

SUMMER 1968

KANSAS FISH & GAME

A black and white photograph of a lake seen through a rock cave opening. Two boats are on the water. The foreground is filled with tall grasses.

A Prairie Paradise
Clinic for 'Cool Cats'
An Answer to Pollution?

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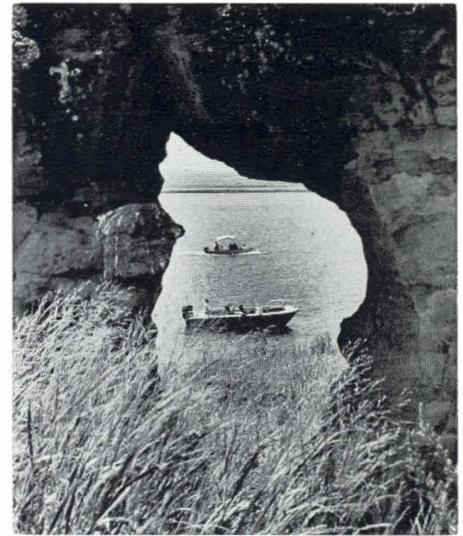
"The Great Lakes of the Great State" might be a good title for a new series of articles starting with this issue of *Kansas Fish and Game*.

Our cover shows a pair of large boats plying the clear and picturesque waters of Wilson Lake near Russell, one of 20 fine big impoundments dotting the Kansas map. The photo was taken through a natural bridge in limestone rock.

These big, man-made lakes have all evolved since 1949, and have had great bearing on the outdoor recreation use and potential of Kansas.

The first article, of course, deals with Wilson and is entitled "A Prairie Paradise," which truly describes the rough, raw rock-strewn shores and blue-green waters of the reservoir.

Many persons, as you'll gather when you read the article, make light of the fact that Wilson has only a few trees. Nonetheless, this fact hasn't bothered its camping potential. With it's close proximity to Interstate 70 highway, it draws thousands of campers, most of



whom simply provide their own shade and enjoy the tranquility of the plains abounding around Wilson's shores.

Wilson Reservoir and Dam has another thing going for it, too, which no other lake in Kansas (or anywhere else for that matter) can boast. It has the city of Paradise on one side and Hell's Creek on the other. That alone should give it some measure of acclaim.—Photo by Thayne Smith.

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Fame for a Kansas Deer

By GARY HESKET
State Game Protector

Lights flickered along the country road, playing strange shadows on the vegetation along the side. The motor of the pickup hummed above the vocal tones of two hunters bouncing along in the cab. It was early morning and a pinkish tint was appearing in the East. John Band, a lean, wiry, western-type individual, directed the pickup in a Northerly direction. His companion, Andy Olsen, sat easily and enjoyed the ride. They had begun early and a good breakfast of bacon, eggs and coffee had given them a feeling of contentment and an optimistic outlook for the second day of the Kansas deer season, the first in modern times.

As they drove along John and Andy discussed the previous day's hunt along the Republican River in North Central Kansas. The previous day had not been altogether unsuccessful for they had sighted three deer and one coyote but were unable to get a shot. Naturally, John had made a mental note of the coyote. Back at the farm he had a collection of greyhounds and a table full of trophies to prove their ability.

They had scouted out an area approximately six miles south of the Kansas-Nebraska border. The Republican River valley is wide, bordered by low gentle bluffs. Willow growths are prevalent near the river, and gradually transform into large cottonwoods, elms, Hackberries and box-elders which form a narrow band of cover along the shallow, sandy Republican.

Tall and productive cornfields, alfalfa and green winter wheatfields are found adjacent to the tree bands and the gentle bluffs are grasslands which hold back the eroding Kansas rains.

The Republican is rich in history, for only a short distance away, on a high bluff overlooking the river, there stands a monument which marks the village site of the once powerful Pawnee Republic.

Here the Pawnees had once hunted and worshipped buffaloes whose thun-

dering hooves have long been silenced, elk and mule deer which receded to the mountains with the advent of settlement and the white-tail which were considered extinct in Kansas by 1904. Here, tall bluestems once mingled with short buffalo grasses, and the spring booming of the greater prairie chicken has been replaced with the whistle of the Bobwhite and the familiar cackle of the introduced ringneck pheasant.

The history of the Republican valley shows plainly in the soils and surrounding bluffs. The valley has always been the victim of floods, piling layer after layer of rich topsoil on bottom land, replenishing potholes, marshlands and covering tree seedlings and undergrowth in its wake. Now it has been tamed by the con-

struction of the Harlan County Dam in Nebraska and the irrigation and flood storage of Lovewell Reservoir to the West in Kansas. The cover immediately adjacent to the river has benefitted. Marshes have been drained, leveled and replaced with tall corn. Raccoons, squirrels and white-tail deer have replaced the marsh dwellers and landowners have benefitted from the topsoils, irrigation and flood controls.

John's pickup slowed as he applied slight pressure to the brakes and turned east down a trail road leading to the river. The east was well illuminated now, with heavy overcast shutting out the first rays of sunrise. The pickup stopped on the brink of a gentle bluff overlooking the river.

The silver reflection of daybreak bounced from the running water as the sunrise cast shadows across the bright autumn hues of the valley. As John turned the ignition key an eerie silence hung in the cab of the pickup for a moment as a cold brisk wind blew out of the north moaning through the cracks of the cab. John's low,



RECORD RACK—John Band and his record deer.

western drawl penetrated the silence as the two men calmly poured a cup of coffee from the thermos before starting the morning's hunt.

It was about 7 a. m. as John and Andy stepped from the warmth of the pickup. John reached into the cab and withdrew a well balanced .243 bolt-action rifle, equipped with a four-power scope. Although the rifle did not belong to John he was quite familiar with it since he had done considerable target practice prior to the season. John fumbled in his pocket and felt the aluminum deer band. He reached deeper and withdrew five cartridges and systematically loaded the weapon. The hunters shivered slightly as the cold wind penetrated their

clothing, cradled their weapons and proceeded south along the brim of the bluff.

They had located a deer trail the day before, which ran along the bluff, and cautiously worked their way parallel with the trail. The wind was to their backs and they had taken this into consideration since they planned to cut from the bluff to the river and work back upwind along the river. A cornfield was situated below the bluff and at the south end a wheat field was divided by a field road.

As they approached the road John continued down the bluff for a short distance when suddenly he stopped, his eyes strained to the southwest

where the wheat field met a small man-made dike along the river.

Two tan figures stood out against the green of the winter wheat. John held his breath as two white-tail bucks stood about 500 yards from his position. Their antlers were clearly visible and one stood higher than the other. Could this be the big buck a friend had told him about?, pondered John as he planned his next move.

Both bucks stood at the edge of the dike. They sensed something in the wind and stood motionless with heads high. The smaller buck casually disappeared over the dike. The big buck was unsure, hesitated and then slowly walked out of sight. John was unsure, also. He knew he had to get to the river to get a shot. The deer were out of sight and he wasn't sure of their direction of travel, and he wondered if they might cross the river. He quickened his pace as he left the bluff and proceeded straight east along the field road to the river. His pace slowed as he approached the small dike.

He stepped up slowly and peered over the edge. Tall sunflowers and ragweeds were present between the dike and the river with a few scattered clumps of willows marking the waterline.

John caught his breath and fumbled the safety of the .243. About 50 yards away he could see the outline of a magnificent rack of a Kansas white-tail. The safety snapped off, and he raised the rifle slowly while taking a step forward to gain altitude. He sighted through the scope, moving it slightly as dense vegetation hampered his vision. The crosshairs settled on the shoulders of the big animal, partially hidden from view. Experienced fingers gently squeezed, and John felt the recoil of the rifle on his shoulder as it extracted fire and lead.

The deer bolted and began to run as the bullet grazed its back. John's hands systematically worked the bolt of the .243, feeding it new life. He once again sighted down the scope as the deer bounded in the tall weeds, coming up and then disappearing for an instant in the vegetation. John got in rhythm with the bounds, then with the first flash of tan within the scope, he squeezed again. This time the



PRIZE-WINNING DEER—John Band, Courtland, and his Kansas whitetail which has been awarded first place in non-typical class of 1965 Boone and Crockett competition. (Photo courtesy Belleville Telescope).

bullet found a mark, high on the hind-quarters, and severed the spinal cord. The big whitetail fell, disappearing from view in the vegetation.

Only now did John feel the pounding in his chest and realize the shortness of breath as tensed nerves began to unravel. He approached the deer cautiously and after placing a rather nervous well-placed shot in the jugular vein of the buck, he took a long sigh of relief.

John was admiring his trophy as Andy walked over the dike. His partner had viewed some of the highlights from the brim of the bluff, but was unsure whether John had connected until he walked over the dike and observed the broad grin on his face. Certainly the smile and admiration of this Kansas whitetail was justified. It was a beautiful animal, tipping the scales at approximately 240 pounds, and carried a wide, heavy non-typical rack, numbering 13 points on one side and 15 points on the other.

The animal was in excellent condition, typical of many well-fed Kansas deer.

John fumbled in his pockets once again, not for shells this time, but for that bright, red aluminum band and a perfect ending for the 1965 Kansas deer season.

