

## “Saving Cheyenne Bottoms – Part Two”

In the Winter 2012 / Spring 2013 issue of *Prairie Wings*, Sil Pembleton did a masterful job of recounting the story of Jan Garton’s herculean efforts to bring together Kansas’ conservation organizations for the purpose of working jointly to secure funding for the restoration of Cheyenne Bottoms. After the success in obtaining funding for restoration, a 1992 Kansas Department of Wildlife & Parks (KDWP) document gave “next steps” for restoration and increased public support for Cheyenne Bottoms. Prior to that Jan had written a series of Position Papers that was published by the Kansas Audubon Council (KAC), stating its position on various environmental issues, including the need for restoration of Cheyenne Bottoms. Each statement was accompanied by supporting data. The KAC position was informed by “Cheyenne Bottoms Environmental Assessment” which was completed in 1985-86. The report called for: construction of water-control structures, pumping stations, and a deep-water pool for better management of available water. It also suggested that a Visitor/Education Center should be built and a self-guided auto tour should be developed.

One of the experiences I shared with Jan was a trip to Topeka to talk with agency officials about the Center. After the successes Audubon members and other conservation partners achieved in gaining statewide support for the Bottoms, Jan and I both assumed that Kansas Department of Wildlife and Parks (KDWP) personnel would be more than willing to listen to our proposal – but no! Instead we heard every imaginable reason why a visitor center, especially one that had restroom facilities which would be open at reasonable hours to the general public, would not be feasible. The staff person we spoke with said that if anyone would come, the building would be vandalized, trashed, and every other awful situation one could imagine.

But as before, Jan wouldn’t take “No” for an answer. After reading Sil’s article, if you didn’t know Jan, you understood how determined she could be and so the efforts to establish a Visitor/Education Center at Cheyenne Bottoms were begun. Eventually more reasonable minds prevailed and by 2009 the Wetlands Education Center was opened. It is managed by Ft. Hays State University, much like its Sternberg Museum, and staffed by graduate students. It is a fantastic facility with amazing displays that trace the history of Cheyenne Bottoms from its earliest days – thousands of years ago – to its current status as a haven for many species of wildlife including threatened and endangered avian species like Least Terns and Whooping Cranes. Also approximately 45% of all migratory shorebird species that nest in North America stage at the Bottoms. The Wetlands Education Center is just one site of the Wetlands & Wildlife National Scenic Byway that has been developed, and is prominently featured on the City of Great Bend’s website. When I visited the Center recently, I was so pleased that Jan Garton was featured in the video that illustrates the recent history of the Bottoms.



**Franklin's Gulls and White Pelicans at  
Cheyenne Bottoms. © David Seibel**

But I'm getting ahead of "Saving Cheyenne Bottoms – Part Two" efforts. There was one last hurdle to overcome: upholding the Bottoms' authorized water rights. Surface-water rights from Walnut Creek were secured in 1948 and from the Arkansas River in 1954. Similar to the early 2013 summer months, the area at the time had suffered from drought and part of the restoration plan included upholding the Bottoms' water rights. Again the Kansas Audubon Council, the Kansas Wildlife Federation (KWF) and the Kansas Natural Resources Council (KNRC) worked jointly to ensure those rights would be upheld, which meant that litigation had to ensue. The Kansas Audubon Council was extremely fortunate to be represented by John Simpson, who also was legal counsel for the KNRC. Without John's passionate and competent involvement, which he provided *pro bono*, KAC would not have been able to be represented during the many days of formal testimony.

The case to uphold Cheyenne Bottoms' water rights were conducted in Great Bend with then Chief Engineer, David L. Pope, of the Division of Water Resources (DWR) within the Kansas Department of Agriculture, acting as hearing officer. During the time I represented the Kansas Audubon Council as its legislative liaison, I had the chance to listen to David testify before the House and Senate Natural Resources committees. He always was precise in his presentations and I believe he was much admired for his professionalism, integrity and knowledge of water laws. It should not surprise anyone that behind the scenes, he was considered the "Kansas Water Czar."

