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CHAPTER 15. WILDLIFE VALUES AND THE QUALITY OF FARM LIFE

Wildlife is a valuable part of farm life, and farms are a valuable part of wildlife habitat. Farm habitats have been given considerable attention as research areas for some species of wildlife, but it is surprising how little attention has been given to "farm ecology." Ecologists seem to prefer to work on "natural areas," areas that have not been developed or are not actively managed. Farms, however, are natural areas too-if humans are natural organisms, just as foxes and pheasants are. Farmers use resources, and use them more intensively and on a larger scale than mankind has even used them before.

Resident farm families know that both non-consumptive and consumptive uses of wildlife are appropriate when populations have ample resources to meet their requirements. When they don't, consumptive uses--harvesting--will likely prolong rather than shorten the period of time these populations will be present and observable. Too many muskrats in a small pond can destroy all of the emergent vegetation to their own detriment. Regular harvesting by trapping will keep the population in better balance with their food resources, just as regular sales of domestic livestock keeps the herd in balance with the resources available on the farm.

The three TOPICS in this CHAPTER include discussions of biological resources and how they can be enjoyed now and in the future. I have introduced some of my own opinions and speculations, including some of my biases toward rural living and life close to the soil. Some of the frustrations which arise when working with students who know practically nothing about farm life may also show through. I not only feel frustrated, but I also am fearful at times when I think of the future being so much in the hands of persons so far removed from the basic biological processes that support and sustain life.

This CHAPTER considers the values associated with farm life, with some speculations on the future of farms and wildlife. A generation ago, these speculations would have been considered unthinkable. The speculations are made in all seriousness, however; we are entering the information age and the year 2000 will bring information exchange unheard of at this time. Look forward more often than backward.

TOPIC 1. WILDLIFE VALUES

Wildlife values include the watching of wildlife, a non-consumptive use, and the harvesting of wildlife, a consumptive use. Farm families often enjoy both, just as they enjoy watching their crops and livestock grow and be harvested. Proper management of farm operations results in continuous cycles of birth and death, of planting and harvesting. Good farm operations are examples of agricultural systems whose cycles continue year after year, not only for domestic species but wild ones as well.

Wildlife are not depended on for sustenance by the world population today. They are part of the natural world, and enjoyed by man primarily in a recreational way.

Recreation is defined in Webster's New 20th Century Dictionary as "refreshment in body or mind, as after work, by some form of play, amusement, or relaxation." One of the more interesting characteristics of farm life is that play, amusement, and relaxation are often part of work. Wildlife may be observed regularly on farms, contributing to making farm work enjoyable. At appropriate times of the year, hunting, trapping, and fishing are part of the recreational opportunities provided by wildlife resident on farms.

UNIT 1.1. OBSERVATION

Farmers spend many hours a day out on their tractors and have many opportunities to see wildlife in their natural habitats. Further, individual animals are often recognized, and

because many wild animals are territorial, they are often expected to be seen at certain times and in certain places. Thus, a white-tailed deer may be seen regularly, with twin fawns perhaps, in a certain part of the farm. Nests may be located and observed during incubation, and the successful hatching of the clutches are enjoyed by farm families as the quail and pheasant chicks begin feeding in the area, or the ducklings are led to the farm pond where they live until ready to fly.

Bird watching can be particularly enjoyable from the tractor, especially in farm area where there are a variety of habitats such as hedgerows, woodlots, and marshes, in addition to the fields. In fact, a book on bird watching from the tractor seat has been published. Farmers are busy at their labors, but they do take time to stop the tractor and watch birds and mammals, often at close range. Farm wildlife often become accustomed to the machinery and do not run or fly unless it approaches too closely.

Farm wildlife may be observed at a distance, or near the farm buildings (Figure 15-1). Ducks frequent the ponds, pheasants and quail come up on the lawns . . . such is the case on those farms where they are made welcome by providing the necessary food and cover. I recall a time when I had been home from college for the first weekend of the pheasant season. Our hunt had been successful, yet 20 to 30 pheasants were observed on the edge of our spacious farm lawn the Monday after. That observation was as important to me as the harvest. Wildlife may be observed at a distance, or near farm buildings.

