

## MINUTES OF THE STATE CONSERVATION COMMISSION

1. The State Conservation Commission meeting was called to order by Rod Vorhees, Chairman and Area V Commissioner, at 2:03 p.m., Monday, February 3, 2020, at the Landon State Office Building in the Kansas Water Office, 900 SW Jackson Street, Suite 404, Topeka, Kansas.

2. **ATTENDANCE:**

**Elected Commissioners:**

Ted Nighswonger, Area I Commissioner  
Andy Larson, Area II Commissioner  
Brad Shogren, Area III Commissioner  
John Wunder, Area IV Commissioner  
Rod Vorhees, Area V Commissioner

**Ex-Officio & Appointed Members:**

Dan Devlin, Director, Kansas Center for Agricultural Resources and the Environment (KCARE), K-State Research and Extension (left at 2:50)  
Terry Medley, P.E., Water Structures Program Manager, Division of Water Resources, Kansas Department of Agriculture  
Karen Woodrich, State Conservationist, Natural Resource Conservation Service (arrived at 4:07)

**Division of Conservation, Kansas Department of Agriculture Staff:**

Rob Reschke, Executive Director  
Scott Carlson, Assistant Director  
Steve Frost, Administrative Manager  
Dave Jones, Water Quality Program Manager  
Tim McCoy, Riparian & Wetland Program Manager  
Donna Meader, Conservation District Program Coordinator

**Guests:**

Mike Beam, Secretary, Kansas Department of Agriculture (left at 2:15 p.m.)  
Kelsey Olson, Deputy Secretary, Kansas Department of Agriculture (arrived at 4:30, left at 5:15 p.m.)

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Herb Graves, Executive Director, State Association of Kansas Watersheds (SAKW) (left at 2:45 p.m.)

Jason Hartman, State Forester, Kansas Forest Service (KFS)

Thad Rhodes, Kansas Forest Service (KFS)

Amanda Scott, President, KACD-EO (arrived at 5:20 p.m.)

Dan Meyerhoff, Executive Director, KACD (arrived at 5:30 p.m.)

Kenneth Titus, Chief Council, Kansas Department of Agriculture (arrived at 2:47 p.m., left at 2:50 p.m.)

### 3. ADDITIONS/CORRECTIONS TO AND APPROVAL OF AGENDA:

Additions:

Add Certification of Commissioner elections and election of chairperson and vice-chairperson

Add Cover Crop/NPS Program discussion under New Business

**A motion was made by Andy Larson to approve the agenda as amended. The motion was seconded by Ted Nighswonger. Motion carried.**

### 4. CERTIFICATION OF ELECTION:

**A motion was made by John Wunder to certify the election to the Conservation Commission for a two-year term beginning January 1, 2020: Area I – Ted Nighswonger, Area III – Brad Shogren and Area V – Rod Vorhees. The motion was seconded by Andy Larson. Motion carried.**

### 5. ELECTION OF CHAIRPERSON AND VICE-CHAIRPERSON OF THE COMMISSION:

**A motion was made by Brad Shogren to nominate Rod Vorhees to serve as Chairperson with unanimous consent. Motion carried.**

**A motion was made by Ted Nighswonger to nominate John Wunder to serve as Vice-Chairperson with unanimous consent. Motion carried.**

Secretary Beam (2:07 p.m.): Welcomed the commission to Topeka. Discussed a spreadsheet for the Natural Resources Sub Cabinet that was passed around to the commissioners. The spreadsheet is a ranking of the major natural resource issues. The Secretary would appreciate the input on the spreadsheet from the commissioners.

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### 6. MINUTES OF THE PREVIOUS MEETING:

**A motion was made by Ted Nighswonger to approve the November 24, 2019, minutes as mailed. The motion was seconded by Andy Larson. Motion carried.**

### 7. COMMUNICATIONS AND ANNOUNCEMENTS:

#### a. CONSERVATION DISTRICT EMPLOYEE UPDATE

##### **Area I:**

**Phillips** County CD: Jacque Bretton is the new District Manager; employment date 10/28/2019. Jean Stapel, previous District Manager, resigned effective 10/31/2019.