In order to appreciate the significance of his decision in the Cheyenne Bottoms' water-rights hearings, a bit of background on Kansas' water law is needed. "First in Time is First in Right" encapsulates the essence of the law. That is, an entity that files for an appropriation of water for a beneficial use and the application is approved, that water right precedes those of later or "junior" water-rights' holders.

As stated in the Kansas Water Office's website: "This principle is applied regardless of the type of use." This ultimately was extremely important as I believe that many involved in the case had assumed that water for wildlife would not be judged as important as water for irrigating crops. Kansas statute 82a-707 provides: "...the date of priority of an appropriation right, and not the purpose of use, determines the right to divert and use water at any time when the supply is not sufficient to satisfy all water rights that attach to it." The statutes continue: "The Chief Engineer shall enforce and administer the laws of the state pertaining to the beneficial use of water and shall control, conserve, regulate, allot



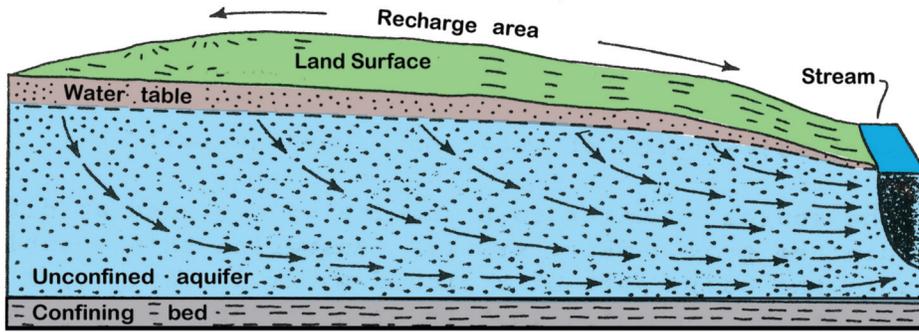
and aid in the distribution of the water resources of the state for the benefits and beneficial uses of all its inhabitants in accordance with the rights of priority of appropriation."

The other tenet of water-rights law in place at the time was "Use It or Lose It." This meant that water-right holders who had been allotted a certain number of acre-feet/year [which means one acre (43,560 square feet) covered by one foot of water = 325,829 gallons] were obligated to use the full allocation, regardless of weather conditions, or lose its use for that year. This is sort of like places in metropolitan areas that have timers on their lawn-watering systems so that they often water even in the midst of a downpour! Other crucial tenets of the law are: water is appropriated based on safe-yield; new appropriations cannot impair existing water rights; and water rights can be administered if impairment occurs.

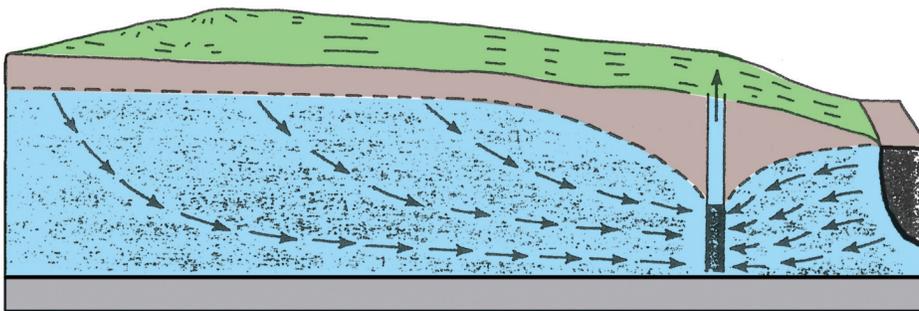
In September 1989 a study (DWR report No. 89-1) of water availability in Walnut Creek, its tributaries, their alluvial valleys, and hydraulically connected aquifers was completed by James Bagley of the Technical Services Section of the Division of Water Resources (DWR).