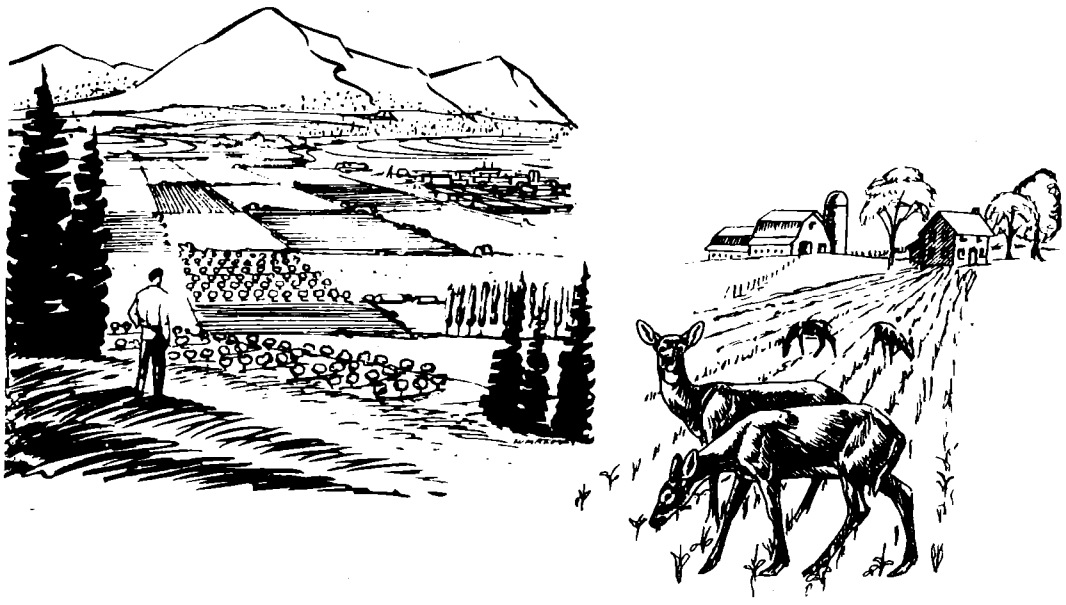


Figure 15-1. Deer often feed in corn fields, and will come quite near. (Drawing of deer by Michael Stickney).

UNIT 1.2. HUNTING

Hunting is enjoyable recreation for many farm families. The privilege of hunting the game produced on the farm is one of the main reasons for setting aside areas of land or food patches, or for planting certain cover crops to benefit wildlife. Such practices always cost the farmer something, but the recreation that results is worth the cost. Most farmers would much rather spend a few hundred dollars to improve wildlife habitat and enjoy the hunting than spend a few hundred dollars on a golf club membership.

Raising and harvesting is a way of life for the farmer, and those of us that are familiar with farming know that there will be another crop of young produced as long as the breeding stock remains. This is a fundamental characteristic of biological populations, and many properly-managed wildlife species can be hunted without detrimental effect on future populations. In fact, some species, such as deer, need to be controlled if the populations are to be healthy, and in balance with their natural food supply (Figure 15-2). If deer become agricultural pests, landowner attitudes toward them change from positive to negative, and this affects thinking about wildlife values in general.

