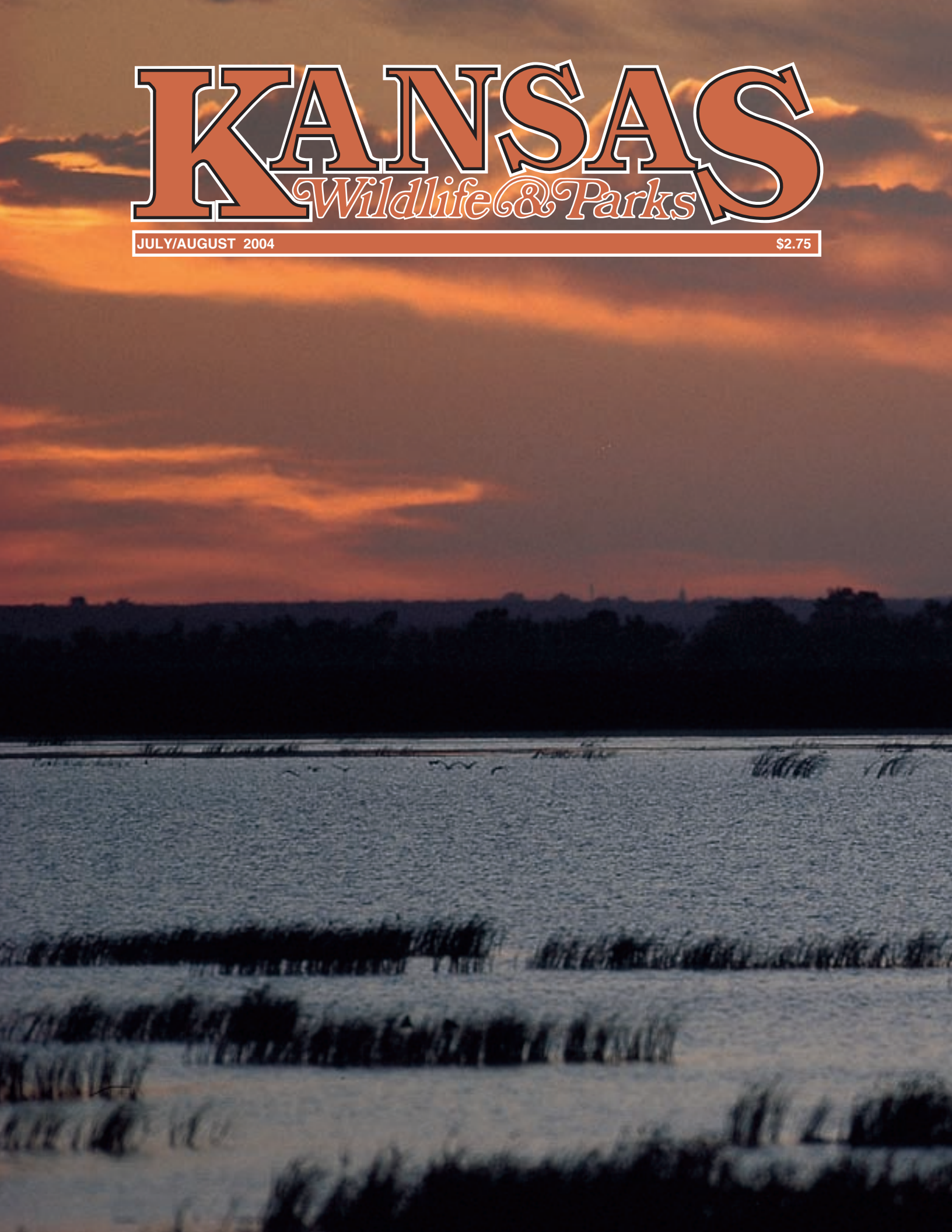

KANSAS Wildlife & Parks

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On Point

by Mike Hayden

Circle K Acquisition Would Be Win/Win

In recent months there has been much talk across the state about the Kansas Department of Wildlife and Parks' proposal to purchase a 7,000-acre ranch in Edwards County called the Circle K. The Circle K lies in the sand-sage prairie region along the Arkansas River. Currently owned by the cities of Hays and Russell, the property is leased for irrigated farming.

In the coming months I plan to use my "On Point" columns to share my thoughts about why this project is so critical to the state of Kansas. I'll discuss issues such as sustainable water use, habitat restoration, the importance of public lands, and how the project will be funded.

More than anything, the Circle K represents a unique opportunity to move toward sustainable water use in the basin. Discontinuing irrigation on much of the ranch is important in the Middle Arkansas River Basin where water has been used so heavily that the river doesn't even flow above ground as it passes through the Circle K. Reduction of water usage is essential for the continued viability of agriculture in central and western Kansas. Furthermore, by making the ranch publicly accessible for many outdoor recreation activities, including hunting, hiking, mountain biking, and wildlife watching, the economy of the area will become more diversified. Because Kansas ranks 49 out of the 50 states when comparing the amount of public land, a purchase like this has tremendous significance to an increasingly urban and suburban Kansas population.

I recently received a letter from a man who lives in Lawrence that perfectly describes why the Circle K project is needed. Following is a section from that letter:

When I was young, I enjoyed quail hunting and fishing. It was easy to find the space. My grandparents both had good-sized Kansas farms. I didn't need any public park.

Now, the grandparents are old or have died. The land has been sold. I still enjoy the outdoors; fishing, hiking, and bicycling with my eight-year-old. The problem now is finding the places to do these activities.

Not every Kansan has the family farm to romp on. When I was young, I was disconnected with the town kids who didn't have access to land. I think some of the legislators in Kansas are disconnected with the majority of Kansans.

Much of my memorable outdoor time comes from Missouri or Colorado. Kansas has wonderful opportunities if you know the people with the land. I don't know those people. It is frustrating to see some people in southwest Kansas not happy over the Circle K.

I hope you will follow this column in the coming issues to learn why the Circle K is such a critically important and unique opportunity. We must move toward sustainable water use and increase the economic viability of the surrounding area, while providing all Kansans more outdoor recreation opportunities.

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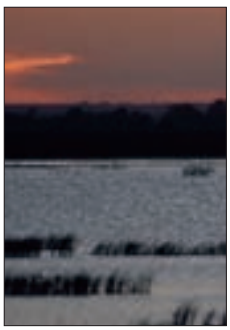

Front Cover: Drought is helping Cheyenne Bottoms staff to remove cattails and restore the wetland to former glory. Mike Blair filmed this scene with a 55mm lens, f/16 @ 1/125th sec. **Back:** Drought concentrates rough fish, making easy prey for wading birds. Blair filmed this great blue heron with a 600mm lens, f/5.6 @ 1/500th sec.

Editorial Creed: To promote the conservation and wise use of our natural resources, to instill an understanding of our responsibilities to the land.

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CATTAIL BATTLES

by Karl Grover
Cheyenne Bottoms area manager, Great Bend

photos by Mike Blair
associate editor/photographer, Pratt

Siltation and the normal aging process of a marsh make cattail control increasingly difficult at Cheyenne Bottoms. However, the silver lining of the latest Kansas drought is that it has allowed management staff to get ahead in the ongoing cattail battles.

The sun peeks over the horizon. Wisps of fog hang over the water's surface, and small shelves of ice cling to plants and soil. Duck decoys rock gently with the waves. A flock of 11 mallards appears in the distance. Skilled calling entices the group to approach and join the "birds" resting below. On their third pass, they make a final approach. From 35 yards, hunters select their green-headed targets and test their shotgunning skills.

This once common scene has played out too seldom the past couple of years at Cheyenne Bottoms Wildlife Area since a nearly three-year drought limited water entering the basin. By the fall of 2003, only one of nine pools had water, nearly elimi-

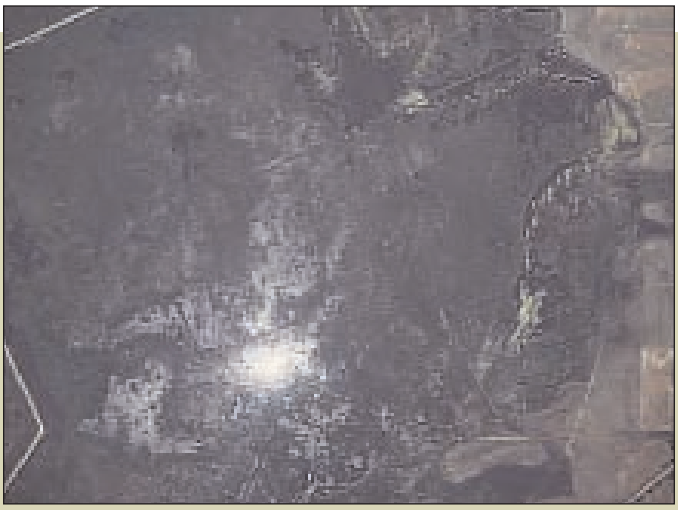
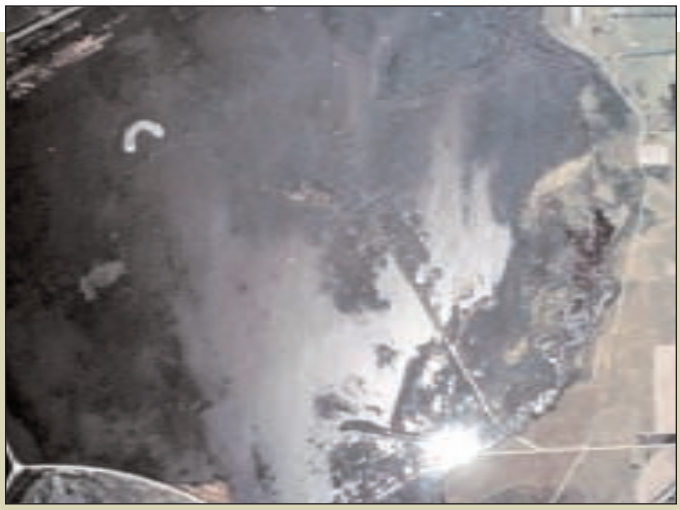
nating duck hunting opportunities. Goose hunting, while not the best, was still available, and more than 780 hunters returned the required Daily Hunt Permits in 2003-2004. Birdwatchers had some decent shorebird viewing opportunities the past two years, since birds were forced by low water to within 50 yards of the main dike road. Pheasant hunters had more than 5,000 acres of additional dry land to walk in search of their quarry. Likewise, deer hunters had much more ground than usual to cover. But Cheyenne Bottoms is first and foremost a waterfowl area. The majority of hunters and birdwatchers who visit the property look for the many species of waterbirds that stop at the Bottoms. With two years of poor water habitat, was there any good to come of it? The answer to that question is a resounding, "Yes!"

For the past eight years, the staff at Cheyenne Bottoms has kept busy taking advantage of dry weather. The hidden blessing of drought allows necessary habitat improvement in the marsh. Most notably, this involves cattail control. Recent events, coupled with accelerated ecological processes, have added a note of urgency to the work routine.

It is a biological fact that any wetland will eventually be overgrown with emergent plants like cattails. Open water gradually disappears. This process is called succession. An aging Cheyenne Bottoms has predictably illustrated this model. Over time, silt carried by erosion from surrounding high ground was deposited in the Bottoms' low areas. Wetlands became shallower, allowing cattails to become established. In time, cattails covered square miles of this 19,000-acre waterfowl area.

Efforts to reverse this problem have been the chief management activity at Cheyenne Bottoms for decades. But cattail control is difficult. Spraying is costly and can affect desirable plants, and cattails are extremely hardy and resistant to mechanical control. Disking the plants to chop and destroy tuberous roots is the best control method but relies on dry

Cattails quickly take over shallow-water areas, and during wet-weather patterns, it can be almost impossible for management staff at Cheyenne Bottoms to reduce cattail coverage. Large, dense stands of cattail reduce the area's value to wildlife and hunters.

In the 1993 USDA aerial image of Cheyenne Bottoms on the left, large areas covered with dense cattail growth. However, the 1999 USDA photo at right shows the the open water results of intensive control efforts.

conditions both to farm the plants and dry them out. In years of normal rainfall, it is difficult to disk these wetland plants, and chopped roots have adequate moisture to overcome injury, anyway. The recent prolonged drought has allowed a window of opportunity to help Cheyenne Bottoms recover from cattail invasion.

Cheyenne Bottoms has approximately 13,000 wetland acres. Until the mid-1990s, inadequate equipment combined with wet conditions hindered the fight against succession of the marsh. Tractors with less than 80 horsepower ratings and 12-foot disks were simply too small to accomplish substantial habitat reclamation. In 1995, the Kansas Department of Wildlife and Parks (KDWP) purchased a 30-foot tandem disk. The following year, a 280-horsepower tracked Challenger tractor was added to the inventory. In 1998, a second 30-foot disk was acquired, and a pull-type scraper was purchased for KDWP by the U.S. Bureau of Reclamation in 2000. A second used Challenger tractor was obtained in 2003. This equipment, coupled with the renovation effort completed in 1998 (see Kansas Wildlife and Parks magazines, March/April 1992 and September/October 1998) has greatly increased the staff's effectiveness in managing a marsh the size of Cheyenne Bottoms.

Before equipment can be employed in the cattail war, pools first have to be dried. Structure renovation, subdividing pools and construction of pump stations, has made this task easier. Once a unit is dry, residual plant material is removed (usually by burning) to allow a disk to penetrate the ground deeply enough to expose cattail root systems. Most years, burned cattails must be disked immediately to prevent regrowth, which prevents proper disking. Weather and unit size can affect this timing. If regrowth does occur before disking is complete, mowers must be used. Sixteen and 20-foot sickle bar mowers were purchased for this purpose. Mowed material must then be allowed to dry, and another burn is conducted to re-expose the soil for disking or scraping.

To complicate matters, one disking does not kill cattails. Seldom do two diskings work. Normally, three or four trips over the plants are required during a two-year treatment before cattails actually die.

Disking improves the marsh habitat by re-opening solid stands of cattail, and it also favors the growth of annual wetland plants. Many annuals produce seeds that ducks eat. Annual plants are most commonly associated with marshes in the early stages of succession. Disking, however, does nothing to address the primary cause of cattail establishment – silt accumulation. In other words, disking merely treats the symptom of marsh succession. Removing the silt actually reverses the aging process, at least on a limited basis. This is where the scraper is useful.

Scrapes were originally located in pool perimeters where cattails had become well established. The removed silt could

Controlling cattails is no simple matter. First, an area must be drained and dry enough to allow equipment in. Then the cattails must be burned (opposite page) to remove litter. If regrowth occurs before burning, mowing may be necessary And finally the roots must be disked. It normally takes three or four passes with a disk during a two-year treatment to actually kill the plants.

then be easily placed on nearby fire guards or food plots, away from the wetland. Removing silt from the marsh also contributed to diverse habitat available to waterbirds. Scrapes are now used throughout the Bottoms. A typical scrape measures 70 yards by 100 yards and is about 8 to 12 inches deep. The longevity of these openings varies from one to seven years, depending on a number of factors. In recent years, scrape emphasis has shifted from main pools to potholes in the upland grass surrounding the marsh. Many of these potholes have become choked with cattails.

Level ditches have been dug in many of the hunting pools at the Bottoms. These accomplish several purposes. One is to provide hunter access to the interior of the marsh from perimeter parking lots. Pools 3 and 4 received the deepest and longest of these ditches. Additional level ditches were dug in Pool 4. These improve hunter access and also serve as travel lanes for duck broods hatched in the upland grasslands. Most duck broods are raised in the marsh area where escape cover is easily accessible. Spoil dirt from the ditches forms adjacent islands. These add diversity to the marsh and provide loafing sites used by many marsh-inhabiting species.

