

FISH AND WILDLIFE—AGRICULTURAL SLANT

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American hunters, fishermen, and professional wildlife workers need a clear understanding of the problems in fish and wildlife production by agriculture, and of farmers' attitudes toward wildlife. Hunting and fishing unquestionably depend to a large extent on game and fish produced on farmlands. Sportsmen and State and Federal game and fish agencies would like to have this wildlife be regarded as a part of the "public" fish and wildlife resource. To farmers, however, wildlife must be a purposeful and profitable part of their objectives in soil, water, and plant management if it is to be produced in abundance.

Sportsmen, and even legislators, are at times confounded by what appear to be conflicts between wildlife and agriculture. Farmers and agricultural leaders are often condemned as destroyers of fish and wildlife habitat. Such phrases as "destructive clean farming," "drainage" and "posting" are used frequently by outdoor writers in condemnation of farmers' ways of land management. For the most part such criticism is unjustified and farmers know it. They resent this criticism.

Most farmers are friendly to wild creatures. They would like to feed and shelter more squirrels, quail, doves, ducks, deer, turkeys, and songbirds. Land management, however, is the heart of a farmer's economic existence and his pursuit of happiness. Can he afford wildlife?

The legal situation confuses some people. By law, the public (state) owns all the wild fish and wildlife, while the farmers own most of the wildlife food, cover, water, and hunting areas. Many spokesmen for the hunters want farmers to permit free hunting, and to provide plenty of food, cover, and water for the wildlife regardless of cost to the farmer.

More than two-thirds of the huntable land east of the Rocky Mountain States is privately owned—in farms, ranches, marshes, lakes, and timber holdings. We can produce game and fish on these private lands as abundantly and cheaply as we can on public lands. This is true however you measure it—in pounds of fish and game per acre or in hunting and fishing success.

Yet we use about ninety percent of the effort and money we devote to wildlife management to public lands. We enforce game laws and we make the harvest of fish and game profitable to people who sell boats, gasoline, meals, lodging, and camping, hunting and fishing equipment. Why shouldn't we give the same support to the farmers who produce the wildlife crop? Instead, we try to ignore the economic facts about private lands. We continue to impose upon the owner for the privilege of hunting over his lands for the game that happens to be there. The result is that we do not fully use agriculture's vast acreage and resources of management, machinery, money, seed, and fertilizer in the production of harvestable crops of game and fish.

Farms, farmers, and farm programs do influence fish and wildlife, which react quickly to agriculture's land management—good, bad, or moderate. A problem that should worry every hunter and biologist is: "How can we get farmers to favor wildlife?" Farmers will produce more high-quality hunting and fishing whenever the consumers are willing to pay the cost; and the simplest American way is for individual hunters or fishermen to pay landowners for the recreation they expect to enjoy.

What should we expect a farmer to do if we pay him for hunting or fishing privileges? What *can* he do to grow and attract better populations of fish, quail, doves, ducks, squirrels, deer, turkey, cottontails, or other wildlife on his land?

Food—choice, attractive, nutritious, and *really* abundant—is by far the most important factor in wildlife abundance. Fertile water grows more worm-like larvae for fish. Feeding the fish directly produces more fish and added hours of recreation. Lespedeza is a good food for quail; corn or browntop millet for doves; corn, pecans, hickory nuts, walnuts, and acorns for squirrels; well-fertilized winter grazing (clovers or palatable grasses) for deer, turkeys, geese

and cottontails; corn, browntopmillet, smartweeds for wild ducks. These are the specific high-quality foods which agriculture can provide for wildlife better than unaided nature usually does. However, they all cost money; they use a part of the farmer's land; and they require his patience, intelligent planning, and his labor. *Farmers do not provide enough of these foods to support good wildlife populations under a "free hunting" economy.*

Water is necessary for most species. Ducks, geese, turkeys, and doves drink water daily; squirrels and deer use it less frequently. Water is a peculiar necessity to help ducks swallow their food; field grain and other seeds are highly attractive to them when flooded with a few inches of water. Farm ponds provide water for fishes.

Cover is a peculiar problem in the South. Usually it is insufficient only on improved pastures or overgrazed range. Often we have *too much cover* on the ground, burying food under leaves and stems, making the summer heat unbearable, and harboring parasites such as redbugs and ticks instead of nutritious insects, such as crickets and grasshoppers. Excess cover must be removed frequently (1 to 3 years) by grazing, mowing, cutting, cultivation, or controlled fire. Multiflora rose is one of the better cover plants for cottontails and for several species of songbirds.

Most of our huntable wildlife is fed, sheltered, and watered on farm and ranch lands. When we have more wildlife, it will be produced on the same lands. The farmer is no enemy! Neither is he any sucker. He needs encouragement, not abuse.

Every state in the Southeast concerns itself with finding successful means to assure a productive farm program for wildlife. This has been our joint anxiety for the past 15 years. A summary of our experience indicates the need for modern wildlife attitudes, and a broadening of our technical land management practices.

The Soil Conservation Service provides technical assistance through Soil Conservation Districts to help farmers plan for wildlife food, water, and cover. In the Southeast, State Game and Fish Commissions encourage quail and rabbit management on farms by furnishing lespedeza, multiflora rose, and annual seed mixtures to demonstrate the value of farmland management for game. These combined efforts however are not enough. The individual hunter, it appears, will have to make wildlife management profitable on the farm where he wishes to hunt.

These are facts regarding the relationship of agriculture to fish and wildlife. The educational and informational efforts of all wildlife and agricultural organizations might well be directed toward helping hunters, fishermen and wildlife workers understand them.

HURRICANE DAMAGE TO ROCKEFELLER REFUGE

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INTRODUCTION

This paper is concerned with the effects of Hurricane "Audrey" upon the animal life, marsh habitat, levees and installations on Rockefeller Refuge. Rockefeller Refuge is a state owned and maintained wildlife refuge and game preserve consisting of some 84,000 acres of marshland that extends northward