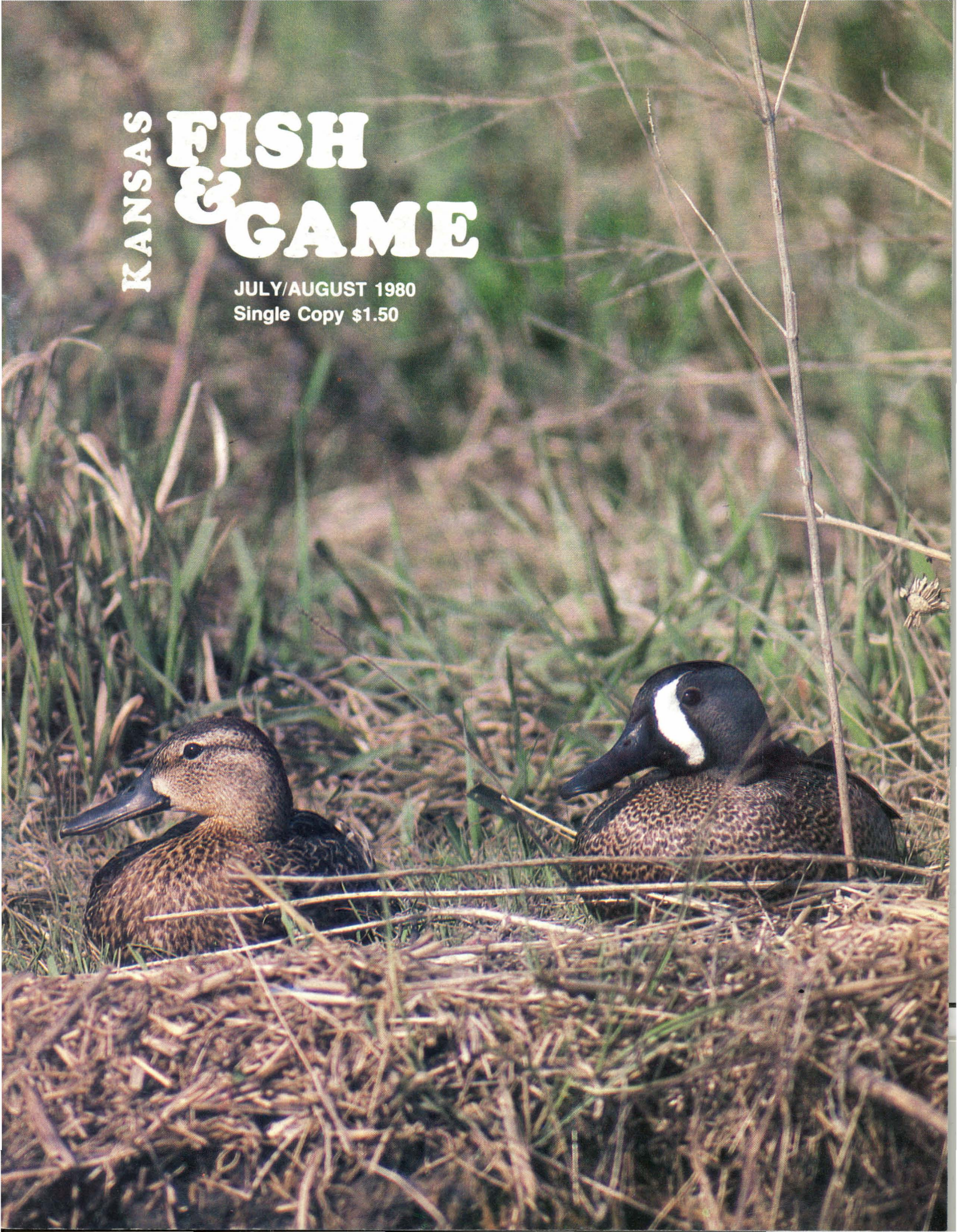


**KANSAS FISH
& GAME**

JULY/AUGUST 1980

Single Copy \$1.50





KANSAS FISH & GAME

JULY/AUGUST 1980

Published Bimonthly

Vol. 37 No. 4

MAGAZINE STAFF

Information-Education Supervisor

Ross Harrison

Editor

Chris Madson

Assistant Editor

Bob Mathews

Staff Writers

Rod Baughman
George Anderson

Photographer

Bruce Kintner

Editorial Assistants

Bev Aldrich
Judy Becker

Consultant

J. T. Collins, Herpetology

COMMISSIONERS

William Hawes, Chairman
Smith Center

Joseph Rishel
Kendall

Joseph Gregg, Sr.
Prairie Village

Ronald Hopkins
Wichita

Roland Spriggs
Oswego

ADMINISTRATION

Director

Bill Hanzlick

Assistant Directors

Fred Warders
Lee Queal

DIVISIONS

Chief of Administrative Services

George Axline

Chief of Fisheries

Cal Groen

Chief of Game

Darrell Montei

Chief of Law Enforcement

Frank Nesmith

Contents

The Energy Crunch:
Will it catch wildlife? **4**

Canepole Water
Northeast Kansas fishing holes
you can take the kids to **9**

Wildtrust
More and more Kansans are leaving
a legacy for wildlife **13**

Ugly Eating
A wildlife gastronome whets his
appetite for snakes, etc. **17**

Summer Stream
A photoessay on an underestimated
natural resource **21**

Stalking the Big Buck
Should we put a dollar value
on our wildlife? **26**

KANSAS FISH & GAME is the official bimonthly publication of the Kansas Fish & Game Commission, Rural Route 2, Box 54A, Pratt, Kansas 67124 (316) 672-5911. Subscription rates: one year (6 issues) \$5.00, two years (12 issues) \$9.00, and three years (18 issues) \$12.50. Single copies are available at \$1.50 per copy.

Articles in the magazine may be reprinted with permission provided proper credit is given. Second class postage paid at Topeka, Kansas, and additional mailing offices.

Postal I.D. Number: ISSN 0022-8591

Cover Credits: Bluewing teal by Ken Highfill, Lawrence, KS; side-oats grama in sunset, Chris Madson

Editorial

Upping the Ante for Nongame

For almost a hundred years, hunters have bank-rolled American wildlife conservation. They started in 1886 by forming the Boone and Crockett Club, an organization that took up the protection of the Yellowstone as one of its first causes. The hunting license became a common fund-raising technique in the early 1900's; the Duck Stamp program was initiated in 1934, and the Pittman-Robertson excise tax on hunting equipment became law three years later. These laws and a number of other state statutes have made hunter contribution to wildlife management an automatic part of going afield. The motivation behind this charity is often self-interest, but, no matter what the rationale, the simple fact of the matter is that hunters support American wildlife, both game and nongame species.

If you're not a hunter, it's hard to find a way to break into many areas of conservation effort. Private organizations like the Nature Conservancy, National Wildlife Federation, and Audubon Society take a nonhunting approach to conservation and are especially effective as national lobbying groups, but they have relatively little impact on day-to-day wildlife management compared to state and federal wildlife agencies. A few years ago, the Michigan chapter of the Audubon Society urged its

members to buy hunting licenses even if they didn't hunt. The leadership couldn't figure out any more effective way to get their money into the state conservation department's coffers.

A few nonhunters are contributing to anti-hunting organizations in the mistaken belief that these outfits have the best interests of wildlife at heart. Much of the \$30 to \$50 million a year that goes to the antis supports legal action against key wildlife funding programs like the Pittman-Robertson Act. The intent is to eliminate hunting even if that means crippling wildlife management in the process. The test of their interest in wild resources is the amount of money they spend directly on wildlife habitat. In most cases, that isn't enough to buy a good cup of coffee.

The difficulty of finding a good way to give money to wildlife has convinced most nonhunters to forget the whole idea. That neglect could be catastrophic. The demands we are making on our land are increasingly intense and diverse. Suburbs are competing with intensive agricultural operations for waste corners that once supported bluebirds and quail, and endangered species regulations and environmental impact statements are competing with traditional wildlife

management for the attention of a handful of trained professionals. Twenty million American hunters can do a lot, but they can't bear the entire cost of wildlife conservation for 200 million of their neighbors.

This year, Kansas will join a couple of other western states in a program designed to give the nonhunter a chance to contribute to nongame management. Last year, Colorado and Oregon income tax forms both included a box that allowed their taxpayers to put part of their refund into a nongame fund. Colorado's income tax check-off program is three years old and generated about \$500,000 last year. Oregon's check-off system is brand new, but even in its first year, it collected \$337,000 from more than 91,000 contributors.

The Kansas program should do every bit as well. Commission biologists have discussed and outlined specific nongame management efforts for years, but they have been deferred for lack of money. A generous response to the Kansas income tax check-off would put many of those programs into action and give the nonhunter more voice in management decisions. In its first year, the check-off will also act as a referendum on the public's interest in Kansas wildlife.

It's time for all wildlife supporters to put their money where their interests lie. A good start would be a contribution to the Kansas nongame wildlife fund.

Chris Madson

The Energy Crunch: Will it catch wildlife?

Bob Mathews



“How big is a Btu?”

Randall Noon leans back in his chair as if he expects an answer to his question. His visitor cuts short the post-question silence by admitting he doesn't know . . . exactly.

“See?” says Noon, assistant director of the Kansas Energy Office. “We've all had it so easy for so long that we never had to know even the basics of energy use. But now the American public is going through a crash course in energy systems engineering.”

For the average consumer, energy is a light switch on the wall and gasoline in the tank. In the past decade, however, we've all been forced to take a longer look at the sources and uses of energy in this country, if for no other reason than to understand why it's costing us more and more.

In the mid-1800s, wood still provided eighty percent of the energy consumed in the U. S. By 1900, coal had become our energy base. Oil and gas began to supplant coal by 1920. The discovery of atomic energy in the 1940s fueled a widespread belief that our energy future was secure. But atomic energy has evolved into more of a sociopolitical issue than an energy source, and our oil and gas reserves are declining. A growing reliance on imported oil has disrupted the economy and launched a scramble for alternative energy sources.

The country's goal of energy self-sufficiency seems more urgent than ever in light of the global energy crunch. As the energy demands of our society grow, conventional energy sources become harder to find, harder to extract, harder to process, and more expensive. Parts of the country that had been considered too inaccessible and forbidding to host any energy development in the past are now involved. Many of them are incredibly rich wildlife areas. Once again, human needs represent a significant threat to the needs of wildlife. Despite legislation enacted in recent years to protect the environment, some are concerned that the country will sacrifice the environment in its headlong

plunge to meet the energy shortfall. With energy development will come urbanization in the extracting regions, many of which have never been heavily urbanized.

Before the Arab oil embargo in 1973, there was little evidence of concern among Americans that our conventional fuels were being used up. But the conventional fuels—oil and natural gas—are now thought of as the “transition fuels” to bridge the gap between our present energy technologies and those that will fuel our future.

Petroleum currently supplies nearly half of the energy used in the U.S. But domestic production has fallen from 9.6 million barrels of oil per day (MMB/D) in 1970 to 8.5 MMB/D in January of this year. Consumption during the same period has gone from 14.6 MMB/D to 19 MMB/D. Imported oil has made up the widening difference and that increased use of foreign oil, as well as the escalating price we pay for it, has resulted in a jump in the cost of our foreign oil purchases from \$4 billion in 1970 to around \$70 billion in 1979.

To reduce the country's reliance on imported oil and gas, more domestically-produced petroleum is needed. One strategy to increase that production is removal of price controls on domestic fuels. As unpalatable as that is to the American consumer, higher prices would simultaneously increase domestic production and force conservation of the higher-priced fuels.

“The price would go up but when you start to have to pay more you take some serious conservation measures,” says Dr. Robert Robel, professor of environmental biology at Kansas State University. “The trouble is, a politician doesn't generally want to back such a move because he doesn't want to be blamed for the consumer having to pay more,” continues Robel, who has served extensively as a consultant on energy and environment issues on national and state levels.

Still, he contends, incentives to encourage more do-

mestic production of oil and gas are preferable to some of the more costly fuel technologies, like coal-derived synthetic fuels. In addition to price decontrol, Robel adds, more production on public lands currently closed to oil and gas drilling should be pursued, as well as off-shore drilling.

Robel also favors including nuclear power in this country's mix of energy sources. But the future role of fission is an unsettled issue in the wake of Three Mile Island. No new nuclear plants have been ordered in this country the past two years and planning on at least a dozen others has been postponed, he said.

Both atomic fission and petroleum were rated as "moderate impact" energy sources by Robert Hatcher, a Tennessee Wildlife Resources Agency authority on energy-environment issues. In a presentation to the 1978 North American Wildlife and Natural Resources Conference, Hatcher rated each of fourteen of this country's most likely energy alternatives according to their impacts and potential impacts on the environment. Also included as moderate threats to the environment were tidal and geothermal energy. "Low impact" sources listed by Hatcher included nuclear fusion, solar energy, hydroelectricity, wind energy, and solid wastes. The energy sources with the greatest potential of environmental harm, according to Hatcher, are oil shale and coal synthetic fuels.

Coal is considered by this country's leaders as a major contributor to our energy needs. The fact that it comprises some ninety percent of our fossil fuel reserves only enhances its attractiveness to energy developers. Billions of tons of coal in the northern Great Plains and the West are expected to serve as the primary source for this country's accelerated use of coal.