The next month, Robert Meinen, then Secretary of KDWP, in response to a lawsuit brought by KWF against the department for failing to uphold the Bottoms' water rights, requested that proceedings for designation of an Intensive Groundwater Use Control Area (IGUCA) be initiated. A similar request was made by Groundwater Management District (GMD) #5, and they included suggestions for designation of the area to be managed intensively. There are 5 GMDs in Kansas and currently 9 IGUCAs – most of which are within the boundaries of a GMD. It should also be noted that the Chief Engineer can initiate IGUCA proceedings on his/her own for the designation of an IGUCA outside the boundaries of an existing groundwater management district under conditions where: groundwater is being depleted; preventable waste of water is occurring; water quality is being impaired; or other conditions

***"Dr. Gonzalo Castro, Program Manager, Western Hemisphere Shorebird Reserve Network in Manomet, Massachusetts, testified that his research showed that Cheyenne Bottoms is one of the most important wetlands in the world."***



Cross section shows land-surface recharge area (green) where precipitation percolates by gravity to the water table (dashed line), then moves through the aquifer (light blue) and discharges to the stream or river.



Similar cross section showing how excessive groundwater withdrawals will lead to streams and rivers being dewatered as the water table falls below the base of the stream.

*(Illustrations modified from USGS Open File Report 90-183, published in 1990)*

exist within the area in question which require regulation in the public interest.

The Chief Engineer determined that there were to be formal and informal phases of the proceedings. The formal phase was to gather evidence supporting the need for an IGUCA; which corrective actions should be adopted; where the boundaries for it would be established; and which groups would be a part of the formal phase. They were: Kansas Department of Wildlife & Parks; Big Bend GMD #5; Walnut Creeks Basin Association; City of Great Bend; Kansas Audubon Council; Kansas Natural Resources Council (KNRC); Kansas Wildlife Federation (KWF); Mid-Kansas Quality Water Association; Central Kansas Utility Company, Inc.; Kansas Farm Bureau; City of Hoisington; and the Wet Walnut Creek Watershed, Joint District No. 58.

The informal phase gave an opportunity for the public to be heard and was held on the evening of December 5, 1990 in Great Bend. At that point many landowners who farmed in the area gave testimony about the necessity of irrigation to support their farms and rural communities. Others said that irrigation had been responsible for development of the livestock industry which

expanded the tax base, and others that Rural Water Districts mostly serve small domestic users and if water use was to be curtailed it would create a hardship. Many testified as to their remembrance of how the Walnut Creek used to flow, depending on weather conditions, but others recollected that it was dry in many instances and after floods the creek had silted in. Questions were posed as to which year should be used as a benchmark for determining declines in groundwater levels. Some asked what actually a wetland is and whether Cheyenne Bottoms was conserving its water use. John Kraft, speaking on behalf of KNRC, said that group's position was that if water-conservation technologies were implemented, 20-50% of the water being pumped would not be needed. He indicated a willingness of the three environmental groups to advocate for assistance from the State of Kansas to provide no-interest, short-term loans for purchase of water-conservation equipment. Furthermore he said that similar, water-conservation measures could be adopted by municipalities.

Summaries of formal testimony, which began on December 4, 1990 in Great Bend, provide insight into the areas of contention: whether water

wells used by the City of Great Bend affected Cheyenne Bottoms' surface-water right; whether siltation from floods had raised the base level of the Walnut Creek and that was the reason it was often dry; if watershed structures (terraces, impoundments, etc.) held more water on the land so there was not as much run-off after a rainfall; the degree to which the aquifers had declined due to irrigation; how much water was being lost to evaporation at Cheyenne Bottoms; whether only the most junior water-rights' holders should be cut off; and whether the alluvial aquifers and more deeply buried formations under the Arkansas River and Walnut Creek were interconnected, which would affect the location and extent of the IGUCA. Another item where the experts disagreed was the crop yields that could be expected with less water being withdrawn for irrigation. The only thing that seemed to be in general agreement was that there had not been a significant decline in the amount of annual precipitation in the area.

