I got sick of hill-billy ballads and changed our radio record series to pitch it on what *I* assumed to be a higher plane. Woody really can sing, so we researched our music, wrote some historical scripts, even put in some French ballads and Mexican

laments. I personally edited, rewrote and directed the show. God! how it flopped! My good friends were loud in their praise—but two of our 25 radio station outlets dropped the show, we got only a handful of letters from the public and seven stations wrote in to say, in effect, "What are you trying to do to us? We wanted Woody, not Burl Ives."

Last spring Woody planned his own shows, ad-libbed his commercials and hired a real hillbilly band—while I sat at my desk and kept my mouth shut. If the people who drop matches in the woods are stopped by a nasal whine instead of a robust baritone, they can have the pseudo-yodel. It's my job to sell forestry practices, not good taste in music. (I know every soap-opera impresario pleads the same thing, but I guess we've got to compromise.)

Now, I'm pretending that my job is the biggest cog in Missouri's wheel of wildlife management. Our conservation agents think *they* are. Probably our bookkeepers figure nobody would get paid if it weren't for them, so their job is most important—and the last of every month I agree with the bookkeepers.

But the *only* job that gives all the rest of us meaning is that being done by the technical people!

The researcher and biologist are our only good reasons for even having a job. Our game regulations must be based on their findings, our informational and educational work must project *their* programs, our whole course of action must be keyed to the work they tell us most needs doing.

Why do we in Missouri spend money urging farmers to put cover back on the land, instead of running quail hatcheries? Because our professional game managers couldn't find any sound survival or reproduction of hatchery-reared quail. We haven't persuaded *all* our citizens that you can't raise corn on a concrete apron, but we haven't had a quail hatchery for fifteen years.

Why do we permit year-round fishing on our impounded waters? Why are we already in an any-deer hunting status, though our kill isn't much over 8,000? Why don't we have any length limits on fish, nor any possession limit on crappie? Because the researchers recommended it.

None of these things were popular measures when we adopted them, and some of them are not fully received even yet. We've a right conservative citizenry in Missouri, and we don't accept change very well even if we did put in a revolutionary Conservation Commission. But our technical people laid their research on the line, they plumped for these changes in our "people management" and the Commission adopted them.

This proved that if our public relations were good enough, we could get away with doing the things the technical people said needed to be done.

But our conservation agents had to remember they weren't enforcing God-given moral laws but just trying to get people to do—or not to do—certain things that biologists wanted done—or not done. The agents had to remember that last year's stricture on crappie quantities was this year's poor fisheries management. The publicity people had to remember that their moral exhortations on deer motherhood in 1951 were cheap sentimentality in 1953.

And sometimes it was hard to remember this. Sometimes we felt like our technicians had sawed our limbs off behind us. And sometimes they had.

But in the long run they were usually right, because they based their thinking on facts. They didn't take a popular vote to find out what was true; they tested their surmises and checked back on their research. They had to do some guessing, but they didn't base their guesses on the memory of a golden boyhood along Hogwallow Creek. They weren't infallible but they tried to be analytical. And that's a lot, in a field where no one really knows very much about any of it.

So publicity should be aimed at public acceptance of the results of research, wardens should be working to influence people to go along with our projects, the whole program should be centered around getting our citizens to do what we want them to do for the benefit of fish, game and forests.

But we may have to persuade those citizens in sneaky ways, like that yodeling of Woody's I mentioned earlier. Emotional involvement of people seems to be a basic necessity. An appeal to pure reason can leave the appealer just a still, small voice crying in the wilderness of misunderstanding. But if we don't get

to the public, we aren't doing our job. And we can't get to them by publishing erudite papers on the incidence of parasitology in the Ictalurus furcatus.

Now, in Missouri, we have 28 Conservation agents with weekly radio shows on their home stations. Not that many agents are good radio personalities—but they are living on the local scene, talking about local creeks and lakes, advising on local application of game regulations. And it's paying off locally in prestige, acceptance and explanation of programs. I admit we write a skeleton script for them at Jefferson City . . . that's to keep uniformity of subject and to provide a starting point. But some of the agents take off from there and do their own show most of the way.