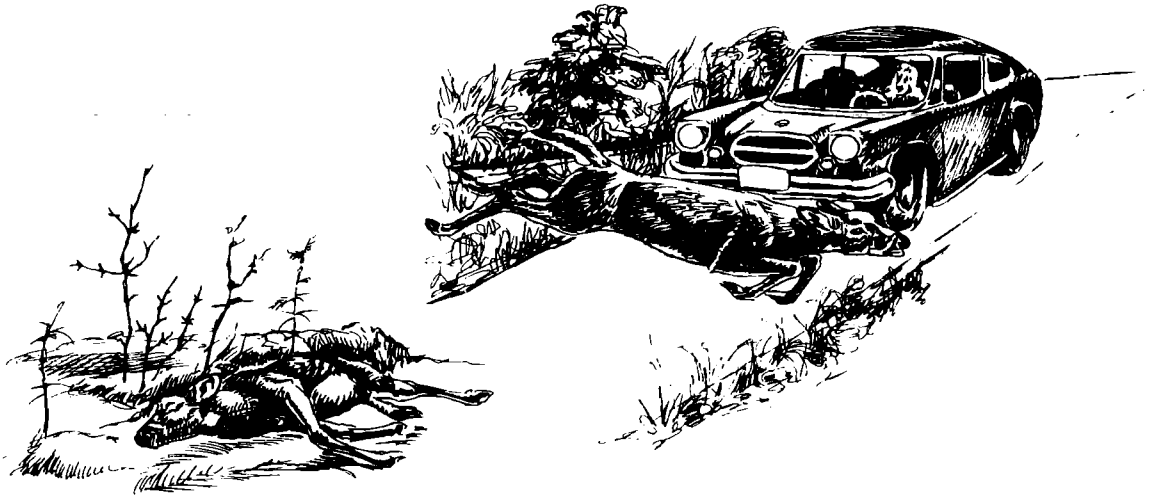


Figure 15-2. When deer numbers are too large for the food supply, starvation begins to occur, and car-deer collisions are more numerous (Drawing by Michael Stickney).

There are strong anti-hunting feelings in certain segments of society. When the biology of animal-range relationships is understood, then biologically-appropriate hunting opportunities may be made available as an option for those wishing to do so. The hunt is enjoyed for the activity and companionship of a hunting dog (Figure 15-3); the game harvested becomes an added delicacy.

Figure 15-3. Hunting is good activity, often shared with a well-trained hunting dog.

UNIT 1.3. TRAPPING

Trapping is a tradition in those farming areas where furearers are present in marshes and along lakes and rivers. Mink and muskrat are the two most abundant furbearers, and they provide not only the fun of trapping but also supplemental income as well. I don't think I have ever earned any money that meant more to me than the $20.00 received for the 30 or so muskrats which I trapped at the age of 13. And I also remember the $20.00 earned from the sale of half a dozen muskrats 14 years later on the same farm while doing research for my Ph.D. I didn't trap seriously, but did rekindle that boyhood memory, and it is nice to know that biological organisms continue to reproduce as long as quality habitat remains for them. As I write this, 14 more years later, the marsh still remains, and muskrats still live there.

Furbearers will continue to be a part of farm ecology as long as habitat conditions remain suitable. "No trapping" will not allow populations to build up, for muskrats cannot be stockpiled (Giles 1978). Water conservation is essential for marsh-dwellers such as muskrats, as good long-term soil and water conservation practices will maintain marshes. That is such an important point; agriculture should never be placed in the position where drainage of marshes and wetlands is essential for economic well-being. Water is too important a resource to be drained away or polluted.

UNIT 1.4. FISHING

Water is essential for fishing. And fishing has a very wide appeal; it is the number one recreation in the United States. Why the appeal? Several reasons may be offered. One, it provides the opportunity for escape to a (usually) peaceful setting. Two, there are hopes and expectations associated with fishing. Three, it allows for idle dreaming for long hours, something which we late-20th century humans need to do more of (Figure 15-4). Four (and a reason which I do not consider trivial), lakes and streams provide an escape from the telephone and yet another interruption.

Fishing, for some reason, seems to be much more acceptable to certain special-interest groups than hunting is. This may be because emotions behave differently toward ectotherms, towards animals which are not soft and furry (or feathery), toward animals which live in a medium that is different from ours, than toward homeotherms.

Just as birds and mammals cannot be stockpiled, neither can fish. On the very afternoon of this writing I am going to my farm pond to fish, knowing I will catch a little relaxation, and maybe a fish. Further, there are too many fish in the pond in relation to the water volume and food resources; they will be more prone to winter-kill if I do not remove some of them.