The report mentioned above by James Bagley of DWR proved essential to the decision-making process: the report's purpose was to determine if any additional water was available for appropriation in Walnut Creek, its tributaries and their valley alluviums in

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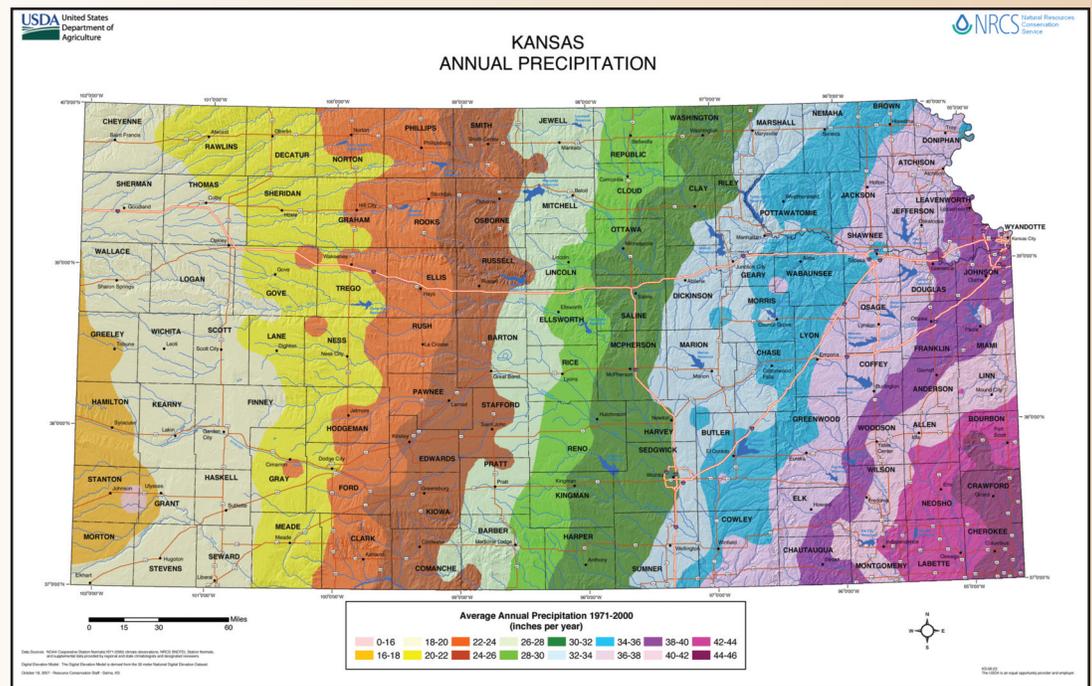
Barton, Rush, Ness, Lane, Scott and Pawnee counties. The report concluded that streamflow in Walnut Creek had decreased substantially over the past 30 years; that this decline was not due to climate change as annual rainfall had not changed significantly; and base flow in the lower part of the basin was now virtually non-existent. The report also concluded that groundwater levels had declined in parts of the alluvial valley since 1960 by as much as 18 feet.

Dr. Gonzalo Castro, Program Manager, Western Hemisphere Shorebird Reserve Network in Manomet, Massachusetts, testified that his research showed that Cheyenne Bottoms is one of the most important wetlands in the world and is one of the largest in the US. The Bottoms' importance is its geographic position within the Central Flyway, which allows migratory birds to stop to build up fat for fuel for continuing their spring and fall migrations. If denied this opportunity to build reserves, birds would be unable to complete their migrations or they would be unable to breed. He also said that the Bottoms was more important during spring months and that during a dry year, any water would be extremely crucial to provide birds with food to ensure their survival.

Matt Scherer III, Water Conservation Engineer, DWR, testified to several interesting points: irrigators who do not have meters on their wells probably underestimate their usage compared to those with meters; and under intense water-management practices, yields for corn, grain sorghum and soybeans would not be adversely affected in most years.

Tom McClain, associate section chief of Geohydrology of the Kansas Geological Survey, spoke about the report which he co-authored: "Cheyenne Bottoms: An Environmental Assessment." He said that the primary source of water within the Walnut Basin is in the alluvial deposits of the valley and not from more deeply buried formations. He also verified previous testimony that there had been no long-term change in average annual precipitation from 1946 to 1985. He was cross examined about: groundwater level fluctuations; low-flow measurements on Walnut Creek (in the 1950s); about the circumstances that would have to be present for a water well to have a direct impact on streamflow; that water wells for the city of Great Bend would be replenished by the Arkansas River and its alluvium; and pumping the city's wells would have little impact on streamflow in Walnut Creek.