From its extraction to its eventual processing and use, environmental impacts of coal are formidable. Environmental groups have expressed strong reservations in this country's commitment to the development of synthetic fuels from coal. Elaborate processes are proposed to convert coal to gaseous and liquid fuels which can be more readily applied to existing technology. Billions of dollars of federal incentives are proposed to help finance development of the massive coal reserves in these new areas.

The direct effects of strip mining coal are obviously the cause of some environmental concern. But there are other factors involved, including the tremendous demands for water in the process of converting coal to other fuel forms, addition to the "acid rain" problem plaguing downwind regions, as well as leaching potential of slag heaps. The ultimate cost to consumers of coal-derived "synfuels" is another problem. The price of synthetic fuels is projected to be from \$50 to \$90 per barrel and the higher estimate is probably closer to the truth, if the federal Department of Energy estimates are to be believed.

Oil shale reserves in the Upper Colorado River Basin

represent another energy resource being developed. Shale deposits in Colorado, Wyoming, and Utah represent a potential yield of some 600 billion barrels of oil, according to one estimate. But extraction of oil from shale is another process that carries a bagful of environmental threats. The most significant impacts with its extraction and processing are the intensive use of water in a region already water short, the potential for surface and groundwater contamination from the leaching of spent shale, and difficulties with reclamation of mined areas due to slow revegetation potential in the semi-arid region. Development of roads and support services and the concomitant urbanization will add stress to the wildlife-rich region holding the shale reserves.

The impacts of oil shale extraction could be lessened with new methods which make it possible to extract oil from shale without removing all of it from underground. The process involves reducing the under-



ground shale deposits to rubble. A slow fire is then set in the underground excavation to force the shale to release its oil. The oil is then pumped to the surface. Although the underground extraction methods could reduce the impact of the actual mining, the major problem lies in the threat to the region's critical water resources, with the potential for leaching toxic chemicals from the spent shale and air pollution from the "retorting" process.

"Our energy needs are too all-encompassing for us to close the door on any potential energy resource, like nuclear, solar, biomass, geothermal, coal, oil, natural gas, and others," Robel opines. "None will provide all of our energy needs by itself."

It is this philosophy that characterizes the approach being taken throughout much of the country to energy problems. Since no single energy source is capable of meeting all of our energy needs, more study is being undertaken on national, state, and county levels to

determine what energy sources are immediately available and how they can work together to meet demand.

County-wide energy planning already is underway in several Kansas counties to determine where the energy used in the local area comes from and how effectively it is being used. Alternative energy sources are being studied for their potential application to local energy needs.

One group that has been actively involved in initiating county-wide energy planning in Kansas is the Mid-America Coalition for Energy Alternatives, a Shawnee Mission-based organization. Other groups, like the Douglas County Appropriate Technology Center, are assessing local energy use and seeking ways to involve renewable energy resources more extensively in their energy future. Another group—The Land Institute—is working on development of sustainable alternatives in agriculture, energy, shelter, and waste disposal. The Salina-based Institute is experimenting with the application of renewable energy sources.

These groups and others are focusing their efforts on pursuit of a "soft energy" path, based upon renewable resources such as sun, wind, hydropower, and biomass. They contend the soft path offers more promise for stabilizing the country's environment and economy than the "hard path" which is based on generating electricity with centralized, large-scale coal and nuclear systems. Soft energy proponents contend their way is not as technically complex, is more easily managed, can be applied on a decentralized basis, and requires relatively little investment.

One of the best reasons for actively developing soft technologies, said Diane Tegtmeier of the Mid-America Coalition, is that it can be undertaken by small cities, small groups, and even individuals instead of relying on massive power projects that are more capital intensive. It makes particularly good sense, she said, as a strategy to reduce the migration of our populations from rural settings to larger cities.

If any energy source has captured the average American's imagination in recent years, it's solar power. The main argument over solar power involves two basic questions: How much of our energy needs can it supply? And how soon? The answer depends on the viewpoint of the person providing the answer. The earliest applicable use to which solar energy can be applied is for small scale space and water heating and cooling. Since roughly thirty percent of all the energy we use in the U.S. goes to heat and cool the space we live in and the water we use, the application of solar principles to building design can contribute substantially to this country's energy dependency. Direct conversion of sunlight to electricity has made significant progress in recent years but the technology and market for any large scale application of solar-derived electricity doesn't yet exist. The contribution to our energy



budget of solar electricity depends on developing affordable hardware.

Many environmentalists have expressed the opinion that the federal government is doing far too little to encourage conservation of our energy resources.

"If the U.S. were to make a serious commitment to conservation, it might well consume thirty to forty percent less energy than it does now," reported Robert Stobaugh and Daniel Yergin, co-editors of "Energy Future," a book that summarizes results of several years of research at the Harvard Business School on alternatives for America's energy future. "That saving would not hinge on a major technological breakthrough, and it would require only modest adjustments in the way people live."

Part of the problem with conservation is the way it is generally perceived by the public. Instead of defining energy conservation as "curtailment" or "sacrifice," the book's editors make the point that "productive conservation" entails no sacrifice. It merely means adjusting our use of energy now to use less energy than in the past in order to prevent disruption later.

Producing more energy may postpone our energy supply problems but learning to use energy more efficiently *now* should be a prime strategy in assuring our long-term well-being into the post-petroleum age.

Conservation is the least environmentally-damaging and least costly solution. It provides immediate relief as well as long-range relief from energy worries.

"Conservation, therefore, is not a theological or ideological issue. It should be pursued not as an end in itself, but as a means toward greater social and economic welfare, as a way to promote the well-being of the citizenry," Stobaugh and Yergin concluded.

Improved auto mileage in 1979 produced the first drop in gasoline demand, which accounts for forty percent of all oil used, since 1974. Our energy consumption rate of growth has generally slowed down.

"Looking ahead," observed a National Wildlife Federation writer, "by far the most heartening energy news last year was the revised fix on future U.S. needs. Given present trends the nation will require far less energy by the year 2000 than was formerly assumed. This means America can concentrate on the development of environmentally benign alternative fuels (solar, wind, biomass) as opposed to disruptive, dirty, or dangerous fuels (nuclear, coal, synthetics). It also reinforces the idea that conservation, not production, is the surest, safest, and most economical way to reduce U.S. reliance on overseas energy and buy time to develop post-petroleum technologies."

"There are a lot of energy sources right under our noses that are untapped," says Noon of the Kansas Energy Office. As an example, he points to the garbage we throw away as a proven source of fuel and a productive conservation method. "We spend money collecting garbage and finding holes to cram it into

when we should be looking at the energy potential that garbage offers."

The Energy Research and Development Administration estimates that the average American produces well over one ton of solid waste per year. Most of that waste is combustible and has a heat content nearly half that of coal. In June 1977, seven solid waste incinerating plants were operating in the U. S. for energy production and at least 11 more were planned or under construction. A plant being built in Pompano Beach, Florida will convert fifty to one hundred tons of solid waste and sewage sludge into as much as 300,000 cubic feet of methane daily.

A study by the Kansas Energy Office concluded that solid waste is available in sufficient quantities in almost half of the counties of Kansas to be applied as a viable energy source. The use of solid wastes as an energy source is particularly attractive for environmental considerations, Noon said. It eliminates the negative impacts of solid waste disposal and landfill leachates. It also makes good economic sense, he added, because of its potential to reduce the costs of waste disposal.

Animal wastes produced in Kansas feedlots are another energy source not yet extensively used. Those wastes can be converted into methane and fertilizer. A Kansas Energy Office inventory reports there are about sixty cattle feedlots in the state and ten of those each have at least 22,000 head of cattle.

Still another means of productive conservation which can be applied in Kansas is the waste heat that escapes electrical power plants. By putting that waste heat to work in other jobs, a technique known as cogeneration, a significant amount of energy can be conserved. The most likely applications of waste heat are grain drying and providing process energy for the production of ethanol.

Despite the promise conservation holds, it is unlikely that the conservation ethic will take hold immediately in all segments of society. For that reason, wildlife managers assume that more and more of our environment will be manipulated and planned and urbanized. To minimize the effect of this intrusion on wildlife will require the cooperation of developers and environmental concerns alike.

One definition of conservation is "the rational use of the earth's resources to achieve the highest quality of living for mankind." The same definition could be applied to any field of endeavor. Understanding how our energy use affects the land, wildlife, and ourselves is essential to our future on the earth. The abundance and diversity of wildlife we enjoy depends on our abilities to reach effective compromises of our individual goals. The pace of that progress will be measured in the status of wildlife . . . and ourselves . . . twenty, fifty, and a hundred years from now. □

**Family
fishing in
northeastern Kansas
reservoirs, lakes, and streams**

Canepole Water



Jerry Hazlett

The other day, I was reading an article about the breakdown of family life in the United States. According to the article, stress is placed on the family by the harried pace of living. Both parents have to work to make ends meet; civic organizations need to be joined and social events must be attended. The kids have to get involved in organized recreation programs; extra-curricular school activities are a must, and TV watching can fill the gaps. Little time is left for the family to function as a close-knit, give-and-take unit. Feelings of close kinship are lost and communications break down. The family's structure collapses. The article suggested that to offset this malady, more community family crisis centers and family counseling clinics are needed.

As I thought about this article, I remembered a book I read a few years ago. This book, written by Robert Murphy, was entitled *The Pond*. It was all about a boy, his dog, and an adult friend unraveling the mysteries of life in and around a small, isolated lake and portrayed the shaping of the boy's attitude toward living as he explored nature with his "family."

Anyone who has read this book is apt to recall a pond of his own, those times on a hot Sunday afternoon when somebody had the good sense to ask, "Who wants to go fishing?"

It seems to me that family fishing outings offer a

viable alternative to family counseling clinics. Many public waters in northeast Kansas owned or controlled by the Fish & Game Commission are ideally suited for family fishing. They're close to home, and don't demand an investment in a bass boat, recreational vehicle, or a lot of camping gear. Fishing access from the shoreline is good and if you desire, small john boats, canoes, or floater rings can be used.

Before we take a closer look at some of these waters in northeast Kansas, let's look at kids' fishing in general. It's easy to say, "My kids won't sit still and be quiet." One of the main reasons that kids don't catch fish is that they are outfitted with the cheapest rods and reels. Many times these rods and reels don't work well or are even broken. The line may be too heavy, old and/or twisted. Hooks and sinkers may be too large. All in all, this adds up to frustration and no fish.

A good open-faced spinning or close-faced spincasting reel may be purchased for ten to twenty-five dollars. A light- or medium-action five- to six-foot rod is adequate for most kids and can be purchased for ten to fifteen dollars. Light line—six-pound test or less—is a must for casting. Small split-shot sinkers are best, along with small hooks. This type of equipment will allow the young angler to respond quickly to a strike and learn the "feel" of biting fish. With a little patience and help from you, as well as some practice by the

kids, even four- or five-year-olds can be successful. It is a good idea if the younger kids wear Coast Guard-approved life vests.

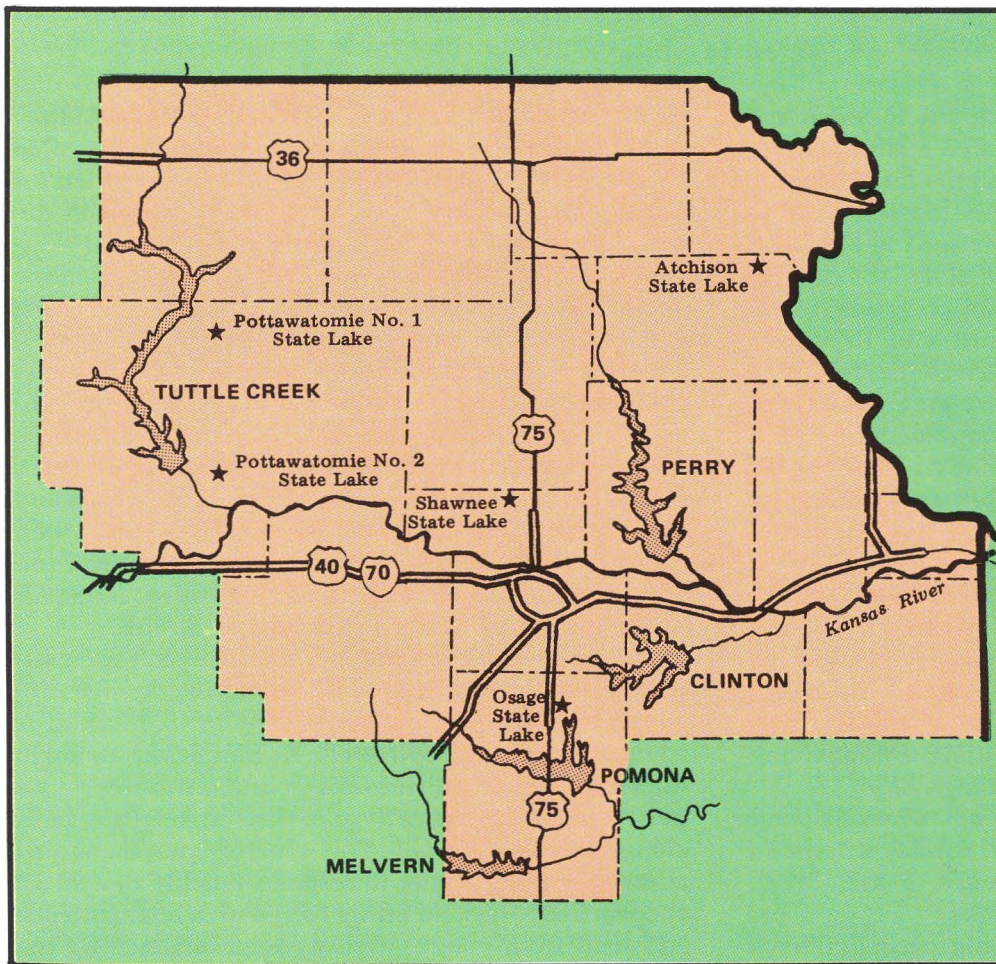
Many times, even if catching fish, the kids will become restless. A good way to remedy this and add to that good family relationship is to turn the kids loose to explore the shoreline. A whole new world is opened to them and perhaps you, too. Remember your delight when peeking under a rock you saw that crawdad retreat with jet-like speed or your amazement when you realized that a soft-bodied tadpole changed into a frog? Encourage those "restless" kids to look for aquatic living things by turning over rocks, looking at submerged sticks and branches, and examining handfuls of water vegetation. Be sure to pack with your fishing gear a good nature guide on aquatic life. Such books can be purchased in most any book store for five dollars or less.