One practice used at Cheyenne Bottoms since its development is the construction of islands in the pools. The original islands were built in the 1950s in association with 167 concrete hunting blinds placed in the three hunting pools. Island construction reached its peak during the renovation with the placement of 10 large (1 to 5 acres) islands in Pools 3 and 4. These islands were located in areas with dense, chronic cattail stands and served as a consolidation structure for tons of silt excavated from the adjacent pool bottoms.

As you might imagine, KDWP did not simply dry out all 13,000 acres of wetland and start disking. A progression of events has led to the present. Most years, area staff worked when weather conditions, renovation construction schedules, or research efforts allowed. Basically, the time line was as follows.

In 1996, Pool 4 was dry to accommodate structural renovation work. Since the tractor was acquired late in the year, few acres were disked. The first scrapes were constructed in Pool 4 late in 1995, using a rented scraper.

The first serious disking

began in Pool 4A in 1997. While that work was conducted, Pool 4B was drained to prepare it for treatment. By July of that year, 4A was completed and 4B begun. From 1997 to 1998, Pools 4A and 4B were disked four times. Two additional scrapes were dug in Pool 4A. We concluded work in Pool 4 in 1998 and moved into Pool 3.

During September, we mowed, burned, and twice disked about 600 acres there. Two scrapes were also constructed in Pool 3B.

In 1999, a three-year livestock grazing study was begun in Pool 3A. This project sought to determine whether cattle could contribute to cattail control within the marsh. (See "Cattail Cattle" in the March/April 2002 issue.) Meanwhile in Pool 3B, we disked about 460 acres. We also sprayed 50 acres of cattails in Pool 4A. The use of herbicide applications is limited, due primarily to cost, and the fact that chemicals kill "good" wetland plants as well as "bad" ones. In 1999 our digging efforts focused on cleaning out a mile-long boating channel in Pool 3B.

In 2000, we had the second year of the cattle project in Pool 3A. We were able to disk about 1,000 acres of cattails in Pool 3B twice, and sprayed about 180 acres. The chemicals were used on a patch of cattails growing in a part of the pool that was too wet for a tractor and disk. We also disked about 600 acres in Pool 5 and sprayed an additional 90 acres in Pool 4A where cattails had re-established themselves in a low wet spot. With Pool 3 dry, we dug one scrape in Pool 3A and seven more in Pool 3B.

Spring rains of 2001 flooded Pool 2, which flowed into Pool 3, impacting the cattle grazing project. It also flooded into Pool 3B, where it irrigated areas disked the previous year. But following the rains, disking was again accomplished on about 500 acres of cattails that had re-established in Pool 3B. Herbicides were applied to approximately 100 acres in Pools 4A and 4B. These pools were again developing a large stand of cattails, and the herbicide was applied in a manner to break up these areas. Previous experience showed that once a large stand of cattails is segmented by disking or herbi-

cide application, muskrats move in and enlarge openings through their use of remaining plants. Wet conditions prevented the use of the scraper in 2001.

The drought of 2002 allowed us to "turn the corner" on cattail control. Pool 2 was dry for the first time in more than 10 years. This allowed us to mow and disk 2,060 acres in Pool 2. We also twice disked about 950 acres in Pool 5. There was also great opportunity for silt removal. Two upland scrapes were dug in Pool 4B, and two scrapes were also placed in Pool 5. A 10-acre upland pothole was cleaned out in Pool 2. Historically, this pond provided excellent teal habitat but had become completely choked with cattails. Additionally, we initiated the reclamation effort of Long Lake, an upland area on the west side of Pool 2.

Dry weather continued into 2003. That year, we disked more than 2,000 acres in Pool 2, most of it twice or more. We also disked the shorebird nesting area two times. Approximately 1,200 acres in Pool 3 were disked twice. Herbicides were applied to more than 50 small plots of phragmites. This wetland grass has recently showed up at the Bottoms and can pose a severe marsh threat due to its aggressive establishment. The Long Lake project was completed, reclaiming approximately 22 acres of a cattail-choked pothole. Marshland management techniques have been used at Cheyenne Bottoms for decades. Declining water availability, vigorous hybridized cattails, and natural accumulating silt are problems that make management even more difficult. Through completion of the recent structural renovation and acquisition of needed equipment, though, the staff at Cheyenne Bottoms should have a fighting chance to reverse the aging of this valuable wildlife area.

Now, early in 2004, one can look across vast expanses of open marshland free of cattails for the first time in decades. Effects of the drought – dry pools – are immediately evident, but this has been a blessing in disguise. Hard work and hard weather have provided a fighting chance to drastically restore Cheyenne Bottoms to its former glory. The future looks bright for Kansas' first Wetland of International Importance. Now, just add water.

Cheyenne Bottoms renovations have allowed managers to move water more efficiently and dry pools for cattail control. However, acquisition of specialized equipment such as a tracked tractor (with scraper attached above) and large discs is also critical to successful management.

Digital Future

text and photos by Mike Blair
associate editor/photographer, Pratt

Believe it. This dyed-in the-wool film burner has converted to the digital age. Who says you can't teach an old dog new tricks?

The buck appeared on the ridge just as the sun was breaking the horizon. Drats! The deer would drop to the south, steering it away from the narrow cut that harbored my bowhunting stand. I raised my binoculars to judge the size. A 2-year-old 10-pointer, it was a beauty, but not really big enough to covet this early in season. The deer worked toward a sunlit opening about 200 yards away, and then I remembered the digital camera in my backpack.

Idly, I picked it up and looked through the 200mm lens, expecting little. Normally, this lens, a heavy tripod, and ISO 100 Fujichrome film could deliver a reasonably good wildlife scenic at that distance. But I had neither film nor tripod. Instead, I'd stuck the lens on my new D100 Nikon digital camera body, a combination that fit into my hunting backpack. I wasn't planning to photograph, and figured

the digital would be better than nothing – after all, our graphic designer who insisted it was time to move toward digital imaging had done the research, bought the camera, and now I had the new-fangled thing. So I tried it.

Hand-holding the lens at a manual setting of f/4, 1/320 second, I snapped the silent shutter when the buck paused to look my way. By now, tendrils of fog were playing among the cedars, lending a ghostly look to the scene. I pushed the review button, and zoomed the image on the data back until the buck filled the two-inch screen. Hmmm. Sharper than I expected. Nice lighting, too. I put the camera away and picked up my bow. Maybe a second buck would come my way.

Later, at home, I plugged the camera into a TV and checked the photo at full screen size. It was immediately evident that the image was good, very sharp and well saturated. I downloaded it to my laptop and opened it in Adobe Photoshop 7, tweaking the color and sharpening even further. The snapshot turned out to be an excellent photo, and I was immediately curious how the camera would perform with a "real" wildlife lens.

Next morning, I was back in my blind, this time with the digital camera attached to a 600mm Nikkor lens and Gitzo tripod. When a pair of mature bucks walked the same trail as their cohort earlier, I got some terrific close-ups. Something about the photos was different — better. Only later did I realize my telephoto lenses were "longer" when attached to a digital camera — more than 50 percent longer! This was because the image receiving area, known as the charge-coupled device (CCD,) was smaller than a normal 35mm frame of film. An image focused onto the smaller receiving area made a subject appear closer and allowed more telephoto effect with the same lens. I had actually photographed those deer with a 960mm lens.

I began to experiment with digital daily, using it in all kinds of circumstances. The results were impressive. One by one, advantages became evident, and

A display on the digital camera back provides instant review of composition, sharpness, and exposure. If you don't like it, delete it and try again.

A small plastic card (left) serves as film in a digital camera. Images can be downloaded to a television monitor and zoomed to judge sharpness before downloading to a computer. These are a few of the advantages digital photography offers.

within a month, I was using the new camera exclusively. Meanwhile, professional outdoor photographers argued in trade journals about the dangers of abandoning film, lack of adequate digital resolution, and inaccuracies in image publication. At Kansas Wildlife & Parks, we tentatively published our first digital images without fanfare. They looked fine. Then, drawing from our first year of digital pictures, we published our first fully digital photo issue in January of this year. Judging by public comments, the new technology was well accepted. Numerous questions on digital photography followed, and this article will focus on that issue.

Some seem hesitant to leave film behind, wanting to hold on to that long and historical era. However, the photography industry is in rapid change, and Kodak recently announced it is transitioning further research from film to digital imagery (though it will continue to manufacture films currently available for the indefinite future.) I admit to feeling no such nostalgia. My personal philosophy on filming nature and wildlife is to use the best means possible to capture the outdoors as it is. Digital imaging provides dramatic advantages and actually improves color and sharpness by removing the need to "scan" film for printable separations. This can result in better magazine images.

Following are the reasons I now shoot digital exclusively. First, the camera. The Nikon D100 was one of the earlier Single Lens Reflex (SLR) cameras made, and was chosen in part because it fit my current system. At the time of purchase (September 2002,) it had the highest resolution available, 6.1 Megapixels, for digital cameras. Technically, this meant that the CCD had 6.1 million light-gathering points on a "frame." The more pixels, the better the resolution. Within months, however, digital manufacturers had developed much higher resolution cameras, ranging from 11 to 15 megapixels. Capable of fabulous saturation, these cameras are very expensive and require huge amounts of memory for each image taken. Given these drawbacks, I'm still comfortable with the 6 megapixel camera. It easily produces sharp and colorful prints and reproductions up to poster size. Because of this, I recently purchased a similarly-sized Nikon D70 as a backup camera. The D70 has a number of improved features with a lower price tag. As camera prices drop and features increase, I'd recommend that interested photographers purchase nothing less than a 5 megapixel camera.

Nothing is perfect, and my Nikon digital cameras have their drawbacks. First, minimum ISO setting for both models is 200, normally considered a "grainy" setting that is limited in ability to produce clean and colorful pho-

Using photo processing software such as Photoshop, a digital image can be improved by lightening shadowed areas of a face and removing distractions from the background. Note the absence of posts, poles, and wires in the photo at right.

Dramatic images can be created by combining digital photographs. However, these are deceptive and will be used in this magazine identified as "photo illustrations."

tographs. Frankly, this hasn't proven a problem and is rarely noticeable. On the plus side, ISO 200 provides a free stop of depth-of-field at a given shutter speed. Translated, this means it is easier to focus accurately on moving subjects such as flying ducks or running deer. My standard digital exposure setting for sunny, front-lit subjects is now f/11 @ 1/640 second, an amazing advantage over the f/5.6 @ 1/500 second I needed for Kodachrome 64. Even so, there are times when an ISO 100 setting would be useful. Some digital cameras allow this. If you are planning to buy a digital camera, be sure to consider this issue.

More annoying, nearly all of my Nikkor lenses are old-style and activate neither metering nor autofocus systems in my digital cameras. The lenses work in manual mode only, albeit with excellent results. Shooting as much as I do, I can usually guess the correct exposure within a stop. At any rate, adjustments can be made instantly by shooting a test shot and reviewing the image on the data back screen. Even so, I'd prefer metering information through the viewfinder (though purchasing appropriate lenses would be very expensive and not worth the cost.) Lack of autofocus makes no difference, since I always focus manually anyway. Recommendation: Though auto features are nearly perfect on modern digitals, buy a digital SLR camera that allows manual exposure. If you have old lenses, use them and save your money. Otherwise, buy new-style lenses that work automatically.

A final disadvantage of digital cameras is a limited "buffer." This is the storage feature which allows a quick series of continuous photographs. With my former Nikon F5 film camera and motordrive, I could shoot an entire roll of film at a rate of 8 frames per second. When shooting high-speed sequences like flying ducks, this increased the chance of getting a sharp picture. The digital D100 allows only three quick frames, and then it must wait for a short period to process the photos before continuing. Depending on format selected, each frame comprises 17 megabytes, so the buffer holds 41 megabytes of storage. This much information in simple text would equal more than 1,200 magazine articles the length of this one. Even so, a three-frame buffer forces one to choose shots carefully. (Flip side: extra depth-of-field, increased telephoto effect, and Photoshop sharpening tools help offset the need for rapid firing as a means of getting sharp digital images.) The D70 buffer is slightly larger, and some digital models are bigger yet. When buying a camera, be sure to check this feature.

These digital disadvantages are minor when compared to the benefits. A host of film problems no longer apply. Film age and storage, high film and processing costs, processing turnaround time, set ISO speeds, latitude, and color shift problems are things of the past. Risk of mechanical scratching, photo loss, or damage in transit or publication is eliminated. The ability to instantly "process" an image in ways before undreamed of, is also a plus for digital imaging.

My digital "film" is a 256-megabyte Compact Flash card

(about $90.) It holds 24 high-resolution images which are downloaded to a computer for processing. The card is then reformatted to use again indefinitely. Four of these cards support my daily work. Erasing unwanted photographs as I shoot, I rarely end up with more than 100 photos in a day. Thus, memory cards worth $360 have saved many thousands of dollars in film and processing costs. Photographers who shoot a lot of film can quickly pay for a digital camera through reduced expense. Digital memory cards are also available in smaller or larger storage capacities, priced accordingly.

A fabulous advantage of digital photography is the ability of many cameras to shoot in RAW mode. This allows correction of exposure and color balance after images are taken. Corrections up to two stops either way are instant and easy. Using this feature in combination with Photoshop's additional tools, I have published pictures taken in conditions so dark that the original subject could scarcely be identified. If you are thinking about buying a digital camera, look for one with RAW capability.

Instant pictures are an advantage for every photographer. In the case of *Kansas Wildlife & Parks* magazine, digital imagery has eliminated the problem of waiting 10 days to review shipped film. Not only does this reduce deadline constraints, it eases potential problems when shooting outdoor subjects. For instance, filming a bird nest sometimes requires elaborate lighting setups to create usable photos within dark shadows. Since nestlings hatch and fledge in a period of about two weeks, nest photos shot on film were seldom available for review until it was too late for a re-shoot. Digital imagery, however, provides instant photographs and is often effective even without strobe lighting.

Digital pictures can be downloaded and printed directly from the camera at photo shops or other venues, but personal control and further use of the images depends on a computer and processing software. All digital camera systems come with some type of editing software, but if you are serious about working with images, Adobe Photoshop is a must. The professional version is expensive, but fortunately, Photoshop Elements is inexpensive and easy to use. Such editing software provides a world of effects to improve or even salvage a "bad" picture. Sharpness, color, and brightness are just a few of the many adjustments offered. In seconds, a jet contrail can be removed from a skyscape, or a blemish can be removed from a person's face. Pictures are easily resized and tooled to allow home printing on a computer inkjet printer. Or they may be instantly shared via the Internet.

Due to the tools available for digital imaging, the question of photo ethics must be addressed.

Digital RAW images allow instant exposure adjustment after the shot is taken. The original photo (left) was taken in conditions far too dark for film. After computer processing, the image is acceptable.

It is possible to create composite images of impossible situations that did not occur. It is easy, for instance, to place a whitetail buck from one photo into a beautiful snowy scene in another. Similarly, it is easy to place a dead calf in the nest of an eagle, creating the illusion that an eagle carried it there. Ducks can be placed on ponds; a coyote can be placed before a full, rising moon. These photo illusions, indistinguishable from actual photographs, are beautiful but deceptive.

While this may translate into art or humor for some individuals, it represents a serious question for those who publish images. Is the photo real or fake? At *Kansas Wildlife & Parks*, we have often discussed this issue and feel we owe it to readers to define our work.

Nothing will be added to our magazine photographs, though in some cases, information might be removed. For instance, a distant power line that seems to run through an angler's head might brushed out, or a blade of grass obscuring a coyote's nose might be removed. Color will not be added to photos but might be saturated by a few percentage points. These things fall within the realm of normal photographic tools and techniques, and have been used in producing outdoor photographs for decades. Masking, dodging, or burning will continue in their historical manner, though faster and easier in digital format.