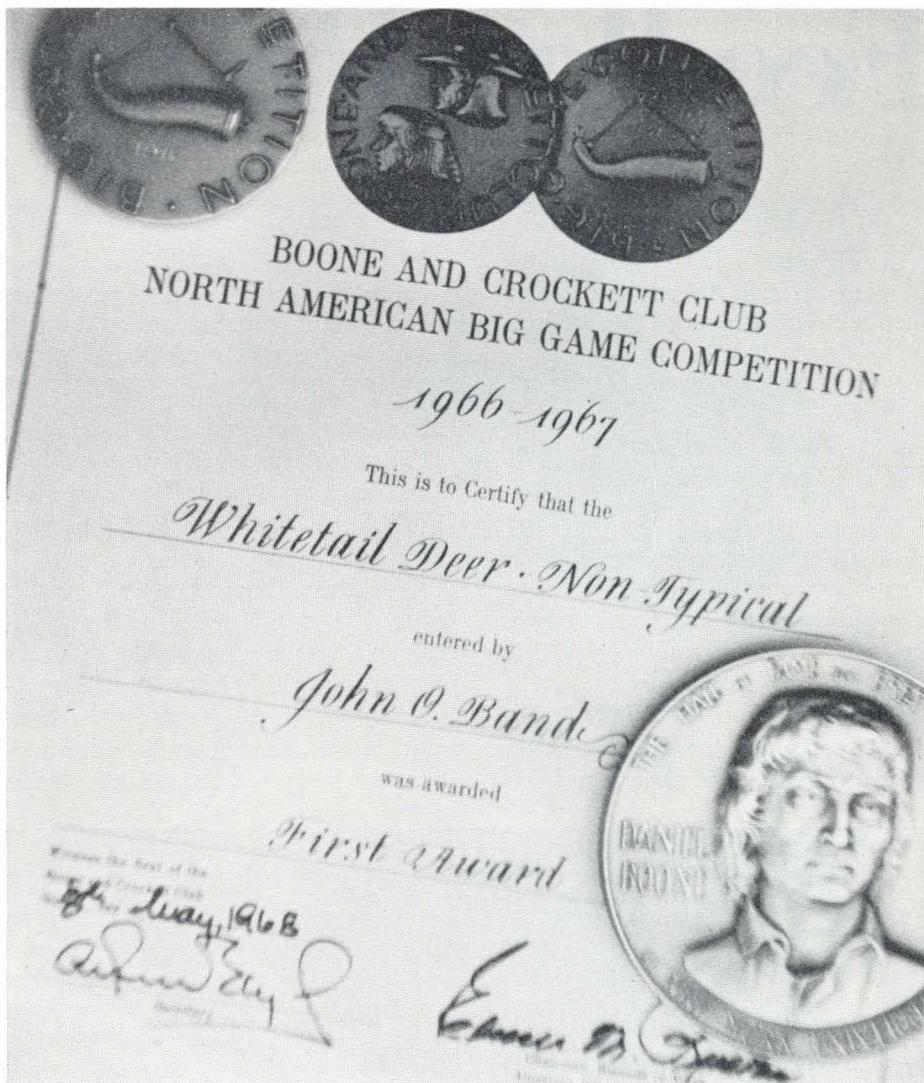
It was not until a few days ago that Band learned that the massive set of antlers on his 1965 buck had given him first place in national competition of the Boone and Crockett Club for non-typical white-tails during 1965.

The trophy rack scored 258% points under official scoring system of the club, which keeps records for all North American big game animals.

Although not an all-time record for North America, the trophy will place highly on the list of whitetails recorded throughout history by the club.

Band's trophy, mounted by Jonas Brothers of Denver, is now on display at the famous Carnegie Museum in Pittsburgh, Penn., along with those of other 1965 Boone and Crockett winners.

Far from the beautiful valley where it lived, and died, it has taken its rightful place in history.



TROPHY AWARD.

Personnel Changes Announced

Employment of two new state lake and grounds keepers to fill existing vacancies created by the retirement, resignation and transfer of other employees has been announced by the Kansas Forestry, Fish and Game Commission.

Walter C. Harrison, Pratt, chief of the field services division, said that Rollie Clark, 13-year employee of the Commission stationed at Montgomery County State Lake, has retired. He has been replaced by Larry McCracken, Reading, employed since April, 1967, at Chase and Lyon County State Lakes.

Kenny Tompkins, 41, St. John, formerly self-employed, has been named lake and grounds keeper of Chase and

Lyon County State Lakes replacing McCracken. Tompkins, married and father of three children, will move to Council Grove.

Al Clarkson, Buffalo, 7-year employee of the Commission stationed at Wilson and Woodson County State Lakes, has resigned and will be replaced by Robert E. Stockebrand, Jr., 44, rural Yates Center. Formerly employed by the Kansas Park Authority at Toronto Reservoir, Stockebrand will continue to live at his home about one mile east of the Woodson County facility.

In making the announcement, Harrison said all assignments are effective immediately.

Feedlot Pollution . . .

By LEROY E. LYON

Legislation . . . Regulations . . . Cooperation—all are playing dramatic roles in Kansas' comeback fight against polluted water. Legislators, the State Department of Health and individual feedlot operators are co-starring in the drama, a challenging fight to halt continued use of the state's streams as open sewers for disposal of feedlot wastes.

Even though legislation controlling and preventing gross abuse of the state's water resources by industries and municipalities has been vested in the State Department of Health for more than one-half century, control of agricultural effluents has only recently been placed under jurisdiction of the Health Department.

Passage of House Bill 1497 by the 1967 session of the Kansas Legislature provided the necessary legis-

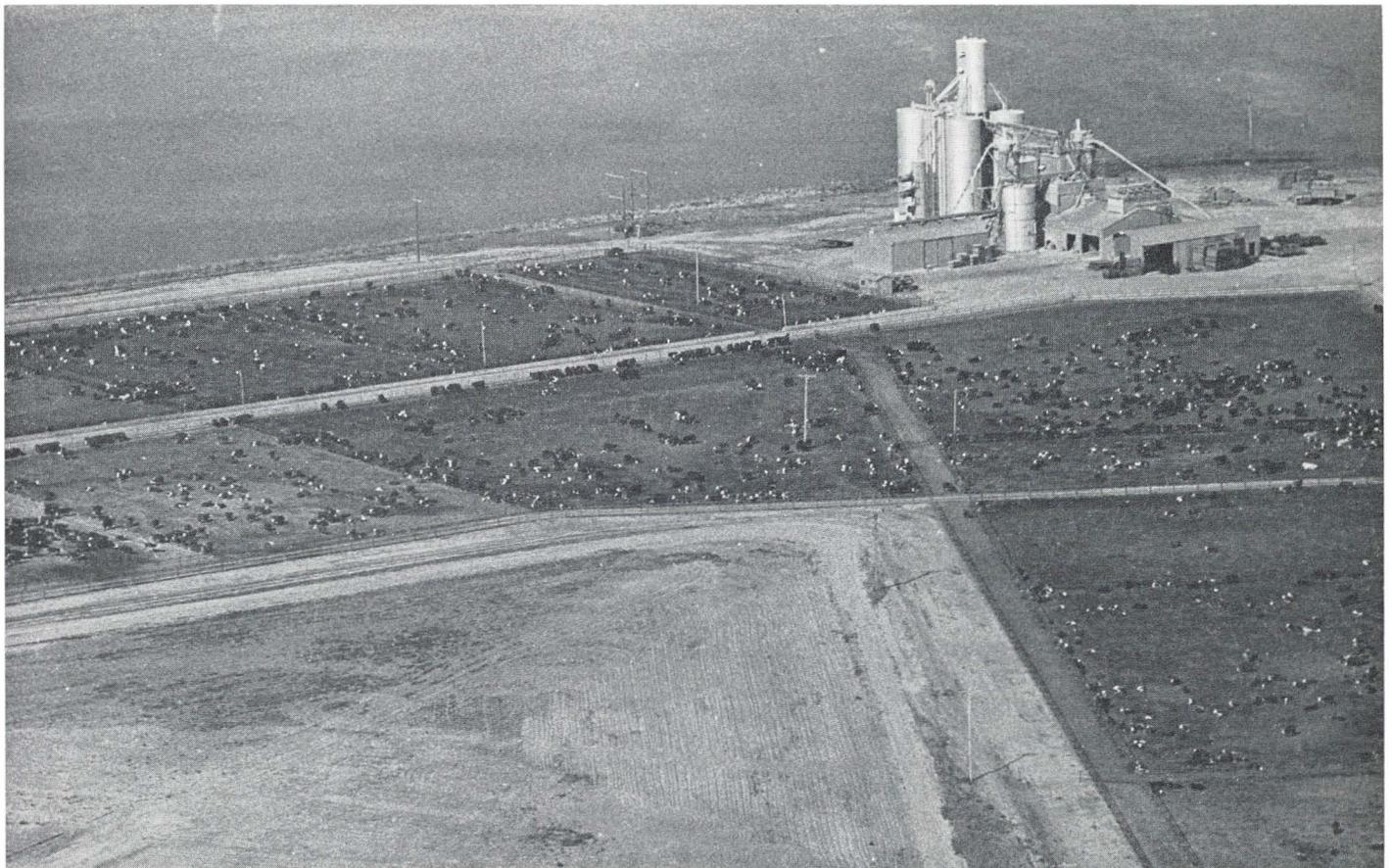
lation and now the Board of Health has adopted enabling regulations for control of water pollutants from agricultural feedlot operations, a significant and historic step.

The State Department of Health made a thorough study of the problem and examined possible methods of controlling this form of water pollution prior to adoption of the new regulations. The methods and procedures set forth in the regulations have

proven practical as well as being physically and economically feasible. The regulations, although broad in scope, do not provide the department with control of feedlots. Rather they have been set to provide control of water pollution from feedlots.

The new regulations taking effect July 1, 1967, provided for registration of "confined feeding operations," set forth requirements for installation and operation of water pollution control facilities and initiated a permit system.

The words "confined feeding operation" are defined in the new regulations as (1) any confined feeding of 300 or more cattle, swine, sheep, or horses at any one time, or (2) any



PRATT FEEDLOT—Huge Pratt Feedlot, spreading down abandoned runways of old Pratt Air Base, has drawn widespread acclaim for its cleanliness and prevention of water pollution. Wedge of farmground between two runways is fertilized by the feedlot wastes. (Fish and Game Commission Photos by Leroy Lyon.)

Is There an Answer?

animal feeding operation of less than 300 head using a lagoon, or (3) any other animal feeding operation having a water pollution potential, or (4) any other animal feeding operation whose operator elects to come under the regulations.