With these suggestions in mind, let's take a closer look at some of those "therapeutic" waters in northeast Kansas that are suitable for a family fishing outing. Five reservoirs and ten state fishing lakes are located in this corner of the state. A fishing outing to any of these reservoirs or state lakes can be a rewarding family experience.

During the first two weeks of April, walleye spawn

in shallow, sloping rock rubble areas, such as along the rock-riprapped dams and causeways and on natural rock outcroppings along the shoreline. The whole family can fish for and catch walleye by using eighth-ounce or sixteenth-ounce jigs instead of small hooks and split shot sinkers. Cast from the shore and retrieve the jig slowly, allowing it to bump along the bottom. Be sure to take a lot of jigs as many will be lost. With a little practice, the whole family can learn this technique and return home with a stringer of one of the finest-eating fish. Try Melvern, Pomona, and Clinton reservoirs for the best results. Another good bet for this spring outing is Osage State Fishing Lake.

From the first of May until June, crappie usually spawn in shallow rock rubble areas or shallow areas that contain dead, standing timber. These areas can be reached from shore. The fishing technique is much the same as for walleye using white or yellow eighth-, sixteenth-, or thirty-second-ounce jigs. Some people like to use bobbers while slowly retrieving the jig. This technique is especially good for the kids. They don't have to rely on feel but can actually see when a crappie strikes. Live minnows instead of jigs will also work well. All five reservoirs in the northeast provide good spring crappie fishing. In addition, good to excellent spring crappie fishing is found in five of the ten Fish &



Fishing holes for the kids

Game-owned state fishing lakes. Fish from the shoreline in the kind of crappie cover described above at Atchison, Brown, Douglas, Nemaha and Osage state fishing lakes and watch those kids catch crappie. Be careful—don't fill your stringer so full that you can't carry it!

Has it just rained hard; everything is muddy, and the kids have nothing to do? If this occurs in late spring or early summer, grab the kids, their fishing gear; get some worms or prepared catfish bait and go to one of the state fishing lakes and catch some channel cat. Fish in the upper ends of coves where the swift-running streams are entering the coves. This will produce some cat fishing like you have never had before.

What about the middle of summer? It's hot; everybody is bored and miserable. Nothing to do. For a rewarding outing, try Pottawatomie State Fishing Lake number two for bluegill. Use the same gear but with a split-shot sinker, small hook, and worms. Fish around one of the bluegill feeding stations and be ready for some fast and furious action. It won't take long to fill a stringer with nice-sized bluegill. Dad, if you want to be different, dust off that old fly rod and take it along.

This lake is not the only lake that produces good bluegill fishing in the Northeast. Try fishing along the shore around shallow weed beds on any of the ten state

fishing lakes. A fishing outing on any of these will provide fond family memories for years to come.

Does your family own or have access to canoes? How about a family canoeing-fishing trip on the Kansas River? Fish and Game, in cooperation with local and state governmental units, has constructed six public access boat ramps at various points along the length of the Kansas River. Gather the family and gear together and take a float trip. Fish those holes around jetties, old car bodies, and brush piles for catfish. A trip between two of the boat ramps will fill a summer's day with many pleasant memories.

These are just a few of the family fishing opportunities available in northeast Kansas. Farm pond fishing, community lake fishing, floater ring fishing, john boat fishing, wade fishing, stilling basin fishing, night fishing, trot lining, and bank lining all provide opportunities for family interaction. The only limitations to these opportunities are made by you.

What's that you say? You don't have enough time? Who does? But some find time.

Come on, dads. Round them up, dig a can of worms, and take the whole clan out to the nearest bluegill hole. The trip will get the family pulling together again. And put a pile of fresh fillets on your table in the bargain. □

RESERVOIRS

Clinton and Melvern—two of the state's newest reservoirs—probably offer the best potential for family fishing trips in the northeast.

Fishing for bullheads, channel catfish, and bluegill can be productive in many areas in the upper end of Clinton Reservoir. A good choice for a fishing hole is an area where a feeder stream joins the reservoir. Light line, light- to medium-action rods, small hooks, and small sinkers work best.

The upper end of Melvern Reservoir offers young anglers a chance to catch crappie, bluegill, largemouth bass, and green sunfish. Try the north side between the Sundance area and the Reading bridge. At least six areas in that stretch are easily accessible, are protected from the wind, and offer good fishing potential. Light equipment and small hooks will help insure successful fishing, and a worm or minnow fished under a small bobber will keep the younger fishermen, and the fish, interested.

STATE FISHING LAKES

Pottawatomie State Fishing Lakes 1 and 2 both offer the potential for some action-packed bluegill fishing. Fishing from the shore in shallow areas at Pott No. 1 with small hooks and light tackle will give the younger anglers a fishing trip to remember, courtesy of the good bluegill populations. Pott No. 2 is especially good around the fish feeders placed near the shoreline at various parts of the lake. Channel cat fishing along the shoreline will give the youngsters a tussle they'll enjoy, too.

Osage State Fishing Lake can be good for bluegill and green sunfish using small hooks (No. 10 or 12) with a worm or piece of worm. Artificial flies or "wooly worm" lures seem to work well at Osage. Shawnee State Fishing Lake should offer similar potential when it reopens later this fall.

Another good possibility is fishing the shallow water at Atchison State Fishing Lake for bluegill and channel catfish.

STREAMS

Access to streams, especially the smaller streams, can be a problem anywhere in the state, including northeast Kansas. Several public access sites have been developed on the Kansas River, which can be especially productive for catfishermen.

Deep Creek Public Fishing Area, located southeast of Manhattan, offers good potential for bluegill, green sunfish, and channel catfish. The Delaware River above Perry Reservoir also is extensively used by channel catfishermen.

Unless public access sites have been developed by local units of government, most of the stream reaches in the northeast are privately owned, requiring landowner permission to fish. Anglers itching to wet their lines in a river should consider the public use areas at the upper ends of the larger reservoirs in the region. Channel cat provide most of the action in these locations, and deep holes and pools offer the best potential for fishing success. Fishing during the hottest part of summer is usually best (and most comfortable) after sundown, when fish feed more actively than during the day.





*A new program that helps
Kansans donate to the cause
of wildlife. . . .*

Wildtrust

George Anderson

Gene Brehm

WILDTRUST is a program of the Kansas Fish & Game Commission that provides a way for individuals to help preserve wildlife and other natural resources through contributions of land, personal property, or other possessions.

The need for such help has never been more urgent.

With the economy what it is today, it has become extremely difficult, if not impossible, for the Fish & Game Commission to acquire by direct purchase the properties that can preserve wildlife for future generations to enjoy. The future of Kansas wildlife, whose ownership is vested in all of us, lies in the hands of those who actually own or control the land. These people are going to have the final say in the ultimate fate of our natural resources: an awesome responsibility.

During his lifetime, a man can provide for the wildlife on his property, but after he's gone, the fate of the land and creatures on it pass to other hands, not always the hands the previous owner had in mind. About the only way a landowner can guarantee that his home will be managed as he would like it is to pass it on to the public.

Land donations of this sort have come to the Commission in many sizes over the years. Ironically, it was a free-will donation of fifteen acres of Pratt County land in 1903 that provided the newly created fish and game agency with its beginning. Today, the 178 acres of headquarters grounds and large fish hatchery surround that donated area.

The Maxwell Game Refuge located six miles north of Canton in McPherson County is an example of one of our older donated tracts of lands that is very popular with Kansans and tourists.

The refuge had its beginning in 1943 when the estate of Henry Irving Maxwell, a McPherson businessman, began purchasing land for the purpose of creating a game refuge. In 1944, 2,560 acres were deeded to the commission. Of the total acreage, 2,254 acres were designated game refuge, and the remaining area was reserved for construction of the McPherson State Fishing Lake.

In accordance with the will of Mr. Maxwell the area has been developed as a wildlife refuge. In 1954, other McPherson County businessmen donated a lookout tower to provide a panoramic view of the refuge and the forty-six-acre McPherson State Fishing Lake. The two main attractions for people visiting the refuge are the established herds of buffalo and elk that roam freely over the area. In addition, several head of antelope have been released on the refuge.

The animals' movements are controlled only by cattle guards instead of fences along the entrance and exit of the county road running through the refuge.

The buffalo herd, numbering 200 animals, is maintained under as natural conditions as possible to insure that an important part of the state's faunal heritage will not disappear from this portion of the Great Plains.

The Mined Land Wildlife Area located in scattered tracts in Crawford and Cherokee counties in southeast Kansas is another example of early donations that fall under the WILDTRUST program. More than 3,000 of the 6,225 acres that make up the area were donated in the 1930's. These lands had previously been strip-mined for coal, but with the Civilian Conservation Corps, planting of trees and the healing art of time most of the mining scars have healed. Fishery management efforts have neutralized some of the acid waters, and with the construction of public use facilities, access roads, and trails the area has become a favorite for hunting, fishing, and other recreational pursuits.

Lands such as Maxwell Refuge and the Mined Land Wildlife Area point out the fact that the commission has been accepting donations since its beginning. The WILDTRUST program has just recently been formed to call more attention to and better accommodate donation arrangements. New signs have been placed on some existing donations to express public gratitude to the benefactors for their vision of future wildlife needs.

Examples of these signs, recently erected, are found on lands in northeast and southeast Kansas that would not exist today without the generosity of the people who made them possible.

Pillsbury Crossing was donated to WILDTRUST by Dr. Edwin J. Frick, professor emeritus of veterinary medicine at Kansas State University. The fifty-nine-acre tract along Deep Creek in southeast Riley County preserves for all time more than a mile of this Flint Hills stream with good fishing, favorable habitat for numerous wildlife species, and a beautiful setting for persons to view nature.

The Harmon Wildlife Area sports 102 acres along scenic Chetopa Creek in southeast Labette County. This area, donated to WILDTRUST by the M. E. Harmon family of Chetopa in 1975, possesses woodlands untouched since pioneer settlement. Two important archeological sites dating to 500 A.D. and nominated for the Register of Historical Kansas Places are also within the area.

The Harmon family faced a decision common to many landowners. An estate sale would have so fragmented the proceeds that no individual would have benefited significantly. Therefore, they chose to share this unique area with all Kansans forever, an excellent example of WILDTRUST at work.

According to Fred Warders, assistant director and WILDTRUST coordinator for the commission, donations certainly do not have to be in the form of land holdings. "They may be of a nature that is convertible to land acquisitions, or exist as grants for special activities, even coming in the form of an actual piece of equipment. The list of potential types of contributions is unlimited."

An excellent example of a WILDTRUST donation

that did not involve land occurred during the summer of 1979 in the form of a new shelter house at the Kingman State Fishing Lake located west of Kingman.

It was also the first official WILDTRUST donation since the commission initiated the program in the spring of 1979. The shelter house was constructed as a WILDTRUST memorial to Timmy W. Voge, son of Mr. and Mrs. Dale Voge of Goddard, who was killed in an automobile accident. Timmy was a very active fisherman and hunter in Sedgwick and Kingman counties. A memorial fund to the Fish and Game Commission was established at the time of his death, and in addition to the donated funds many friends and family members contributed building supplies and labor to build the structure. It fulfills a need for a large shelter house that has existed for years on the state fishing lake.

Several new hunter safety films have been donated to the Manhattan Hunter Safety Instructors for use in training Kansas youth through a memorial WILDTRUST donation in memory of Leo Cross of Manhattan.

"Leo was a master instructor and had been involved with hunter safety in the Manhattan area since the program started," said Royal Elder, hunter safety coordinator for the commission. "The monies donated to the Leo Cross Memorial Fund allowed us to purchase several good training films that included a memorial to

Leo on the film leader. They are an excellent tribute to Leo and the WILDTRUST program."

High among the commission's objectives of the WILDTRUST effort is to create a lasting memorial to the donor. Of interest to many benefactors is the type of use a donated tract of land might provide to the public. The tract's size, location, type of habitat, terrain, and the desires of the donor all play major roles in determining what that public use might be. Allowable activities might include hunting and fishing, or it might be simply a place for nature hikes, wildlife research, or a natural classroom.

Most important, donors of WILDTRUST properties are assured that their donations will be used and managed for the greatest benefit of fellow Kansans in keeping with conservation of the land and its wildlife.

The commission is staffed with professional fish and wildlife biologists who have many years of successful experience in land management for wildlife conservation. Biologists are aided in their work by other agency professionals in engineering, education, business management, and wildlife law enforcement. With such expertise, a comprehensive and long-term plan of management is prepared for donated lands.