James Koelliker, KSU Professor of Water Resources in Civil Engineering, testified about his "Summary Report Estimating the Future Water Supply for Cheyenne Bottoms Wildlife Area in Kansas," which he had prepared as a private consultant for Howard, Needles, Tammen and Bergendoff (HNTB). Taking all areas into consideration, he estimated the long-term water supply



to the Bottoms by source is: 25,000 acre-feet from direct precipitation; 17,000 acre-feet from the natural drainage basin; 37,360 acre-feet from the Arkansas River and Walnut Creek, for a total of 79,360 acre-feet. He also calculated that of the two major tributaries to Cheyenne Bottoms – Blood and Deception Creeks – marshes within those watersheds reduced the inflows to the Bottoms by approximately 60%. He also concluded that evaporation loss from the Bottoms averaged over 60 inches per year. Koelliker thought that water-control structures within watersheds (farm ponds) and land use (cropped vs. grass) could have significant effects on the amount of water reaching surface-water creeks and streams. He recommended that Cheyenne Bottoms be permitted to divert at a higher rate than was currently permitted to capture flood flows.

Carl Nuzman of Layne GeoSciences, another subcontractor for HNTB, did a study on watershed structures on groundwater recharge and its implied impact on streamflow in the Walnut Creek. He concluded that holding water in watershed structures led to fewer flooding events and therefore less recharge to bank storage. His calculations estimated evaporation loss from the Bottoms was about 40 inches per year. Nuzman conducted simulations of stream/aquifer/irrigation interactions under various conditions and concluded that with irrigation at the then-current level, the aquifer would continue to be de-watered without some type of regulation, restrictions, or recharge enhancements. He also said that the suggested western boundary for the IGUCA had not sustained significant drops in groundwater levels and that most of the curtailment needed to be from Rush Center to Great Bend. He agreed that an IGUCA would be desirable; however, additional data should be collected to make refinements to water-use controls.

Rollan Stukenholtz, General Manager, Servi-Tech, of Dodge City testified about a report he had co-authored: "The Economic Impact of Irrigation Water for Crop Production in Rush and Barton Counties, Kansas." Much of the report assumed that with an IGUCA, no irrigation would be permitted in Barton and Rush counties. This would result in significant loss in both commodity



**The course of the Arkansas River, southwest of Great Bend, KS on September 1, 2013, showing ATV tracks and a few puddles of water remaining from early August rains.**

sales and input costs – most of which would occur in the two counties. He verified that comparable yields could be achieved with more efficient irrigation technology; however, this would mean that farmers would have to purchase new and improved equipment. He recommended metering of irrigation wells and at some time in the future a determination of how much water use can be reduced without causing severe economic hardship.

After taking formal testimony for 18 days spread out over several months, the hearings were concluded on April 18, 1991. The Chief Engineer ordered that all written statements and evidentiary materials should be submitted to him by May 1, 1991 – which was later extended to August 19, 1991.

What I have tried to condense here represents more than 90 pages of testimony by experts from federal, state, municipal, and private entities. And these 90 pages do not include all the charts, graphs, maps, and other exhibits which are referred to in the testimony summaries. Obviously it was an enormous task to sort through the often conflicting testimony, and make sense of all that had been presented. But that's exactly what David Pope, Chief Engineer of DWR, managed to accomplish. His conclusions cover another 10 pages of orders and recommendations. Interestingly, the decision was announced on Kansas Day – January 29, 1992.

The key points of the order were: an IGUCA should be established; both irrigation and farm practices (terraces, tillage, farm ponds and watershed structures) were responsible for declines in base flow of Walnut Creek; that no more than 22,700 acre-feet/year should be permitted to be withdrawn from the aquifer within the boundaries of the IGUCA as set forth in the order, which included parts of Barton, Rush and Ness counties; flow meters had to be installed on all irrigation wells and surface water diversions within the IGUCA; and within these boundaries no further groundwater or surface water could be appropriated except for domestic use or emergency needs.