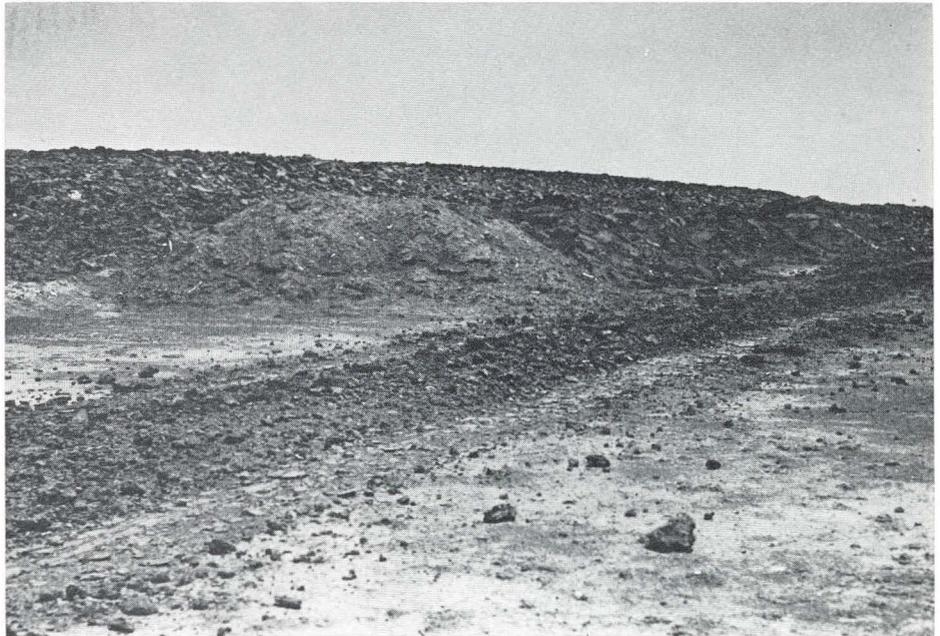
While regulations and resulting registrations have been aimed primarily at confined feeding operations consisting of 300 head or more, smaller operations must also comply by providing water pollution control facilities, if in the opinion of the Department of Health, they constitute a water pollution potential or if water pollution occurs as a result of their operations.

Under the new regulations any operator of a newly proposed confined feeding operation must register with the department prior to construction and operation of the lot, pen, pool or pond. All feedlots constructed prior to July 1, 1967, were given until January 1, 1968, to register.

Because of some misunderstanding as to who, exactly, should register, the deadline was extended to April 1.

To date more than 900 feedlots have registered and more registrations are still being received by the department even though the extended deadline has passed. The department is not assessing fines or penalties to those operators who are registering beyond the deadline provided they are actively working with the department toward implementation of pollution control facilities.

However, feedlot operators who fail to register their feedlot are subject to stiff fines if they continue to allow effluents to flow into streams causing fish kills and otherwise destroying the quality of the water. In such an instance a \$25 per day fine may be imposed against the operator for non-compliance with the regulations for each day which has lapsed since the April 1 deadline. An additional fine may also be imposed of \$1,000 per



PENS KEPT CLEAN—Cattle feeding pens are periodically cleaned, a major reason for near-odorless feedlot. Manure is hauled to central stockpile then later spread on leased farmground.

day for discharge of wastes without a permit from the Board of Health.

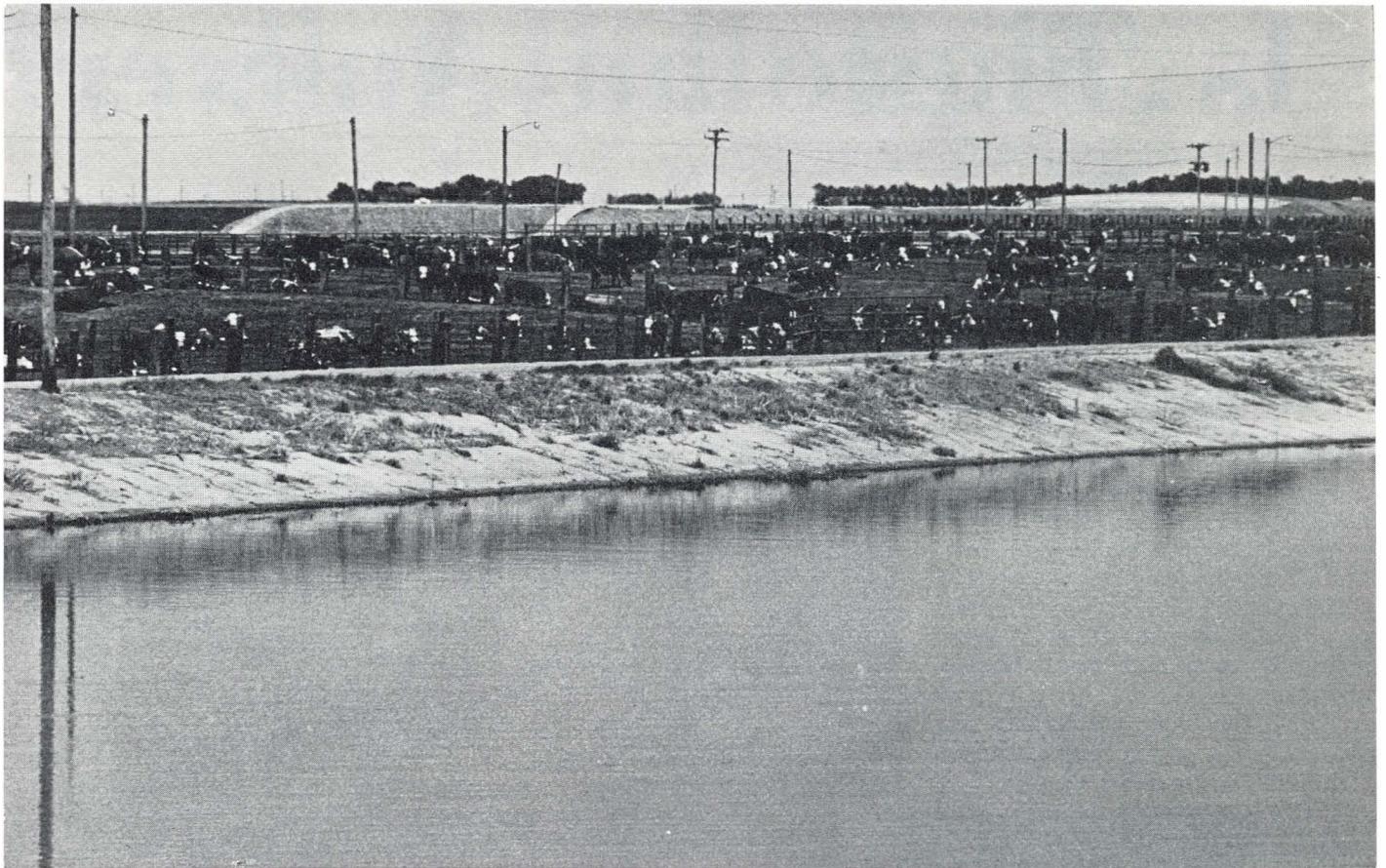
Once a feedlot has been registered, staff engineers help operators plan for facilities so pollution will be held to a minimum. Each feedlot is studied individually to find the best practical, least expensive solution. Several factors such as general features of topography, drainage course, land area, water pollution potential and climate are taken into consideration before specific recommendations are made. The operator is then advised of the necessary anti-pollution facilities needed for his individual operation.

"We are working with feedlot operators individually," said J. Lee Mayes, Chief Engineer and Director of Environmental Health Services for the Kansas Department of Health. **"There is no state-wide minimum. There can't be. An operator who runs 500 head won't need the facility that a 10,000-head feedlot will."**

While a large number of Kansas commercial cattle feedlots are doing

a good job of complying with the new regulations, Health Department officials are not shooting for "pure water" overnight. Plans call for gradual implementation of the program and undoubtedly some fish kills will occur while facilities are being planned and constructed. "We will begin to see some good results within the next two or three years but it may take from 5 to 10 years before we get the entire situation cleaned up," said Mel Gray, Assistant Director of Environmental Services for the Kansas Department of Health.

Preventing feedlot wastes from washing into streams or other bodies of water requires some means of catching runoff from feedlots. The best solution for a majority of large feedlots has been the installation of lagoon or waste retention ponds. The size, position, and number of such catchment basins depends upon the amount of rainfall, kind of soil, steepness of slope and size of feedlot. The idea is to catch the runoff from the feedlot before it enters any public



ALL RUNOFF TRAPPED—All water from the feeding area is drained into one of three lagoons where it is trapped.

waters. Animal wastes and other associated materials detrimental to water quality or to public health are detained in the excavated or diked structures, then the wastes must be disposed of by land irrigation or other suitable means as soon as practicable to insure adequate retention capacity for future runoff.

Through simple control, where drainage above the feedlot is diverted, a small lagoon will hold run-off from a fairly large feedlot until the sludge and dangerous runoff particles may be collected and put back onto agricultural land as fertilizer.

Pollution studies being conducted under federal grants-in-aid at both Kansas State University and the University of Kansas are showing that runoff from cattle and hog feeding lots can be used as liquid fertilizer and bring benefits from reuse.

Under the new regulations the minimum water pollution control facilities are waste retention ponds capable of containing three inches of surface

runoff from the confined feeding area, waste storage areas and all other contributing areas.

Disposal of wastes from retention ponds is unquestionably the biggest problem for some of the older feedlots. Many of these lots were started with no pollution control in mind and as a result do not have additional land areas adjacent to their confined feeding operations where the liquid wastes may be utilized.

"In these cases we are recommending true waste treatment facilities," Gray said. "Installation of these treatment facilities in place of waste retention ponds may involve slightly more immediate capital outlay initially but the costs are not much higher when figured over a period of several years," Gray said.

Unlike the retention ponds which utilize the wastes as liquid fertilizer, the waste treatment facilities not only collect runoff and wastes but stabilize, treat or otherwise control the pollutants so that after discharge the treated wastes do not pollute the wa-

ter. Thus the treated wastes, even though discharged directly into streams, are not harmful to the public health and the beneficial uses of the waters of the state are adequately protected.

There is no getting around the fact that water pollution control costs money. But the costs are not significant when figured per head or spread over a period of several years.

"I've said many times, and I still have reason to believe it, that an average maximum per head capacity cost for pollution control of feedlots in Kansas will be \$1," Gray said. "Most lots can be controlled for less and when costs are amortized over a ten-year period the pollution control facilities are not a major factor in feedlot costs at any time and will not be a major factor in forcing any feedlot within the state to move to another area or to become defunct," he added.

After a feedlot has satisfactorily completed construction of the anti-pollution facilities in accordance with plans and specifications ap-

proved by the Health Department, a permit is issued by the executive secretary of the Kansas State Board of Health.

The feedlot operator's responsibility does not end with construction of the required facilities and issuance of a permit but extends to maintenance and proper operation of the facilities. The regulations stipulate that the facilities shall be operated and maintained so as to prevent water pollution and to protect the public health and the beneficial uses of the waters of the state. The waste retention ponds must be emptied as quickly as possible following a runoff rain to provide storage space for future runoff. "The operator will still have to religiously operate the facilities," Gray explains.

Water pollution control facilities permits are revocable for cause on 30 days written notice. If a permit is revoked, the owner or operator of the confined feeding operation involved is allowed to finish feeding the existing animals at the time of revocation. He is not, however, allowed to place other animals in the lot or pen until the minimum requirements for water pollution control have been met and a new permit issued.