WILDTRUST was developed with the donor and future generations of Kansans in mind. It is designed to provide alternatives to estate managers, tax consul-

Buffalo on Maxwell Wildlife Area. (Bruce Kintner)



tants, or perhaps if you must decide how to dispose of some or all of your holdings. Flexibility built into the program will guarantee that scenic and wildlife values of the land will be preserved, more likely enhanced, fitting the donor's desires even long after his lifetime. It's a mark on Kansas that will definitely be visible and positive.

An individual or group interested in contributing land or other property to the commission has a variety of options available. Donations may be made during the donor's lifetime with considerable tax benefits, or they can be through a will with the tax benefits both for the estate and income from the estate.

Some options are reviewed briefly to provide examples. They are not complete or detailed with regard to tax benefits. An attorney or tax accountant can detail options and specific tax benefits.

For a direct gift of cash or taxable personal property to the commission, the donor generally may deduct up to fifty percent of his adjusted gross income per year. Donations of real property are deductible under the same rules as cash gifts and are based on the fair market value at the time the gift is made. There may be exceptions. The amount that may be deductible will vary according to whether the property is classified as long-term capital gains property, or merely as ordinary income property. An attorney or accountant can make this determination.

In some cases, a landowner may gain significant tax benefits if he sells his property to the commission. A deduction as the result of a sale may occur if the property is sold at a price substantially lower than its fair market value. For tax purposes, the result would be that a portion of the property was sold and a portion donated. The same rules apply as those of capital gains property contributions, or other direct gifts.

If a taxpayer has real property for a period in excess of one year, he may receive upon donation a deduction of up to thirty percent of his adjusted gross income. The amount of the deduction is calculated in a somewhat different manner than the fifty percent deduction for cash contributions.

In addition, he may deduct the entire fair market value (up to fifty percent of adjusted gross income) of tangible personal property held longer than one year if donated for an intended purpose and not to be resold.

He may also receive tax considerations on the contribution of his personal residence, farm, or ranch and still retain a life estate; that is, he may donate his property to the commission and still retain the right to live on it for the rest of his life or the lifetimes of other family members.

Donations made to various types of charitable trusts can provide a gift of property while still allowing the donor the income from the property, either for life or a specified period of time. In this manner he may pro-

vide income benefits for himself or a family member and still donate the gift and receive favorable tax treatment.

When a landowner wishes to preserve a particular natural asset on his land while retaining an interest in the property, a conservation easement may be the answer. This type of donation is in the form of an agreement with the commission to manage the land for specific purposes or to prevent certain uses. This agreement would run with the land and all subsequent purchasers and heirs would be bound by the easement. In Kansas, there currently is no property tax adjustment for such easement; however, there are provisions for a deduction of federal income taxes if the easement extends for a period of no less than thirty years.

In addition to all these kinds of donations that take effect during the donor's lifetime, there are a number of options an individual can exercise in his will.

Direct gifts of either cash, real property, or personal tangible property may be given in a will. These receive much the same tax treatment as do gifts made during the donor's lifetime. Generally, they are deductible for estate tax purposes from the gross estate. Further, should the estate plan provide fee income from the estate, deductions are generally allowed from the income, again following the same rules as if the estate were a living person. An attorney can create a variety of estate plans to suit varying needs and desires.

It is possible to provide a life estate to a living person (such as a spouse), then after that person's lifetime, leave the remainder to the commission. Further tax benefits may be had if the life estate is in the name of the spouse, since one-half of the entire estate is tax free to her (or him). There is no limit or ceiling on the amount of deductions that may be taken for estate tax purposes.

Wills may clearly contain provisions for reversion of donated property to the estate if the land is not managed by the commission in conformance with the donor's wishes. Similarly, the same type of reversion clause may be included in any deed conveying WILDTRUST property to the commission from a living donor.

WILDTRUST offers an opportunity to create an everlasting gift to wildlife and conservation. It allows outdoor enthusiasts a way to impart to future generations the values that heightened their own enjoyment of life. If you are interested in a potential donation to the WILDTRUST program, if you know someone who may want to, or if you are just interested in more information, please contact any member or office of the Kansas Fish & Game Commission. Agency officials will be happy to meet with you anytime to discuss the future of one of our most important natural resources—Kansas wildlife. □

the YELLOW Pages

INDEX

	Page
New Fish Record	2
Letters	3-6
New Sportsman's Calendar . .	8

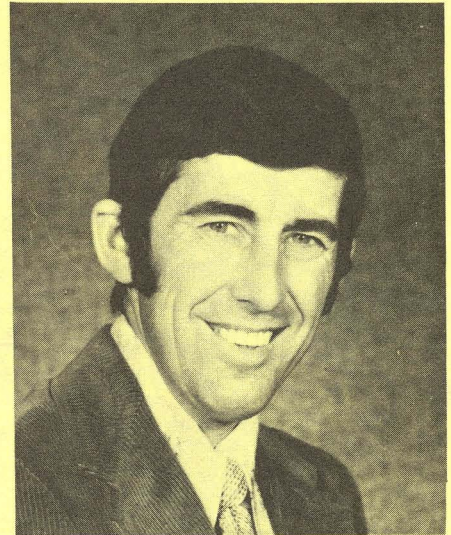
VETERAN AGENCY EMPLOYEE NEW FISH & GAME DIRECTOR

The Kansas Fish & Game Commission has announced the appointment of Bill Hanzlick, Dodge City, as the agency's director.

Hanzlick, 43, is a lifetime resident of Kansas and 21-year veteran with Fish & Game. He replaces former Director Jerry Conley, who recently accepted the directorship of the Idaho Department of Fish & Game.

The new director was born and raised in Hoisington and received a bachelor's degree in biology and a master's degree in zoology from Fort Hays State University. He was first employed by the agency in June 1959 as a game biologist stationed in Pratt. He assumed a position as regional game supervisor in Hays in 1965, and moved from Hays to Fish & Game's southwest regional office in Dodge City in 1973.

Hanzlick and his wife, Kay, have three children: Blake, Linda, and Julie.



Bill Hanzlick

† † † †

ONCE AGAIN . . . THE SEASON LENGTH ARGUMENT

Is a 60-day season too long for quail hunting? Would a 40- or 45-day season be any better as an aid in preserving quail populations? Is the gun a limiting factor on statewide or regionwide quail numbers?

These and other related questions invariably arise, especially in years following a dramatic winter loss of bobwhites. The winter of 1978-79, with extended periods of snow cover and bitterly cold temperatures, did take its toll on bobwhite populations in much of Kansas. As expected, several Kansans appealed to the Fish & Game Commission to shorten hunting seasons to allow quail populations to recover. (See "Letters to the Editor" in this issue.) Individual landowners sometimes complain that a long hunting season will reduce breeding stock to dangerously low levels, contending that a shorter season would help insure the survival of the bobwhites.

Wildlife biologists, however, don't see it that way. And they have data that backs them up.

"In the 18 years that we have been collecting information on populations and harvest we have never seen a situation where shortening the season had any beneficial effect on a regional population," said Roger Wells, small game project leader for Kansas Fish & Game. "We have seen years of high populations with short seasons, low populations and short seasons, high populations with liberal seasons, and low populations with liberal seasons. Always, the population responds as if it didn't make any difference."

Wells isn't the only biologist to reach that conclusion. Back in the late 1930's and early 1940's, a study of bobwhite quail populations on hunted vs. protected areas in Oklahoma revealed that the breeding populations were virtually the same on both areas. Over a five-year period, a portion of a 3,000-acre tract was open to hunting while the remainder of the study area was closed to hunting. F.M. Baumgartner, who headed the study, conducted intensive censuses of bobwhites during each year of the five-year study. His conclusion: "... approximately 50 percent of the birds present at the beginning of the hunting season disappeared before the beginning of mating season in April, regardless of the intensity of hunting or no hunting."

(continued)



Two Iowa biologists in 1952 censused a 7,700-acre area and concluded that "... hunting losses were not found to be an important limiting factor."

Two Missouri biologists banded over 1,100 bobwhites from 1950 to 1957 on two areas (hunted and unhunted) in Missouri. They found that annual mortality rates were as high in refuge populations as they were in hunted populations. "Hunting," they reported, "was a substitute for other forms of natural mortality."

A six-year study of quail populations in Virginia yielded a similar conclusion: "Harvest removes a portion of the quail population which would be lost over winter to other natural causes."

Comments from Kansas landowners who have reported the total decimation of quail on their land or a neighbor's land are probably true, Wells concedes. "We have never denied that on local situations, such as individual farms or townships, quail may be affected by the gun. The problem is that it's a mistake to expand a local situation to conditions that exist over a region or statewide area."

Such an occurrence is most likely to happen in areas that have sparse quail cover to begin with, said Kent Monte, supervisor of research in Fish & Game's

game division. "To kill an entire covey is hard to do in good habitat," he added.

"I can understand the farmer who sees an entire covey removed by hunters, or the sportsman who hunts the covey to the last bird," Wells continued. "Who is going to tell them that hunting had no effect on that population. In fact, it did have an effect on that local population. But when a farmer examines a section of his ground, he is inspecting only 1/82,200th of the area of Kansas. When viewed from a broader perspective, you get a totally different picture."

The real threat to the continued well-being of the Kansas quail is the loss of suitable habitat. Interspersions of grass, cropland, brush, and woodlands are disappearing. A large tract of cropland, in the absence of the other three habitat types, will do little for quail. Since Kansas lies on the northern fringe of the bobwhite's primary range, extreme fluctuations can occur. But the evidence biologists have collected over the years substantiates the claim that hunting, while it may cause a noticeable decline in some local bobwhite populations, is not a significant limiting factor on regional or statewide populations.

† † † †

KAW RIVER CATCH BOOSTS STATE CHANNEL CAT RECORD

It took almost 18 years, but it finally happened.

Kansas City, Ks. angler Larry L. Wright landed a 33-pound 12-ounce channel catfish May 22 to erase a state record that had stood since 1962. Wright banked the fish after a twenty-minute struggle on the Kansas River near 88th Street in Kansas City.

The king-sized catfish measured 38½ inches long and was taken on a large minnow. Wright was using a baitcasting reel and a homemade rod. The catch upped the state record by nearly two pounds. Edward S. Daily, Gardner, had held the record since August 14, 1962, when he pulled a 32-pounder from Gardner City Lake.

† † † †

COMING IN OCTOBER

October 5, 1980 has been designated the first annual National Trapshooting Day. The Amateur Trapshooting Association is inviting all shooting facilities in the U.S. and Canada to participate.

The ATA is asking all its members to visit their local clubs and take part in a 100-target handicap event on that date.

† † † †

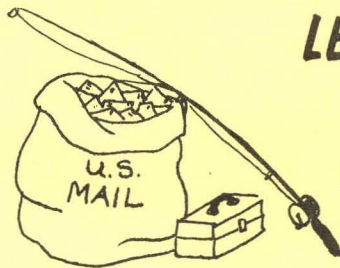
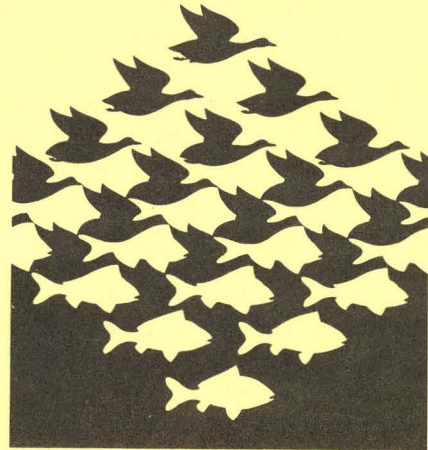
NATIONAL HUNTING-FISHING DAY
CELEBRATION SEPT. 27

Sportsmen have played the central role in the development of this country's conservation conscience. They were the first to warn of the dangers wildlife and fish resources faced in the path of an expanding civilization. They helped establish the nation's wildlife refuge system and helped finance the purchase of refuges, wintering ranges, wetlands, and public hunting areas in nearly every state of the union. They continue to contribute billions of dollars each year to the nation's economy and millions more for wildlife management in every state.

So, it's appropriate that one day a year should be set aside to recognize the commitments and contributions of this country's hunters and fishermen. National Hunting and Fishing Day, set for Sept. 27 this year, will focus on the continuing efforts of sportsmen devoted to preserving the hunting and fishing sports. The theme: "Helping Insure the Future."

† † † †

NATIONAL HUNTING & FISHING DAY®



LETTERS to the EDITOR

'HASSY'

I wish to nominate a very special man to a few kind words in your magazine.

There is little doubt that Earl 'Hassy' Hassinger, who for 50-plus years operated the Emporia Sport Shop, has signed more hunting and fishing licenses than any other Kansan.

Earl was a sportsman in every genuinely good way. He practiced it, talked it, and lived it. When farmers keep their hunting privileges for a friend, their wives prepare him dinner, and no one (even family) gets to hunt until Earl

arrives to have his day at it... that says volumes for that man. Such a man is Earl Hassinger.

He is doing his hunts now from your magazine but his spirit is still out in the fencerows.

Dale Hogan
Neosho Rapids

*

CORRECTION

I was pleased as punch to see my letter in your last issue. I really do feel that all the complaining in the world won't solve anything,

and that only constructive action will get results.

There was a misprint in my letter that might make for some misunderstanding. In paragraph 6, line 3, you will find it. The sentence reads: "I don't believe there are too many ranchers in the area that are in favor of preserving our national prairie heritage." It should read: "I don't believe there are too many ranchers in the area that are not in favor of preserving our national prairie heritage." It makes the next sentence ("They have been doing it for years.") make a little more sense.