In short, photographs in this magazine will continue to be real photographs, never manipulated to add contrived drama. Other digital art that combines pictures may be used for effect, but such manipulations will be identified as a photo illustrations and credited to whomever produced them.

The digital age brings incredible new possibilities. I'm excited about technology that brings such speed and control to photographers. It's refreshing to come back from a day outdoors and immediately see what was accomplished. As this rapidly changing technology unfolds, even better things lie ahead.

Trading Spaces

by Barbara Blaufuss
Emporia

Bees picked the wrong place for a new hive, but with a couple of lucky breaks and some hard work, they ended up with a new hive in a better location.

Mike Blair photo

Springtime is exciting for many reasons and one of my favorites, as a beekeeper, is being called to collect a swarm. It is natural for honeybees to swarm in the spring; to divide their colony in half and take their queen to a new location. They leave queen cells in the old hive so the remaining bees will shortly have a new queen. This is the way a honeybee hive reproduces.

Every beekeeper I know has stories of dramatic swarm retrievals. Bees choose places high and low to gather in a dense cluster while scout bees look for a new hive location. Swarms are sometimes as big as a basketball, hanging from a small limb and taking as little as three minutes to hive. This is especially nice if people are watching. Or swarms can cling to a farm implement and take hours to disappear into a new home.

The swarm in this story was relatively complicated and interesting for the ease and efficiency with which it was hived by competent men, mostly non-beekeepers. One May morning in a strange coincidence, I had two phone messages, one from a man who had spotted a swarm of bees on his place and the other from a man looking for bees. The first was from Roger Wells, saying he had found bees in a log at the center of his woodpile. Roger is the national habitat coordinator for Quail Unlimited, and works out of his home in rural Americus.

Later that same morning, I had a message from Tim Menard, wildlife biologist with the U.S. Fish and Wildlife Service at the Flint Hills National Wildlife Refuge at Hartford. He had

started a hive of bees earlier in April and the colony had dwindled to a handful. He wondered if it was still possible to replace them. Nice timing! I told him about Wells' swarm and we agreed to meet later to go to Wells' farm. That evening we loaded our chain saws in my truck. Menard brought a beehive, I brought my camera, and we both brought protective clothing, veils, and bee handling tools. On the way, we tried to guess what we might find and how we might move bees from a log into a hive.


Mike Blair photo

It's not uncommon to see swarms of wild honey bees in spring as they search for new hive locations. This particular swarm ended up in a hollow log which was part of a brush pile that the landowner planned to move. It took a team effort to move the hive.


Barbara Blaufuss photos

Wells' place is a sea of grass. His 300-plus acres provide an excellent example of enhancing a farming operation with wildlife management practices. An excavation contractor from the area had been working that morning to clear a trail to Wells' lake when he spotted the bees in the woodpile. They were already making a home in a log, entering through a crack in one end. The men said it had been a long time since either of them had seen a swarm.

It's been about 20 years since two kinds of mites parasitic to honeybees somehow swept across this country, killing bees and putting beekeepers out of business. Domestic beekeeping has recovered through the use of miticides, but it is estimated that 95 percent of the wild honeybees are gone. Wild bees used to pollinate our fields and gardens, the ones that sent out most of the swarms we used to see in the spring. A few remain, and now we had a chance to collect a wild hive. It is estimated that only about 20 percent of swarms that find homes in the wild survive, while closer to 80 percent survive when hived by a beekeeper. If we were successful, it would be a winning situation for everything and everyone involved.

As we approached, we could see the log pile from the road a quarter-mile away. This pile of ash trunks came from trees removed when the lake was built. The bee swarm had moved into a log almost dead center in the pile. They could have stayed there, but Wells planned to move the pile later on.

Using a tractor and chain, the log containing the hive was selected and removed from the pile. Once it was free, Menard went to work with the chain saw, a skill he learned working five years as a fire fighter with the Forest Service. He began to cut sections from the far end of the bee log, moving carefully to avoid harming the colony.

A few minutes later, an opening to the cavity appeared. Now it was time to place queen pheromone into a hive box that Menard had brought to house the bees. Pheromones are chemically active scents that the queen, the bees, and even the larval bees emit from glands. The emission of these scents controls the behavior of the colony. This important beekeeping tool can be purchased from a beekeeping supplier.

Using a front-end loader on the tractor, the opened log was

now suspended over the prepared hive box so that gravity would coax the bees down into their new home. At first, about a gallon of bees fell out onto the top of the frames in the box. This excited us. But unfortunately, no more bees came out. Menard suggested we lower the log and cut it again.

Thousands of bees were exposed by this last cut, and many of them fell into the hive. None of the men were wearing anything in particular to protect them from the bees. Most of the time during this operation, hundreds of bees were flying around the log. But none seemed interested in stinging. Typically, most honeybees in swarms found in recent times are closely related to queens that have been in domestic hives. These bees are "livestock," bred for gentleness as well as productivity. They can and do sting, but are not generally aggressive.

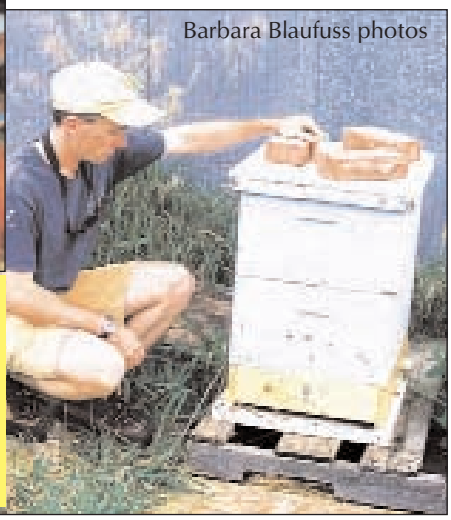
Now, the question was whether the queen was in the hive or still in the log. This was important, since the bees would follow her. Soon, we noticed bees carrying sawdust and debris out of the hive box. At the same time, dozens of bees on the hive bottom board were bending to expose a gland in their tails and fanning their wings to spread the pheromone from this gland. They were apparently trying to attract bees still in the log, into the hive. Both behaviors indicated that the queen was now in the hive box.

We decided to leave the short log piece containing bees on top of the hive box overnight. The extra time would allow all the bees to finally join the queen in

After the section of the log with the bees was separated, the log was positioned over a hive box.

the box. The log was heavy, but the three men were able to lift it. With this, the work was done for the evening. We looked west and spotted deer on the dam and relaxed to enjoy the Kansas sunset over the lake.

The next day, a pleasant hum from the hive box indicated the bees intended to stay. By now, nearly all the bees had left the log. We waited for evening until the last of the flying workers returned to the hive for the night. As Menard pushed denim into the hive entrance to close it, the last bee, fanning on the bottom board, walked into the hive. Tim loaded the box on his truck and returned to his home at Hartford.



Barbara Blaufuss photos

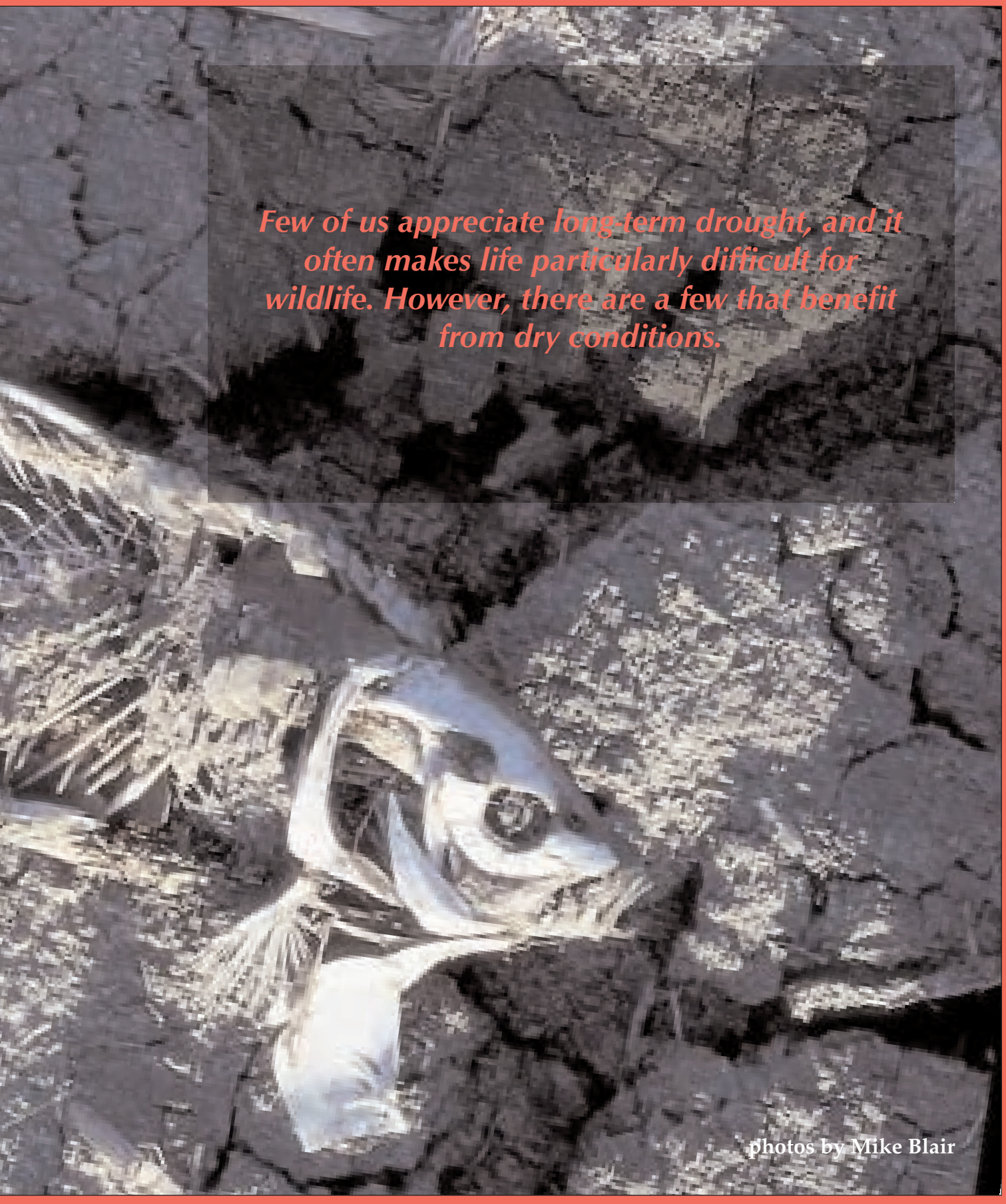
Once it was determined that the queen bee had moved to the hive box, the bees were left overnight to allow the rest of the hive to follow. Tim Menard, right, took the hive home to replace a hive he had recently lost.

Three weeks later, young bees crawled out of cells on the frames in Menard's hive. Several frames were full of pupae, so that a month later, the hive had doubled in size. Menard added a second box to accommodate the expansion, and a narrow box at the hive's bottom served as a collector for harvesting fresh pollen. Each day the bees went out to distant fields, working the native wildflowers and meadow plants so that the hive might have honey. Menard manages his prairie acreage with timely prescribed burnings to encourage forbs like butterfly milkweed and wild alfalfa that are especially attractive to his bees.

So ended a successful project involving man and nature. Now under the nurture and protection of a skilled beekeeper, the hive could continue to perform its important role in natural pollination. In return, it would yield the sweetness of the land to be enjoyed by its steward. As such, the experience was another chapter in the endless goodness of outdoor Kansas.

DROUGHT'S IMPACT

by Tommie Berger
district fisheries biologist, Sylvan Grove



Few of us appreciate long-term drought, and it often makes life particularly difficult for wildlife. However, there are a few that benefit from dry conditions.

photos by Mike Blair

Ten years ago, you were reading articles in this magazine about the effects of flooding and high water on Kansas wildlife. The 1993 floods and the wet years from 1993 through 1996 resulted in some of the best fishing western Kansas has ever seen. These flood years followed severe drought conditions of the late 1980s and early 1990s. Even so, I would say that most people have forgotten about the drought years, while clearly remembering the wet ones.

For the past couple of years, we have again experienced drought conditions throughout Kansas, particularly in the west. We have seen decreased moisture conditions in just about all seasons, and we have experienced several hotter-than-normal summers, warmer-than-normal winters, and what seems like more radical fluctuations in both temperatures and rainfall. Farm ponds are drying up throughout the state, western Kansas reservoir water levels are plummeting, and farmers are having a tough time raising decent crops. Things are tough out there!

Lets look at some of the impacts drought conditions have on fish. When you drive past your favorite lake or farm pond, the evidence of drought is obvious. Dried up farm ponds mean limited water for livestock and any wildlife living there, including fish. Untold numbers of fish have perished as farm ponds have gone dry, and many more are threatened in critically low ponds. Some pond owners may have salvaged fish to eat or moved them to other ponds. But generally, pond fish are low on the priority list when the water runs out. However, raccoons and great blue herons might have a different feeling toward drought conditions than we do.

Drought is obviously hard on fish populations, especially in small lakes and ponds. However, lowering water levels can have benefits in larger lakes and reservoirs by allowing vegetation to grow along shorelines and predator fish easy access to prey fish. Benefits are generally realized when water levels return to normal.

Smaller lakes like state fishing lakes and community lakes are also affected. In some areas of the state, even state fishing lakes have gone dry. Others are critically low and may go dry before the drought breaks. Some impoundments used for municipal water supplies have to deal with poorer water quality, water conservation measures, and even water rationing. Some towns and cities are now searching for alternate water supplies just to satisfy municipal and industrial needs. A lot of us take water for granted and perhaps mumble and grumble during the wet years, but it is usually the drought years when we realize how valuable water really is.

Large reservoirs certainly are not immune, and water withdrawals can intensify the effects of drought conditions. This is especially true for western Kansas reservoirs such as Webster, Kirwin, and Sebelius, which support irrigation functions. These reservoirs have experienced such low water levels during dry periods that the sport fisheries are damaged. Webster and Kirwin reservoirs both entered 2004 more than 20 feet below conservation pool. Cedar Bluff, on the other hand, where irrigation no longer occurs (the department purchased a portion of the storage in 1992,) was 6.8 feet low on January 1, 2004. The department will continue to work with irrigation districts and other stakeholders in an effort to reduce extreme dewatering in the future. To a lesser degree, eastern Kansas reservoirs are impacted by mandated releases

for downstream water supplies, water quality, minimum stream flows, endangered species management, and commercial interests on the Missouri River.

Low water levels on large reservoirs affect fishing opportunities in a number of ways. Marina operations are designed to function their best at or near conservation pool levels. If pool levels drop significantly, some marina operations are negatively affected. State Park facilities at most reservoirs are much the same. Campers prefer to camp close to the water. Many want to park their boats close to their campsite for convenience and security. With water levels down, boat ramps are often too short or may be completely out of the water. Courtesy docks have to be moved. And boaters and boating anglers often find low water levels challenging. Water hazards crop up that no one had to worry about before.

Rivers and streams are impacted too. Many western Kansas streams are dry again, and some eastern rivers are experiencing low levels. Folks pretty much get used to the creek getting low or drying up, but they know that when the rains come, it won't take long for the fish and other critters to return. Overall, low water levels in streams and rivers don't cause as much concern as those in lakes and reservoirs.

When it comes to fish and fishing, drought conditions are not all gloom and doom. Experience tells us that there is good in everything, and we can find some good in regards to drought and fishing. As the ponds, lakes, or reservoirs recede during dry cycles, the water volume decreases slowly. Obviously, that tends to concentrate the fish into a smaller area and should make them easier to catch. This works up to a point. Once the fish become extremely crowded and water quality begins to suffer, they may not bite or be easy to catch.