Even when all confined feeding operations comply with minimum requirements, the Health Department is clearly not shooting for total pollution control. "We're not saying what we're doing will control feedlot pollution 100 percent of the time," Mayes states. "It's not practical or possible. We do hope to have 95 percent control which we feel is a very substantial improvement," Mayes added.

When one considers that the minimum water storage capacity of retention ponds is set for three inches of surface runoff, it becomes obvious that there will be instances where heavy, local rains may produce more runoff water than the ponds are capable of holding. In these cases pollution control will not be totally effective.

While it may be too early to correctly evaluate, it now appears that water pollution control may come into

Kansas with less fuss than even the most candid observer ever thought possible. The livestock operators have been highly cooperative with the Health Department since the new law and regulations went into effect. "We haven't had a single, unsatisfactory encounter with any feedlot to date," Gray says.

But the cooperative attitude of some cattlemen began before the new legislation was enacted. Some of the state's largest feeding operations realized several years ago that their operations, if left uncontrolled, would contribute to the growing destruction of Kansas' streams. Recognizing the need, these cattlemen began incorporating water pollution control facilities in their operational plans.

One such operation, the Pratt Feedlot, has gained widespread recognition for its cleanliness and pollution control procedures. Unquestionably it qualifies as the outstanding feedlot in central and western Kansas, if not the entire state. It is a model example of what can be done where there is close cooperation between feedlot managers and the Kansas State Department of Health.

Started in June, 1962 under the management of Frank Smith, the feedlot is located north of Pratt on the old Pratt Air Force Base runways. Currently the feedlot handles approximately 20,000 head of cattle on about 11,800 feet of runways—all without pollution of water and with little odor.

According to Smith the key to the pollution control system is the series of drainage lagoons and farmground adjacent to the lot which the firm has leased where the manure and other wastes may be utilized.

Two lagoons, holding a combined total of 65-acre feet of water, have been in operation since the lot started and a third and much larger one has only recently been constructed and placed in operation. This larger lagoon holds another 65-acre feet of runoff water boosting the total capacity of the lagoon system to about 130-acre feet of runoff water from the feedlot area.

The lagoons have been built to pro-

vide expansion of feeding operations in the future and also to provide more retention capacity than the three-inch surface runoff minimum established by the Health Department's regulations. The lot can now increase its feeding operations to 35,000 head without building additional waste retention ponds or without overloading the present facilities. With the new lagoon in operation the system can now handle a four-to-five inch surface runoff from the area—an additional safety margin to insure prevention of stream pollution below the feedlot, even in periods of heavy rainfall.

Underground drainage canals built into the old airbase runways coupled with additional new drainage lines provide a catch system for water leaving the pens. All runoff water from the area drains into this system then flows to one of the three lagoons where it is trapped.

A terrace all around the feedlot holds outside water from entering the area and at the same time detains all inside water within the enclosure to drain into the lagoons.

About 100 cattle pens, each holding from 165 to 195 head, spread down abandoned runways in a V-shape leaving the middle, wedge-shaped area available to farming. This 360-acre tract of land has been leased from the City of Pratt and plays an integral part in the pollution control facilities of the feedlot.

Whenever the lagoons need draining and the weather permits, liquid wastes from the catchment basins are allowed to flow on about 170 acres of the leased farm land which has been leveled to facilitate the flooding.

The remaining acreage is fertilized with manure which has been scraped from the pens. The cattle are usually sold after being kept on feed from 130 to 140 days and are quickly removed from their pens. Huge earth moving scrapers and tractors scour the pens and the manure is hauled to a centrally-located manure stockpile where it is piled. Usually within 60 days the manure is spread over the farm land which is not flooded by the liquid wastes. The manure, which reduces

the cost of fertilizer, is spread at the rate of 60 tons per acre then is irrigated and plowed under.

To further guarantee that no stream pollution will occur and to better utilize the irrigation tailwaters, the feedlot has recently excavated two tail-water ponds which detain the runoff water from the farm land. Then it is pumped back into the lagoons.

In a cooperative project with Kansas State University, the feedlot has set aside 20-acres of farm ground as a study area. K-State personnel and students will be taking soil samples and conducting tests to determine the value of the disposed animal wastes and the improvement of the land on which the wastes are being applied.

Smith agrees that "costs were pretty high" for installation of the pollution control complex. Figuring the leveling of the land, the installation of the lagoon system and all other costs, Smith estimates that his firm has spent \$175,000. "But we hope to recover the costs in 15 years if we get the fertilizer value we expect," Smith states.

The efficiency of the operation,

its cleanliness and its endeavors in pioneering water pollution facilities has been commended from many sources. Duane E. Taylor, Regional Economist for the Federal Water Pollution Control Administration, a branch of the U. S. Department of the Interior, made the following comments in a letter after viewing the operation. "Without a doubt your feeding operation is one of the best planned, best managed operations in the country. The responsible way in which your feedlot has recognized and set up a pollution control plan within the business framework of feedlot management is to be commended."

Kansas is an increasingly important beef-producing state ranking fourth in the nation in cattle numbers with 5,564,000 head and seventh among states in cattle on feed with a total of 610,000 head.

But equally important is the wise use of the water resources of our state. The fishlife in our streams and impoundments is totally dependent for its existence and well-being on the conditions of the stream and the quality of the water. Both the fishlife

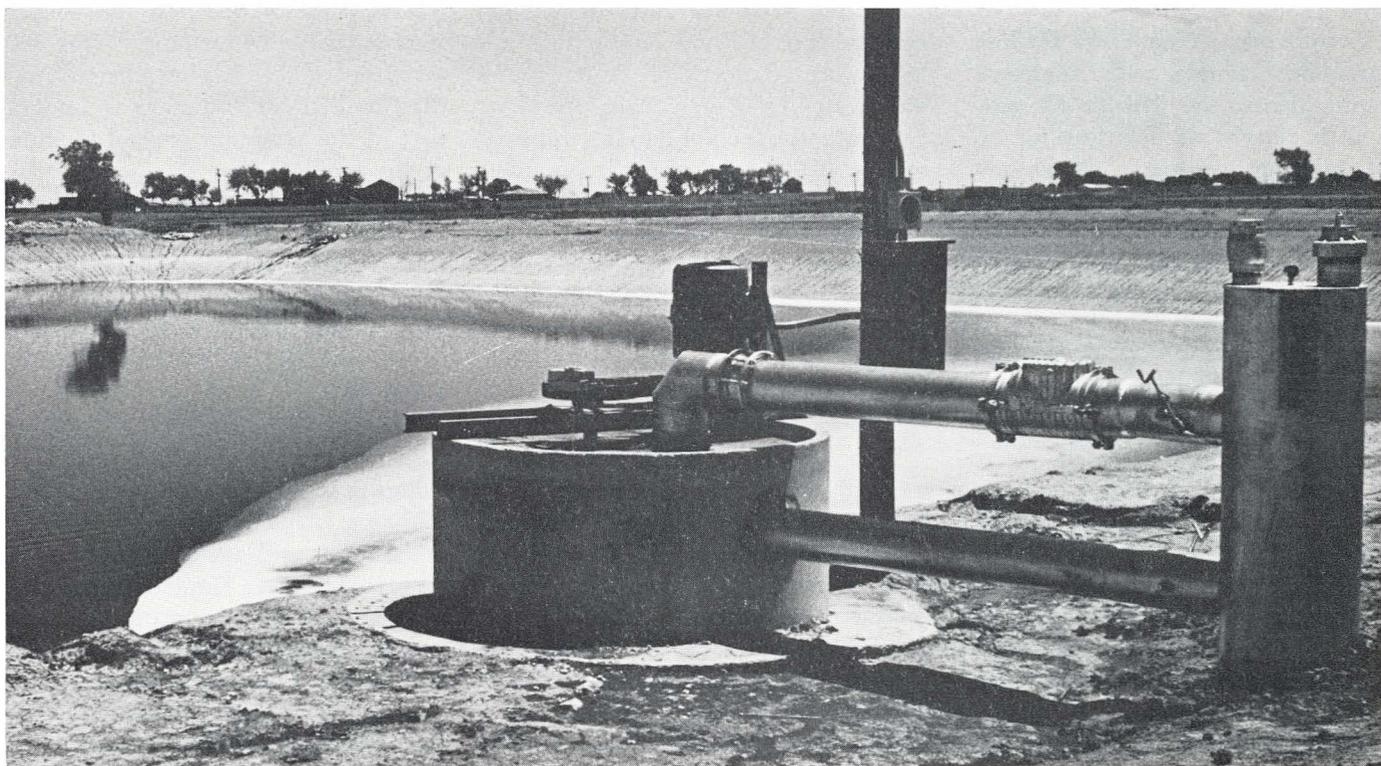
and its associated food organisms making up the aquatic environment must have year-round conditions suitable for their general well-being.

And like the beef industry, pursuit of outdoor recreation particularly on water areas of the state is growing each year. We must have quality water for the enjoyment and health of our citizens.

Perhaps Mel Gray best summarized the situation when he said, "We can have both water quality and a healthy beef-production economy. We must have adequate water quality, we can't afford to do otherwise."

(Editor's Note: This is the third in a series of four articles on stream pollution in Kansas. The final article will appear in the Autumn 1968 issue of *Kansas Fish and Game*.)

The walleye is a confirmed carnivore, and its food consists chiefly of smaller fish.



LAGOON AND PUMP—A key part in pollution control system of Pratt feedlot is a 35-foot deep lagoon which holds 65 acre-feet of runoff water. Large concrete cylinder serves as a shaft for pumping liquid wastes to fields under cultivation.

White Bass . . .

A Flashy Fighter

On May 4, 1966, Henry A. Baker of Wichita joined a number of other hopeful anglers at the outlet of Toronto Reservoir, in Southeast Kansas.

Most were bouncing small jigs along the bottom of the fast-running outlet, and many—Baker included—were enjoying moderate success.

The white bass were running, and the true angler knows that there's nothing more fun, more exciting, and the action is fast, when white bass go on a feeding spree in fast water.

After a time, Baker tied into what he remembers as "a nice one." The fish gave him a lot of fight, he recalls, before he finally brought it to net.