We really do enjoy your efforts, and want you to know that we really feel that KANSAS FISH & GAME is our magazine.

Sandie Phipps
Matfield Green

*

(more)

HAZARDS TO WILDLIFE

In your May/June "Yellow Pages" I read the letter regarding a hazard to birds. Few people know how true this is, not just with birds, but with other wildlife also. I have hunted, fished, and trapped the Twin Rivers area near my home since I was 12 years old. I'm now 26.

I have several times found animals and birds drowned or struggled to death on limb lines, trotlines, and monofilament lines. I have also seen wildlife with feet cut or bruised badly from broken glass or aluminum can pop-tops. I enjoy the wildlife around my home and I support the gentleman who wrote the last note on this subject in your magazine. We do need to become allies with wildlife in order to help them and ourselves. These disgusting people who allow themselves to harm wildlife like this have to be stopped at once.

Daniel Martin
Osawatomie

*

REBUTS PARK IDEA

In reply to the May/June issue letter from Martin Bender of Salina:

All of his beautiful ideas can be carried out without making the prairie park a government-operated bureaucratic mistake. We sure do not want Washington and their ignorant bureaucrats operating and controlling this vast area of Kansas. The farmers who own and operate this area are doing a wonderful job of preserving this area.

If Martin Bender and his men of science want to study the plants of this area they can do it

without this area becoming just another government-operated area so that our citizens can come in and create a dumping ground for their trash and garbage. Mr. Bender, get your men to work and leave the prairie as it is.

On another subject, I also believe our pheasant and quail seasons are entirely too long.

Our winters have been so hard on both birds that if the department doesn't act soon we will not have these birds around. What I have seen in years past is that after two weeks many hunters resort to shooting hen pheasants because cocks are scarce. Many of us in this area want to see a shorter season on both birds.

R. M. Somers
Waldo

*

A CONFESSION

I just finished reading your superb May/June issue and a reader's letter from Donald Merchant down at Hiawatha. I happen to be from Nebraska, but I hunt in Brown County every fall, buying the proper out-of-state license of course. I must say that what Mr. Merchant had to say thoroughly embarrassed me and I hope it will also embarrass some previously "supremely knowledgeable" biologists on your staff.

Quail are almost impossible to locate in Brown County. I know; I have two National Field Trial Champion Springers and we only found one covey after combing nearly 1,400 acres of land in two days. The pheasant were great, but the lack of quail was pitiful. My hunting party of six finally located a small covey of about 12 birds on a lightly-brushed barbed wire fence row. In the next 20

minutes or so, with the aid of great dogs, we downed 11 quail.

Later, I felt badly about destroying that covey of quail, but we had been out for two days without any! I know from quail biology studies that a covey of quail must number six to eight birds to survive predators and harsh weather. We had foolishly left maybe one or two birds.

I have hunted those same areas in Brown County for the past 20 years and quail populations have steadily decreased. So has the cover and food. We returned to these same areas later on last winter after a fresh dusting of snow and we did not see one quail track during the entire two-day hunt covering some 1,400 acres of 50 percent to 75 percent tilled land.

Again, my apologies to Mr. Merchant and others. I feel badly about my actions and will not repeat them next year. I'm in the midst of a move to the west coast, however, plan on returning for a great pheasant hunt. Please inform your biologists that with declining habitat, increased hunter pressure, and expert gun dogs, phantom coveys of quail do not escape hunter pressure anymore.

Also, I would appreciate seeing this in print in your fine magazine to stir the conscience of others like me who thought they were noble sportsmen.

Dr. Pete Jones
Auburn, Nebraska

(EDITOR'S NOTE: More on this controversial issue appears on page one of the "Yellow Pages.")

*

(more)

MYSTERY MOUNDS

Last year, about the last week of April, a good friend and I were down near Council Grove looking for mushrooms in a four-to five-acre clump of timber and underbrush. While going through the thickest of this underbrush, we came upon some structures that we have never encountered before.

There were three of such structures composed of dead twigs, limbs, and leaves, all well put together with no visible sign of the builder using any live vegetation.

Upon returning to this same area recently, camera in hand, we found six of the structures within a two-acre area. Enclosed is a picture of one of them. It is four feet high and five feet in diameter and there is no water within 400 yards of any of the structures.

I am 33 years old and have spent countless hours hunting, fishing, and camping in the state of Kansas. I have never seen anything like these little abodes. I am hoping that you can shed some light on the subject, as myself and several friends are curious as to what these structures can be



and what kind of animal built them.

Richard A. Leath
Kansas City, Ks.

The structure resembles the work of pack rats, or "trade rats," in that they are large and consist of a jumbled mass of sticks, dried grass, and leaves. Was there a musky odor in the vicinity of the nest? If so, the evidence mounts that it is occupied by rats, al-

though other small animals such as mice or cottontails may inhabit a nest abandoned by rats. Were there any bottle caps, nails, tin cans, or similar bits of refuse in the vicinity of the nest? Pack rats earned their name for their peculiar habit of collecting objects, especially metallic or shiny objects.

*

THE OLD DAYS

Enclosed is my renewal for KANSAS FISH & GAME.

I have been interested in conserving wild Kansas since 1912 when I started raising wild Canada geese right here on the Reno-Stafford county line. I raised and sold several pairs around the U.S. and shipped one pair to a woman in Girdwood, Alaska. My brother, Mason, along with Clarence Brownlee, brought wild turkeys to this territory some 25 years ago and still have a few show up now and then when var-

mints overlook their nests.

I only have two Canadian geese left and they are both female and both setting on the same nest I made for them on three steel posts out in the lake where the coons can't get to them. They go to Quivira Refuge, which is eight miles north of here, to roost and they stay up there while they are moulting. Once in a while they bring a stray back with them but never seem to mate with any ganders, of which there are thousands in that territory.

When I first started hunting ducks about 1907 I used a single-

barrel Hopkins and Allen 12-gauge and paid 45 cents a box for 12-gauge black powder. Winchester Smokeless was 60 cents per box of 25. I have an 1897 Winchester pump that left the factory in January 1899. That is what most hunters used that were shooting for the market those days on the salt marsh (now Quivira Refuge). Grant Hicks was a Stafford man who shot ducks for the market. All you had to do to ship them was tie a string around their neck (as you shot them), attach a tag (Barnett Bros., Chicago, Ill.), and

(more)

hand them to the express messenger on the local passenger train. You would have your money within a week. Prices paid were: teal, 12½ cents apiece; mallards, 25 cents; pintail, 15 cents; blue-

bill and black jack (lesser scaup), 20 cents; redhead, 75 cents; and canvasback, \$1.

Now then, you might be wondering just how old I am. I turned 90 April 5th. I didn't shoot any

ducks for market but took a lot of them to town that my older brother shot and I can still remember shipping them.

Glenn McComb
Stafford

OPINION: ALASKA LANDS ISSUE

By Steve Burr

(EDITOR'S NOTE: Conservation groups are split over the Alaska Lands issue and the Tsongas bill. Some, like the Audubon Society, favor stringent preservation. Others, including most state wildlife agencies, support a slightly more liberal approach that will allow more access to these vast tracts.)

As we watch hedge rows get pushed out and marshes drained for more cultivated land or housing developments, it often appears that lovers of wildlife and open space are fighting a losing battle.

In at least one part of the country, things can be different. In Alaska we have the chance to make fundamental land use decisions before the landscape is fragmented and altered by roads, pipelines, powerlines, mines, and the like. It is cliché by now, but Alaska is truly our LAST GREAT FIRST CHANCE.

This summer the U.S. Senate will take up consideration of the Alaska National Interest Lands Conservation Act (H.R. 39), something they have yet to do seriously in spite of the fact that the House of Representatives has twice passed an Alaska lands bill. When the Senate finally debates the Alaska issue, the question will be whether to adopt the version of the bill which emerged from the Senate Energy and Natural Resources Committee or a bill closer to that which overwhelmingly passed the house in May 1979. Leading the charge for a bill similar to the one which passed the House will be Senator Paul Tsongas, a member of the Energy Committee.

The differences in the two approaches are numerous and substantial. The questions are not so much how many acres to protect in the federal conservation systems (e.g., National Wildlife Refuges), but which federal agencies will be the land managers and what degree of development activity will be allowed.

Of the two, the House-passed bill generally provides stronger protection for wildlife and wilderness resources and favors management by the U.S. Fish and Wildlife Service and the National Park Service. The Senate Energy Committee bill, on the other hand, is weighted towards accommodating developmental interests and accordingly favors management by the U.S. Forest Service

and the Bureau of Land Management, two non-wildlife agencies.

Why should Kansas outdoorsmen care what happens to Alaska lands? First, we are the beneficiaries of what has been called Alaska's "home delivery service". Each fall Alaska contributes better than 4 million ducks and geese — pintails, wigeon, green-wings and white fronts, to name a few — to the Central and Mississippi Flyways. Areas such as the Yukon Flats and Tetlin Lakes in eastern Alaska are especially important in years when drought strikes the prairie potholes. Additionally, Alaska produces some 200-400 million birds other than waterfowl each year, much to the delight of birdwatchers.

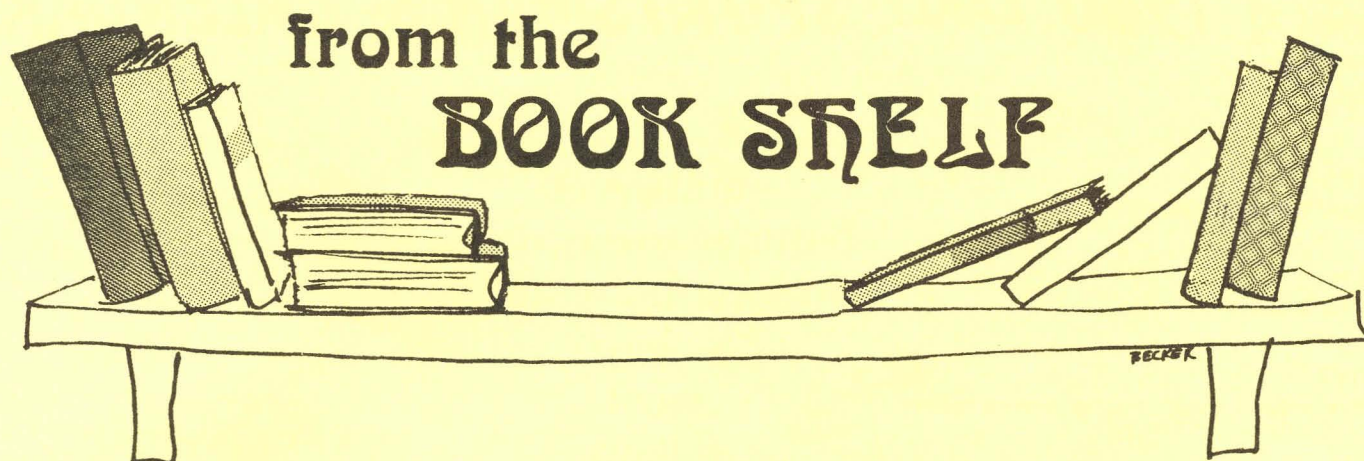
Second, there are few among us who have not dreamed of that great Alaskan adventure trip for backpacking, hunting, fishing, or just sightseeing with the kids. What is at stake in Alaska is the fate of better than 100 million acres of land — land that you and I, as tax-paying citizens, co-own through the federal government. What happens on public lands in Alaska is just as much a decision for Kansans as it is for Alaskans or Hawaiians.

Third, although there has been a great deal of publicity about closing vast areas of Alaska to sport hunting, the facts just don't seem to bear that out. Of Alaska's 375 million acres over 341 million acres (91%) are open to sport hunting — Kansans should be so lucky.

Finally, even if you never visit Alaska, as more and more people are doing each year, just knowing that herds with tens of thousands of caribou still roam wilderness areas of millions of acres — just as buffalo and antelope once roamed the prairies — is important to our psychological wellbeing. The destruction of these wilderness areas and the passage of Alaska's incredible wildlife would immeasurably diminish us all.

There is no question that deciding the fate of Alaska's wildlands is the land and wildlife conservation issue of the century. What happens in Alaska does affect Kansans. Because of this, I urge all Kansans interested in the preservation of wildlife habitat in America to request our Senators to endorse and support the legislative alternatives offered by Senator Tsongas when it comes on the Senate floor this summer.

(Steve Burr, born and raised in Salina, is the past president of the Kansas Audubon Council and Smoky Hills Audubon Society.)



BIRDS OF THE GREAT PLAINS

by Paul Johnsgard

Paul Johnsgard's new book, "Birds of the Great Plains," is a combination of checklist and thumbnail natural history of birds from Oklahoma north to Canada. As such, it is a valuable supplement to a general bird identification guide. Most of the illustrations are line drawings, although a few excellent color plates by Dr. Johnsgard and other photographers are included in a short center section.

There are some problems with the book, however. I am far from being a trained ornithologist, but I stumbled on a number of Dr. Johnsgard's range maps that did not agree with my birding experience in Kansas. These anomalies included breeding popula-

tions of some fairly visible species like white pelicans, bald eagles, and prairie chicken. The information reflected in the book seems to particularly neglect Cheyenne Bottoms Wildlife Area; many of the species reported there in the last few years are not shown to breed in the vicinity according to "Birds of the Great Plains."