Also we have two agents with weekly television shows, two biologists who do a weekly show of their own, and an agent who makes three to four television appearances every month as guest of a regular commentator. We have five district foresters who have *their* own weekly radio radio shows, too. . . . And we record Woody for 25 stations in a 13-show series every spring.

At agent-training conferences and in our training school for new agents, we brief them on radio techniques, on what constitutes news and how much a newsman appreciates a story lead of the right sort. We teach agents how to run a movie projector, and we have put two projectors in each region of the state for their use. *We want acceptance of our personnel as pretty smart people!*

Do we get such acceptance? I think we do, on the whole.

Let me tell you about this training program for our conservation agents, these 100-odd men who do, after all, represent our Commission to most of our public.

Every new agent is chosen after competitive examinations, written and oral. At our last announcement that we'd accept applications, we had nearly 700 queries and over 400 who more or less fit specifications. About one hundred sounded best; these were brought in and run through the mill. The fifteen who rated at the top were then hired provisionally and 15 weeks of schooling began. The rookies were preached at, prayed at and lectured to on every phase of our work. Our Fiscal people told them how to make out expense accounts and our Forestry workers told them how to count annular rings on tree stumps. They got lectures on quail habitat and on creel censuses; they plodded past microscopes at our research building on the University of Missouri campus, and they floated with veteran agents checking fishermen.

My information section had them for three days. Here's what we did with them:

The film librarian set up two projectors and spent four hours having them actually operate; then she left the projectors in their quarters, with films to run in off hours. Our radio man—this hill-billy singin' Woody—had every trainee participate in a taped radio show that was played back to all of them and criticized in front of them. A whole day was spent at that. The three we rated best were used on an actual radio show that night. Two others were taken to Columbia for a live television show the next night, while the rest watched the performance from Jefferson City.

We set up a play, enacting a human death in the deer woods, and made all trainees take notes, then write a news report to be handed in to a real editor: me. We gave the rookies pamphlets and bulletins to read in their off time. We took them to watch a newspaper being put to bed. We lectured them on press contacts and on working at wildlife exhibits in fairs.

Then we gave them a written test over the whole thing. We didn't report our grading system either to them or their boss—but we wouldn't have flunked more than two, even in a class room. And one of those two now has a top-flight radio show going so well that the program director wrote me personally to praise it, German descent and all.

Now you may do the same thing in your state. I'm not here to tell you how to operate a program nor how to train personnel; I'm just reporting how we do it down my way. And I think it works—not perfectly, but it works.

May I add this to the training aspect: it isn't just wardens that need training, though we were a little slow to realize that. Too often our biologists didn't

know what foresters were doing, while none of them realized some of the problems of a game warden. We're trying to fix that, too.

We have assumed, ever since we had an information section, that the people in it ought to know a little about everyone else's operations, so we try to run around with all of them a little bit. For instance, I went fishing with six agents, two foresters, a field service agent and one of the commissioners last summer and fall—not all of them at the same time, of course. And not *entirely* because I like to go fishing.

We ran a drought survey a couple of summers ago to find out what our wildlife-and-water picture was over the state after two years of weather so dry that our old watermills were turning backward. We figured to pick up a few attitudes—and, most important, get some interdepartmental training done. So we set up a biologist-conservation agent team to visit nine farms in each of Missouri's 114 counties. The team had to survey the farms, then turn in a joint report—directly to Director Bode.

This survey did not, unfortunately, end the drought, which is still going on. But it did help solidify our sense of unity. Agents with radio shows put biologists on the air, took them to civic club meetings, and, in one unfortunate case, an agent tried unsuccessfully to dring a biologist under the table.

I do not recommend drouths nor drinking bouts—at least not drouths—but I do urge joint work between divisions of a department when possible. If there isn't any personality conflict, both parties learn something . . . they might even learn something anyway.

We have a training course for budding biologists, too; a required "writing" course for graduate wildlife students at the University of Missouri, designed by Werner Nagel of the Missouri Commission. Here students are lectured, insulted and given writing assignments for criticism by professional outdoor writers. It's very good for the biological bias. The outdoor writers sometimes learn something, too, which proves they aren't hopeless.