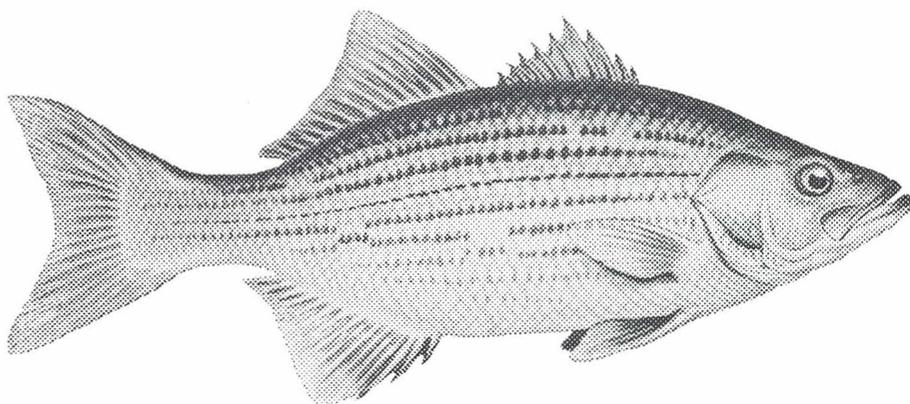
It wasn't very long before that particular fish attracted a crowd, and a few days later it attracted national attention among the sporting set.

Baker's white bass topped the scales at five pounds, four ounces—a new world's record for the species, and the first national record in Kansas history.

Baker's record still stands today, although it has not been recognized in some quarters because he removed the insides from the fish shortly after weighing and measuring it at a nearby sporting shop.

Baker took his white bass on a jig, but they've been known to hit about anything and everything tossed their way.

White bass have been prominent in Kansas lakes and especially at reservoir outlets and upstream from big reservoirs since 1950, when a pair of employees of the Fish and Game Commission sneaked across the line into Oklahoma, caught a few of the whites, brought them back and released them in Fall River Reservoir. From that initial



sneak-trip, about every impoundment of any size in the state has been stocked with white bass.

Not only are they known for their fighting ability, the white bass is fair table fare, reproduces rapidly, and can be caught about any time of the year. With a natural life-span of about four years, it grows fast in good water, and makes an excellent fish on which other fish can forage.

The white is a true bass, and is a cousin of the ocean-going striper which has been stocked in some Kansas and other Midwestern waters in recent years on an experimental basis.

Here are some other facts about the white which may interest you:

Range: Throughout the Great Lakes region, and in the Mississippi River drainage. This range is widening every year as rising popularity demands more transplanting.

Habitat: Both lakes and streams. Try the fast waters below dams. Look for them slashing through schools of shad minnows in large lakes, when the water is calm.

Lures: Flashing spoons, small wiggling lures, spinners, streamer flies, and jigs. Also, minnows and crawfish.

Tackle: Fly, spinning, spin casting, and bait casting. An ideal white bass outfit is the Zebco 3490 combo.

Fishing Tips: One; when white bass aren't feeding on top, make a long cast and let a small spoon sink to the bottom. Raise rod tip sharply to jump spoon off the bottom, and keep it coming until a white bass stops it. Two; set out lanterns over water where white bass are known to frequent. Let them shine for at least two hours. Then try minnows at various depths until you find them.

In Kansas, there is no limit on the number of whites you can take. So, if you find them, have fun. . . .

The white bass is one of the easiest fish to transplant or stock.

White bass, popular fish in Kansas reservoirs, usually attain sizes of 5 inches the first year and up to 15 inches at the end of their fourth year.

Americans spent more than 3 billion dollars on boats and motors in 1967.

KANSAS' Fis



NICE CATCH—Topekans Jim and Al Betsworth display three fine flathead catfish—weighing 25, 15 and three pounds—taken on light tackle at the Burlington city dam on the Neosho River, while Al's son Larry beams approval.



NEW COMMISSIONER—R. W. (Bill) Fox has been appointed to the Fish and Game Commission. He is shown here with a nice string of bass taken by Lloyd Brown of Columbus, and previously seen in the magazine.

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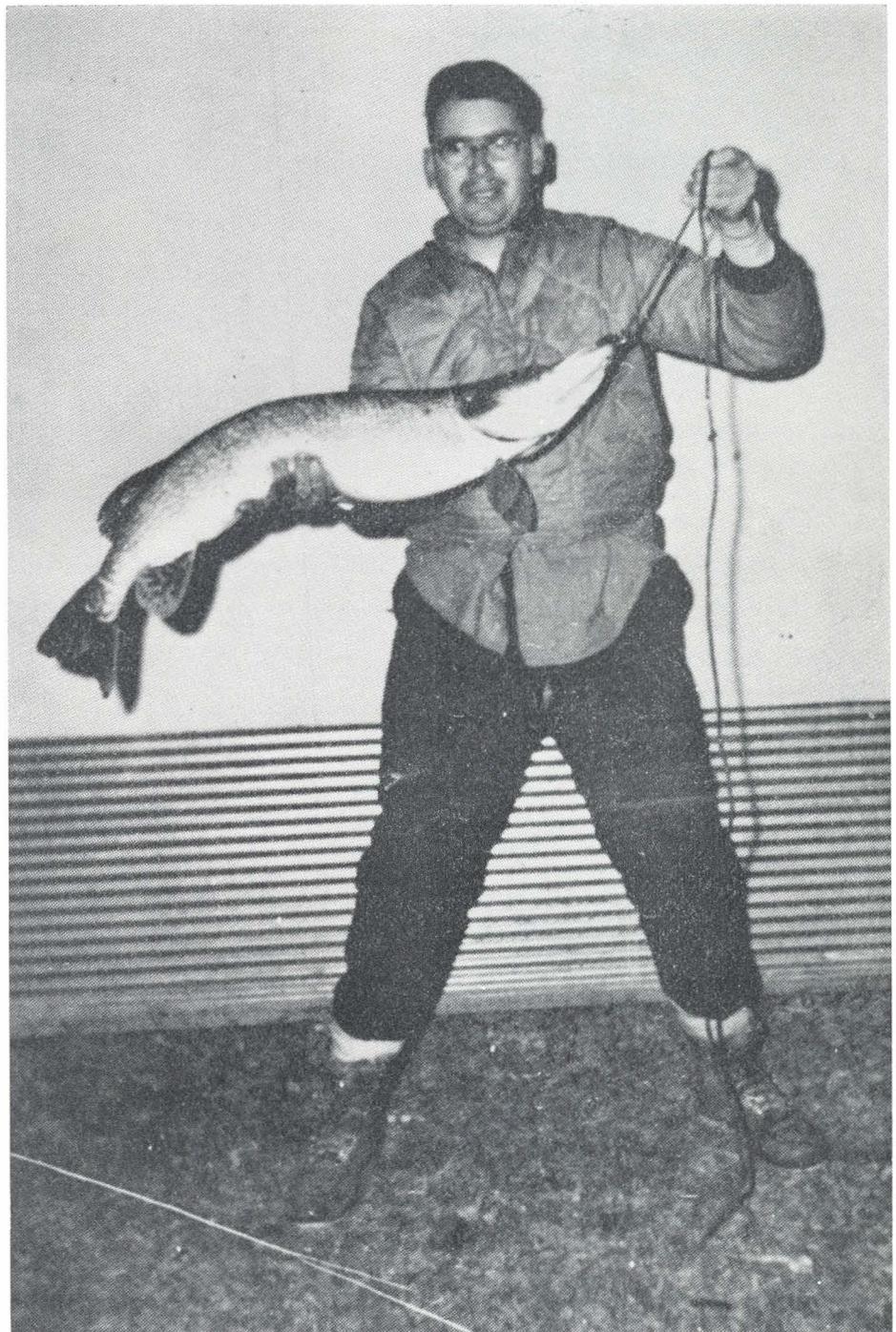
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ler, Weir banker and insurance agent, has
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ed on the commission for a two-term period.

READERS

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NEW RECORD PIKE—Kenneth Brown, Manhattan, displays new Kansas state record Northern Pike, weighing 15 pounds, $\frac{1}{4}$ ounce, taken from Council Grove Reservoir. Brown took the fish on rod and reel with Hellbender lure. Pike measured 39 inches long, with a girth of $17\frac{1}{4}$ inches.



'I WANT My Boy to Have a Gun'

By MARGARET MENAMIN

The fathers of this country couldn't have survived long enough to set up a government if they hadn't been hunters. A mother of today describes here her strong feeling of the role of a gun in her boy's life.

Like most mothers, I am shocked and outraged when I hear of something like the mass killing which recently happened in Texas. My next reaction is pity for the families and friends of those who were so senselessly slain. But I don't think such things happen simply because some teen-ager has a gun and knows how to aim it. If there is a reason, perhaps it is because they think of a gun as a weapon instead of a tool.

Of course a gun is dangerous. So is dynamite. So is an electrical wire. You can lose a finger in a linotype or an arm in a corn picker. You can lose your life in an automobile or a boat. Yet all these things are important and necessary to our culture, and pity the legislator who tries to curtail their use—especially the automobile! Almost everything we use in our everyday lives can contribute in some way to our death or crippling if we fail to use it as it was intended to be used.

Yet as outrageous as it is that one unbalanced teen-ager can arbitrarily take the lives of nearly a dozen people, it is even more unthinkable to me that because of that person's act, some people would deny thousands of others the pleasure of owning and using a gun.

I want my boy to have a gun. As soon as he is old enough, I want his father to give him one and show him how to use it; how to store and carry it safely; how to keep it clean; how to hold it and aim it accurately; where and when to use it; and when not to use it. I want him to know how to defend himself with it if need be.

I want to see the proud grin on his

face the day he brings home his first squirrel or rabbit, and I am going to cook it and force some of it down if it's as old as Solomon because I remember the day my kid brother got his first one. While his little black-and-white pup yapped excitedly at the

(Editor's Note: Although written shortly after the mass murder of 15 persons on the University of Texas campus in August, 1966, this very timely article is being included in this issue of *Kansas Fish and Game*. In the light of recent events, Americans must ever be vigilant of their constitutional rights to possess firearms and equally aware of the responsibilities to instruct their children in the proper use of firearms.)

The pronghorn antelope is one of the earliest residents of North America. His ancestry has been traced back to a nearly identical forebearer of nearly two million years ago.

Wild turkeys have two major feeding periods during the day. The first is early in the morning just after they leave the roost and the second is in late afternoon.

kitchen door, he carried that squirrel into the house like a badge of honor, and when he handed it to my mother his eyes weren't kid's eyes any more.