##### **Area II:**

None

##### **Area III:**

**Mitchell** County CD: Linda Deneke will be the new District Manager starting full time on 1/21/2020. Terri Nuzum, previous District Manager, resigned effective 1/3/2020.

**Saline** County CD: District Manager, Karen Borcharding, has accepted a job with K-State Extension. Her last day as District Manager was 1/24/2020.

##### **Area IV:**

**Clay** County CD: Tasha Tromp is the new District Secretary; employment date 12/3/2019.

##### **Area V:**

**Greenwood** County CD: Morgan Shorter is the new DOC Technician; employment date 11/1/2019.

- b. Rob Reschke announced that Donna Meader is retiring from KDA, her last day in the office would be February 7, 2020.

**A motion was made by Brad Shogren to acknowledge Donna Meader and her contributions to the SCC and DOC. The motion was seconded by John Wunder. Motion carried.**

### 8. UNFINISHED BUSINESS:

#### a. Statute revision update

- i. Scott Carlson updated the commissioners on the progress of the Statute revisions. Scott indicated the house ag committee will review the bill today at 3:30. The commission was informed that Kenneth Titus would be in the room at 2:45 to introduce himself and answer questions before the commissioners go over to the

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hearing. Ted Nighswonger asked Scott if he thought there would be any major problems with the revisions. Scott indicated that he was not aware of any issues.

b. CSIMS/RALIS update

- i. Scott informed the commissioners that CSIMS is 90% done, but there will be continuing maintenance and enhancements. Staff met with the programmer this morning, users guide will be developed by March 1, so districts will have access before the new program year.

c. DOC Initiative (Preserving a Legacy, Conservation District Records Disposition) update

- i. Scott informed the commissioners that he has received the final spreadsheet listing the updated series/titles from the Kansas Historical Society. The historical society board approved the DOC/district project. Instructions and thumb drives will be given to the districts soon, districts will be able to mail the drives back to the DOC when the records have been scanned and downloaded.

d. FY 2020 cancelled cost-share funds update (Attachment A)

- i. Dave Jones provided an update on the NPS and WR cost-share program balances and a staff recommendation for the allocation of these funds. – See Handout

**A motion was made by John Wunder to approve the reallocation of remaining balances in the Water Resources and Non-Point Source cost-share funds based on the DOC staff recommendations listed on the FY 2020 cancelled cost-share update. The motion was seconded by Ted Nighswonger. Motion carried.**

- Dan Devlin asked if funds could be transferred from NPS to WR. Rob Reschke indicated that it was possible but could not be done in-house.
- Brad Shogren indicated that he would like to look at increasing the landowner limits in both programs as a possible remedy for the high balances in both programs.
- Dave Jones informed the commissioners that many counties are under the allowed \$10,000 landowner limit.
- Kenneth Titus arrived at the meeting at 2:47 p.m. He asked if the commissioners had any questions. After no questions were asked Chairman Vorhees called the meeting in recess at 2:50 p.m. (commissioners and others attended the house ag hearing)
- Chairman Vorhees reconvened the meeting at 3:55 p.m.

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- Kelsey Olson (4:30 p.m.), informed the commission that the Executive Director job had been posted and they have received applications. The search committee is being established; asked if the commission had any questions.
- John asked why the make-up of the committee was different than discussed in Wichita and why more people or entities have been added.
- Kelsey said the group is not finalized and that they have had other groups and agencies reach out and want to be a part of the process.