The fish are enjoyed as they are watched while surface-feeding, and the pond is a good place to watch their reactions to different kinds of lures. It is a good place to test the flies which I tie, not only for fish-catching capabilities but also for durability, casting characteristics, etc.

No, I don't feel too badly over the removal of a few fish, for I know they need oxygen and space and they don't seem to practice particularly effective birth control methods. Further, they are the cause of a "silent spring" at Arrowhead Pond; the chorus of frogs which sang so loudly before the fish were introduced sing no more, victims of piscatorial predatorial instincts. At present, with the ravages of the muskrat population on the cattails which bordered the pond and made it more

attractive to me and to the fish, the pond is much more sterile than it might have been if I had kept it in better balance.

Figure 15-4. The farm pond, a good place to do a little relaxing.

I do more than fish in this pond however. I stand on its shore and see lessons in resource balances, lessons on the effect of too many herbivores and too many predators, with not enough regulation of their productive capabilities. I see the sky in this pond, and the earth too--an earth devoid of many species because of unwise management, unwise decisions that are too exploitive or too protective.

The reason we have fared as well as we have thus far is that the earth has many ponds, many habitats, and when mismanagement has occurred in one place, another has tended to fill in by producing enough to take up the slack. That cannot go on forever. We must not run out of diversity in time and space, because diversity results in change, and change makes living filled with more anticipations. The next TOPIC focuses on the quality of life, on things which we look forward to with anticipation.

TOPIC 2. THE QUALITY OF LIFE

There is a desire in each of us for happiness, for a sense of well-being that comes from feeling worthwhile. Each of us wants to be respected and loved, and we wish to share that respect and love with others.

A large number of self-help, group-help, and textbooks are currently available, each one purporting to contribute something to an understanding of ourselves. They may, no doubt, be helpful at times, but such books focus on the effects rather than the causes of our needs for help.

Here, I wish to share some thoughts with my readers on the basis for a quality life which I feel from both experience and education. I refer to the experience of meaningful work, which by the very fact it is meaningful becomes joyful. I felt it on the farm when caring for the animals, on a cold November day while clipping browse samples for my thesis research, and I have felt it on many more occasions than can be recalled from memory. The meaning of my work--knowing there was purpose in it--made it easy, even joyful to do. One of the great causes of unrest and anxiety in society today is the lack of meaningful work as more people become more like assembly-line robots, watching things happen but not really being a part of the productive process. The paycheck becomes the goal, rather than the accomplishment of meaningful work. With it, we are expected to buy happiness, but happiness cannot be bought.

Education contributes to our happiness, but it is not how much we know but what we know that counts. To me, the foundation of education is the Bible, and in it I find profound truths over and over again. The Apostle Paul, writing from Athens to the people living in Thessalonica, provides some specific directions about ordering our steps.

> ". . .study to be quiet, and to do your own business, and to work with your own hands . . ." (I Thessalonians 4:11).

There are many references in the Bible to an agriculture based on understanding and nurturing of the earth (See Unger 1966). The nation of Israel, prominent in both the Old Testament and the present day, was an agricultural nation in the days of Abraham, Isaac, and Jacob (Genesis 47) and during the 400 years exile in Egypt (Deuteronomy 11:10). Culture of the soil was held in high esteem, and laws provided for a sabbatic in which the soil was to lay fallow every seventh year (Leviticus 25:3ff), corners of fields were not to be reaped, and the gleanings of the fields were to be left for the poor (Leviticus 19:9 and Deuteronomy 24:19). Thus a loving care of the soil and the plants and animals

it supported is indicated in the Old Testament, and we would do well to adopt such a philosophy in our present day.

Any nation . . . every nation . . . is dependent on the productivity of the soil. Conservation is not an option but an ethic. It is fundamental to the quality of life.

UNIT 2.1. FAMILY TOGETHERNESS

One of the characteristics of family farms is family togetherness. Family members do not "go to work," but rather live and work in the same place and for a common cause. Further, each family member works with real things . . . growing plants, live animals, and tools. The products of the family's efforts are real and useful--food to eat, produce to sell to others, grains to be made into cereals and flour, textile fibers for cloth, animals for meat and hides--and the farm family is the basic production unit.