Every boy deserves that moment. When he is older, he will probably be involved in some kind of work which will cut down his hunting hours a great deal; and the amount of meat on the table will depend more on the amount of his take-home pay than on his marksmanship. But that first time, he knows what it is to be a provider. He knows it is a proud thing, and the knowledge will make him a more responsible man.

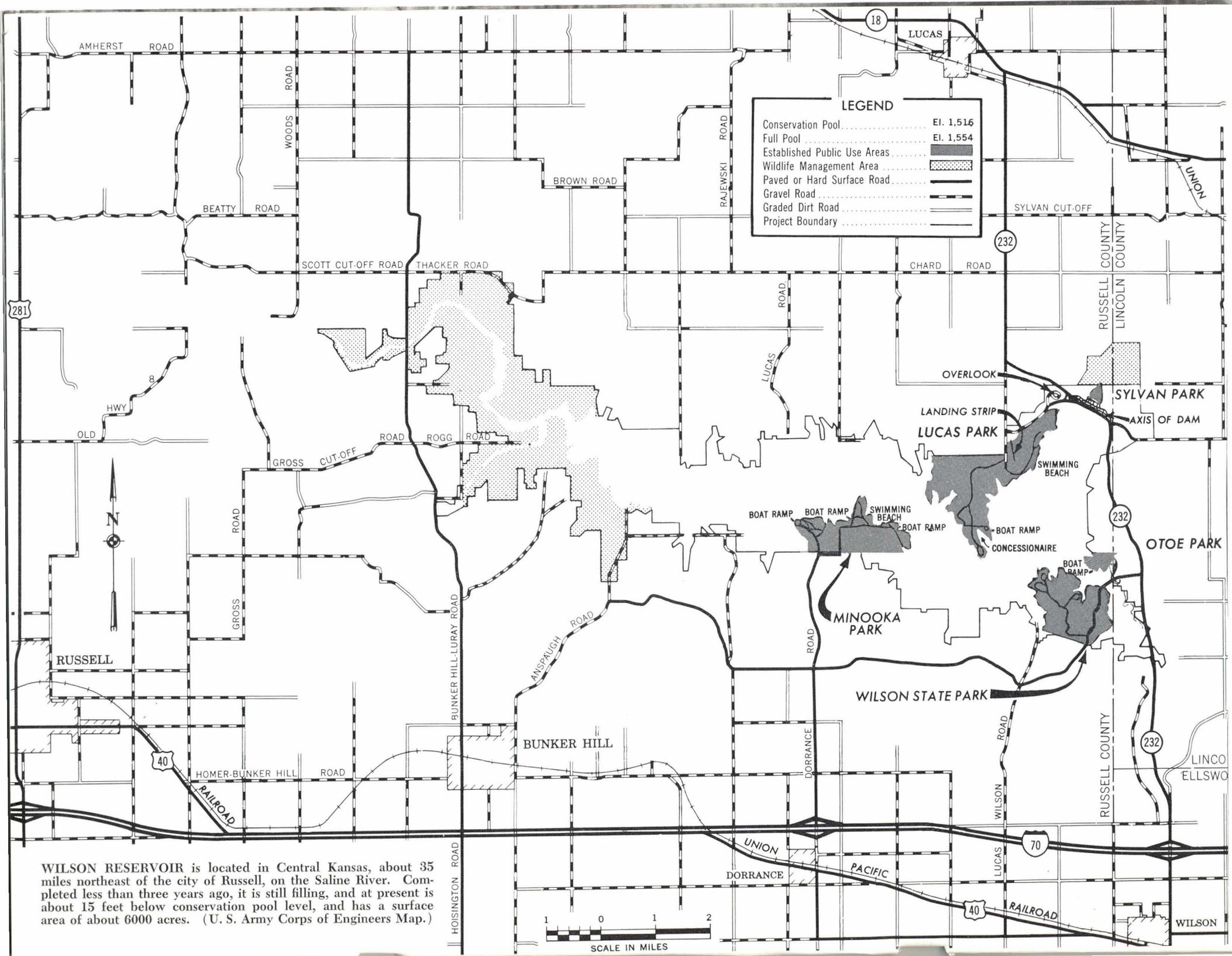
I want my boy to know the deep satisfaction of choosing not to shoot. I want him to have a chance at that one perfect, symmetrical buck, and the chance to lower his gun and say to himself, "No, not this one."

My son will be taught, as my brother was, that a gun must never be brought into the house loaded; that, regardless of this, it must always be handled as if it *were* loaded. He will learn that it must be cleaned after each hunting trip; that it must always be stored in the same place; and finally, that a gun—even if it is a toy—must never be pointed at another person.

The fathers of this country could not have survived long enough to set up a government if they hadn't been hunters. Many things have changed since then, of course; yet it is deplorable to me that certain representatives of that same government are now seeking to deny our sons this heritage.

Like most mothers, I have confidence and pride in my son. I want him to have a gun. I want him to respect it and prize it and master it. Then it can't master him.

Female frogs are usually voiceless except for cries of alarm. The noisy croakers are the males who use the familiar "Croak" to summon mates.



WILSON RESERVOIR is located in Central Kansas, about 35 miles northeast of the city of Russell, on the Saline River. Completed less than three years ago, it is still filling, and at present is about 15 feet below conservation pool level, and has a surface area of about 6000 acres. (U. S. Army Corps of Engineers Map.)



A Prairie Paradise

By THAYNE SMITH

Whoever makes the final decision on names for Kansas' ever-growing list of large, man-made lakes, doesn't have much imagination. Most bear the names of small cities nearby—Pomona, Kanopolis, Kirwin, Perry, Elk City and a dozen more. One of the newest is no more spectacular than the others in name, but it's creating attention that the others do not possess and can never duplicate.

It, too, has a small city namesake—Wilson—a sleepy village 10 miles from the reservoir, with about 1,000 inhabitants.

With its new dam still showing the marks of construction and its waters not yet to conservation pool level, Wilson is a lake apart.

It could have been given many names, even with local landmarks considered. For instance, there's the Garden of Eden at the nearby city of Lucas, a tourist attraction of some renown. There's also Hell Creek Canyon, which has taken the role of sinner turned saint to form the most beautiful and scenic arm of Wilson Lake.

However, the best bet for the imaginative mind might have been another little city located nearby . . . Paradise. Wilson Lake truly is that—a paradise in the center of Kansas' rolling western prairies.

Less than two years old, Wilson—sired by a dam just a mile long, located between two tall hills in the vast Saline River valley—has a lot to offer.

New, four-lane Interstate 70 highway—one of the nation's busiest east-west routes extending from coast to coast—is 10 miles away, bringing Wilson many hundreds of visitors daily in summer months.

The area is rich in Indian, pioneer and early west history. The lake is located in the center of the state, giving it a unique drawing card among Kansas residents, as well as tourists. A new, wide and scenic state highway—K-232—connects the lake with I-70 and cities nearby. Crossing the top of the dam, the highway give the first-time visitor an eye-catching, col-

orful and breath-taking panoramic view that he wouldn't believe could exist in the area.

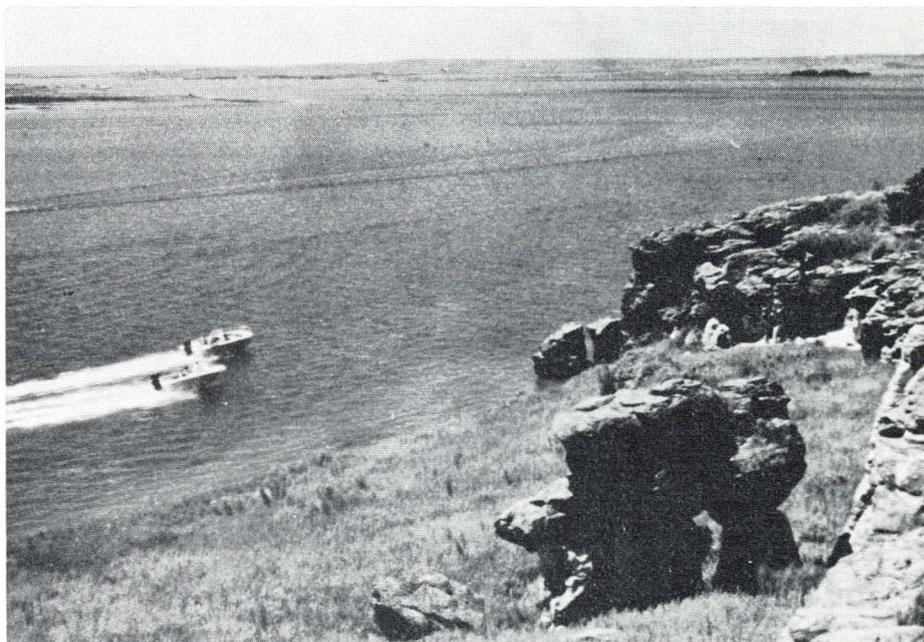
Driving north from Wilson or south from Lucas on the highway, he is surrounded only by flat prairie lands, fields of green sorghums or ripening grain, or lush pastures filled with fat cattle.

Suddenly, the landscape changes, and from either approach, he is confronted with a series of lush, rolling hills. Another mile, as the elevation drops into the ever-hazy and fertile valley, Wilson Lake spreads before him—an azure blue-green, long and narrow body of calm water, nestled between high bluffs and rolling hills, and boasting more than 100 miles of shoreline.

Through the cooperation of several

units of government, Wilson is blessed with five excellent park areas totaling more than 4,200 acres. The most attractive is a 788-acre site on the Hell Creek Arm, developed by the Kansas Park and Resources Authority. The land was leased from the U. S. Army Corps of Engineers, which constructed Wilson dam as a flood control-recreation-irrigation facility as a cost of \$20 million.

They call it Wilson State Park, but the public long ago dubbed it Hell Creek Park. Regardless, like 17 other parks developed by the KPRA at Kansas lakes, the area provides excellent facilities, including brick and concrete shower-latrine buildings with hot and cold running water, flush-type toilets and modern, clean lavatories; several large "toadstool" concrete picnic shelters with sturdy, newly-painted tables; and wide, concrete boat ramps. Under construction at present are a modern bathhouse, complete with concession, showers and toilets, and a swimming beach; a large trailer park area



SHEER ROCK BLUFFS and house-sized boulders along Wilson shores dwarf big speedboats plying nearby waters on north side of lake. Bluff areas, numerous around lake offer excellent fishing.