### 9. NEW BUSINESS:

- a. Irrigation Technology Initiative update (Attachment B)
  - i. Dave Jones provided a copy of the DRAFT Kansas Irrigation Technology Initiative to the commissioners. The initiative is on track to be released to conservation districts within the next few days. Brad Shogren questioned the eligibility of participants from last year in the FY 2020 initiative. Ted Nighswonger indicated that water conservation was showing itself to be very important at the GMD level. Brad requested that a survey be sent to last year's participants.
- b. FY 2021 Budget update (Attachment C)
  - i. Rob Reschke provided a handout detailing the Governor's FY 2021 budget request. This handout also showed the request from the Kansas Water Authority. Kelsey Olson and Rob Reschke indicated that KDA was supporting the Governor's budget recommendation.
- c. Riparian Quality Enhancement update (Attachment D)
  - i. Tim McCoy provided a Riparian Quality Enhancement update to the commissioners. Tim has collaborated with the Kansas Forest Service to offer several practices that coincide with the Forest Service RCPP project. Tim thanked the Forest Service for their partnership on this project.
- d. NACD Spring Fly-In, March 25, 2020
  - i. Rod Vorhees led a discussion about the upcoming NACD Spring Fly-In. Dan Meyerhoff indicated that the KACD board approved participating in the fly-in this year. Details will be worked out by all partners.

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- e. KACD Conservation Day at the Capitol
  - i. Dan Meyerhoff let the commissioners know that they could be at the capitol at 9:30 for the conservation day activities. Brad Shogren mentioned that there were no KACD program policy resolutions for the SCC to review this year.
- f. Cover Crop/NPS program discussion (Attachment E)
  - i. John Wunder opened a discussion about possibly adding cover crops to the NPS program. Rod Vorhees and John Wunder reported much interest in cover crops from county supervisors at the no-till conference in Wichita. Brad Shogren and Ted Nighswonger had comments about possibly adding cover crops to both programs. Dave Jones passed out two handouts pertaining to the cover crop discussion. Rod Vorhees asked Dave Jones if he could draft a possible cover crop initiative for everyone to review. Dave will draft and send out an initiative soon.

### 10. UPDATES:

- a. Comments from Guests:
  - i. Jason Hartman (KFS) introduced himself and indicated that he appreciated the partnership with the SCC and looked forward to working with them in the future.
  - ii. Amanda Scott (KACD/EO): (Attachment F)
- b. DOC Staff Updates – No additional staff updates
- c. Ex-Officio and Appointed Member Updates:
  - Karen Woodrich (USDA, NRCS): (Attachment G)
  - Dan Devlin (KSU, KCARE): (Attachment H)
  - Terry Medley (DWR): (Attachment I)
- d. Elected Commissioner Area Updates:
  - Ted Nighswonger (Area I): No report.
  - Andy Larson (Area II): It has been very dry in his area.
  - Brad Shogren (Area III): Attended an innovation farm field day, 80 participants, it was a KSU extension version of water technology farms. Submitted his name for national rural advisory board for EPA.
  - John Wunder (Area IV): Farmers and ranchers had a lot of stress this spring that got handed off to districts and NRCS. Field office has been busy, things are really wet in area 4. Attended No-Till on the Plains, noticed many out-of-state participants.
  - Rod Vorhees (Area V): Attended No Till on the Plains; some presenters were better than others, interaction during break times was great. Attended several annual meetings in his areas. Going to have an area meeting at some point.

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**11. ADJOURN:**

Brad Shogren wanted it reflected in the minutes that the SCC thanks Rob Reschke for his service to the DOC and SCC. His time has been appreciated.

**A motion was made by Andy Larson to adjourn. The motion was seconded by Ted Nighswonger. Motion carried.**

The next regular Commission meeting is scheduled for Monday, April 27, 2020, at the Kansas Department of Agriculture, 1320 Research Park Drive, Manhattan, Kansas.

**The meeting was adjourned at 6:08 p.m.**



Rob Reschke  
Executive Director

## **FY 2020 cancelled cost-share funds update**

### WR and NPS Balances after under-funded contracts have been obligated:

NPS  
Total                               \$523,643.22

WR  
Total                               \$344,432.85

Plan from November meeting:

#### NPS Funds:

- Under-funded NPS applications
- Combine remaining FY 2020 NPS cancelled funds with FY 2019 NPS carryforward funds, extend the eligible application area statewide for PRM and RAP projects in NPS (unmet needs in CSIMS will be utilized for this funding when possible)
- Livestock Waste Applications
- Soil Health Education Funds
- Transfer to RW program for streambank projects