As lakes recede, shoreline habitat becomes high and dry. That means fish preferring woody habitat or vegetation are looking for something else to utilize. If there are in-basin brushpiles or other habitat, those fish will congregate around the deeper structure, and that should make them more vulnerable to anglers at those locations. As the larger fish get concentrated, they also tend to eat up the available forage and become hungrier. If the lake refills, often

Obviously any fish in this pond perished or were moved. Many game fish are lost when small ponds dry up during drought because moving them is difficult.

the reduction in smaller fish is a benefit because they may have been overpopulated or stunted. Biologists use intentional winter drawdowns at times for just this purpose.

Usually during dry periods, water recedes slowly and terrestrial vegetation begins to grow on the exposed shoreline. The longer the water is down, the more vegetation that grows. Of course, that is what happened in the western Kansas reservoirs back in the 1970s and 1980s. Trees, brush, and other vegetation grew, and when those lakes re-filled in 1993, that flooded habitat provided perfect conditions for fish that prefer shallow shoreline such as bass, crappie, and bluegill. These lakes were born again. But in farm ponds or small lakes that do not go completely dry, just the opposite might happen when weeds growing on the shoreline are suddenly inundated. All those weeds then die, begin to decompose, and take the oxygen right out of the water. Fish kills are common in these situations. Sometimes, it seems we can't win no matter what happens.

After water levels recede or shoreline habitat deteriorates in large reservoirs, fish populations begin to change. The littoral zone fishes – bass, crappie, bluegill – are out-competed by the more open-water species – white bass, wipers, and walleye. We have seen that switch in all our Kansas reservoirs, once as those reservoirs aged, and again when some of the lakes were low for a long enough time to allow lots of new terrestrial vegetation to grow. When re-flooded, the lakes were just like new.

Current water level management plans on many of our Kansas reservoirs request drawdowns yearly in an attempt to bring about just such a situation – just on a more limited scale. The effect may not be as dramatic, but the flooding of any terrestrial vegetation provides nursery areas for many fish species, a smorgasbord of aquatic insects and invertebrates, as well as escape cover from predators. Gizzard shad, the most important forage species in our Kansas reservoirs, love flooded vegetation as a spawning habitat. Flooded vegetation helps clear the water, muffles the wave action, and helps prevent shoreline erosion. Ask any fisheries biologist and he will tell you there is probably not a better management tool than flooded vegetation to enhance a fish population.

This wetland shows the effect of drought. No ducks will stop here this spring. The mud mounds visible are crayfish chimneys, built as crayfish burrow to maintain contact with water.

WILDLIFE

Flooding of vegetation not only benefits fish species, it helps other kinds of wildlife. Waterfowl benefits are well documented. Most of our aquatic furbearers prefer flooded habitat. Both types of wildlife can be negatively affected when drought conditions reduce preferred habitat. Waterfowl may fly right over Kansas during the fall when water conditions are poor. They also find limited nesting habitat in the spring when it's dry. Beaver and muskrats have to follow the water levels down, and

This great blue heron won't complain about the drought, yet. Dropping water levels concentrated fish in a very shallow pool, creating a smorgasbord for the opportunistic wading bird.

they become extremely vulnerable to predation when they lose their secure aquatic environment.

In the past few years, anyone who has driven across the Sunflower State has seen evidence of drought conditions in regards to terrestrial habitat. With limited rainfall, not only do crops have a tough time growing, so do the weeds, trees, and grasses. Wildlife habitat is all that stuff out there that provides cover, food, and protection for our wildlife species. When it gets dry, habitat simply diminishes in both quantity and quality. Of course, it affects some species more than does others.

Some wildlife species benefit from dry conditions. Turkeys are a good example. Over the past few years, turkey numbers in Kansas have increased significantly. Since a majority of our turkeys are Rio Grande and they are adapted to more arid environments, they have flourished in dry conditions. At the same time, though, expanded riparian zones and better nesting conditions due to habitat succession from prior wet years has helped increase turkey populations. Jack rabbits appear to favor recent dry periods and have increased to the point that they are again fairly common in some areas.

Upland game bird numbers certainly cycle up and down with varying weather conditions. Over the past decade, prairie chicken numbers seem to be holding their own or increasing in some areas of the west. But rangeland conditions have deteriorated due to the drought and overgrazing of dry pastures. Prairie chickens do best when residues left from the previous growing season are 12 to 30 inches tall. In central and eastern Kansas where CRP stands may become too tall for chickens, drought or treatments that thin or shorten a stand of grass such as controlled burning, managed grazing, strip disking, and inter-seeding, may benefit prairie chickens and other game birds. In normally drier western Kansas, though, drought can be harmful to prairie chicken habitat in the short term.

Quail numbers have really been down the past couple of years, but the effect of drought is uncertain. The tough winter of 2001/2002 was the real demise to recent quail numbers, but less-than-optimum nesting and brood rearing conditions have not helped.

Pheasants are a different story. Out west where the drought has been most severe, pheasant numbers generally remain down but responded favorably to the nice spring of 2003. Still, drought has certainly been negative with its effect on the herbaceous cover pheasants need.

The emergency drought release of CRP for haying and grazing the last couple of years has had some limited effect on

habitat. Some WIHA areas have been affected by these practices, and hunters have sometimes been disappointed to arrive at a WIHA tract to find that part or all of it had been hayed or grazed. On the other hand, these practices do have a positive long-term effect of removing excess litter which hinders movement of young game birds. Periodic spring controlled burning of CRP has similar effects. Certainly, drought conditions can affect hunters whose favorite dove hunting pond may have dried up, whose favorite duck marsh is as dry as a bone, or who planned to hunt a WIHA tract that was hayed late in the summer. But, a year or two later, the hunting may actually be better in some situations.

Still, habitat is the key to survival for all these game birds. And habitat is critical at all times of the year. Nesting habitat in the spring is important, as are weather conditions. Cold, wet springs or dry, hot ones both work to diminish game bird production. If green wheat does not do well because of dry weather, then a lot of the nesting potential for pheasants is lost. Chick-rearing habitat is also critical. If hot, dry weather reduces forbs and insects, game birds will suffer. And, of course, winter cover and food is also important. If drought limits winter cover and there is little or no waste grain or weed seed production, then the birds will not fare well in cold and snowy weather.

What about deer? Most would probably agree that our deer population is seldom limited by food or habitat conditions in this agricultural state. Deer easily find food and are mobile enough to adjust to limited habitat conditions and reduced water supplies. But several deer diseases appear to be related to limited water that occurs during drought. These are hemorrhagic diseases which tend to show up in late summer/early fall in concentrations of deer around limited water sources. Such diseases are spread by biting midges and not by deer-to-deer contact. Drought conditions may simply concentrate sick deer, rather than directly causing increased deer mortality.

We also have lots of other wildlife out there that are affected positively or negatively by dry weather over extended periods of time. Certainly, amphibians and reptiles that require moist conditions can be severely affected. Effects of habitat loss on non-game bird species may be positive or negative. Some furbearing animals are more affected by dry weather than are others.

Many of these populations have adapted to the Kansas environment over eons of time, through drought cycles as well as wet ones. Most Kansas fish and wildlife have evolved, adapted, and survived all the weather conditions that Mother Nature hands out. The strong have survived, the weak have not. We humans can control lots of things in our world today, but the weather certainly isn't one of them. We may not like what we are dealt, but we still have to live with it.

Mable

by Mike Blair

A friendship built of common interests, though from different generations, provides rewards beyond expectations.

Spring sunshine filters through a window and warms a small teddy bear that sits by my couch. It might seem out of place among art, antlers, shells, nests, and decoys kept to remind me of outdoor interests. But it has a place and a reason. The teddy bear reminds me of Mabel.

Mabel lived in a small frame house in Cherokee, a tiny woman with a big heart. Her modest home was full of homemade dolls spun by arthritic hands that hurt when she sewed. To sit with her, you first had to clear a chair of stitched monkeys, birds, or fancy girls. Only then was there room enough to visit.

Mabel was 89 years old, a double amputee who was fiercely independent and somehow managed to live by herself. Her life was challenged by wheelchairs, aches, and oxygen hoses that criss-crossed the floor, her chair, and her. But pity found no place at Mabel's house; she wouldn't allow it. Years of circulatory problems had eventually taken both her legs. She didn't complain, but sometimes mentioned how strange it was to "feel" lower extremities no longer there, and ghost pains that hurt from places now gone.

All of that was a momentary distraction, though. Bright eyes and a ready smile were Mabel's trademarks. She had a sparkle rarely seen in a person of any age. Mabel was often in pain but seldom showed it. Instead, she'd assert her plan to ignore the trouble and live and sew until she died. Her mind was sharp and clear, and she could recall in detail happenings that spanned nearly a century. She never locked her door, and if it was warm outside, she might not even shut it. Nothing bothered her much, except being caught without her teeth. In that case, she would fuss and quickly wheel away to find her dentures. Once they were in place, she leaned into a conversation like an eager child at story time. So we spent our time telling stories, the best of which were hers.

You learned two things from Mabel: First, nothing made better memories than a creek bank and a fishing pole. Her favorite recollections came from decades earlier, camping with her family now gone, and spending nights on a river around a soft campfire while catching catfish. She'd name the creeks and strip mine lakes from several counties where she'd lived, and by the time she was finished, you could hear mosquitoes hum from those faraway evenings. I'd listen, thinking of my own kids now grown and gone, of our own outings, and feel thankful for a life that still included the sort of places she could visit only in her mind. A quiet whisper always crept in to say that my time for simple memories was coming, too.

The other thing she talked about was working until Jesus came to get her. She spoke of Him with the confidence and happiness of a mom expecting her grown-up kids for dinner. He was coming soon, she said, and she was going off to Glory. And she expected you, whoever you might be, to get right and come along later.

My stories weren't so different when it came to the outdoors. In fact, our acquaintance was cast when Mabel read my book, Prairie Chronicles. Its pages wander through outdoor thoughts and family adventures that seemed to mesh with hers. A series of circumstances involving my college-aged daughter one day brought us all together at Mabel's home. For the several years that followed, I visited when time allowed, even after my daughter graduated and moved on.

Mabel kept a birdbath and feeder outside her picture window and spent hours watching birds come and go. Hot or cold outside, she always wanted to know what was happening in the woods. Nothing delighted her more than hearing how a bobcat sneaked in to a predator call, or how a buck crossed through a sunlit opening as leaves fell from the trees. I'd show my wildlife pictures on a laptop computer and recount the excitement felt when animals came close. After that, she always asked about the fishing.

I talked of fly-fishing, the fun of tying a fly and casting it to the lair of a bluegill or largemouth. She'd question in such detail that you wondered if she planned to try it later. Then, she'd drift back to the river and remember a cane pole and a mess of worms on a hook, the fun of a bullhead and the sizzle of catfish in a pan. And it would be my turn to wish I'd been there.

"Boy, I miss those things," she said one day, as I got up to leave. "What I wouldn't give for a good mess of fish!"

The words stuck with me, drifting in and out through the

weeks that passed at my home, half a state away. Then one day, when clouds rolled in and weather prevented work, there came a chance.

I was two hours from Mabel's house, and it was four hours until suppertime. She wouldn't know I was coming, and that made things iffy. In fact, I wasn't sure I could pull it off. The midday September pond held no guarantees as I strung the fly rod carried for such odd moments while traveling. The water was free of weeds, but a

herd of cows stood belly deep across the way, making it muddier than I might have hoped. Even so, the pond had always been a good one, and I'd known the owner since childhood. I dropped down the dam and made a cast into water low from drought. The fly fought against an east wind, always a bad one for serious

fishing. The yellow wooley bugger pulsed through the water, searching for anything hungry.

A bass struck the fly. The floating line snapped taut, and I wasted no time to enjoy the fight. Food fishing, I snatched the small bass into a waiting bucket. The 12-inch fish was a good start.

It took a while for another hit. I switched colors, tying on a black bugger for better visibility in the murky water. To up the odds, I added a dropper tippet and a size 10 sinking gnat, hoping that bluegills might get friendly with a smaller hook. The kind of fish I caught didn't matter; I just needed enough for a meal.

More because of Mabel's wish than my skill, fish accumulated despite the poor conditions. A bass hit here, a sunfish there, and soon the bucket contained enough small fish for a meal for two. I filleted, washed, and packed the meat in ice. Then I headed for Mabel's house, hoping that things would work out as planned.

She was asleep when I got there at 6:00, folded almost in half in her wheelchair. I saw her through the screen door and knocked gently, hoping not to startle her. She awoke with the instant energy of a light switching on, at once happy to have a visitor.

"Have you eaten yet?" I asked. "Not yet," she grinned back, toothless.

"Where's your pan?"

She sat in the kitchen then, watching and talking as I found the supplies needed to start supper. Her dishes were clean and arranged neatly in the drainer rack, impressive since Mabel could barely reach into the sink to wash dishes from her wheelchair. But somehow, she always managed.

I fried the boneless fish in an ancient black skillet, and its smell filled the house like a long-forgotten perfume. As I worked, Mabel talked non-stop, anticipating its taste and wanting to know about the catching. I told it all: the smell of a late summer pond; muddy cow tracks along the water's edge that made it hard to walk; the hint of autumn on a fresh wind; the fun of a tugging line; cleaning chores with a pocketknife; the race to arrive in time.

Finished cooking, we sat and ate fish and enjoyed the evening. She ate five pieces – a record, I'm told, for her dwindling daily consumption about which a visiting nurse constantly scolded her. And Mabel was happy. The simple meal was a king's banquet, the conversation a ballroom dance.

If I ever did something right, it happened that afternoon.

I saw her twice after that, once in a hospital and much later at her home. She was busy sewing in our last visit. A local TV station had interviewed her about her "work," and friends and strangers from a large area had donated thread and fabric for her handmade bears. Now she was famous, she said.

She sewed the bears in all colors and gave them to area patrolmen for use when a child was involved in a car wreck, a fire, or problem at home. She was proud of her bears, which took "27 steps to hand-make."

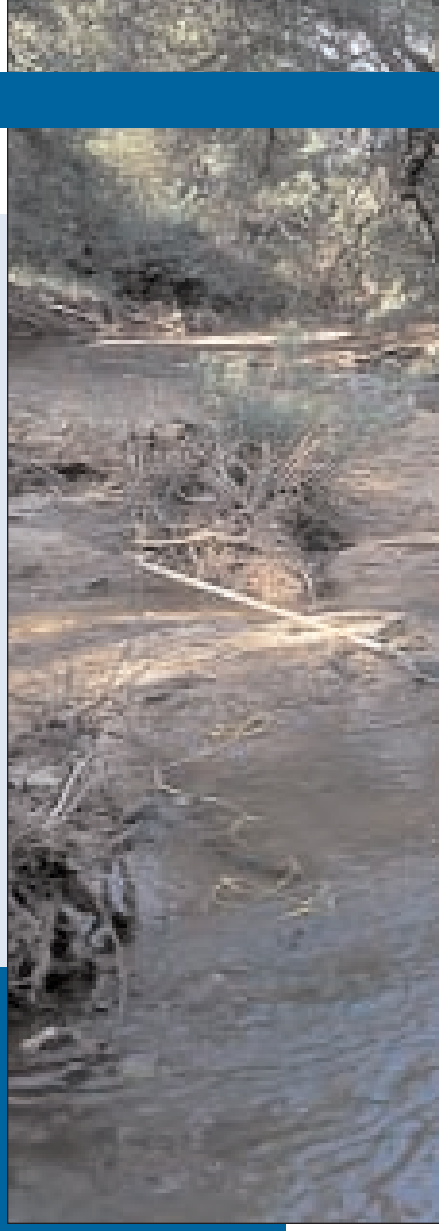
"I've got to hurry," she told me. "I've got all this material to make up before Jesus comes. I don't know how long I've got, but I'm going to work until He gets here!"