HISTORIC CARVINGS, believed made by members of the Otoe Tribe of Plains Indians, who hunted buffalo in area centuries ago, adorn walls of rock cliff on Wilson Lake's Hell Creek arm. Carvings eventually will be inundated by rising waters.

with water, electricity and sewer connections, more picnic shelters, and many camping sites.

The KPRA, although tax supported, has a \$5 per year resident vehicle park fee, good at any park which it operates, and a \$1 per day out-of-state vehicle charge. Twenty-four hour ranger patrol and daily maintenance of all areas are provided.

Other areas, all under Corps jurisdiction, include Otoe, named after an Indian tribe which often visited the Lake Wilson canyons centuries ago; Lucas, a 1,370-acre park, and Minooka, an Otoe name meaning Good Earth. All provide excellent free camping, picnic and water skiing, swimming and boat-launching areas. Lucas Park has the lake's only concession—a modernistic, large marina, boasting all services—boat sales, rentals and service, snack shop, fishing tackle and supplies, and a trailer park area.

Minimicki Park, a 390-acre site, is reserved for future development.

Although extremely popular with sportsmen, largely because of its

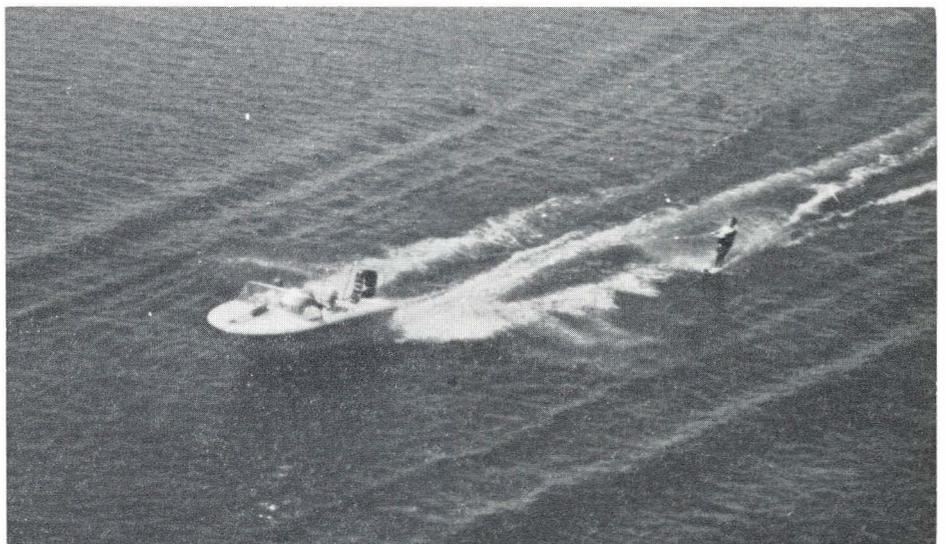
beauty and the fact that camps can be set up at water's edge, Wilson lacks one thing generally associated with outdoor recreation. It has only a scattering of large trees in its parks. There are so few, in fact, that it is often called a "treeless lake." This, however, is a problem which will not

long exist. The Corps of Engineers, through the U. S. Forest Service and Kansas State University, has planted more than 30,000 trees in the area.

The trees are growing rapidly with each passing year. Historians, on studying the problem, believe that trees and the rich buffalo grass in the areas fought a battle for survival for centuries, with the spreading grass finally winning. Some, however, blame herds of buffalo which roamed the area in hundreds of thousands and were hunted by many Indian tribes, as the reason for the "treeless" plains. Others say that raging prairie fires, long before the days of white settlers, devoured the trees and gave the buffalo grass a chance to spread and claim the land.

Wilson can be called unique because of such places as Hell Creek Canyon, too, where in a land dominated by thousands of miles of flat plains, it offers many large, rock-rimmed coves, scenic, red-brown-yellow-maroon sandstone rock bluffs, and many famous Indian carvings.

The carvings, found in spots where the Otoes and other wandering tribes camped while hunting buffalo, are on sharp, steep bluffs. They depict figures of Indian children, a sunrise, and markings symbolic of Indian gods. Many of the carvings have been inundated by the rising waters of the lake. However, some of the most prominent, and most historic, have



EXPERT SKIER—Susan Campbell, daughter of Mr. and Mrs. Dave Campbell, Beverly, is a championship skier at age of 10, and spends much of her time during summer on Wilson's waters. Father operates Wilson Marina.

been removed through painstaking work by archaeologists from Kansas colleges and universities, to be preserved as museum pieces.

Some of the carvings remain above conservation waterline, however, and are located in bluffs and rocks which are a short distance from the lake. They may be seen and admired by visitors, although many can be reached only by boat.

There are many other things in the Lake Wilson area to delight the visitor—and especially the sportsman.

Wild flowers abound in the rock

canyons, fertile gullies and grassy pastures.

Famous stone posts—hand-cut limestone quarried by early-day settlers who used them to hold the barbed wire that turned the plains and prairie into rich cropland—abound. They used stone for fences because trees were not numerous enough for wood posts.

The many bluffs and rocks are havens for wildlife of many kinds. Often, great horned owls and smaller monkey-faced owls nest in the holes or crags of the rocks, and can be seen

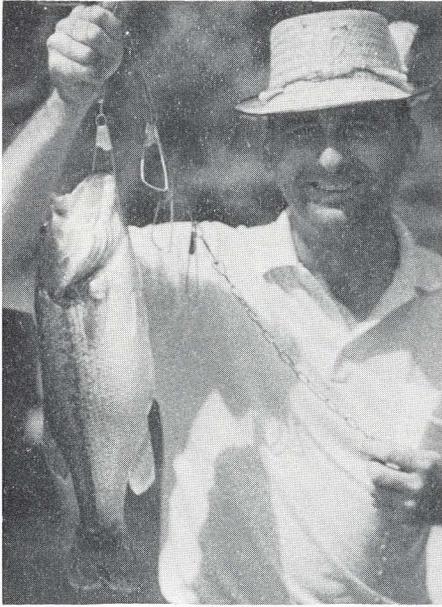
from a boat idling along the bluffs.

For the sportsman, Wilson offers some of the finest hunting and fishing in Kansas, which has become a top-notch state for both in recent years.

The Kansas Forestry, Fish and Game Commission has leased 6,130 acres of rich land on the upper end of the lake for wildlife management and development. It offers unexcelled hunting for ring-necked pheasant, bobwhite quail (Kansas is one of the nation's leading quail hunting states), both whitetail and mule deer, coyotes and rabbits. The shallow, upper end



SERENE SETTING—"Toadstool" shelters, which have become a trademark of excellent parks of the Kansas Park Authority, dot beautiful Hell Creek Park on south side of Wilson Lake. Marina cove and big bridge are in background. (Photos by Thayne Smith.)



LUCKY ANGLER—Richard Mai, Russell, displays 3½-pound black bass moments after hauling it from Wilson Lake on artificial lure.

of the lake also is an ideal area for waterfowl, and excellent hunting can be had from water-based or shoreline blinds. Primary waterfowl species which frequent the lake are Canada, whitefront and snow geese, mallard, teal, pintail, coot and other ducks.

Fishing is another Lake Wilson asset. In fact, some Kansas Fish and Game biologists flatly predict that it will be the finest of all Kansas lakes for all-around fishing within the next two years.

The Commission began stocking Wilson waters with various fish when water was first impounded in 1965. In addition, the river on which the dam is located was "home" to several native species, such as white bass, channel catfish, bluegill and several varieties of sunfish.

Because of its high salt content, Wilson waters have been chosen for a state experiment with striped bass. The striper, of course, is an original saltwater fish which has become adapted to fresh water in some southeastern states. Kansas has secured several thousand striper fry from South Carolina and placed them in Wilson. The experiment is still too young to determine if successful.

Outstanding growth and reproduction have been achieved through the state and at Wilson with two other "foreign" fish species—the walleye

and northern pike. Northern, in less than two years, are now more than five pounds, and some walleye, planted as fry two years ago, are more than three pounds. The lake also boasts black bass to five pounds, large crappie, white bass to two ponds, bluegill, and channel catfish in the 10-15 pound class.

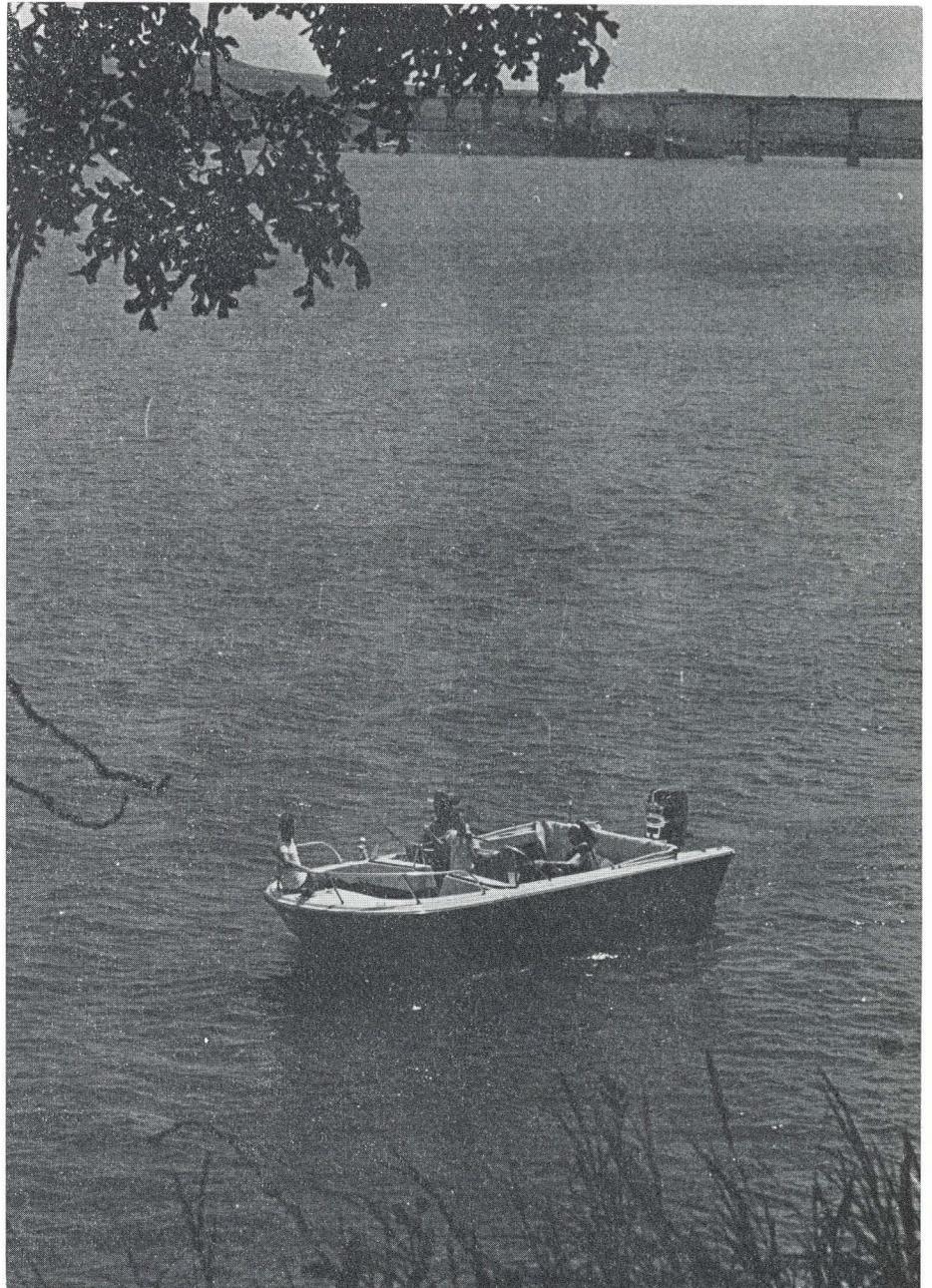
Many visitors, upon seeing Wilson for the first time, will tell you that it is the most beautiful spot in Kansas.