#### WR Funds:

- Under-funded WR applications
- ESC projects located in the drainage areas of the KWO Tier 1 priority reservoirs (unmet needs in CSIMS will be utilized for this funding when possible)

Proposal to revise plan for cancelled funds:

#### NPS Funds:

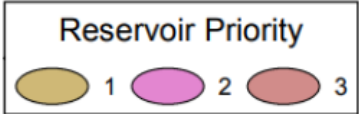
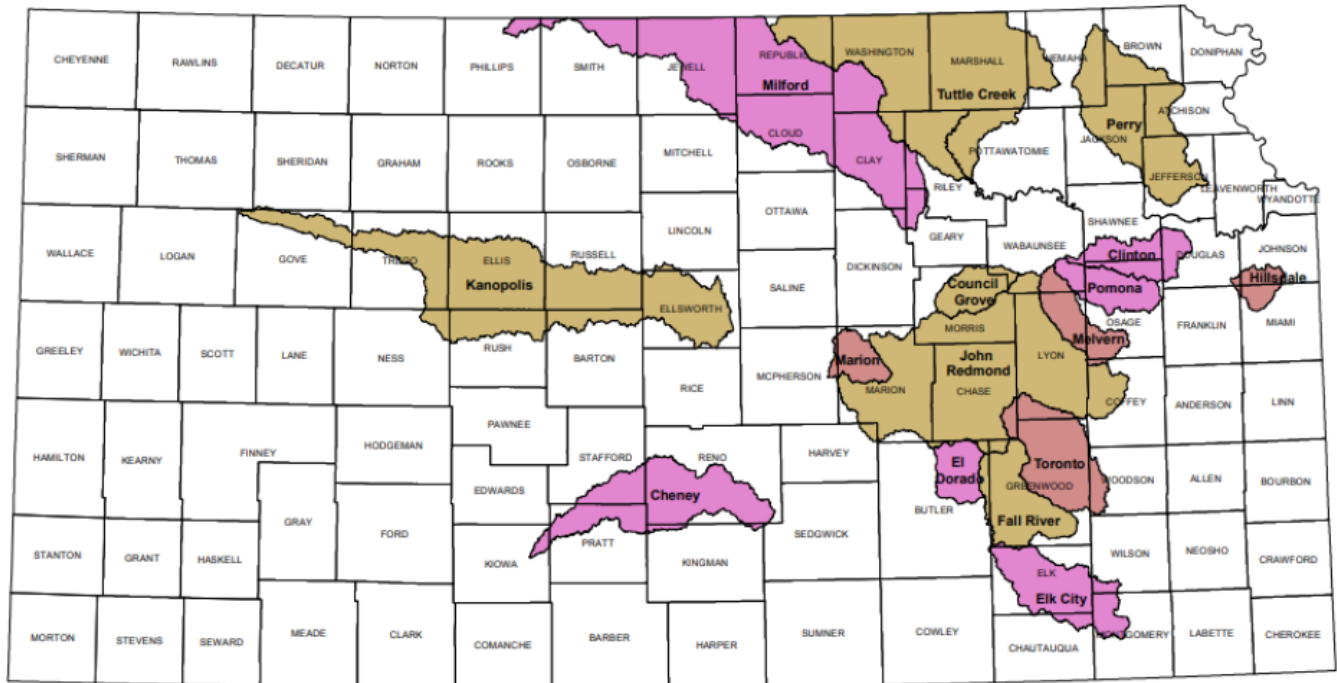
- Statewide reallocation of funds to all counties
- Cancellation of uncommitted funds on Friday April 3, 2020

#### WR Funds:

- ESC projects located in the drainage areas of the KWO Priority Federal Reservoirs. Projects located in Tier 1 will receive first priority, projects in Tier 2 will receive second priority and projects located in Tier 3 will receive third priority



# Kansas Water Office Priority Federal Reservoirs



1320 Research Park Drive  
Manhattan, KS 66502  
785-564-6700  
www.agriculture.ks.gov



900 SW Jackson, Room 456  
Topeka, KS 66612  
785-296-3556

Mike Beam, Secretary

Laura Kelly, Governor

## Memorandum

**To:** Kansas Conservation Districts

**From:** Rob Reschke, Executive Director

**Date:** February 5, 2020

**Re:** FY 2020 Irrigation Technology Initiative

The Kansas Department of Agriculture, Division of Conservation is pleased to announce the availability of \$132,500 in cost-share funds to assist landowners with irrigation efficiency technology. This initiative is designed to promote irrigation efficiency by providing cost-share assistance to landowners for automated soil moisture probes.