In spite of these apparent problems, the book does give a valuable overview of avifauna on the plains. Hopefully, future editions will reflect more recent information concerning distribution.

University of Nebraska Press. Price \$25.00

WILDFLOWERS AND WEEDS OF KANSAS

by Janet Bare

This book is long overdue. Although there are technical keys to the plants of the plains, they cover many species not found in the state and leave plenty of room for an amateur to get lost. One slip of the dichotomous key and he can find himself with a Kansas plant that, according to the book, has never been found south of Fargo, North Dakota.

"Wildflowers and Weeds," on the other hand, is based on considerable collecting and taxonomy work done in Kansas. Many confusing species that exist in other parts of the country have been eliminated, giving the wildflower buff a better chance of coming up with the right name for the right plant.

Bare's book is not a "Peterson Guide to the Wildflowers." It includes many photographs as aids to identification, but most of them are black and white and work best as clues to species after you've found the right genus. The backbone of the work is a classic dichotomous key which demands a good background knowledge of plant and flower morphology.

The book's technical bent and price tag (\$35) probably put it out of the range of interest for casual flower fans. For the interested amateur or working professional, however, it's a fine reference.

University of Kansas Press.



1980 EARLY SPORTSMAN'S CALENDAR

SQUIRREL

June 1 through Dec. 31, 1980

RABBITS

Year around

COYOTES

Year around, except during firearms season.

BULLFROGS

July 1 through Sept. 30

DEER (Residents Only)

Firearms — Dec. 6 through Dec. 14

Archery — Oct. 1 through Dec. 3 and Dec. 17 through Dec. 31

ANTELOPE (Residents Only)

Firearms — Oct. 4 through Oct. 6

Archery — Sept. 27 through Oct. 1

TURKEY (Residents Only)

Fall Archery — Unit 1 — Oct. 1 through Oct. 31

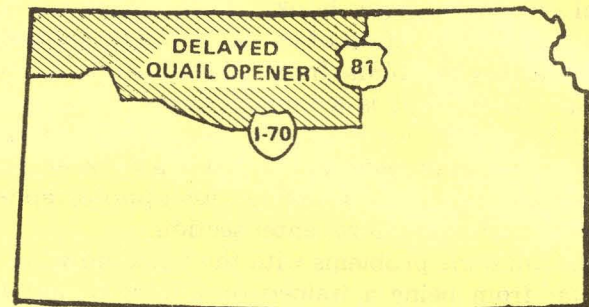
Unit 6 — Oct. 1 through Oct. 19

SMALL GAME

Prairie Chicken — Opening date Nov. 1

Pheasant — Opening date Nov. 8

Quail — Opening date Nov. 8, except west of U.S. 81 and north of I-70 which opens one week later, Nov. 15.



FURBEARER

Trapping — Opossum, raccoon, weasel, red fox, and gray fox — Nov. 15, 1980 to Jan. 15, 1981, both dates inclusive.

Beaver — eastern zone: Jan. 1, 1981 to Feb. 28, 1981, both dates inclusive

western zone: Jan. 1, 1981 to Jan. 31, 1981, both dates inclusive

Mink and muskrat — Dec. 1, 1980 to Feb. 28, 1981, both dates inclusive

Badger and bobcat — Dec. 1, 1980 to Jan. 31, 1981, both dates inclusive

Otter, swift fox, spotted skunk, and black-footed ferret — No open season.

Striped skunk — open year around

Hunting — Raccoon, red fox, gray fox, and opossum — Nov. 15, 1980 to Jan. 15, 1981, both dates inclusive.

Badger and bobcat — Dec. 1, 1980 to Jan. 31, 1981, both dates inclusive.

Striped skunk — Open year around

Otter, swift fox, spotted skunk, black-footed ferret, beaver, mink, muskrat, and weasels — No open season.

Running Season — Raccoon, opossum, red fox, and gray fox — May be pursued with hounds, but not killed or taken, from July 15, 1980 to Oct. 20, 1980, and from Feb. 1, 1981 to March 15, 1981, all dates inclusive.

All other furbearers — No open season.

**Everything
you never wanted
to know about eating
snakes,
frogs,
turtles,
etc.**

Ugly Eating

Bill Hlavachick

Illustrated by George Lavanish

In this world of the shrinking dollar and the expanding cost of nearly everything, the pleasures that a person can enjoy just by himself are becoming fewer and farther between. Our fast-paced life is accommodated by such marvels as the microwave oven and the fast-food franchise; not that I would turn down a Big Mac, mind you, but there are times when they just don't fill the bill, not to mention the stomach.

What we need is a little variety in our all-American diet of hot dogs and apple pie.

There are, I'm sure, many hunters and fishermen, or spouses thereof, who are faced with the decision of what to do with a bedraggled muskrat carcass or bullfrog. There are many wild animals and plants that can provide fine meals, but most outdoorsmen pass them by, mostly because they wouldn't know what to do with them once they had them in hand.

Some of the recipes mentioned here will not have precise measurements, so those of you who need Tbs., tsp., etc., will have to settle for "some," "pinch," and "a little."

The lakes, rivers, and streams of Kansas offer much more than fish to those who look. Clams, bullfrogs, turtles, and crayfish aren't well known or frequently

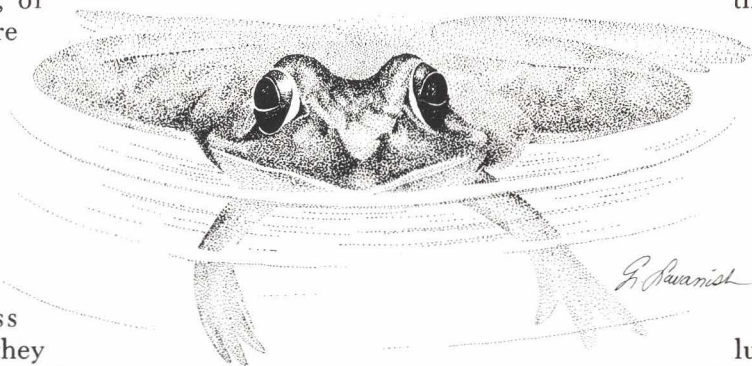
used as table fare, but they offer some of the best eating in town.

Bullfrog legs (the back ones) are easily removed by severing the legs where they join the body. The skin can be easily peeled off, the feet removed, and the legs put on to soak in a light salt water solution for a couple of hours. Fry them as you would chicken.

Turtles, especially the big snapping variety, are a little more difficult to clean. In cleaning the turtle, cut off the head and feet (claws) with a heavy knife or hatchet. Turn the carcass over on the back and cut around the base where the underskin meets the shell. This will take some doing. Bone out the meat from the legs, tail, and neck.

Turtle meat should be free of fat and soaked several hours in a salt solution. If it's still a little wild for your taste, add some soda to the solution. Once it's been soaked, you can fry turtle meat as you would fish.

I like it in stew. Parboil the turtle meat with enough water to cover. Add half a chopped onion, salt and pepper. Lemon pepper adds spice. After the meat is tender, add one no. 303 can of stewed tomatoes, two or three medium potatoes (diced), carrots, peas, and anything else that fits in stews. Simmer until vegetables



are done. You can enhance the flavor of most any stew by adding a spoon of sour cream to each bowl just before serving. For those who are concerned about calories, yogurt is just as good.

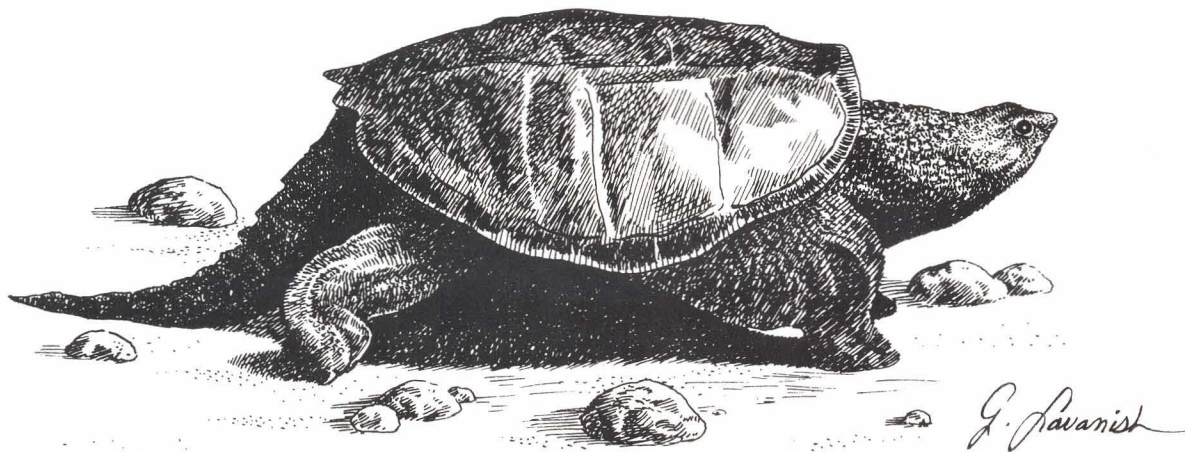
Crayfish are excellent, albeit rather small, inland shrimp. Clean by breaking off the tail section. Done right, you should be able to remove the intestine at the same time. If not, pull the middle section of the tail to remove. Once cleaned the tails can be boiled or dipped in batter and fried. Another method is to collect a bucket full of crayfish and hold overnight in a tub of cool, clean water. When ready to cook, get a kettle of water boiling, plunge the crayfish in, and boil until they turn a bright pink or red. Remove, cool, and peel out. Be sure to remove the dark vein on the underside of the tail section. Serve cold with catsup or horse-radish sauce.

Freshwater clams are a little tough, but they can be good eating if they're cooked right. Select several large clams and soak overnight in a salt solution. Wash them in clear water, pry open and remove the muscle. Since they are tough they should be parboiled until tender. Remove, dip and dry as oysters, or make clam chowder.

younger, usually more tender, and have less fat to contend with. All fat must be trimmed off and the carcass soaked overnight in salt solution. Rinse thoroughly and place in roasting pan with a little water. Roast at 325° until about done; add potatoes, carrots, cabbage, turnips, onions, and complete cooking. Serve with salad and baking powder biscuits or sourdough bread.

Most anything can be eaten if it is barbequed. Boil the carcass until meat is tender and falls from the bone. Collect the meat and put it in a roasting pan; add a prepared barbeque sauce or make your own, and cook in a medium oven, stirring occasionally to coat each piece thoroughly. A good barbeque sauce can be put together with a bottle of catsup, a chopped onion, garlic salt, liquid smoke, brown sugar, worchestershire sauce, a couple of ground hot peppers, and a little butter.

Of course we have all heard of "possum and taters" and I have eaten some when I was a very little tyke. The recipe is simple: one opossum, salt, two to three chopped onions, three or four cups water, pepper, and sweet potatoes. Combine everything except potatoes



As in stew, chowder can have almost anything in it as long as the basic ingredients of corn, potatoes, onion and tomatoes are added. A good recipe calls for a pound of chopped clams (cooked), lemon pepper, salt, one can of stewed tomatoes, a can of cream-style corn, two potatoes (diced), half an onion (diced), stalk celery (diced), and two to three cups of milk (or two cups of milk and one cup of cream). Put everything together and simmer until vegetables are tender. Add a little butter just before serving. An added attraction is bacon, fried crisp, and crumbled into each bowl at serving time. Baking powder biscuits add a final touch.

Since fur trapping has been on the increase lately, it might be well to mention a recipe or two that covers such edibles as beaver, muskrat, opossum, and raccoon. Pick one of the small carcasses, since they are

and cook in a large kettle for thirty minutes or so. Remove opossum to roasting pan and cook liquid until reduced to half. Add liquid and four or five quartered sweet potatoes to opossum and bake at about 325-350° until tender. Baste with pan liquids while baking.

Rattlesnakes are another edible that most folks don't consider when planning a meal; however, they can be rather good, though a mite tough. Frying is about the best way to cook rattlesnake, either in deep fat or a pan. Cut the head off the snake, split the body along the belly, peel off the skin, and remove the entrails.

Soak overnight in salt solution. Use a tight covering, as the snake will wiggle for some time after cleaning and you may find it crawling around the refrigerator. This will also happen if the snake is cooked right after cleaning. After soaking, cut into pieces, prepare as you

would fried chicken, and deep-fat fry or pan fry. Some of the bigger timber rattlers of eastern Kansas can be filleted so you don't have to contend with bones. The meat is white and compares in texture to frog legs and has a pretty good flavor. It can be tough and stringy so parboiling prior to frying will tenderize it somewhat.

Spring is one of the better times to obtain another unusual edible that normally gets tossed away. Many anglers fillet their fish these days and discard all the offal that remains. This is an awful waste of what I consider a really toothsome treat, the egg sacks. Eggs from crappie and bluegill are especially good if taken before the eggs have matured too much. Egg sacks are rather prominent when the fish is either cleaned or filleted. Use only those sacks that are yellowish white and have very small eggs. Toward egg-laying time, they will be larger, harder, and not nearly as good. The sacks should be removed whole (they will be shaped like a fat, yellow "V") and rinsed in cool water.

Use the same batter you use for frying fish but be sure to poke a few holes in each side of the "V" before frying. Otherwise the moisture will expand during cooking, and the sack will explode, spraying hot grease on the cook and whatever else is in the vicinity. A safe bet is to cook with a lid on the pan. Speaking of batter, beer makes a fine substitute for whatever liquid your recipe calls for. A good mixture is half a cup flour, half a cup pancake flour, beer to bring the batter to the consistency you prefer, salt and pepper, lemon juice, lemon pepper, or other spices. This mix is better if left in the refrigerator overnight.