But now I'd like to do a bit of that philosophizing mentioned earlier. We live in an ever-shrinking world, because the way to measure social distance is in how long it takes a man to get from where is is to where he wants to be. State lines and national borders are getting less important—though that isn't always clearly evident—and every summer more Missourians abandon the cool beer halls of St. Louis for northward treks into Minnesota or Canada. The last time I checked license plates at Lake of the Ozarks dam it looked like an Iowa picnic. We're all close together.

So Maryland and Missouri, Alabama and Arkansas ought to be cooperating even more closely in wildlife conservation. We've the same problem and must solve it in the same way.

There's a mass of people in these United States now, an uneasy, lost, restless lot of *Homos* called *sapiens* who have gotten too far from their origins and don't know how to get back. They are hunting and fishing: partly because they want to touch nature, partly because they have leisure, partly because it has become socially acceptable.

And these people know about the "miracles" of science and of sporting goods advertisements; they've been numbed by the superlatives of press agentry. They don't go fishing any more. Rather, they "cast their lures with sure, easy skill into the cold, sparkling waters of Old Squathard and SMASH! a record whoopletale bends their True-Tin rod into a bent and beautiful bow." That's what we honest—well, reasonably—Information people have to compete with.

All we're supposed to do, in Missouri, is to provide this paradise for 750,000 hunters and fishermen—most of whom want it in their own back yards. On a guess, I'd say *your* department gets a little criticism, too, because there aren't enough dufftailed boories to suit *your* gunners.

So we've all got the job of providing more wildlife for more people while there's less and less area to do it on. Maybe the Soil Bank will give small game a shot in the arm; it certainly ought to help quail and rabbits in my state, where nearly all good land is being cultivated and even our big ranges

of poor land are grazed. But Soil Bank or no, the squeeze is likely to get worse in the future.

We ought to face it without getting too commercial. We ought to sell the fishing and not the fish. We *can't* afford to be just another agency trying to do what is popular, without weighing consequences and measuring long-term cost. There's got to be an outfit that remembers wealth isn't measured in dollars, reminding the public that values aren't all computed in cash. There isn't anybody else to do these things, if we don't.

And to do it, we must keep the human touch. We must talk so we can be understood by the Joe Smiths of this world. We've got to explain, outline, simplify. It's easy to talk to ourselves, and mistake the echo from the council walls as the world's applause. But that doesn't get to people—and we've got to get to them.

And we must keep in close touch with each other while we're doing it. The work of game managers in the Southeast is important to Maine, California and Sasketchawan. The public relations techniques dreamed up in Oregon must have meaning in Georgia.

So let's keep a free flow of ideas going back and forth across the United States— and into Canada, Mexico and every other country that wants them. Let's develop our philosophy together, coordinate our programs. Let's not get so wrapped up in our little job, our little district, that we forget the whole sweep of conservation. We ought to be the most cosmopolitan of all Americans in our reasoning, our understanding.

Let's remember that all of us are working for the same thing: not just more fish and game but a wise enjoyment of wildlife resources; not just for "harvest" of a "crop" but for enjoyment of a living experiment.

And let's all hang together. I do not like to be throttled alone.

## THE VALUE AND USE OF RADIO COMMUNICATIONS IN LAW ENFORCEMENT

*By* AUBREY FOWLER
*Arkansas Game and Fish Commission*
Little Rock, Arkansas

Our radio network is undoubtedly the most valuable one asset to our work that we have today. In dollars and cents we have an investment of around $175,000.00 in radio equipment, but as an aid to enforcement, there is no way to estimate exactly what it is worth to us. I will say that we do not think we could do an efficient job without it.

Before installing this network our communications were limited to the mail and the telephone, and we now have constant and instant contact with personnel in every county in the State.

Our system consists at present of eleven stations located at the most advantageous spots in the State, supplemented by three repeater installations to help cover blind spots caused by unfavorable terrain. We have one other station set up in a warden quarters which is operated during the hunting season by the personnel stationed there, and a total of over 200 mobile units installed.

The hours of operation are from eight to five, seven days a week, but we have Commission approval to extend the operating period by four hours each day, which we will do shortly. We are by no means limited to this daily schedule of operations. We in the Enforcement Division make a regular practice of using any of the stations that we might need for night work, using our own personnel as operators, as many of them are licensed by the F. C. C. to operate stations.

Every employee of the Commission who is ever in the field for any purpose has a radio installed in his vehicle. We also have one in each of our two