Others—but a definite minority, and

understandably most are campers—marvel at Wilson's beauty, but are quick to add that it needs one thing—shade trees.

In fact, there is somewhat of a good-natured controversy going in places like Lucas, Paradise, and the city of Wilson, about whether more trees should be planted around the lake and in the various parks.

Most agree that shade is needed. Some fear, however, that numerous trees might block the view, and spoil all the excellent scenery.



PICTURESQUE AND TRANQUIL are the waters of Hell Creek Canyon on Wilson Lake, with big, high bridge in background.

Clinic for 'Cool Cats'

Many individuals interested in fishes have been asked the questions: (1) Do fish feed during the winter? and (2) Where and how do fish obtain the energy to live for many months when the water is cold and little food may be available? In experiments conducted in cooperation with the Kansas Forestry, Fish and

Game Commission, Bureau of Commercial Fisheries and the Kansas State University Agricultural Experiment Station, Charles Suppes designed some experiments that asked channel catfish the following questions: (1) Where does the energy come from to maintain the fish during the winter months? (2) Is more energy required when water is 70 degrees Fahrenheit than at lower temperatures? Results of his experiments have been published in Transactions of the Kansas Academy of Science, January 1968.

In order to conduct the experiment, 100 fish averaging about 12 ounces were placed into two 150 gallon tanks in a basement room of a University building on September 1. A similar group of fish was placed in a 20 x 20-foot plastic-lined outdoor pond at the Tuttle Creek Fisheries Research Laboratory near Manhattan.

A few fish were killed on September 1. Entire fish were frozen, ground in a blender, the remains were dried in an oven and the dried material analyzed for the percentages of fat and proteins. By this procedure it was possible to determine how much energy was present in the fish at the time the experiment was initiated.

Fish were not fed in the tanks or in the outdoor pond for 244 days. Filtered tap water was provided to the fish in the tanks and an agitator was used to provide dissolved oxygen. A few insects and other food items may have fallen on the surface of the pond water but these would have been minimal because most insects would have been frozen early in the fall.

The average temperature of water in the tanks was about 70 degrees Fahrenheit and the average of the pond water was 48 degrees F. Temperature is an important factor in determining how much energy is required because temperature of fish is approximately that of the water and within limits more energy is required and expended at 70 degrees compared



TOPS FOR THE TABLE—Cynthia Patton, daughter of Mr. and Mrs. Don Patton, Pratt, proudly displays big channel catfish caught by her father. Study reveals much of the channel's energy comes from fat stored in the body.

to 48 degrees. Within limits, man and his domestic livestock are different than fish in their responses to changes in temperature because man requires more energy at lower temperatures than he does at higher temperatures. Man uses energy to maintain a constant high temperature. Fish do not.

Some fish were killed each month from September 1 to May 2 from both the indoor tanks and the outdoor pond. Analyses were made of these fish and results compared with the composition of fish when they were stocked on September 1.

During the 244-day starvation period, early September to early May,

no channel catfish was lost either in the tanks or in the pond. Appearance of the starved fish both indoors and outdoors remained good throughout the starvation period. Some fish kept inside developed rough fins, probably from other fish nipping them. At the end of the experiment, bones of the head and ribs were evident underneath the skin of only one fish kept in the tanks.

Results of the monthly analyses indicated those fish kept in indoor tanks at 70 degrees F. used more energy during the 244-day starvation period than fish kept outdoors at 48 degrees F. Most of the energy was provided by the utilization of fat in muscle tissue, some from fat in the body cavity and a small quantity from fat stored in the liver. After about 5 months starvation, fish kept at the higher temperature began to utilize some of the muscle protein but utilization of protein for fish kept outdoors did not begin until March and April. This would indicate fish may have died or become extremely thin if they had been kept much beyond the 244-day starvation period.

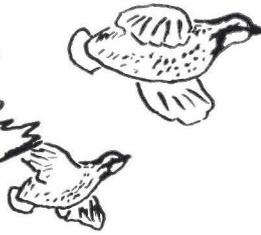
In April, eight fish no longer needed for chemical analyses, were placed into a separate tank and fed beef and turkey livers to May 25. At the initial feeding, fish did not feed for several minutes but at subsequent feedings they immediately took the liver as it dropped into the water. Within 35 days the fish gained an average of two ounces each.

We now have information indicating channel catfish that are in good condition when the temperatures decline in the fall can maintain themselves by utilizing the fat that has been stored in the body cavity but principally by using the fat that was stored in the muscle.

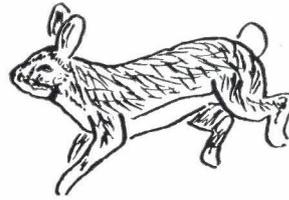
Fishermen know that channel catfish do some feeding when the water temperatures are below 60 degrees and numbers of fish have been caught through holes in the ice. Some experiments we are now conducting indicate digestion of food materials taken by channels when water is cold may take many hours. Possibly this story can be told in a later article.



FULL OF FIGHT—Big channel catfish fights on top of water as it's reeled in by lucky angler, displaying plenty of energy.



By MARVIN SCHWILLING



Early summer is a period of much activity among wildlife. Birds are at their color peak and tuned to perfection. They spend endless hours singing melodious love songs and preening and polishing their many colored plumages, some not short of beautiful, to more impress the members of the opposite sex. The coveys of the bobwhite have completed their "spring shuffle" with much intermixing with other coveys beyond their heretofore territorial limits. This is nature's way of stirring the pot to prevent inbreeding of the species.

This is the time of year I spend as much time out of doors as possible. Often, I'm up to hear the first meadow-lark call, always hoping for some song that may be new or rare to me. I have even been known to miss a meal or two to continue my pursuits afield if some unusual wildlife sights are to be seen. If ever I shirk my duties as a paper shuffler it is during this time of the year.

Birds have always been a fascination and in early summer they are bubbling over with song, making them more easily located—and at a season when they are most colorful. Some people consider the bird-watcher a kook, but like all other special interest groups, bird-watchers are people of many occupations . . . teachers, farmers, factory workers, electricians, bankers, hunters, fishermen, outdoorsmen and more.

If you're a hunter, don't sell the bird-watcher short. Instead, buy a good binocular, get a bird identification field guide and persuade a local bird-watcher to take you afield. You may be surprised at the beauty of birds close up, to say nothing of their pleasing songs and individual comical character.

Soon, you may be able to identify heretofore confusing ducks, not by color alone but by such species characteristics as silhouettes, faster or slower wing beats, varied flight patterns or some other something only

that species has. You will join with the bird-watchers who detest the so-called sportsmen who call red-tailed hawks "chicken hawks." You, too, will not be the ignorant hunter who brings in cormorants, grebes and even gulls as ducks or yellowlegs, or avocets and dowitchers as snipe or rail.

The windbreak-wildlife planting south of the house is five years old and a pair of shrikes decided the end tree in a row of Russian olives was just what they needed for a nest tree.

They constructed the nest even before the tree leafed out this spring. I watched it grow piece by piece and am now accustomed to taking a quick glance at the nest and occupant at least four times a day.

One day I found the nest disarranged and leaning awkwardly to one side. Stopping the vehicle and backing for a better look, I observed the female hanging below the nest motionless, appearing dead. As I approached, she struggled to free herself from some entanglement. She had picked up a length of monofilament fishing line and woven it into the nest. Coils of this line had formed a deadly snare that caught the bird just ahead of the wings. She was not appreciative of my assistance to free her and brought blood twice with her vicious predator's beak before I resorted to my knife to cut the line. When free she dropped almost to the ground before catching herself, then flew only to the closest bush—a small redbud tree—and shook herself vigor-

ously several time to re-arrange her feathers and regain her composure. Still her attitude toward me was hostile and her stare hawklike. The nest was badly torn apart and beyond repair so I salvaged the three remaining eggs for my collection.

In recent years I have often found this tough fish line woven into the nests of a variety of birds and wondered how often this freak accident might occur.

The nearby barbed-wire fence held many typical shrike trophies—a small garter snake impaled on a barb, along with eight grasshoppers and two crickets. Shrikes don't hang their victims on barbs and thorns just to advertise their viciousness. Rather their feet are too weak to hold them so they hook them on a barb or thorn while they tear them apart with their strong hooked beaks.

Shrikes, like many predators, seem to be driven by instinct to kill more than they can possibly eat and the surplus is left hanging to spoil.

**PROTECT
AMERICA'S
CLEAN
WATER**



WATER POLLUTION CONTROL



SPRING SHOW—"In Spring A Young Man's Fancy . . ." but the female in this case could care less. Unusual photo of wild turkeys near Arlington shows three gobblers strutting with all their might, but the smaller hen at left pays no attention. (Fish and Game Commission Photo by Leroy Lyon.)