Beer also makes a supreme hush puppy. Mix one cup yellow cornmeal, one cup all-purpose flour, salt and pepper, a little hot pepper if desired, $\frac{3}{4}$ cup chopped onion, one egg, and enough beer to make a stiff batter. Spoon into deep fat used to fry fish and cook to a golden brown. Finished "puppies" will float to the top. Don't pack down the mixture as you spoon it out as they will brown outside but the inside will be uncooked.

Wild plants provide some fine eating at certain times. Two of the better ones I know are lambsquarter and mushrooms. My mother used to make a concoction with lambsquarter that bears repeating. Lambsquarters should be picked when four to six inches tall. Use only the top, tender portions. It will take a good bowlful to make the following. I don't have a name for it, it's just something that we ate a lot of during the late Thirties and early Forties. Clean the fresh plants with cool water and cook with a small amount of water, as you would stewing spinach. Chop up the stemmed lambsquarter and add half a cup of chopped onion, salt and pepper, three cups milk (half and half is better) and two or three chopped hardboiled eggs. Heat slowly and stir or milk will burn. Add a little cornstarch for thickening and serve as a rich soup, or if it's thick enough, over fresh-baked baking powder biscuits. With a side

dish of cooked, homemade noodles boiled with cubed potatoes, you have the makings of a meatless meal that will stick with you.

Mushrooms come in a variety of sizes and shapes, and I'm not knowledgeable enough to tell many of them apart. But I can identify the morels—they're the only ones I eat. Morels will appear (overnight in some cases) after a nice rain in April or May. They don't last long in the woods, so be ready when the conditions are right. Any low area along a creek or river covered with leaf litter is a prime place to hunt mushrooms.

Many critters others than people find morels tasty, so you will be competing with deer, turkey and squirrels. Once picked, morels should be washed thoroughly in clear tap water and soaked in a salt solution. This tends to remove the little bugs that find their way into the many crevices on the mushroom. Smaller morels can be split and fried in butter or made into a sauce for a variety of dishes. The larger ones are excellent when stuffed and deep fried. Remove the stems and chop along with a few chopped onions and shredded Monterey Jack cheese. Combine these ingredients and stuff the mushrooms, dip in an egg batter and roll in a mixture of half-flour and half-cracker crumbs, and deep fry to a golden brown. Folks that don't even like mushrooms will be coming back for seconds. Other stuffings can be used. Good cooks generally have fertile imaginations, so let yours run wild. George Anderson, our resident TV director, uses crab meat as a stuffing. One word of caution: once you find a productive place to pick mushrooms, keep it to yourself—the competition can be fierce at times. There are a number of other mushrooms that are excellent table fare, but care must be taken in identifying which species they are. Many of the others are poisonous. The best bet is to obtain a book that identifies the good from the bad. One good book is *Mushrooms of North America*, by Orson K. Miller, Jr.

A lot of good eating is going to waste due, in part, to many cooks' reluctance to cook something that was caught, shot, hooked, or grabbed from some place other than the corner grocery store. They worry about gamey taste and consequently shy away from anything wild.

With a little imagination and a few simple recipes perhaps this attitude will change and more and more Kansans can come to enjoy some of Mother Nature's lesser known gifts. □

Bill Hlavachick, Fish and Game wildlife biologist, is a native of the Sangre de Cristo range in southern Colorado. Judging from his taste for a variety of wild critters, he grew up a long way from the super market.

George Lavanish is a Pennsylvanian who has done illustrations for PENNSYLVANIA GAME NEWS, FLY FISHERMAN, and a number of other periodicals. He is currently branching out from his pen-and-ink specialty into painting a variety of aquatic and terrestrial wildlife.



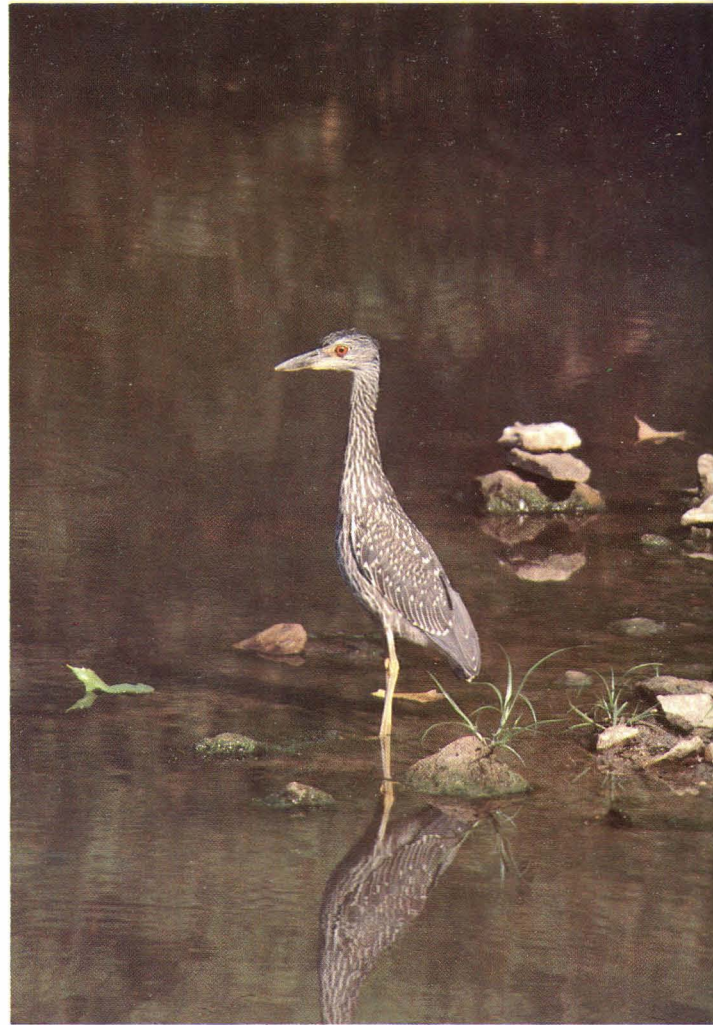


In the plains, July and August are the months of the furnace wind. In most parts of the world, a summer breeze is welcome relief from the heat, but on the plains, the summer breeze is twenty degrees hotter than human skin and parchment dry, a wind you have to lean into. Once it starts, nothing but the first cold front of September can stop it, and while it blows, residents of the prairie crave only three things; shade, water, and quiet.

Shade, water, quiet. The three elements of a prairie stream.

Summer Stream

Great blue heron (Park Carter)



Unlike human residents of the plains, most wild creatures have the sense to shift their schedules during the full heat of the summer. Most, like the whitetail deer, take a noon siesta that lasts most of the day. A whitetail will lie up in a shady thicket along a creek all day, barely flicking an ear until full dark. After that, deer and most other wildlife in the bottomland rouse themselves and go about their business until midnight or a little later. They're often up again before dawn to get in an hour of foraging before the day heats up.

Whitetail deer (Bruce Kintner)



Bluewing teal (Bruce Kintner)



Rio Grande turkey (Ken Stiebben)



Damselfly with prey (Park Carter)



Common snapping turtle (Chris Madson)



A stream has a tempering influence on the land around it. Winter is seldom as severe in stream timber; summer isn't as hot, and droughts usually lose their sting. As a result, stream courses are natural avenues for plants pioneering onto the plains from farther east. The yellow ladies' slipper is found mainly along streams in far northeastern Kansas, and the fawn lily, columbine, and Dutchman's breeches, and a number of other eastern wild flowers tend to follow bottomlands out into the eastern third of Kansas from their homelands in the Missouri Ozarks.

Cardinal flower (Park Carter)



Tall bellflower (Chris Madson)



Fawn lily (Park Carter)



Goldenrod (Chris Madson)

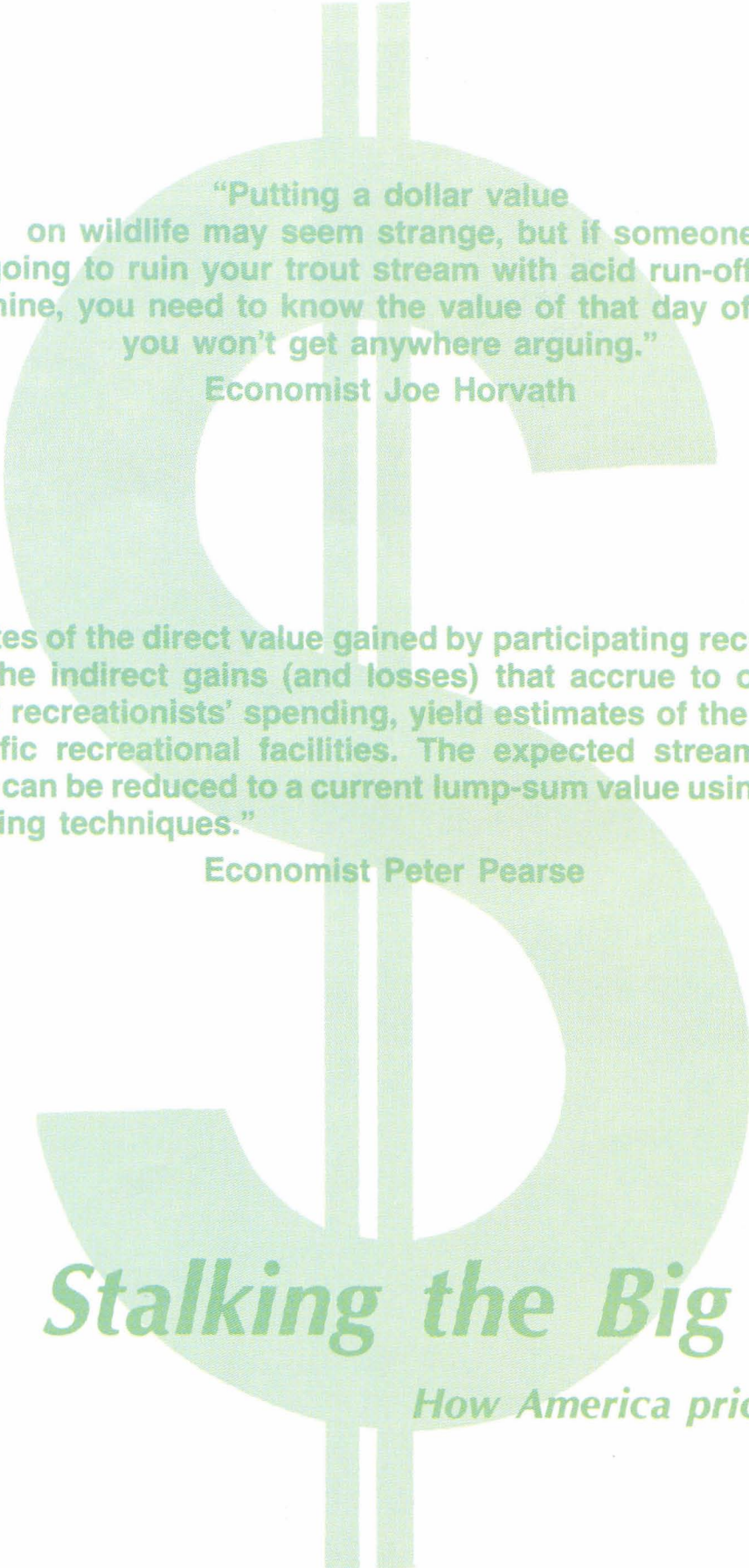


Yellow ladies' slipper (Ed and Jean Schulenberg)



(Chris Madson)





“Putting a dollar value on wildlife may seem strange, but if someone is going to ruin your trout stream with acid run-off from a strip mine, you need to know the value of that day of fishing or you won’t get anywhere arguing.”

Economist Joe Horvath

“Estimates of the direct value gained by participating recreationists, and of the indirect gains (and losses) that accrue to others as a result of recreationists’ spending, yield estimates of the total value of specific recreational facilities. The expected stream of future benefits can be reduced to a current lump-sum value using standard capitalizing techniques.”

Economist Peter Pearse

Stalking the Big Buck:

How America prices its wildlife

Chris Madson

In 1870, the economics of buffalo hunting changed, for the better if you were a hunter trying to make a living on the frontier, for the worse if you were a buffalo. Up until that time, the market for buffalo dealt mainly in tanned robes used to cover the legs of passengers in horse-drawn sleighs. Plains Indians did most of the killing. It was important for the hides to be prime and well tanned, and the Indians were the only hunters willing to do the work for the return it offered. Traders swapped yard goods and shells for the robes, then sold them in St. Louis for \$8.50 to \$12.50 depending on their quality. The business was good but not anything to lure many entrepreneurs from the east.

The change came when tanners from Europe and the eastern U.S. found that buffalo hides made good leather. The leather houses wanted the hides green, not tanned; they took them any time of year, and they were willing to pay. The going rate from the Dodge City middlemen in 1871 was \$2.25 for a cow's hide, \$3.25 for a good bull. The hams sold for one or two cents a pound, and a man who wanted to take the extra trouble could even find a buyer for the tongues.

More than all the politics, Indian wars, and homesteading that swept across the plains after the Civil War, that one market change was the death of the bison. Thirteen years after the leather houses put out their call for hides, the supply had dried up, and the bones of as many as 40 million bison lay in the prairie grass. For a while. The market found uses for the bones, too, and at \$7 to \$9 a ton, it didn't take long to clear them away as well.