Farm families have opportunities to grow together rather than apart. More responsibility may be assumed by the children as they grow older. Problems may be more easily recognized and, hopefully, shared when the family is together more. There is potential for mutual help and supportiveness in a farm family that doesn't exist in an industrial society where family members have different and fixed work schedules.

The farm family has considerable flexibility in hours worked, except for scheduled milkings of dairy cows, the pressure of harvest when weather conditions are good, etc. The overall level of "flex-time" is greater than that being adapted now by some private industries. Family togetherness is possible as a result of the greater individual freedoms associated with family farms.

UNIT 2.2. INDIVIDUAL FREEDOMS

The individual freedoms associated with farm life result from the diversity of tasks that need to be done and changes in the timing of these tasks as a result of annual cycles in production. The annual cycles provide an overall time-frame for the work that needs to be done, but there are frequently many options of time, location, and kind of work to be done.

Harvesting of the hay in June may not have been an option on our farm, but stopping the tractor to enjoy the 30 species of wildflowers blooming along the road to the hayfield was, and I stopped to enjoy them. Cultivating the corn was not an option, but stopping to search for the killdeer nest in the vicinity of the "broken-wing" display was, and I stopped to find the nest in order not to destroy it.

Feeding and milking cows was not an option, but choosing the breed and the individuals were. There was pride in the good choices, and something to be learned from the poor choices. Each animal is an individual with its own disposition and character-traits, and some of these are remembered for a long time.

Taking a walk to the pond in the evening was a freedom, unencumbered by the necessity to plan ahead, drive to, and return from a distant place. A visit in the summer was different from a visit in the winter. In fact, each day could be different, and it was on our own farm that my life list of birds began.

Farm families do have individual freedoms not available to those working in industry and business. Other family businesses may have freedoms too, but few are accompanied by the diversity and complexity of farming, and fewer still have the freedom of many, even hundreds of acres to enjoy. These freedoms, along with the responsibilities of meaningful work, make farms an excellent place to raise a family. Unfortunately, electronic communications are encroaching more and more on farm families, making it harder for a rural culture to maintain its identity.

UNIT 2.3. A CONSERVATION ETHIC

Conservation is an ethic, not an option. It was not discovered by the offspring of "earth day" in 1970 who found there a cause to champion. It was not discovered by me, though in cutting dividers for my bib-card file out of cereal boxes and writing my Ph.D. thesis on once-used paper I conserved out of desparate need while a graduate student. It was not discovered by Aldo Leopold, though he wrote in 1933 (p. 423):

> ". . . twenty centuries of "progress" have brought the average citizen a vote, a national anthem, a Ford, a bank account, and a high opinion of himself, but not the capacity to live in high density without befouling and denuding his environment, nor a conviction that such capacity, rather than such density, is the true test of whether he is civilized."

Ancient civilizations practiced conservation as a matter of necessity, not because they were so populous that to conserve was to survive, but because the availability of natural resources are dynamic as growing seasons, production, weather, and other natural phenomena wax and wane, and conservation is harmony with them.

The white-tailed deer illustrated energy conservation to me in a very natural and unassuming way at the time the recent "energy crisis" arrived. We were living in a cabin in north-central Minnesota (1973-74 sabbatic leave), and I was studying deer responses to changing weather conditions from fall to winter to spring. Admonitions such as "drive less," "turn the thermostat down," "wear warmer clothes" could be heard over the radio daily. We had discovered something new--so we thought. But the deer were doing just those things in 1973-74, as they had been doing for countless years before. They were growing warmer coats, reducing their daily travels, and lowering their metabolism in response to the annual "energy crisis" when the weather is colder, travel is harder, and food is scarcer. These responses were made, not as options, but out of <u>necessity</u>. They could not live in the winter at their summer pace; they had to conserve when resources were scarce, and they used up part of their own body tissue--fat--in the process. (Technical information on these responses are described in Moen 1976 and 1978 and Moen and Severinghaus 1981). They, in their natural wisdom as a species, are in harmony with the dynamics of natural resources, and we should be too. We are not less dependent than deer on natural resources, we are only interacting with our environment at a different scale.