Most importantly Mr. Pope stated: “that it is in the public interest to: a) regulate groundwater and surface water, b) allow the aquifer to recharge and c) manage water in the area consistent with the long-term sustainability of the area’s water resources.” The order also defined “waste of water” and provided for suspension of a water right found out of compliance with that definition. Interestingly, junior water-right holders were not cut off completely. Vested rights were to continue to have their entire water right. Senior appropriation rights (those before October 1, 1965) could use 12 inches in Barton County, 13 inches in Rush County and 14 inches in Ness County. Junior appropriation rights were allocated 44% of what senior rights were permitted in the three counties. The order also established an advisory committee to gather data to make recommendations to further refine any of the corrective-control provisions of the order. It also set up a five-year evaluation timeline so that data could be collected, suggestions from the IGUCA

Advisory Committee for alterations to the original order could be considered and possibly amended into the order.

The Chief Engineer also ordered that the amount allocated to a water user for a five-year period may be used at the water user’s discretion within the five year period, provided that the water user shall not exceed the certified or permitted amount in any one year under the water right. This initially changed the “Use it or Lose it” regulation. Later further changes were proposed: on April 9, 1996 the Walnut Creek IGUCA Advisory Committee made recommendations to the Chief Engineer to: increase allocations for the City of Otis helium plant; to allow carry over any allocation of unused water in the five year period 1992 to 1996 to the new five year period 1997 to 2001; and to compute allocations for water rights that had been in CRP during 1985 to 1990. The Chief Engineer concluded that these recommendations would not injure any existing water rights and granted the recommendations.

Although Cheyenne Bottoms was granted a surface-water right from the Arkansas River in 1954, this was not addressed by the Chief Engineer’s order. The IGUCA only applied to its water right from the Walnut Creek. Approximately one-half (48.68%) of the Bottoms’ total authorized water rights come from the Arkansas River. Using Google Maps, you’ll get a bird’s eye view of the area from Great Bend westward along the Arkansas River. The number of irrigated crop-circles is astounding. And in checking stream flow in the Arkansas River on the US Geological Survey’s Real Time Water Data, as part of the National Water Information System, it is quite evident that there has been a steady decline in the amount of water in the river since the mid-1960s. Examining flows for the period 2000 to 2013, except for occasional heavy inundations, the river was nearly devoid of water flowing within its banks; that is, the spike in flows rise dramatically, then plummet back to near zero immediately after the rains. I believe it would be correct to conclude that in most cases, there is not water available

in the Arkansas River to divert to Cheyenne Bottoms.

Because of the statewide drought that began in 2011, "DWR issued a one-time, Drought-focused Term (DT) permit to allow holders of existing water rights the flexibility to borrow a portion of the next year's (2012) authorized quantity in order to complete their 2011 growing season." And as we all know, 2012 was equally bad for its lack of precipitation. In response, the DWR worked with the 2012 Kansas Legislature to further revise the "Multi-Year Flex Account" program, which allows the water-right holder to exceed their annual authorized quantity in any year, but they cannot exceed the total permitted amount authorized over the five-year period. In 2011, DWR issued 2,250 drought-term permits. DWR has also put into place a series of significant fines for over-pumping; that is withdrawing more water than a water right is permitted.

Beginning in 2013 the following is the schedule of consequences for violating this rule:

- First offense: Notice of Non-compliance (NONC).
- Second offense: Monetary fine of \$1,000 and a reduction in authorized quantity for the following irrigation season by two times the amount overpumped.
- Third offense: Monetary fine of \$1,000 per day of overpumping (capped at \$10,000) and a one-year suspension.
- Fourth offense: Water right revocation. The water could become available for appropriation to someone else if located in an area not closed to new applications.

Further research has shown that in Ness and Rush counties, fewer than 25 Drought-Term (DT) Permits were issued in each county. However for Barton County, 67 DT Permits were issued for the entire county and 2,304 acre-feet over the permitted amount was withdrawn. Most of the DT permits appear to be in the southern portion of the county, following the course of the Arkansas River, so it appears that either none were asked for or permitted in the Walnut Creek IGUCA.