Spring sunshine filters through a window and warms a small teddy bear that sits by my couch. The bear reminds me of Mabel. She made it for me before she left, and somehow, it fits among my outdoor treasures.

I'll bet she's up there dancing in Glory, and maybe fishing along a creek. Down the trail a few years behind her, I keep heading that same way. I'm glad I knew Mabel and heard her stories. Meanwhile, I'll keep saving mine.

For later on, you know.

Stream Team



by Kristen Hase
aquatic ecologist, Pratt

photos by Mike Blair

Crews of trained biologists are surveying streams and rivers across the state. The information they gather on the fish and invertebrates living in Kansas streams provides valuable insight into the health and condition of our flowing waters.

Kansas is home to a diverse and abundant group of stream-dwelling organisms, including approximately 135 kinds of fish, 45 kinds of mussels, and many more insects, worms, and crayfish. These numbers change as new aquatic animals come into the state (accidentally or intentionally,) or as species are extirpated. Approximately 20 species of Kansas fish are non-native, including the common carp, white perch, and western mosquitofish. Non-native mussels include the Asian clam and zebra mussel. Stream communities have changed dramatically over the years due to impoundment construction, dewatering, and other physical and chemical changes.

Changes in stream life can be subtle and take many years. In fact, most of us may never notice some of these changes. But they can be important signals that can help biologists make informed management decisions. Until recently, though, little was known about many Kansas stream communities. The Kansas Department of Wildlife and Parks (KDWP) began surveying stream fishes in the 1970s. Prior to that, most surveys were done by state universities and were localized within river basins.

It wasn't until 1994, though, that an intensive stream survey program was initiated — the

Steam Assessment and Monitoring Program (SAMP). Supported by federal grants, program projects include statewide surveys, basin surveys, and watershed or countywide surveys. Since 97 percent of Kansas land is privately owned, most stream surveys are done on private property with landowner permission. Efforts are ongoing to document stream animals on public lands as well.

For the last 10 years, KDWP has been collecting, studying, and recording fish and aquatic invertebrates (animals without backbones) from Kansas streams. SAMP is designed to assess the current status of fish and invertebrate populations in flowing waters across the state. The animals of interest include both game and non-game species. To date, more than 1,000 surveys have been completed, and approximately 100 more will be completed this summer. Waters surveyed range in size from small, unnamed tributaries, to large rivers.

The core of SAMP is the basin surveys, which involve a three-year survey of 140-150 sites within one or two of the river basins. To date, the Neosho, Kansas-Lower Republican, and Lower Arkansas river basin surveys have been completed. The Upper Arkansas and Cimarron river basins will be completed this summer. Other surveys have included statewide surveys at some USGS stream gaging stations (see website list), surveys in Johnson County streams, surveys on public lands, and assessment of white perch on stream communities. Approximately 50 sites are planned for re-survey about every five years to assess aquatic communities over time. Long-term trends will be important as land-use changes, especially near urban areas.

Range information for Kansas aquatic species is important, since

continued monitoring will identify any future changes. Stream surveys also track the range expansion of such newcomers as the Red River pupfish, inland silverside, and white perch.

The program also examines relationships between the physical and chemical environments of streams and how these impact the related biological communities. And stream surveys help KDWP assess the sport fishery potential of a stream, as well as the biological response to stream bank stabilization projects.

Stream crews sample wadable streams and rivers using equipment such as the backpack electroshocker, above.

Survey sites are selected by a variety of methods. Some are randomly chosen, while others are specified by grants. Most sites have been surveyed only once, but a few are surveyed annually for several consecutive years. Still others have been revisited every five to six years. Each stream survey provides a "snapshot" of the community. The goal of every survey is to collect all species which occur in the stream. However, there is no attempt to collect all individuals, and it is likely that some species are missed, especially if sampling conditions are poor.

Sampling procedures require that a stream be shallow enough to wade, but big rivers are surveyed in wadable portions, or during periods with low flow. Surveys have been done on nearly all of the major rivers of the state, including the Kansas and Arkansas rivers.

A crew of five trained biologists known as a "stream crew" normally conducts each survey. Site length ranges from 150-300 meters, and 11 transects are evenly spaced along this length for physical measurements. Extensive physical, chemical, and biological information is gathered. Fish and macroinvertebrates are collected. Water data such as stream depth, width, and flow are measured. Chemistry data such as dissolved oxygen and water pH are recorded. Riparian vegetation (vegetation along stream bank) is assessed at the canopy, understory, and herbaceous layers, and adjacent land-use is also recorded.

Fish are collected with backpack or tote barge electroshockers and various seines. Shocking allows a crew to sample in submerged brush piles where a seine cannot be used. In addition, electroshockers are more effective at collecting larger fishes often associated with in-stream structure. Seines are more effective at collecting smaller fishes in open water. Both collection methods are used at each site. Fish are measured and aged, and sport fish are categorized (from smallest to largest) as "stock," "quality," "preferred," "memorable", and "trophy."

The main goal of the stream program is to learn about fish and mussel distribution across the state. Continued monitoring will allow biologists to track trends.

Since 1994, nearly 1,000 stream surveys have been completed across Kansas. While fish and mussel specimens are collected, macroinvertebrates are also cataloged. Each sampling attempts to show a "shapshot" of life in a particular stretch of a stream.

Recorded data provide a fish list for each site.

Macroinvertebrates, including mussels, are collected by hand searches and dip nets. Mussel lists are generated for each site, and mussels are categorized as live, recently dead, or weathered shells. Insects are sorted at sites for later identification. Insects are the primary food source for many fish, and thus provide an overall picture of the health of the site (foodweb).

To date, 110 Kansas fish species have been collected. The majority were minnows (red shiner, central stoneroller, sand shiner, and bluntnose minnow.) Green sunfish were among the top five fish collected and are the most common predator in small streams. Other commonly encountered fish include the red shiner, channel catfish, and central stoneroller. The majority of sport fish collected were in the stock category. Because samples are limited to wadable streams, large fish are seldom taken. However, surveys indicate that many Kansas streams offer good angling opportunities.

Forty-two mussel species have been collected, the most common being giant floaters, pondmussels, and pondhorns. These are thinner shelled and tolerant of a variety of conditions, including ponds. It's not uncommon to find these shells along the shoreline of ponds and lakes. Most mussels prefer flowing water, so most other species can only be found in rivers, especially the larger rivers of southeastern Kansas.

Stream crews collect data from May through September. Data is recorded, and collected specimens are preserved for study and assessment during the winter. Assessment allows comparisons between the current "snapshot" of a particular location with earlier conditions. Marked differences in species composition normally indicate a change in the community. These changes are then studied to determine factors that may affect the health of the stream.

For instance, deteriorating water quality may diminish certain sensitive species like mussels. If a sensitive species gradually disappears over time, it's likely that chemical and physical changes in the water are also evident. Increased stream nutrient loads from run-off may cause aggressive algae blooms.

These data can provide early warning of developing environmental problems and shape environmental policy.

The adventure of discovery is a daily part of a stream crew's work. But it's also possible for many Kansans to see what lives in our streams. KDWP fishing regulations allow for the collection of minnows with approved gear (seines.) Many of the other fish species can be collected on hook and line, such as sunfish and suckers. Some streams are even clear enough for snorkeling, which is a good way to see fish doing what they do in their habitats. Aquatic insects can be collected by flipping rocks or examining aquatic vegetation. Mussel shells can easily be found on lake shores and gravel bars. Because many aquatic species are on the state's Endangered, Threatened, and Species in Need of Conservation lists, it's important to know something about the area you plan to collect. Species on these lists are considered rare, so a collecting permit from KDWP might be needed. Also, two federally listed species — the Neosho madtom and Topeka shiner — live in the state, and collection with seines in their habitats should be avoided.

Besides monitoring Kansas streams, SAMP also includes an extensive aquatic education program. Throughout the year, several field programs are conducted for audiences ranging in age from grade school children to adults. For aquatic education opportunities or a list of planned stream surveys in your area, contact KDWP or visit some of the websites listed at left.

KDWP's Stream Assessment and Monitoring Program is an important yardstick for the health of Kansas streams and rivers. Knowing the condition of our state's waterways and associated wildlife helps steer management practices toward healthy resources for future generations.

U.S. Geological Survey (USGS)
Stream flow information, including flood stage
http://waterdata.usgs.gov/ks/nwis

Kansas Alliance for Wetlands and Streams (KAWS)
Protection, enhancement, and establishment of wetlands and riparian areas in Kansas
http://www.kswetlands.org

StreamLink
Aquatic education program
http://www.streamlink.org

The tote barge electroshocker lets biologists sample larger fish and is especially effective for sampling where brush or other structure makes seines ineffective. Fish are momentarily stunned by the electric current and are netted when they come to the surface.

Edited by Mark Shoup

LOVE YOUTH TURKEY

Editor:

I want to thank the department for the 2004 youth turkey season. On Saturday, I took my two sons and a neighbor's son. It was the first time the three of them had a chance to bag a turkey.

We had a textbook morning with many willing gobblers active and talking to us. At about 7:30 a.m., we had three big gobblers come in and put on quite a show at about 50 yards and then move right into our decoy. My oldest downed his first gobbler ever at about 15 yards, and the other two boys were so excited they could hardly speak. Although the other two did not have "success," they are hooked. Your department has guaranteed that we will have these three as hunters for the rest of their lives.

Any dads who did not take advantage of this wonderful weekend really missed an opportunity of a lifetime. Thanks. It is a memory that I will carry with me forever.

Todd Sheppard
Olsburg

WHY NO DUCK STAMP?

Editor:

I just wanted to vent my frustration with the state of Kansas and its waterfowl stamp. Up until a few years ago, Kansas had a very nice stamp each year that featured artists from around the state, similar to how the U.S. Fish and Wildlife Service does their stamps. When I went to purchase my federal and state stamps, I found that the state has increased its stamp prices and kept a generic stamp. This is outrageous.

The state just can't seem to get enough of my money quick enough to spend on anything it deems necessary. I pay to hunt by buying stamps and licenses, pay taxes on my hunting equipment, taxes on my overpriced Kansas fuel to go hunt, taxes on my paycheck. The least the state could do is to provide the hunters of this state a professional-looking stamp.

This is pent-up frustration. I believe most hunters feel that the money is going to a good cause. Anymore, it just seems that the state is taking advantage of its hunting citizens by cutting corners, overtaxing, and coming up with new things to charge us for, like the HIP stamp.

I have been quiet for too long. I am sure I will deal with it, but I needed to say what I feel.

I love hunting, and I love Kansas. It just seems that the state sometimes forgets that little things make a difference. Why can't we have a nice stamp again?

Brian Rhodd
Circleville

Dear Mr. Rhodd:

I'll address the state duck stamp first. The purpose of the stamp is to raise money for waterfowl habitat development. Until about 1993, we had a contest each year to create a collectible stamp. This was under an agreement with Ducks Unlimited, which helped defray the cost. However, the lack of participation and the cost of printing stamps consumed much of the money that was supposed to go to the ducks, which is the purpose of the stamp in the first place. Collectors just weren't purchasing enough to make it worthwhile, so we went to the generic stamp. The waterfowl have been the winners in this move.

Regarding hunting license fees, those have raised slower than the rate of inflation over the years. Regarding taxes on hunting equipment, those are federal, not state taxes, but again, that money is used to develop the resources necessary for maintaining healthy wildlife populations. (Taxes on motor boat fuel aid the federal Sportfish Restoration Act.)

The HIP stamp is a federal program, too, designed to glean more scientific data on the populations and harvest of doves and other migrants, largely to defend hunting seasons on these species against lawsuits from animal rights groups.

I'm sorry we don't have a pretty state duck stamp anymore, but rest assured that more of the money you spend on that stamp is going to waterfowl habitat than was under the previous system.

I hope this answers your questions.

–Shoup

GOOSE BAND

Editor:

We have seen the same Canada goose two years in a row here in Wichita. It has a green neck collar and a tag on its leg. The number on the collar is 27TR. Could you tell us what it means?

L.E. and Dorothy Debrot
Wichita

Dear Mr. & Mrs. Debrot:

I am unfamiliar with a neck band marked 27TR, but you might get information by calling the Bird Banding Laboratory number, 1-800-327 2263.

However, if it is a green neck collar on a Canada goose, and the number/letters are 27RT, this would be an old-timer banded as a gosling June 9, 1992, on Mined Land Wildlife Area near West Mineral in Cherokee County.

–Marvin Kraft, waterfowl research biologist, Emporia

WOMEN'S TURKEY HUNT

Editor:

I want to thank Brent [Konen, KDWP area manager] and all the other volunteers and organizations that helped put on the Women's Turkey Hunt last spring at Council Grove. I do not believe a single bird was taken, and the weather was a little rough, but the hunt, in my opinion, was a great success. The credit for this success it goes to the Department of Wildlife and Parks for efforts in conjunction with the other volunteers.

I would also like to encourage KDWP to continue to expand these types of opportunities because they will help

forge and shape the future of hunting.

Please pass along our thanks to Brent and forward to any of the managing staff, as well as Mr. Hayden, our thanks for a job well done.

Tom and Julie Rives
Augusta

TURKEY WIHA THANKS

Editor:

I just wanted to take a minute and say thanks for all your hard work; it really paid off for my spring turkey hunting this year. I am from Chicago, and my friend is from Kansas City. I come to hunt in Kansas about five times a year. I hunt all over the Midwest, and Kansas is my favorite. We appreciate all that you do.

The weird thing is, we saw about 40 turkeys all weekend, only heard one other gunshot, and saw no other trucks. I am not use to that. In other states, you have to pretty much stay out over night to get a spot, let alone a great one. We were hunting northwest of Atchison.

Keep up the great work, and I will visit your state again in the fall.

Robert Naurath
Chicago, Illinois

GEMBOX MAGAZINE

Editor:

I just received my first issue of your magazine and wanted to tell you how much my family and I enjoyed the photographs. I delighted in each page and then hurried to the next. The photographs captured the essence of Kansas and filled me with the very same joy I feel when I am visiting the state.

My friends who travel I-70 don't realize what lovely surprises await just a few miles to the north or south. I've told them that the interstate bypasses everything that makes the state special. Your magazine is something I can share to visually support the opinions of a big-sky Kansas native who now lives in tree-covered Kentucky.

To me, the leafy loveliness of this state pales in comparison to that of the broadly beautiful Flint Hills in spring; wind-blown wheat; sun-colored, towering chalk formations; vibrantly-painted prairie wildflowers; and the verdant canyon of Lake Scott Park. To summarize, if the dramatic beauty of Kansas is a precious gem, then your magazine is the jewel box that displays and preserves it. I look forward to reading future issues.

Paula Harrison
Owensboro, Kentucky

HIGH PLAINS CONCERN

Editor:

Recently, the *Hays Daily News* published several articles regarding Secretary Hayden's stance shift on wise use of the Great Plains. As a longtime resident of this part of the state and a student of arid regions, I want to thank him for acknowledging that his mind has changed due to information he has acquired since serving as governor.

After attending an environmental literature seminar at Wichita State University and three National Endowment for the Humanities seminars covering western Kansas issues, I became an avid reader about environmental issues facing arid regions. After 10 years of such reading, I realize that many of my western Kansas neighbors are clinging to the promises of booster/boomer propaganda of the late 1800s. They aren't looking at facts when it comes time to make decisions concerning this land we call home.

I appreciate that someone of Mr. Hayden's stature is willing to challenge popular opinion in the western part of our state and to acknowledge that his opinions have changed due to new information. We can't keep doing things as we always have although much of the public and the business community don't seem to understand that lack of water demands certain limitations that humans can't control.