Following is additional program guidance on the FY 2020 Irrigation Technology Initiative:

- Applications will be accepted thru March 6, 2020.
- \$75,000 of the initiative funds will be designated to applications in the Rattlesnake Creek priority areas. Remaining initiative funds will be designated to land located within the Kansas Department of Agriculture Division of Water Resources approved Water Conservation Areas.
- Applications in the Rattlesnake Creek priority areas will be prioritized by location using the attached Rattlesnake Creek priority area map. Land located in zone C will receive first priority with land in zone B receiving second priority and land in zone A being third priority.
- Applications in the Kansas Department of Agriculture Division of Water Resources approved Water Conservation Areas will be prioritized on a first come first served basis.
- Eligible soil moisture probes must be automated and capable of providing data to the landowner.
- Eligible soil moisture probes can be leased or purchased by the landowner.
- Water use data including data collected by the soil moisture probes and/or remote monitoring system must be provided at the DOC's request.

- Each landowner is limited to three automated soil moisture probes under this initiative.
- The cost-share rate for this initiative will be 70%.
- The landowner limit for this initiative will be \$10,000.00.
- Invoices for the lease or purchase of the soil moisture probe must be provided to the conservation district prior to any cost-share payment being made.
- Soil moisture probe purchases made before application approval by the DOC are not eligible for this initiative.
- Only land located within the Kansas Department of Agriculture Division of Water Resources approved Water Conservation Areas and the Rattlesnake Creek Sub Basin Priority Areas will be eligible for this initiative.
- The DOC does not guarantee adequate funds will be available to fund all eligible applications.

Attached is a spreadsheet that you can use to submit applications for the FY 2020 Irrigation Technology Initiative. Please submit the applications via email to [David.Jones@ks.gov](mailto:David.Jones@ks.gov) .

If you have any questions regarding the FY 2020 Irrigation Technology Initiative, contact Dave Jones with our office at 785-564-6623.