Perhaps more telling are the 2011 data for Pawnee County, through which the Arkansas River would flow. Of the 16,139 acre-feet authorized to 104 DT Permit requests, 5506 acre-feet of water was used in excess of the amount authorized. Using rounded numbers (325,000 x 5,500) this is equal to

## WATER CONFERENCE NOTES:

At the Governor's Conference on the Future of Water in Kansas, held in late October, a member of the Governor's Council of Economic Advisors stated that there was going to be a planning process to establish a 50-year vision for future water use.

This vision was to "ensure Kansas is capable of providing adequate water supply to meet the needs of agriculture, industry and residential use." Hopefully this explanatory statement was an oversight and not a policy recommendation. No mention was made of water for Wildlife, Recreation, or Conservation, even though each of the Basin Advisory Committees has a member representing those interests in the State Water Planning process. A mission statement has been developed and objectives and tactics established.

Perhaps most startling of all was learning that 70% of Kansans get their drinking water from reservoirs, and that these lakes have been silting in at a far more rapid rate than originally predicted. Currently, the most critical of these is John Redmond, whose estimated cost for dredging comes in at about \$25,000,000. Later we learned that the Legislature recently took General Fee Funds from the State Water Plan Fund (about \$6 million annually), and diverted those dollars to other uses, thus depleting planning money and dollars for conservation practices that might have helped prevent some of the siltation of the reservoirs.

It was somewhat disconcerting that the same issues that were "thorny" twenty years ago still remain to be resolved: the Ogallala aquifer is being depleted so that questions abound as to the future for western Kansas communities; inter-basin transfers are being considered to augment areas that don't receive enough precipitation to support the human population; and although some water-quality issues have subsided, others related to nutrient levels that promote harmful algal blooms have arisen.

On the last day of the conference, I happened to pick up a publication from "The Kansas Aqueduct Project" whose motto is "Kansas Grows Where Water Flows." The publication appears to have been put together by GMD #3 in southwest Kansas, which is part of the Kansas Aqueduct Coalition. It shows a map of the proposed aqueduct, reaching from far northeast Kansas to somewhere in the western third of the state (but considerably north of GMD #3). If I understand the concept, they want to divert Missouri River "high flows" during flood events; thereby preventing floods along the Missouri River in that state. It calls for a large reservoir to be constructed in northeast Kansas and a "south route was found engineering feasible and the least expensive route identified." The publication further explains that the Kansas Water Authority acted to begin evaluating the technical, legal, political, financial and other aspects of the feasibility of the Missouri River Aqueduct project at its May 2013 meeting in Newton, KS.

In 2012 the Kansas Legislature, through Senate Bill 310, made progress toward encouraging groundwater conservation. The bill established something called a Locally Enhanced Management Area (LEMA). As explained by the KS Water Authority, "LEMAs provide a mechanism for stakeholders to develop groundwater conservation plans for areas within a Groundwater Management District (GMD), which can contain mandatory provisions. The LEMA process provides protection for stakeholders as their voluntary plan cannot become more restrictive than proposed, by limiting the options of the State. A LEMA goes through two public hearings to review legal conditions and findings of fact. If favorable, the Chief Engineer has options to: 1) Accept the LEMA plan as proposed; 2) Reject the LEMA plan as insufficient to address the conditions; or 3) Return the LEMA plan with reasons for the return, perhaps with proposed modifications based on testimony given at the public hearing. If option 3 occurs, the GMD may revise and resubmit the LEMA plan or choose not to resubmit. If option 1 occurs, the Chief Engineer orders the LEMA, which would then have the force of law."

If you are interested in following up on any of these water-related issues, be sure to visit the Kansas Water Office's website to check on scheduled meetings of the various Basin Advisory Committees and the KS Water Authority. Many of the relevant documents can be downloaded as PDF files.