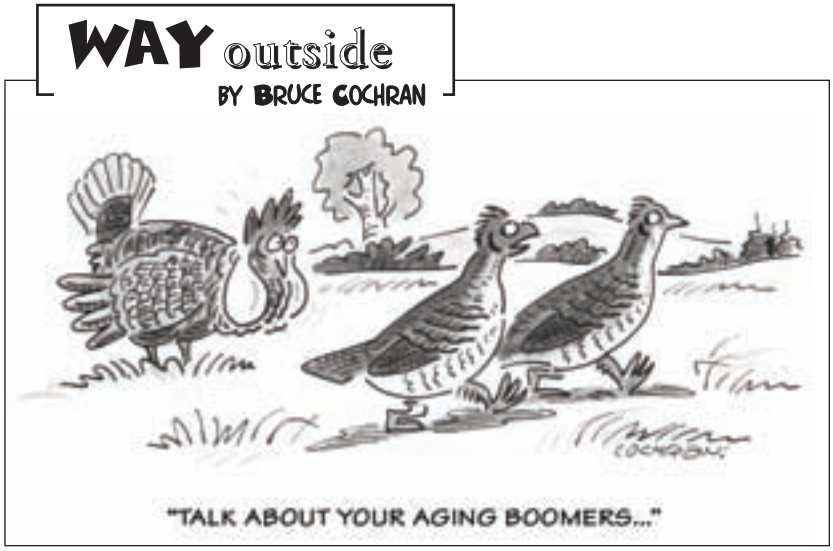
As an educator, I want my students to understand that part of our ability to survive is our ability to adapt. Western Kansans are going to have to adapt if they wish to remain here. Mr. Hayden's message is a call to that adaptation.

My students understand that we have a quality of life unavailable in cities. Although many of them want to get away for awhile, most acknowledge that they would like to raise their families in a rural place like Ellis. They enjoy the easy access to the outdoors and to a rural lifestyle. Many of their families use public lakes, hunting areas, and other outdoor recreational facilities.

Kansans have an opportunity to create huge tracts of land that lend themselves to all sorts of outdoor uses that encourage the public to better understand the world they live in and make a living while doing this.

Because my husband is a natural resource officer, and I am an avid outdoor person, teacher, and writer, we perhaps feel more strongly than others that more people need to protect our environment and work to live in it in a sustainable manner. Please continue to take your message to the public.

Karen Birdsong Madorin



BAD APPLE

The law enforcement community is recognized as a tight-knit group; that is, until a member of that community breaks the law.

In October of 2002, I received a report through Operation Game Thief, KDWP's anonymous hotline, 1-877-426-3843. The caller said a deputy with the Sumner County Sheriff's Department had spotlighted, shot, and killed deer while on duty during third shift.

Natural Resource Officer (NRO) Dan Hesket and I conducted the investigation. While speaking with the deputy, we determined there was enough evidence to charge him with hunting deer in a closed season. He was placed on diversion by the court and required by his department to attend the ethics portion of a hunter education course. The deputy was allowed to retain his job but received two days unpaid leave. One of those days was opening day of pheasant and quail season, 2002.

But it didn't end there. On Jan. 13, 2004. NRO Jason Barker relayed information to me about a Sumner County deputy bragging of his goose-hunting trips. The first hunting trip allegedly had a harvest of 74 geese. One week later, a second outing resulted in a harvest of more than 140 geese. At that point in the season, a hunter could legally take three Canada geese and 20 snow geese daily.

The next day I received a call from a city employee in Attica, a small town in the northwest corner of Harper County. Someone had dumped eight garbage bags full of goose carcasses at the city's tree and brush burn site. I contacted Attica Police Chief Dave Miller, who led me to the city property. There we located the garbage bags and loaded them into the back of my truck.

On Jan. 15, NRO Barker and I opened the garbage bags and inventoried the contents. We found 147 geese: 117 Canada geese, 24 snow geese, six white-fronted geese, and three mallard ducks. All the waterfowl appeared to have been taken at the same time, and all had the breast meat removed. We re-packaged the geese, and I released custody of the evidence to Barker.

The next day, NROs Barker, Dennis Zehr, and I met with U.S. Fish and Wildlife Service Special Agent Manny Medina. We decided to conduct undercover surveillance the next morning, Jan, 17. NROs Barker, Zehr, and Scott Hanzlicek helped Medina with surveillance at 6 a.m. on two separate residences.

At 9:45 a.m. Medina and Zehr contacted four individuals in Attica who appeared to have returned from a hunting trip. The officers found the hunters in possession of 28 Canada geese and three snow geese. The hunters confessed to the previous week's haul of more than 140 geese. A fifth individual was contacted and also confessed to taking part in the previous week's slaughter.

In addition to the freshly killed geese, the officers confiscated frozen goose meat and five shotguns with ammunition. A variety of federal charges were filed on five subjects for the following: exceeding the daily bag limit, exceeding the possession limit, transporting illegally taken migratory game birds, using an unplugged shotgun, and taking migratory game birds with invalid state and federal stamps.

In addition to the deputy, four other men were involved. All five pled guilty. Sentencing in federal court resulted in fines ranging from $2,000 to $3,000. The men are now on probation, during which time they cannot hunt, fish, trap, or be associated with anyone hunting, fishing, or trapping. The deputy also forfeited his Browning 10 gauge shotgun and resigned his position with the Sumner County Sheriff's Department.

—Carol Laue, natural resource officer, Mayfield

60 Deer, 114 Turkeys

For the past several years, the Kansas Department of Wildlife and Parks (KDWP) has been investigating a string of deer and turkey poaching incidents in a multi-county area. The poaching was reported to have involved shooting from a vehicle on a roadway.

In many cases, the deer were left for several days before only the head and antlers were removed and the remainder of the carcasses abandoned. In most reports, the deer were killed out of season and on land where the shooter did not have permission to enter.

The investigation also revealed that the suspects had poached wild turkeys out of season, without permits, and while trespassing. In some cases, only the beards of the turkeys were taken.

The investigation culminated on Dec. 18, 2003, when KDWP natural resource officers executed a search warrant at the home of an Augusta man. Parts of 60 deer and 114 wild turkeys were confiscated, as well as several unused deer hunting permits. Six of the deer seized are classified as trophy animals under wildlife law. Several firearms believed to have been used in the poaching activity were also confiscated.

On April 21, charges were filed against the Augusta man and a 17-year-old juvenile in Butler County District Court. The charges against the adult include two felonies and 24 misdemeanors, and the charges against the juvenile include one felony and 35 misdemeanors.

—Val Jansen, Region 4 Law Enforcement Division supervisor, Wichita

2004 Legislative Wrap-up

With the 2004 Kansas Legislature adjourned, the following is a summary of changes that impact outdoor recreation in Kansas. Although for most Kansans, happenings in Topeka may feel far removed from the recreational opportunities they enjoy, the actions of our elected officials have the ability to impact every facet of KDWP activities and the constituents they serve.

Hunter Education — Beginning Jan. 1, 2005, the minimum age for taking hunter education will be 11 years. Persons younger than 12 will not need to have hunter education in order to hunt but must be supervised by a person 18 or older while hunting. Persons between the ages of 12 and 15 must have hunter education to hunt alone, but they may hunt without hunter education if supervised by a person 18 or older.

In addition, there will be no minimum age to apply for and receive a big game permit, but persons younger than 14 must have bowhunter education to hunt big game with archery equipment.

A nonresident hunter education course has been authorized that is a combination online and hands-on course. The certification will only be valid in Kansas and only through the following January 31. Nonresidents must pay a fee to attend this course.

Military Personnel Limited Permits — KDWP has been authorized to re-issue limited-draw permits to military personnel forced to forfeit their limited-draw permits in time of armed conflict. Several limited-draw permits for elk were forfeited this past hunting season by soldiers from Ft. Riley, and KDWP introduced this legislation to offer a small token of appreciation for their service to Kansans and the nation.

Wild Turkeys — Wild turkeys have been removed from the definition of big game, effective Jan. 1, 2005. The new statutes pertaining to wild turkeys retain some of the components and characteristics of the former big game statutes, including penalties and tagging requirements. However, the primary purpose of removing turkeys from big game was to make the regulations easier to understand for new hunters.

Criminal Hunting — A new crime of intentional criminal hunting was created, effective July 1, 2004. Intentional criminal hunting is hunting, shooting, furharvesting, or pursuing any animal or bird, or fishing upon any land or water body of another, by anyone who knows they are not authorized to do so and 1) remains there after being told to leave or 2) the premises are posted with purple paint or signs stating "written permission only." Conviction or diversion for this offense requires forfeiture of hunting, fishing, or furharvesting privileges for six months, one year, or three years, dependent on past criminal history.

Deer Archery Management Units — The department has been directed to develop a minimum of nine archery deer management units by Jan. 31, 2005. The department intends to take public comment at statewide meetings throughout the summer and fall prior to issuing a regulation.

Landowner Deer Management Program — The Kansas Legislature has directed the department to initiate a pilot program regarding landowner deer management. The pilot program would contain no more than five locations geographically distributed throughout the state, and the landowners participating in the program would be guaranteed deer permits valid only on their property, as determined through an agreement with the department. Landowners in the pilot program would not be eligible to receive nonresident transferable permits through the draw system. A sunset clause was placed in the statute causing the pilot program to expire on Jan. 1, 2008. The department intends to take public comment and request proposals from landowners at commission meetings prior to announcing regulations.

State Park — The legislature created a state park in Shawnee County, Park No. 24, to be named at a later date. The creation of the state park allows KDWP to begin planning on a potential donation of property within the county, effective July 1, 2004.

Disabled Licensee Assistants — Assistants who help disabled licensees fill their game bag and creel no longer must be licensed, effective July 1, 2004. However, the assistant may not be a person who has lost their hunting, fishing, or furharvesting privileges. They must also be in close proximity to the disabled licensee when conducting such activities in the field.

Vessel Dealers — Beginning Jan. 1, 2005, vessel dealers will be treated more like car dealers. The definition of vessel dealers and the use of their vessels in their inventory have changed to allow more flexibility for the vessel dealers.

Game Warden Dogs — Game warden dogs are now protected under statute the same as police and arson dogs. The statute makes it a crime to inflict harm, disability, or death on a game warden dog, effective July 1, 2004.

Illegal Commercialization of Wildlife — The statute pertaining to illegally commercialized wildlife, in particular fish and mussels, has been updated to make use of a new version of the American Fisheries Society Publication No. 30. The statute applies when wildlife has been illegally commercialized and sets values for such wildlife.

Farmers and Hunters Feeding the Hungry — This statute authorizes the creation of a new fund for FHFH and a provision for a donation of $2 or more by persons purchasing hunting and fishing licenses and permits. All funds derived through such donations will be collected and remitted to FHFH.

Serecia Lespedeza — The sunset clause on a serecia lespedeza test plot in southeast Kansas was removed, thereby making the operation of the test plot permanent.

—Christopher Tymeson, chief legal counsel, Topeka

BIG MO BOAT RAMP DEDICATED

On May 28, a new boat ramp was opened on the Missouri River, just in time for summer boating and fishing and to accommodate the increased activity that will most likely result from the July 4 Lewis and Clark celebration in the area.

The new boat ramp was a cooperative project between the city of Elwood, KDWP, and the U.S. Army Corp of Engineers.

The ramp is located under the U.S. Highway 36 Missouri River Bridge and consists of a 146-foot long single concrete lane. A gravel parking area and toilet facilities are available on the surrounding 20 acres.

Attending the opening ceremony were various representatives from the parties involved in the project, including KDWP Secretary Mike Hayden.

—LeAnn Schmitt, special assistant to the secretary, Topeka

OUTDOORSMEN INFLUENCE PRESIDENT

Last April, President Bush took leaders of hunting, fishing, and conservation groups on a tour of his ranch near Crawford, Tex. About 20 groups were in attendance, including Ducks Unlimited, Quail Unlimited, the Safari Club International, and the National Rifle Association.

The president met with leaders of these groups, as well as writers from publications associated with them. The visitors also met with James Connaughton, head of the White House Council on Environmental Quality.

An avid angler in his own right, Bush fishes for bass on the ranch when his busy schedule allows. It is a passion he inherited from his father, former President George H.W. Bush, who is perhaps the most famous member of Ducks Unlimited. In addition to fishing, father and son also enjoy hunting quail on the Texas ranch.

Last December, prior to the April tour, the current President Bush met with Ducks Unlimited President John Tomke to discuss wetlands protection. When the president expressed his love of duck hunting on the Texas Gulf Coast, Tomke reminded Bush that 22,000 hunters had filed formal protests of a Bush Administration plan that could have enabled developers to bulldoze 23 million acres of fragile wetlands.

According to many press reports, four days later, the administration announced that the president had decided "not to issue a rule that could reduce" federal wetlands protection, including smaller parcels important to wildlife, called "isolated" wetlands.

This action demonstrates once again that hunters can have a powerful voice in conserving the resources they enjoy.

—Shoup

Buy Waterfowl Stamps

Funds from the sale of state waterfowl stamps are used for "protecting and propagating migratory waterfowl, including the acquisition by purchase or lease of migratory waterfowl habitats in this state, and for the purpose of development, restoration, maintenance, or preservation of waterfowl habitats."

Generally, the funds are used for wetlands acquisition and developing or enhancing wetlands on current landholdings. Ducks Unlimited is often a partner in wetlands work across the state. The 2004 Fiscal Year (July 1, 2003-June 30, 2004) budget for the program is $100,000, providing significant benefit to waterfowl habitat in Kansas.

If you care about ducks and geese – or any water bird – purchase a Kansas Waterfowl Habitat Stamp this year. Whether you hunt or not, the money will be well spent.

—Jim Hays, Environmental Services Section chief, Pratt

NATIONAL INSTRUCTOR OF THE YEAR

The International Hunter Education Association (IHEA) has honored Halstead native Larry D. McAdow as the nation's top volunteer hunter education instructor for 2003. McAdow was nominated by Wayne Doyle, Hunter Education Program statewide coordinator for the Kansas Department of Wildlife and Parks (KDWP).

Called the Winchester Hunter Education Volunteer Instructor of the Year Award – after its sponsor, Winchester Arms – this honor is bestowed upon a nominee who "has significantly advanced the cause of safe hunting on a voluntary basis."

In 2003, McAdow organized and taught many classes, certifying 447 students. In addition, he provided a custom-made trail walk (hunter safety trail) for more than 500 students. McAdow also recruited at least 10 new instructors and trained 12 while participating in numerous workshops around the state, training and recertifying 680 hunter education instructors. Since 1989, McAdow has taught in 200 classes that certified more than 13,400 students.

McAdow's efforts went above and beyond, leading the way while he explored cutting-edge teaching techniques, according to Doyle.

"Larry was the driving force in modifying a computer game for instructors to use in class," says Doyle. "'The Hunting Game', by Oquirrh, has many scenes and situations that are useful for hunter education classes. Larry worked closely with Oquirrh to make this game instructor-friendly and gave this training at workshops as well as to individuals and groups of instructors around the state, entirely at his own at his own expense."

McAdow designed and constructed of one of the first trail walks in the state. In 2003, almost half of the state's classes used some form of McAdow's trail walk.

—Shoup

MOURNING DOVE BANDING

Mourning doves are one of the most widely distributed and abundant birds in North America. In Kansas, about 36,000 hunters harvest about 800,000 mourning doves per year.

Because of the importance of the mourning dove as a migratory game bird, wildlife managers require certain information from which to guide harvest management decisions. Information on dove survival and harvest rates are keys to understanding the effects of annual hunting regulations on mourning dove populations. Banding is the primary tool used to obtain this information.

This summer, Kansas and 25 other states are participating in the second year of a three year nationwide mourning dove banding study. The objectives of this study are to determine mourning dove harvest rates, estimate annual survival, provide information on the geographical distribution of the harvest, and develop and refine techniques for a future operational dove banding program.