RR: daj

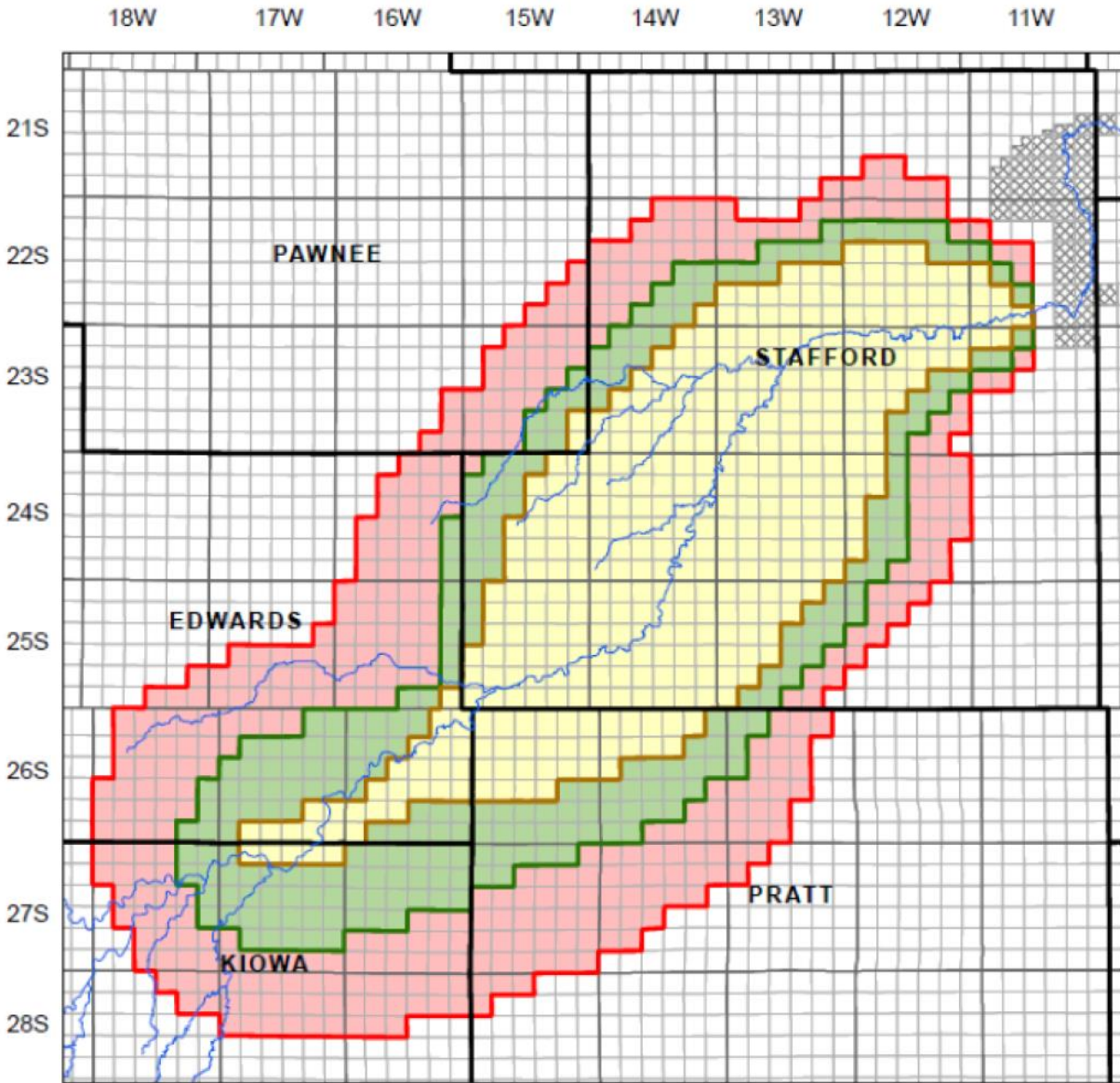
cc: NRCS State Office

NRCS Area Offices

SCC Commissioners

Mike Beam, Secretary

# RATTLESNAKE CREEK PRIORITY AREAS



-  Zone C
-  Zone B
-  Zone A

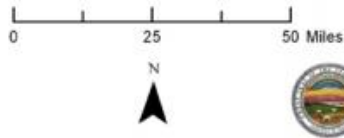
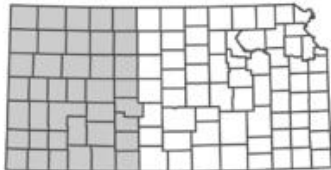
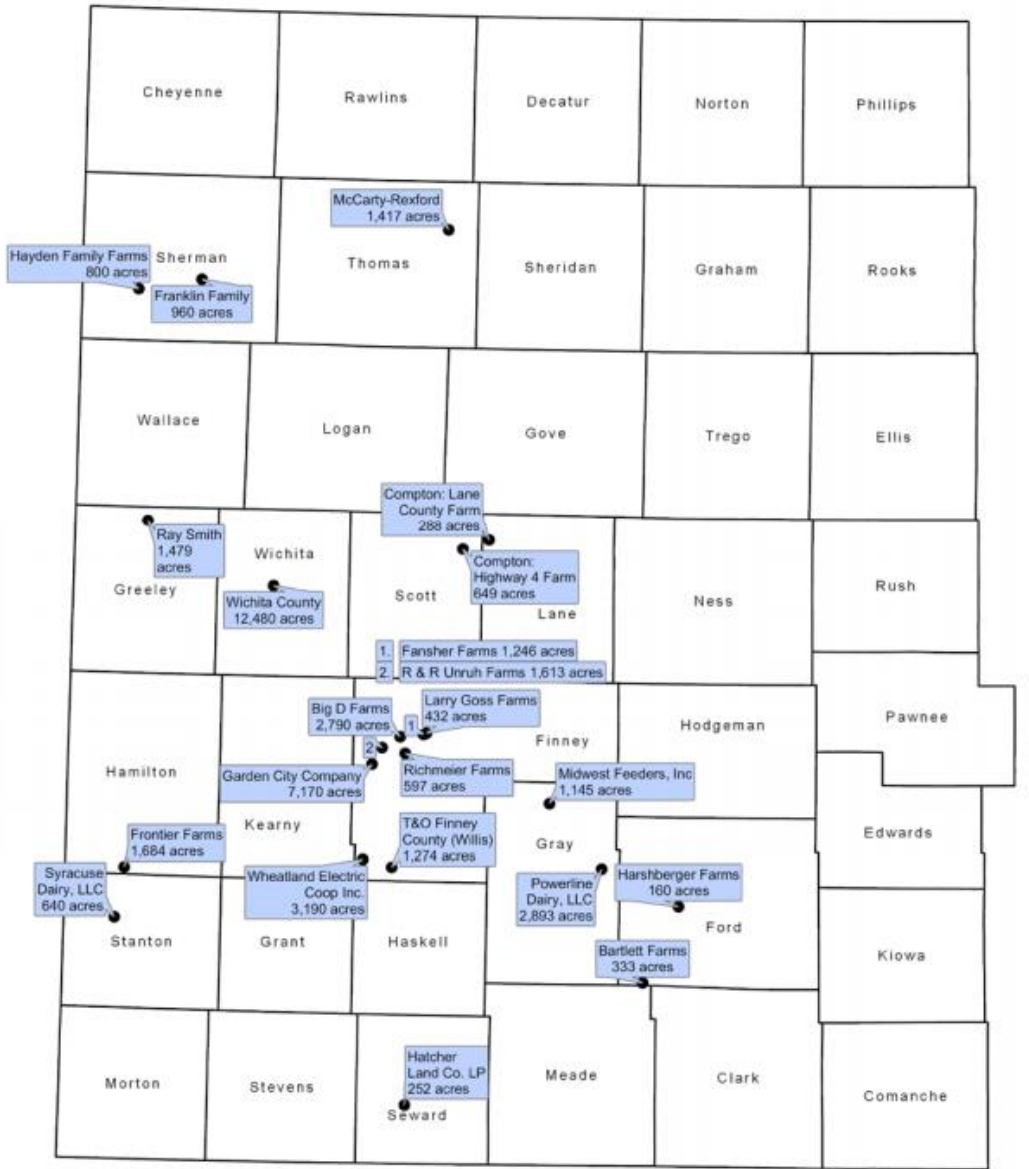
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31	32	33	34	35	36



Kansas Department of Agriculture  
 Division of Water Resources  
 Map Date: September 23, 2019

# Water Conservation Areas



Details of each WCA are available online at [www.agriculture.ks.gov/wca](http://www.agriculture.ks.gov/wca)



Kansas Department of Agriculture  
Division of Water Resources  
November 15, 2018

## MEMO



## Water Office

900 SW Jackson Street, Suite 404

Topeka, KS 66612

Phone: (785) 296-3185

Fax: (785) 296-0878

[www.kwo.ks.gov](http://www.kwo.ks.gov)

DATE: January 23, 2020  
 TO: Kansas Water Authority  
 FROM: Earl Lewis  
 RE: SGF/EDIF Transfer & SWPF Budget  
 Enhancement Request Update

As discussed in September and December, the Kansas Water Office submitted the request for projects which would be funded by the demand transfer from the State General Fund (SGF) and the Economic Development Initiatives Fund (EDIF) with the agency's budget submittal in September. The Kansas Water Authority enhancement requests were not included in the Governor's Budget that was delivered to the Legislature on January 16, 2020. The Kansas Water Office and Kansas Water Authority will continue to present the enhancements to the Legislature during the budget committee testimonies.