The natural world is made of only two things--mass and energy--packaged in different ways with a resulting diversity that provides us with many freedoms and choices. All are dependent on mass and energy balances, however, and it is imperative that we recognize not only the balances but also the diversity. Agriculture can do that when farming is highly regarded as a profession, when farmers are given the opportunity to conserve rather than being forced to exploit, and the prevailing philosophy is one of love and respect for the land.

TOPIC 3. SPECULATIONS ON THE FUTURE

Speculations are interesting to make and are often never realized, but are perhaps necessary in order for us to have some sense of direction. Accordingly, I shall speculate on what could happen to farming, wildlife, and the environment, which may not be the same as what will happen to them. I predict, however, that there are some elements of realism in these speculations.

Farmers have some, even a relatively high level of control over many of the components of their endeavors. The trend has been toward more control. Behavior control, nutritive control, genetic control . . . with the result being that farm productivity per unit area and per unit effort is more predictable now than ever before. There must be ultimate limits to such controls, and agriculture should be prepared for asymptotes.

With the marked advances in agricultural technology behind us, and limits being approached in some aspects of production (the man-hours required to raise a broilers, for example, is but a few minutes now (see CHAPTER 6, Figure 6-15, p.133); it will go to zero when they rear and dress themselves, showing up in the meat counter on their own accord). The greatest room for innovative changes in farming lies in information processing. Tractors can't get much bigger, corn can't get much taller, dairy cows can't give much more milk . . . but we have a long way to go in making information accessible quickly. That long way will likely be traversed within a very few years, however.

The time is not far away when agricultural business will be transacted electronically by computer and telephone, from the farm manager's office. Suppose a farmer needs a new tractor. Requirements for power, wheels, options . . . will be keyboarded and a data base searched for the makes and models meeting those requirements. Prices and performance evaluations will be available, along with locations where the tractors may be purchased. Once a decision has been made, the order will be placed electronically, the monetary exchange will be made with the dealer, farmer, and whatever banks are involved, and the tractor will be delivered (but not electronically!).

Suppose a dairy farmer wanted to purchase a cow. The life history, breeding, physical characteristics, reproductive characteristics . . . will all be available to the farmer at his/her console. No need to travel to see the cow; the computer will reconstruct the cow for video inspection, even to color.

I also predict that information processing concerning crop management will be very much like ecosystem analyses, with each field or each farm treated as a natural system subject to both managed and natural changes. That prediction is not far-fetched; I intend to develop just such a program for my own farm by 1985. In fact, it may be more likely that someone like myself, with a background in both agriculture and ecology, is more likely to do that than one educated in only one of those two fields.

UNIT 3.2. WILDLIFE

I would like to come up with profound speculations on the status of wildlife in the future, but will opt for describing a conceptual approach instead. Others are predicting deteriorating habitats, lower wildlife populations, restricted ranges, and fewer recreational opportunities in the future (see National Research Council, 1982). The conceptual approach I wish to describe deals with electronic information processing and how it can enhance our understanding and therefore our decison-making capabilities in wildlife management.

Suppose a wildlife biologist was involved in the development of a management plan for an area with a wildlife refuge and several adjoining farms. How will the plan be developed in the future? With a computer, the (modern) manager will . . . (Giles 1978).

First, natural characteristics will be stored in the computer, using an electronic spread-sheet rather than a physical one. Slope, aspect, soil texture, soil water-holding characteristics . . . and much more will be stored. These characteristics are fairly stable. Second, rhythmic variables will be programmed. Sunrise and sunset times, clear-sky solar radiation curves, temperature rhythms . . . and much more will be generated for daily and yearly time periods.