Doves will be marked with metal leg bands containing an identification number and a toll-free telephone number that hunters can use to report the band. In return, wildlife managers receive important information on the number of banded doves harvested, as well as location and date of harvest. More than 85,000 doves will be trapped and banded during the next three years in these 26 states.

In Kansas, mourning doves will be captured in wire ground traps. Doves enter the trap through the funnels in search of the grain but cannot get out because of the trap's design. Traps are checked regularly, and trapped doves are removed and carefully examined to determine their age and sex. Doves are then banded with U.S. Fish and Wildlife Service bands and immediately released.

Last summer, more than 1,200 mourning doves were banded in Kansas. In 2003, 37 Kansas-banded doves were shot by hunters and reported to the Bird Banding Lab. About 65 percent of these doves were shot in Kansas.

By checking all harvested doves for bands and reporting banded doves, hunters help biologists manage this important migratory game bird. Because dove bands are very small, hunters can easily overlook them. KDWP is asking dove hunters to carefully check all doves harvested for the presence of a leg band.

To report a harvested, banded mourning dove, phone 1-800-327-BAND (2263). Banded birds may also be reported on the internet at www.pwrc.usgs.gov. Select "Bird Banding Lab." Hunters can keep the bands and will be provided a certificate identifying the age, sex, date, and location the bird was banded.

—Helen Hands, wildlife biologist, Cheyenne Bottoms

Gobbler Essay Winner

The following essay was written by 11-year-old Sammie Gumfory of Emporia. Sammie's essay won a contest sponsored by the Flint Hills Gobblers Chapter of the National Wild Turkey Federation and Bluestem Farm and Ranch Supply. The required topic of the essay was "Why is hunting important and why we should strive to preserve the sport of hunting?" Here's Sammie's essay:

Hi, my name is Sammie. I am 11 years old and I really like to hunt. I have enjoyed it since I was a little girl. My dad was the person who got me to enjoy hunting. At school some girls think it's "weird" that a "girl" would like to hunt so much but I really don't care because hunting is special to me.

Some of those reasons are the fact that I get to spend time with my dad. How much fun can that be? Also, the experience of what you can witness while on a hunt.

The best part is getting to spend time with my dad. My dad and I have a special bond and hunting is a great way to enjoy it. Hunting to me is a sport, not just a game that you enjoy. The "thrill of the kill" is not what it is all about it's all about the whole experience. (Well, to me it is). I do feel proud when I get an animal, I really do, but that is not just why I like hunting. Hunting is such a fun and mysterious sport. I am really happy it was introduced to the world. Also, I hope we hunters will introduce it to other family members and friends.

The way to keep hunting a great sport is to encourage friends and family members who want to get into hunting to just take a hunter safety course. Just go and check out a local hunting spot and see what's there and just looking is fun. Same with actually hunting. When you get stuck to hunting believe me, you'll probably like the sport for the rest of your life. I may be a girl, but I DO hunt BIG!!

—Sammie Gumfory, Emporia

Governor Kathleen Sebelius poses with KDWP Secretary Mike Hayden, National Wild Turkey Federation CEO Rob Keck, and the turkey she bagged at the Governor's one-shot hunt.

Trapping Matters

by Mark Shoup

I've never been a trapper, so I could hardly be called an expert on the subject. However, in my 15 years of working for the Department of Wildlife and Parks, I've come to know several people who trap or have trapped, so I've learned a few things. First is that trappers – and trapping – may be the most misunderstood and unjustly maligned of all outdoorsmen and women. An extensive understanding of species biology, attention to detail, and months afield require trappers to become the best of naturalists.

A common misconception is that trapping is just plain inhumane. I recently attended a workshop where experts explained traps, philosophy of trapping, and effective communication about trapping. I learned that "leghold trap" is a misnomer, as is the idea that such traps are designed to break legs or otherwise do damage. In fact, quite the opposite is true.

The proper term for this common class of live-restraint trap is "foothold." They are designed to catch the animal by the foot and hold it with minimal damage. In this way, if a dog or another species the trapper doesn't want is caught, it can be released unharmed. (Yes, some species-specific traps are designed to kill – quickly and humanely, like a mouse trap.)

In fact, the foothold trap is responsible for the restoration of the river otter – a favorite charismatic species whose charming looks and behavior enchant most of the general public. The foothold trap is the tool of choice for biologists involved in river otter trap and transplant programs across the country for the simple reason that it catches and holds without inflicting serious injury. Because of this device, river otters now thrive in areas from which they were once extirpated.

But you might ask, "What about all those animals that chew their legs off in traps?" This, too, is widely exaggerated. Obviously any animal that "chewed off its leg" would escape, which is contrary to why people trap. Modern traps are actually designed to minimize or eliminate injuries, with the recognition that the more comfortably an animal is held, the more likely it is to be captured. Large, toothed, steel traps are long-outdated.

Trapping is a tightly-regulated activity with specific rules for types of traps used, how they are set, and how often they must be checked.

Contrary to popular belief, endangered species may not be trapped.

"Only abundant species can be trapped," says Matt Peek, KDWP furbearer biologist. "In fact, raccoon, opossum, skunk, coyote, beaver and even bobcat are more abundant now than they've been in hundreds of years. But because these animals are secretive and nocturnal, most people don't see them very often and don't realize how abundant they are."

I once had a long conversation on this subject with a woman who worked for a wildlife organization, and I could not convince her that bobcats are plentiful in Kansas. She was convinced they are endangered. Old wives' tales die hard.

The river otter's story is one benefit of trapping, but there are many others. Trapping is an invaluable tool in wildlife habitat management. Most people are aware of the destruction that uncontrolled beaver populations can wreck on trees, particularly in urban and suburban areas. Trapping is often the best solution – the only really effective one – to this problem.

Sometimes, dense populations of certain furbearers cause outbreaks of rabies, distemper, and other diseases. Trapping can help keep these diseases in check.

In other cases, predators may be so artificially abundant because of urbanization and modern agricultural practices that they threaten other populations of animals. Trapping of predators has been used to protect local populations of endangered species such as sea turtles and the piping plover. And biologists often rely on trappers and trapping to obtain invaluable research information on wildlife. License fees from trappers help pay for this research.

Commercial by-products of trapping are valuable, as well. Furs, of course, make warm and attractive clothing, but the trapped animal yields much more. Many art supplies are made from trapped animals. Are you a woman who uses a make-up brush? If so, you might find it interesting to know that your brush's bristles often come from the fur of trapped animals, usually mink or sable.

Again, contrary to popular belief, it's not just the fur of animals that is used. Glands can be used in perfume, and carcasses are often used for pet food and, in the case of some species, eaten by the trapper.

Currently, KDWP and the International Association of Fish and Wildlife Agencies (IAFWA) are conducting an ongoing research project on trapping called Best Management Practices (BMPs). The goal of BMPs is to ensure that animal welfare, trap efficiency and selectivity, and user safety are continued and enhanced. Wildlife biologists, wildlife veterinarians, and other trapping experts are studying all these issues to ensure the future of this beneficial but much misunderstood activity.

Among the many projects undertaken in this program is an ongoing study of humane trap design. More than 70 traps have been studied so far, and only those that pass high performance standards will be approved by BMPs.

The Nov./Dec. 2002 issue of ***Kansas Wildlife and Parks*** magazine (Page 15) contains a detailed guide to furbearers that may be taken in Kansas. In a future issue, we hope to complement this insert with a detailed article on the furbearer BMP project.

In the meantime, look for some of the products mentioned above that you might use. Better yet, get to know a few trappers. Chances are, most will be libraries of information about the fascinating habits of wildlife you love – and not just furbearers.

CARP ENTREE'

Many people turn up their noses at the thought of eating carp or buffalo fish, but most have not even tried them.

The biggest problem that most people have with carp and buffalo is the fine hair-like bones in the meat. There are several ways to solve this problem. Some of these methods are grinding, pressure cooking, and scoring.

Grinding and pressure cooking are familiar preparation methods, but many people may be unfamiliar with scoring. To score a fish, it may be left whole, halved, or filleted – depending on the size and how it is going to be cooked. (If fried, these fish should always be scored first.)

Scoring is slicing two-thirds of the way through the slab sides of meat every one-eighth to one-quarter inch across the fish. A sharp knife is need for this. After scoring, the small bones will soften when the fish is cooked, no matter the method.

SMOKED

Scale and gut the fish. Soak it overnight in salt water brine (1 1/2 cup of salt, 1 teaspoon Liquid Smoked per gallon). Pat fish dry. Brush with melted butter, sprinkle with salt inside and out. Put in a very warm smoker until the dorsal fin can be pulled out of the fish. Cover the coals with hardwood sawdust and smoke several hours. Eat while warm.

CARP PATTIES

Fillet the fish and cut out red strips. Run inch-wide strips through meat chopper or grinder three times to finely grind the bones. Pack in a covered dish and pour enough white vinegar to dampen the meat. Let set in refrigerator overnight to soften bones.

Mix with 1 cup of crushed crackers, 1/4 cup of chopped onions, and one egg to each pound of ground fish. Form into patties and cover with corn flake crumbs. Fry to a golden brown.

Ground carp may also be used in your favorite fish loaf recipe.

–Leonard Jirak, fisheries biologist, Hartford

Riley Man Lands Potential World Record Paddlefish

The Kansas Department of Wildlife and Parks has received an application for what would, if approved, be not only a new Kansas state record paddlefish but also a world record.

On May 5, Clinton Boldridge, Riley, arrived at Atchison's Watershed Dam #7 to test the carp fishing with a doughbait recipe handed down through several generations of his family. He had just thrown his line in the water when he felt a tremendous pull, and the fight was on. His brother and a friend watched as Boldridge fought the fish for some time. At one point, his brother started into the water with a landing net, but when he saw the monster's bill (called a rostrum) surface, he dropped the net and fled the battle.

Boldridge then handed his rod to the friend and waded into the water himself. When the fish was landed, they knew they had something special on their hands. They rushed the fish to the office of the Atchison Daily Globe, whose reporters called KDWP in Pratt. Then they contacted local fisheries biologist Kirk Tjemeland, who met them at Earnie's Locker in Easton, where the fish was weighed on certified scales.

Tjemeland identified the fish and confirmed that it had not been snagged – which would be illegal in this water – and certified the application for an official new state record of 144 pounds. To their astonishment, if officially confirmed, this will also be a new world record.

The giant paddlefish – often called a spoonbill – was 54 1/4 inches long from eye to tail (75 inches from the tip of the rostrum to the tip of the tail) and measured 45 1/4 inches of girth. There will be a 30-day waiting period pending certification of the state record. At this writing, the 30-day period had not yet ended. Boldridge has also made application for a world record.

Atchison Watershed Dam #7 was built in the early 1960s as a flood-control structure for the city of Atchison. It now doubles as a public fishing water under KDWP's Community Lake Assistance Program (CLAP). It has no river flow through which a paddlefish could swim naturally, so Tjemeland speculates that someone may have caught the fish elsewhere in the past and put it in the lake.

Paddlefish are filter-feeders that consume plankton, so it is unusual for them to be hooked in the mouth. They can be legally snagged in specified waters during the paddlefish season, usually March 15-May 15. In this case, however, a mouth bigger than a basketball met a doughball the size of a quarter, and history may be in the making.

The current Kansas record paddlefish is 90 pounds, 12 ounces, and was snagged in the Neosho River below the Chetopa Dam during a special snagging season on May 29, 1998, by Joseph Cole of Walnut. The current world record is a 142-pound, 8-ounce fish snagged from the Missouri River in Montana in 1973 by Larry Branstetter.

–Shoup

One of a Kind

It is commonly called the "antelope" – even KDPW's hunting season on this game animal is called "antelope season" – but the pride of the Great Plains is not an antelope at all. Truly unique in the animal kingdom, *Antilocapra americana* is properly called the pronghorn. Although its scientific name means "American antelope goat," it is neither antelope nor goat. It is the sole surviving member of an ancient family dating back 20 million years.

The pronghorn is the only animal in the world with branched horns. Unlike antlers, which members of the deer family shed completely each year, horns are not shed. However, the pronghorn annually sheds the outer sheath of its horns and is the only horned animal to do this. Sprinting in 20-foot spurts as fast as 60 miles per hour, the pronghorn is the fastest animal in the Western Hemisphere. Although it can't keep a 60-mile-per-hour pace for long, the pronghorn can run extremely fast for hours, unlike most speedy animals.

The pronghorn ranges from Saskatchewan, Canada, through the American Southwest and south into Mexico. It's great speed and tremendous eyesight make it perfectly adapted to the shortgrass prairie's open plains and desert regions.

In Kansas, the pronghorn inhabits open plains of western portions of the state, primarily where large tracts of unbroken shortgrass prairie remain. The largest populations may be found in Wallace, Logan, Gove, and portions of surrounding counties, but small huntable populations may be found in portions of counties to the south, all the way to the Oklahoma border. They may range widely within this area, as well, foraging on forbs, shrubs, grasses, juniper, and sometimes cacti and domestic crops. Travelers along highways K-96 and I-70 frequently spot grazing pronghorns.

This slender, graceful animal has a deer-like body, weighs between 90 and 125 pounds, and stands about 3 1/2 feet at the shoulder. It has large, protruding eyes and a white or buff, 4-inch tail. The pronghorn's cheeks, lower jaw, chest, belly, inner legs, and rump are usually white. The upper body and outside of the legs are tan to brown. The male has a broad, black band down the snout, a black nose, and black neck patch. The horns are black, as well.

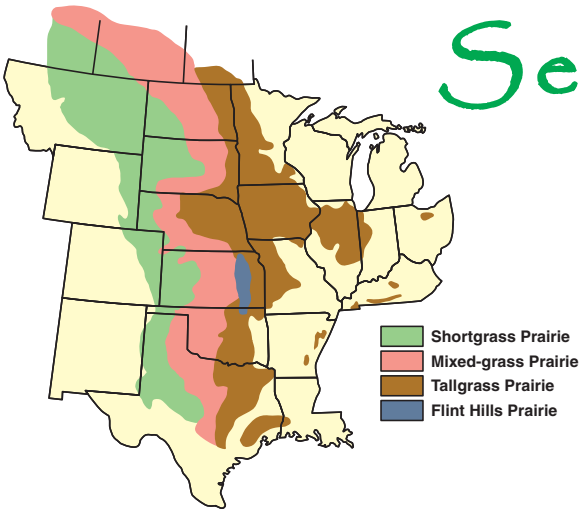
The pronghorn's horn is a hollow sheath over a bony core on the skull just inside and above the eyes. The horns protrude up and outward, curving back in at the top. The male's horns are forked, or "pronged," toward the front and may grow to 20 inches. The female's horns are not pronged and are much smaller.

A heavy coat of hollow hairs insulates the pronghorn, allowing it to survive temperatures from 130 degrees to 50 below zero. Speed and keen eyesight are the pronghorn's primary defenses. It can detect movement up to 4 miles away.

In September, the male may breed several does. The does usually produce twin fawns in May or June after a gestation period of about 240 days. As with deer, odorless young pronghorns may instinctively lie motionless for hours as a defense against predators. Within days, the 16-inch-tall fawn will be able to sprint at speeds up to 25 mph. Still, only about 40 percent of fawns born in June survive until mid-July.

Although pronghorns rarely jump fences, it is a myth that they cannot do so. KDWP photographer Gene Brehm captured one doing just that in a photo that appears in the Sept./Oct. 1988 issue of ***Kansas Wildlife and Parks*** magazine (Page 4).

–Shoup



Sea of Grass

Grasses have always been essential to the survival of animals – including the pronghorn – in the Great Plains and throughout the world. More than 180 genera and almost 1,000 species occur in the United States. Almost all human food comes from grasses, either as plants we eat or as food for livestock.