Added to the sharp decline in other wildlife populations, the last decade of buffalo slaughter brought a slow but intense reaction from the public. By the turn of the century, federal and state laws had begun to recognize the importance of conservation of renewable resources. Federal land managers were directed to manage forests and wildlife under their jurisdiction "from the standpoint of the greatest good for the greatest number in the long run." There was general public agreement that much of this "greatest good" had nothing to do with the price of the commodity on the open market. Market hunting, the most direct form of economic advantage to be had from wildlife, was eliminated. Wildlife already set aside in national parks finally got some real protection. Federal bird sanctuaries were established and wardens hired to patrol them. A national sense of esthetics challenged the private enterprise price tags that had set the value of American wildlife.

These actions took the canvasback dinner off the menus of posh Maryland hotels and removed the egret plumes from ladies' hats, but they didn't take wildlife out of the marketplace. While most direct harvest of wildlife was controlled by seasons and bag limits, there was a much more fundamental problem—the question of land use. The native habitat that had supported wild populations now had a value apart from its ability to produce wild hides and meat.

The founder of the science (or art) of wildlife management, Aldo Leopold, recognized the vital need for resolving the conflict between wildlife habitat protection and other land uses in 1933: "Experience has shown that a determination to conserve, even when supported by public sentiment, protective legislation, and a few public reservations or parks, is an insufficient conservation program. Notwithstanding these safeguards, nongame wildlife is year by year being decimated in numbers and restricted in distribution by the identical economic trends—such as clean farming, close grazing, and drainage—which are decimating and restricting game. . . . The landowner must be induced to manage his game. The only conceivable motive which might activate a sufficient number of landowners is the financial motive."

Leopold never stopped advocating the importance of a "land ethic" which would temper the modern urge to convert wild places to profit, but he also recognized that removing the old market hunters' price tags from wildlife wasn't enough to protect it. There was a need for new price tags that reflected the worth of a properly managed environment and allowed it to compete with more conventional economics.

While Leopold was wrestling with the problem of motivating farmers to manage wildlife, Congress was trying to find sensible ways to separate useful flood control projects from extravagant ones. In 1936, they decided to consider funding such projects only ". . . if the benefits to whomsoever they may accrue are in excess of the estimated costs." The benefit/cost ratio was born. The concept was powerful. It eliminated vague project justifications in "the public interest" and forced the Army Corps of Engineers and other federal agencies to quantify the good their projects were doing. It cut through bales of detailed plans and supplied decision makers with a single number which described the fiscal good and evil of a proposed dam, levee, or channel. It was so simple, even a senator could understand it.

The builders who were directed to use benefit/cost analysis immediately recognized that the fate of their most ambitious projects pivoted on their ability to enumerate benefits, a *lot* of them. They started adding up the agricultural advantages, increases in city water supplies, assets to navigation, and advances in public safety, and finally stumbled on the potential benefit of recreation. It was the icing on the cake—popular with voters and their representatives, easy to estimate by applying nose counts from similar projects, and easy to inflate. After all, everybody likes to be told he's going to have more time to play, especially when he's being promised a nicer place to play in. For the federal bureaucrats, the most appealing part of the benefit/cost approach was that, under the beguiling simplicity of the idea, there was overwhelming complexity. A politician who suspected the accuracy of the one dazzling benefit/cost number could spend years unraveling the underlying calculations.

“In the world of biology, as in the world of finance, diversity is the only protection against the unknown, against a future risk situation.”

J. A. Browning

“It seems to me that the two main challenges to economists today are to examine the myth of perpetual growth in production and consumption, and to begin examining the utility of goods and services to society so that distinctions can be made between the frivolous and the essential.

. . . . When it comes to basic questions about how people will benefit or lose under alternate management programs, or about what people want, economic value based on market or simulated market transactions are of scarcely any value at all.”

Biologist Robert Weeden

“A cynic is a man who knows the price of everything and the value of nothing.”

Playwright Oscar Wilde

Biologists who found themselves opposing many of the new wave of benefit/cost Corps projects quickly realized that the loss of the vague "greatest good for the greatest number" argument usually hurt wildlife more than it helped. The demand for specific dollar-and-cent estimates of benefits put the game in the bureaucrat's park. None of the federal development agencies was foolish enough to scoff at the intangible values of wildlife and wildlife habitat; they paid proper homage at the altar of esthetics, then went right on quantifying the contributions of their projects and getting them funded. Wildlife supporters had to stomach the fact that federal and state governments, private business, and agricultural interests weren't inclined to listen to any argument that didn't focus on dollars.

A majority of biologists and wildlife administrators have been dragged unwillingly by that realization into economic evaluations.

Efforts to quantify wildlife resource value have shown increasing ingenuity. Early attempts focused on the amount of money that changed hands in wildlife-oriented recreation. This figure is usually impressive—A Wyoming study estimated that hunters and fishermen spent \$82 million in 1975 alone; a similar Colorado study shows \$329 million in hunting and fishing expenditures in 1974. Economists have a number of technical quarrels with this technique as a method of determining wildlife-wildland values. They consistently maintain that it is an estimate of gross spending, not the net worth of the recreation opportunity.

Recreation economists prefer a variety of other techniques for determining the net value of wildlife oriented experiences which all boil down to a couple of major approaches. The indirect approach measures people's willingness to bear the cost of traveling to a recreation spot. The direct approach involves an interview or questionnaire. The economist simply asks people to estimate the dollar values they put on different kinds of recreation. As these techniques have matured and taken more kinds of wildlife enjoyment into account, they have yielded some whopping estimates of the net value of wild resources.

A sophisticated estimate from a 1975 Arizona study puts a price tag of up to \$34 million a year on hunting, \$64 million a year on fishing, and as much as \$144 million a year on general outdoor recreation. An economist studying outdoor recreation in the southeast United States found that hunting, fishing, and non-harvest wildlife recreation was worth \$24 billion to 11 million households, about \$2100 a year to each family in the Southeast. A couple of Colorado economists working for the Colorado Division of Wildlife estimated that the harvest uses of a bighorn sheep made each sheep in the state worth \$11,200. These researchers developed a table of similar values for other wildlife to be used in negotiations with a variety of Colorado developers, and they were quick to point out in their report that the values were for hunting and

fishing uses of wildlife only. Nonharvest demand tacked more onto the listed price.

The size of these values has been a pleasant surprise to most wildlife agencies. Many biologists who were luke-warm about economic analyses have been convinced by these hefty dollar values to get behind the new techniques, even though they may not agree with many of the assumptions that make the analyses work. The same assumptions are used to demonstrate the economic benefits of development projects, they argue; these wildlife value estimates are one way to fight fire with fire.

Unfortunately, the wildlife side of the economic face-off, as impressive as it is, pales in comparison to the economics of development. A recent impact statement on one Kansas watershed project lists annual benefits of \$351,600 for an area of less than 100 square miles. Accumulated over the life of the project, that \$350,000 per year throws a long shadow compared to the wildlife recreation that will be lost at certain sites as a result of the development. The economic advantages assigned to bigger projects are even more overwhelming. The impact statement for the controversial Tellico Dam claimed nearly \$7 million a year in benefits. An even larger scheme, the Tennessee—Tombigbee navigation project, will generate \$122 million a year in benefits for the barge industry and its customers. This one project will cost nearly \$3 billion. While most of the really impressive wildlife value estimates cover states and even regions, the economic benefits for these developments flow from just a few thousand acres of construction. Wildlife values just can't keep pace.

Economists who are really committed to resolving the frequent conflicts between economic development and wildlife conservation are the first to admit that the development side of ledger lends itself to quicker, more complete economic analysis than the wildlife side. However, they feel strongly that the difficulties with the economic assessment of wildlife can be ironed out with more sophisticated economic theories and a better understanding of the relationship between Americans and their wild resources. Their plea to biologists has been, "Don't dismiss the economic approach to your problems just because it has flaws. With revision, it still beats any other way you have to make decisions about allocating natural resources, including wildlife."

Maybe. On the other hand, there are some serious flaws in economic theory as it applies to wildlife that may be beyond the reach of economists to remedy. One of the most obvious is a matter of time. Proper wildlife management is often an extremely long-term process, especially in habitats that are extremely delicate or take a long time to develop. Once the overmature stand of hardwoods that makes up ivory-billed woodpecker habitat is removed for lumber, it'll be 300 years or better before that piece of ground is home to another ivory-bill, no matter how the economic climate

“Only when economic values for wildlife are established and accepted will it be possible to communicate effectively with others who are not wildlife oriented.”

Economist Richard Norman

“It should be clear to everyone that money is basically a poor measure of value—that is, to fundamental values of existence and enjoyment of life. The price of a thoughtful book, for example, is some measure of the supply of the book and the demand for it, but the ideas it contains are beyond pricing . . . can economists measure what individuals lose when demand has outrun supply and very likely even destroyed it, as in the case of wild areas?”

Biologist Robert Weeden

“Are we no longer capable of respecting nature, or defending a living beauty that has no earning power, no utility, no object except to let itself be seen from time to time? Liberty, too, is a natural splendor on its way to becoming extinct.”

Novelist Romaine Gary, *Roots of Heaven*

changes in the interim. The people who enjoy that grove and its woodpeckers have no way of knowing how delicate the association between tree and bird is. When interviewed by an equally innocent economist, they will estimate the value of that wild corner to the best of their ability and go on with their business. Forty years down the road when the timber and unique wildlife of the place are gone, many of them will want the option of revising their estimate. Unfortunately, they will not be able to revise the actions that were taken as a result of their first valuation.

Not all wildlife-development trade-offs are so clear-cut, but even in situations where the options are far less spectacular or final, this difference in foresight between economists and biologists is likely to cause trouble. The economist is thinking in terms of fiscal years; the biologist is often forced to think in terms of decades, generations, even centuries.

As a creature like the ivory-bill or black-footed ferret or California condor became rarer, it would be nice to think that economic evaluations of the species would rise quickly. If that happened, the economists tell us that profit-making concerns would ease up on activities that affected the animal. Hurting the species would add to a company's overhead and cut down on net profit. Economists tell us there would be such adjustments if wildlife recreation were controlled by a free market instead of being funded through government agencies and reserves. In fact, the decline of the plains bison shows us that nothing in the free market guarantees protection for a rapidly declining species. Hunters and tanners knew the buffalo population was on the wane well before it disappeared, but they stayed with the hunt even though they must have realized toward the end that they were about to drive a good thing into the ground. A savvy economist might argue that the slaughter actually had little to do with market forces, that it was a strategic move against the still-hostile plains Indians, but the whole episode smacks more of greed than scorched earth tactics.

The free market still treats natural resources the same way. E. F. Schumacher, a rebel in the ranks of economists, saw this casual attitude toward our most basic raw materials as the source of a number of problems in and out of economics. He pointed out that there has been a "failure to distinguish between income and capital where this distinction matters most. Every economist and businessman applies it conscientiously and with considerable subtlety to all economic affairs—except where it really matters; namely the irreplaceable capital which man has not made but simply found."

The old myth of inexhaustible natural wealth is still with us, and as long as it colors our judgment, our economic system will not respond to shortages of intangible resources like wildlife as it does to shortages of most capital and raw material. We've shown a strong tendency in the past to consistently undervalue the

intangible benefits we receive from wild communities until we have lost them. As long as this lack of foresight persists, an economist is not going to be able to make accurate estimates of the value of wildlife by interviewing us. We don't know ourselves how much we value wildness.

There is another problem with the accepted economic methods of putting a price on wildlife. Too often, they reflect only the majority's estimate of the value of different kinds of wildlife and wildland enjoyment. Because there is very little difference in the majority opinion across the country, recreation development is heavy on reservoirs and mowed parks and relatively light on less popular kinds of recreation. Economic evaluation supports this trend. The ledger consistently favors recreation that puts many people on few acres, and, as a result, high density playgrounds like waterskiing lakes keep overwhelming more solitary pursuits like float fishing and canoeing. There's nothing wrong with having plenty of skiing lakes as long as they don't end up being the only outdoor recreation we have.

The American public has a whole spectrum of opinions about what kind of outdoors it likes best. The variety of these opinions is, in itself, a good argument for maintaining a wide variety of natural areas, no matter what economic surveys say about the short-term efficiency of spending a dollar on a reservoir instead of a wilderness area. One of the best reasons for this diversity is that it gives us a chance to back out of a resource management decision if we change our minds about its wisdom.

Diversity has a number of benefits from a strictly biological point of view, too. Many scientists have pointed out the value of holding onto as many life forms as we can. Their genes could be of tremendous economic and social benefit somewhere down the line.

In biological systems, diversity also insulates against catastrophic change and works toward a dependable equilibrium. The same may be true of human affairs; a variety of tastes, interests, and views of the world may well be the best insurance we have against environmental and social abuses that promise to bring our civilization down around our ears. And whether or not our constant push toward conformity leads to a final collapse, we're likely to find that, in the pursuit of economic efficiency, we have lost our own happiness.

Decisions involving long-term commitment of our wild land are going to get tougher. Economic pressures will be a large part of an expanding demand for recreation and profit from a finite number of acres, and it would be foolish to avoid an economic analysis of the business side of the problem. At the same time, it is foolish to assess the quality of the relationship between man and wild country with economic questionnaires. As long as we keep on applying dollar estimates to esthetics, we will find that our land use decisions are easier—and more likely to go wrong. □