**Diversion structure on the Walnut Creek which permits surface water to be transported to Cheyenne Bottoms.**

1,787,500,000 gallons of water. Carrying the calculations further, this means that on average, each DT permit holder pumped approximately 53 acre-feet more than the authorized amount. Because the penalties for overpumping did not go into effect until 2013, there were no repercussions for these violations. After attending the 2013 Governor’s Conference: “Water and the Future of Kansas” I learned that these drought-term permits were not repeated in 2012 or 2013.

It remains to be seen if these changes in water-rights authorizations within the Walnut Creek IGUCA will prove to be problematic for Cheyenne Bottoms in the long term. During an extremely dry year, irrigators would tend to pump any carried-over unused water from previous years. Although flexibility may be beneficial to irrigators, monitoring of periodic increases in aquifer withdrawals and the subsequent effects on streamflow in the diversion canals should be tracked. However, the results of the “Impact Analysis of the Walnut Creek IGUCA” by Bill Golden and John Leatherman, both KSU professors, provide some assurance that the control measures benefitted the agricultural sector as well. They studied the economic factors over the time period from 1985 through 2005 and concluded that the values of irrigated crops inside the IGUCA and outside it were not statistically different except during an initial adjustment time from 1992-93. According to the DWR website the next review of the Walnut Creek IGUCA is to be completed by June 15, 2015.

My husband, Ron, and I traveled to Great Bend in late August 2013 to visit the Wetlands Education Center and Cheyenne Bottoms. While in the area we learned that from June 2012 until early August 2013, Cheyenne Bottoms was completely dry. We asked if irrigation was taking place in the area during that time; the answer was: “Yes, but there probably wouldn’t have been water in Walnut Creek anyway.” While in the area we also traveled to view the Arkansas River southwest of Great Bend. It was full, not of water, but ATV tracks in the river bed. There were only a few scattered puddles from the recent August rains. The diversion canal from the Arkansas River northward has been replaced with concrete pipe in order to more efficiently carry any surface water that might be available to Cheyenne Bottoms. But with the excesses of groundwater withdrawals in that area, the likelihood of restoring minimum stream flows in the Arkansas River remains questionable.

These observations lead one to ask several important questions: who is monitoring the total amount of groundwater being withdrawn within the Walnut Creek IGUCA? The limitation in the IGUCA order was no more than 22,700 acre-feet/year. Are irrigators complying with annual reporting requirements? Have the groundwater levels in these irrigation wells been declining and if so, who is tracking that? Has the Kansas Department of Agriculture updated its records to indicate any significant change in annual precipitation data since 2000 (the last year posted on its website)? And most importantly, how much of Cheyenne Bottoms’ senior surface-water rights are actually available to be diverted?

I fervently hope that we will not have to engage in another “Saving Cheyenne Bottoms – Part Three” to ensure its water rights from the Arkansas River are upheld.

To conclude on a much more positive note, many of the suggestions and recommendations made by the Kansas Audubon Council’s position paper on Cheyenne Bottoms have been fulfilled: funding for restoration was secured; water rights guaranteed from the Walnut River; greater flexibility to move water within the Bottoms was achieved; the Wetlands Education Center has been built; the auto tour has been incorporated into the “Wetlands and Wildlife National Scenic Byway” and public interest and support was increased. These certainly are notable successes for each group that took part in the various phases of the story of “Saving Cheyenne Bottoms.” And when there is water in the Bottoms, it is a wondrous place to visit.



**Joyce met Ron Wolf** at the University of Cincinnati, where she graduated with a BS degree in bacteriology and he with a BS in geology. Joyce’s first interest in water-related issues came while working for the US Public Health Service (later to become EPA) doing water-quality studies on the Ohio River. Ron worked as a hydrologist for the US Geological Survey in Ohio, Indiana, Minnesota, Wyoming and Kansas. Joyce served as the legislative liaison for the Kansas Audubon Council from 1988 to 1993; helped found and was Executive Director of the Kansas Land Trust; and currently serves on the Grassland Heritage Foundation board, and as secretary for the Audubon of Kansas board. Ron currently serves on the board of Douglas County Rural Water District #3. They both serve on the Jayhawk Audubon Society board of directors.  
 – Photo by Mehrzad Alison