Paleontologists believe that grasses first appeared about 70-80 million years ago. Found in practically every habitat and on every continent – even Antarctica – grasses are the most common flowering plants on Earth. The accompanying illustration shows the original range of prairie grasslands in North America.

–Shoup

PCC IN SI

Pratt Community College has one of the weirdest intramural sports in the country. Don't believe it? Well, *Sports Illustrated* does.

In the April 5 edition of *Sports Illustrated On Campus*, an article on page 19 focused on five of the weirdest intramural sports on college campuses across America, including intramural pheasant hunting at PCC.

While pheasant hunting is hardly unusual in Kansas, it is seldom used as an intramural sport. Intramural pheasant hunting is the creation of Kelley Maydew, director of PCC Intramurals.

"I wanted to try to attract different people to intramurals," Maydew said.

Maydew made pamphlets and put up flyers about the addition to intramurals and got the sport underway. One fact that makes this sport so unique is that is an individual sport with no team involved.

The rules for pheasant hunting are simple. Students sign up with Maydew then go pheasant hunting. Hunters must have a valid hunting license, and they have to provide their own hunting equipment. The intramural competition runs the first two weeks of the Kansas pheasant season.

The goal of intramural pheasant hunting is to bring in the longest tail feather. Feathers are measured and recorded for two weeks of the season. The person who brings in the longest tail feather receives a PCC intramural T-shirt.

Last November, the program was in its second year at PCC. The first year, a handful of students signed up, and in 2003, nine took the challenge. Jude LeWallen brought in the longest feather.

The article came as a surprise to faculty and administration at PCC. Correspondents at *Sports Illustrated On Campus* did all the research and chose which intramural sports fit into the weirdest category, said Stephan Pechdimaldji, publicist for the magazine.

No one at PCC knew anything about the article, including PCC President William Wojciechowski. "My first reaction was that being featured on a 'most weird' list might not be construed as a great honor," Wojciechowski said.

"But this is just another example of the innovation and creativity of Pratt Community College students and the activities staff," Wojciechowski said. "It's just one example of why PCC is such a fun place to go to school or work."

Anytime Pratt Community College is featured in a national publication in a positive light, it is a plus, Wojciechowski added. There is no better advertisement.

The magazine is distributed free of charge to more than 70 major college campuses across the country. Launched in September of 2003, *Sports Illustrated On Campus* is dedicated to college athletics and college sports interests. The weirdest sports competition article was the cover story for the April 5 edition.

The other sports in the weirdest intramurals were flag floopball (women only flag football), flickerball (rugby on a basketball court), underwater hockey, and wallyball (volleyball on a racquetball court).

—Gale Rose, Pratt Tribune

PRIVATE LAND COORDINATOR

KDWP has hired Brad Simpson as the new private land coordinator, stationed in Pratt. Simpson is a native Kansan who grew up near Concordia. He earned a bachelor's degree in wildlife biology from Kansas State University and a master's degree in environmental biology from Emporia State University, where he worked on pronghorn reintroduction in the Flint Hills. Simpson also worked as a seasonal KDWP biologist aide and as a biological technician in the Wichita area.

Simpson left Kansas in 1994 to pursue his career in wildlife management with the Texas Parks and Wildlife Department. Providing wildlife management technical guidance to private landowners in Texas has given him intimate knowledge of the federal Farm Bill. He will help implement these programs with Kansas landowners in his new position.

Simpson has also developed proposals to obtain grants and coordinate with staff from Ducks Unlimited, Playa Lakes Joint Venture, National Wild Turkey Federation, and Quail Unlimited.

Accomplished in the use of geographic information systems (GIS), Simpson has also developed databases for gathering and analyzing biological information. These facets of his knowledge will be extremely important contributions to KDWP.

—Mike Mitchener, Wildlife Section chief, Pratt

STERNBERG MUSEUM EXHIBIT

Burgess Shale: Evolution's Big Bang," an exhibit developed by scientists at the Smithsonian Institution, is now open at the Sternberg Museum in Hays through Oct. 3.

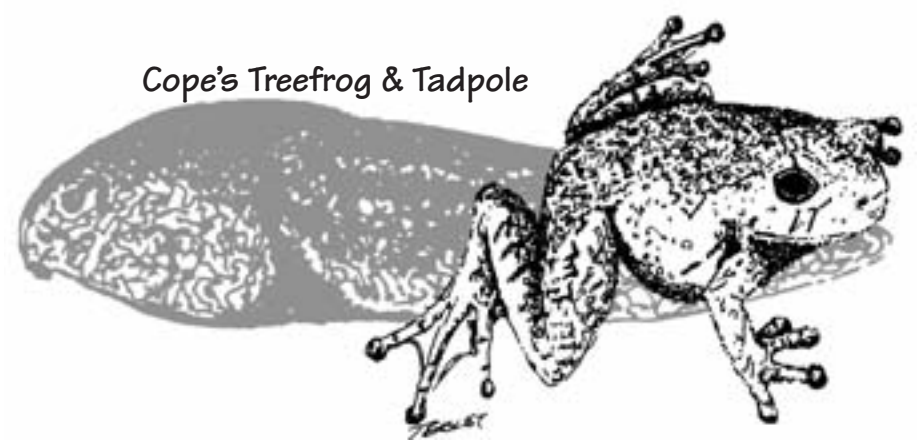
The exhibition, showing at major museums around North America under the auspices of the Smithsonian Institution Traveling Exhibition Service, focuses on what life on Earth might have been like hundreds of millions of years ago.

Fossils found in a rock formation known as the Burgess Shale offer us a glimpse of what life was like 505 million years ago. These remarkable fossils open a window into the distant past.

Sternberg Museum hours are 9 a.m. until 7 p.m. Tuesday through Saturday and 1 p.m. until 7 p.m. Sunday; the museum is closed on Mon-

by Mark Shoup

TADPOLE TO FROG... OR TOAD OR NEWT OR SALAMANDER



Cope's Treefrog & Tadpole

Newts, tadpoles, salamanders, polliwogs, frogs, mudpuppies, toads: every kid has been hypnotized by these critters at some time. They may be found in pond or puddle, a damp water meter hole or wet grass. In the case of the toad, they may appear suddenly from the ground after a spring shower.

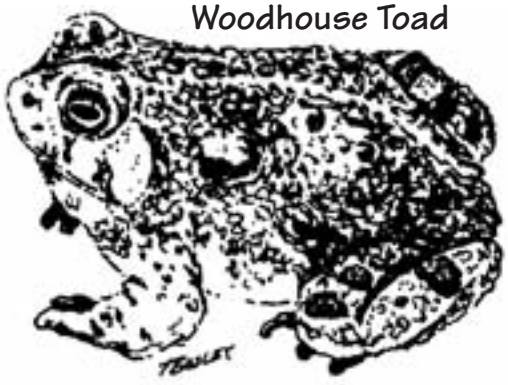
Whatever you call them and wherever you find them, however, they are all amphibians. And some are larval stages of the adult.

Unlike reptiles, amphibians have no claws or scales. Frogs and toads must lay their eggs in soft, milky, jelly-like sacs or strings in water or other very moist areas. Kansas salamanders bear live young. Reptiles may lay hard-shelled eggs in arid habitat. (Some salamanders and reptiles bear live young.)

The most fascinating thing about amphibians is their development through metamorphosis, which comes from the Greek word meaning "to transform," or simply "change."

Once the eggs of amphibians hatch, they go through one or more larval stages. In the first, most have a tail and gills but no legs. As metamorphosis continues, frogs and toads develop legs and will at some point have gills, legs, and a tail before the tail and gills finally drop away, and the frog or toad familiar to everyone takes form. Larval toads and frogs are usually called tadpoles or polliwogs.

Salamander larvae may simply be called larvae but are often referred to as polliwogs or sometimes — mistakenly — mudpuppies. (See below.)



Woodhouse Toad

In the case of salamanders, the tail develops further rather than disappearing, and the adult takes on a scale-less, almost lizard-like form.

The mudpuppy is actually a separate species of salamander that retains its gills in adult form. It is not a larval stage of any of these species as the term "mudpuppy" is often used.

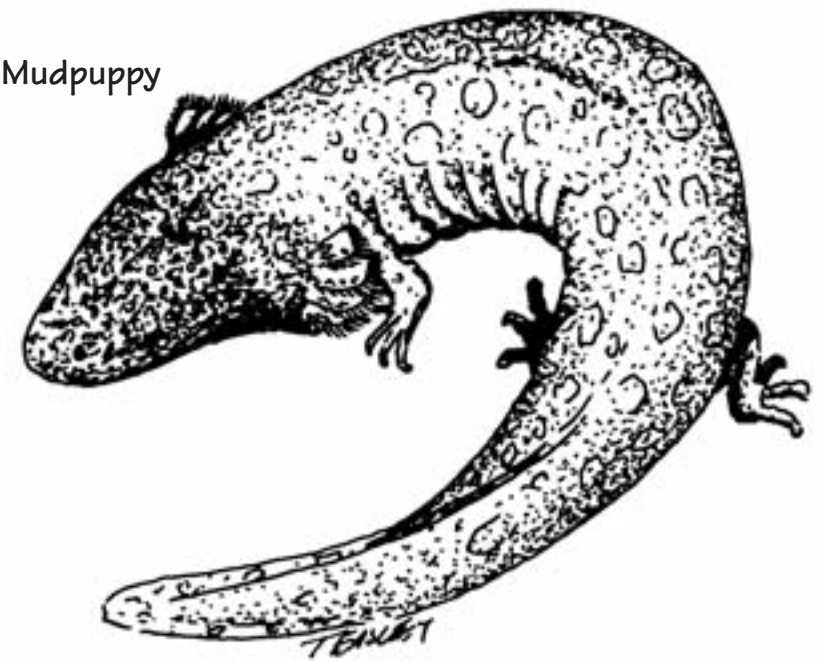
Nine species of toads and 13 species of frogs inhabit the Sunflower State. Of these, nine have nearly statewide distribution. The Woodhouse's toad is the most widely-distributed in Kansas, followed closely by the Great Plains toad. Although toads require water or moist areas to breed, most are found away from water, often in backyards in the middle of cities. They burrow into the ground, where they hibernate through winter, emerging in late spring.

Contrary to popular belief, touching a toad does not cause warts. Beware when handling them, however; their defense mechanism when picked up is to urinate.

Three groups of frogs make their homes in Kansas: treefrogs, aquatic frogs, and microhylid frogs. As their name suggests, treefrogs spend most of their time in trees. Their high-pitched songs are one of the many pleasant notes of a summer night. Aquatic frogs are generally the larger frogs found in Kansas. The most well-known is the bullfrog, which is prized for its tasty meat. Leopard frogs are another common aquatic frog. Only two species of microhylid frogs occupy Kansas: the eastern narrowmouth and the Great Plains narrowmouth. The eastern narrowmouth frog has only been found in one county in far southeastern Kansas.

Amphibians are fascinating and beneficial creatures. Not only do they eat a lot of insects, many fill summer evenings with a beautiful chorus of song. For more information on these animals, pick up a copy of *Amphibians and Reptiles In Kansas*, by Joseph T. Collins. This book is available at most Kansas Outdoor Stores at state parks or through the KDWP website, www.kdwp.state.ks.us.

Kansas boasts nine species of salamanders. Two of these are mudpuppies: the common mudpuppy and the Red River mudpuppy. The eastern newt — which is in the salamander family — is the only Kansas newt. Seven salamander species may only be found in a few counties of southeastern Kansas. The most familiar of all Kansas salamanders is the barred tiger salamander, which may be found almost statewide and is also the state amphibian.



Mudpuppy

Backlash

by Mike Miller

Go Fishing Signs

I met Lennie in the hardware store the other day and during our conversation, I reminded him how long it had been since we'd fished the Mulberry Pond. It had been brutally hot, and Lennie was thinking about anything but fishing.

He was fiddling with something he 'd picked up from a bin in the screws, nuts, bolts, and washers isle. Ignoring my remark about fishing, Lennie muttered, "What the heck is this thingy?"

"That's a watchamacallit that goes on the end of your whirlybird sprinkler to regulate how much water comes out," I bluffed.

"No it's not," Lennie said with a sideways look, a little worried I might really know.

"That would be a needle nozzle adapter – a specialized nozzle for grease guns," an eavesdropping sales clerk said over Lennie's shoulder. "I don't know what it's doing in this isle. Give it to me."

"Guy thinks he knows everything," Lennie shrugged. "How'd he know I didn't need a — uh – whatever he called that thingy?"

"You must not look like a needle nozzle adapter kind of guy. Now, what about fishing?" I reminded.

"What *about* fishing?" Lennie said. "Fish won't bite when it's this hot. Besides the solitaire tables are wrong."

"You mean the solunar tables? I didn't know you studied moon phases." I said, figuring Lennie was just trying to shut me up.

"I don't, but Uncle Stub always knows if the fish are biting. Beats me if he watches moon phases, but he has ways of knowing. Fish aren't biting now."

"We'll I better see if they have an air filter that will fit our air conditioner. Thing's been running solid for a week," I said and started on own way.

"Your air conditioner has a filter?" Lennie looked at me quizzically. "Wonder of ours does? My wife sent me up here to get something for yard work, but thanks to you, I've forgotten what it was."

"You can owe me," I said with a wave. "I'll call you if it cools down."

The weather stayed hot but I called Lennie anyway. I was curious about Uncle Stub's insight.

"Did you remember what your wife told you to pick up at the hardware store?" I asked.

"Nah," Lennie mumbled. "I ended up buying an air filter. Figured that would impress her, but it was the wrong size. She made me take it back that afternoon and pick up new blade for the lawn mower, which was what I supposed to buy when you distracted me."

"I think you have selective memory loss," I laughed. "Let's go fishing tonight. It won't be that hot when the sun goes down."

"Fish aren't biting today," Lennie cut me off.

"How do you know," I said, figuring he was just avoiding getting out from in front of the air conditioner.

"On the way home from work this afternoon, I noticed all the cattle in Grover's pasture bunched up along the west fence. Uncle Stub says that means the fish won't bite. Now, if those cows were spread out feeding, that'd be a different story."

Some people believe fish and wildlife movement, especially feeding activity, is affected by barometric pressure and moon phases. I've always fished whenever the weather was good and I could get away, but I know fish bite better on some days. I wanted more information.

"What are some more of Uncle Stub's signs?"

"Lemmie think," Lennie thought. "Oh yeah, he says whenever his dog stares out the screen door for long periods of time for no apparent reason, the fish are biting. And if Uncle Stub looks out the kitchen window and sees a squirrel walk the entire length of his backyard on the powerline, the fish will bite."

"Maybe his dog was watching the squirrel," I said skeptically, without the faintest idea why either would have anything to do with fish biting.

"Look, Uncle Stub has kept notes for *yeeears*. If you're going to make fun, I'll quit," Lennie huffed.

"No, no. I'm sorry. Please continue."

"We'll, the best sign is when Uncle Stub sees three different colored cats on three different streets on his way home from breakfast. That's his 'cats of a different color trifecta' sign. When that happens, he always goes fishing, and he always catches fish."

"We'll call me if you get in the mood to go fishing some evening – or , I guess, if you see a bunch of cats," I resigned and hung up.

I was perturbed because I couldn't tell if Lennie was pulling my leg, or if Uncle Stub had pulled Lennie's leg. Anyway, I figured Uncle Stub would go fishing at the drop of a hat – now there's a sign Lennie didn't mention. I went to the basement where it was cooler and busied myself putting away tools. Then, there it was, staring at me from the top tray of my tool box — a needle nozzle adapter. I'd bought it years ago to grease the wheel bearings on my boat trailer – just never knew its proper name. Finding it at that moment had to be a sign the fish were biting. I had to go fishing, just to see – in the name of research, if nothing else. The more excited I got about going fishing, the more I realized that maybe Uncle Stub really does have it figured out.