Third, plant community characteristics will be described through the annual cycle. Topography, soil, sunshine, temperature . . . and more of the previously-mentioned variables determine the kinds of plant communities that can be supported, including the kinds of crops that can be grown as well as the natural vegetation. Fourth, the animal community characteristics will be described through the annual cycle. Species, numbers, ages, . . . and more, beginning with the domestic species on the farms (the facts are easy to gather on them) and then of the wild species.

Finally, this information will be synthesized and interactions between plants and animals, domestic and wild, evaluated. The wildlife biologist will be working at the same technical level as the farmer in making management plans, but with less control over the wild resources than the domestic ones. This fact--less control over wild resources than domestic ones--makes electronic information processing more necessary rather than less desirable. The number of possible events and interactions are greater than in the controlled domestic system, so the amount of processing is greater.

Am I being overly enthusiastic about the role of the computer? I think not, for three reasons. One, if we can think about something, it can probably be programmed Two, if events are not totally random, they are at least somewhat predictable. Three, youngsters in first grade are now being exposed to electronic information-processing and logical ways to think while using it, and these youngsters will be wildlife biologists in the very near future. They will have the appropriate background and skills to use EIP, thereby concentrating on the biology rather than the technique. That is why I foresee very significant contributions to our understanding of wildlife ecology and management in the near future.

UNIT 3.3. THE ENVIRONMENT

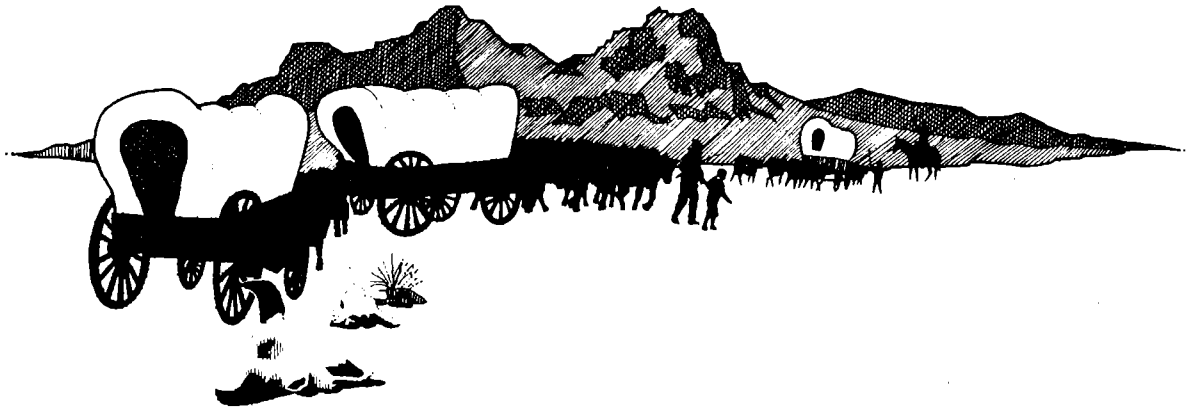
Farms and wildlife habitats are part of the larger environmental setting. Farmers and wildlife biologists must work in the larger milieu, and they must express joint concern over environmental factors which affect both of them. Rather than be too all-consumed by the localized effects of farming practices on food and cover for wildlife, forward-looking thinking should be broad enough to include large-potential concerns such as acid rain, air quality, atmospheric transmission, population control, and others of similar magnitude. Such problems are not simple. Jacobson (1981) points out the difficulties associated with acid rain and environmental policy, and poses two broad questions:

1. How does a democratic society that contains many diverse elements reach agreement on environmental values?

2. How can arbitrary decisions be avoided when strategies must be developed with imperfect knowledge of the problem?

Life was simple on the frontier; individual survival was paramount. Now, both individual and corporate survival are at stake. One thing we can do to increase our understanding of environmental problems is learn as much as possible about what is known, and then use electronic information processing (EIP) to analyze relationships in order to "minimize guesswork and risk." Farmers will be using EIP, and wildlife biologists will too. The two groups must get together to work on solutions to be shared.

CONSERVATION IS AN ETHIC, NOT AN OPTION.



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