**Kansas Water Authority SGF/EDIF & SWPF Budget Enhancement Request FY2021**

	Agency	FY2021
Drinking Water Protection Program	KDHE	\$ 150,000
Watershed Dam Construction	KDA	\$ 400,000
Water Transition Assistance Program/CREP	KDA	\$ 300,000
Irrigation Technology	KDA	\$ 100,000
Streambank Stabilization	KDA	\$ 500,000
Real-Time Water Management - Telemetry	KDA	\$ 25,000
Water Supply Restoration Program	KDA	\$ 465,000
MOU - Storage Operations & Maintenance*	KWO	\$ 70,100
Technical Assistance to Water Users	KWO	\$ 100,000
Watershed Conservation Practice Imp	KWO	\$ 300,000
Water Injection Dredging (WID)	KWO	\$ 660,000
Arbuckle Study	KWO	\$ 100,000
<b>FY2021 Enhancement Request Total</b>		<b>\$ 3,170,100</b>

*\*Request revised to KWO's Assessment & Evaluation Program*

The table attached indicates the SWPF FY 2020 appropriated expenditures and the FY 2021 budget recommendations of the KWA and the Governor. As noted, the Governor's revised SWPF budget recommendations for FY 2020 includes an additional \$68,000 for the Arbuckle Study, as well as the re-appropriation of \$100,000 in KWO's FY 2020 Assessment and Evaluation program budget to be utilized for a Flood Response Study.

The table also indicates the SGF & EDIF demand transfers to the SWPF totaling \$4,505,632 as appropriated in FY 2020. The Governor's FY2021 SWPF budget recommendations include \$4,505,632 of the KWA recommended \$8,000,000 in demand transfers from SGF & EDIF.

*This item is information only. No action required at this time.*

**State Water Plan Fund**

<b>EXPENDITURES</b>	<b>FY2020 Appropriated</b>	<b>FY2021 KWA Budget Recs</b>	<b>FY2021 Gov's Budget Recs</b>
<b>Department of Health and Environment</b>			
Contamination Remediation	\$ 1,088,301	\$ 1,088,301	\$ 1,088,301
Nonpoint Source Program	\$ 303,208	\$ 303,208	\$ 303,208
TMDL Initiatives	\$ 278,029	\$ 280,738	\$ 280,738
Harmful Algae Bloom Pilot	\$ 450,000	\$ 450,000	\$ 450,000
Watershed Restoration/Protection (WRAPS)	\$ 730,884	\$ 730,884	\$ 730,884
Drinking Water Protection Program	\$ 350,000	\$ 500,000	\$ 350,000
<b>SUBTOTAL--KDHE</b>	<b>\$ 3,200,422</b>	<b>\$ 3,353,131</b>	<b>\$ 3,203,131</b>
<b>Department of Agriculture</b>			
Interstate Water Issues	\$ 490,007	\$ 490,007	\$ 490,007
Subbasin Water Resources Management	\$ 608,949	\$ 608,949	\$ 608,949
Water Use	\$ 72,600	\$ 72,600	\$ 72,600
Water Resources Cost Share	\$ 2,448,289	\$ 2,448,289	\$ 2,448,289
Nonpoint Source Pollution Asst.	\$ 1,857,836	\$ 1,857,836	\$ 1,857,836
Aid to Conservation Districts	\$ 2,192,637	\$ 2,192,637	\$ 2,192,637
Watershed Dam Construction	\$ 550,000	\$ 950,000	\$ 550,000
Water Quality Buffer Initiative	\$ 200,000	\$ 200,000	\$ 200,000
Riparian and Wetland Program	\$ 154,024	\$ 154,024	\$ 154,024
Water Transition Assistance Program/CREP	\$ 299,745	\$ 599,745	\$ 302,046
Irrigation Technology	\$ 100,000	\$ 200,000	\$ 100,000
Crop and Livestock Research	\$ 350,000	\$ 350,000	\$ 350,000
Streambank Stabilization	\$ 500,000	\$ 1,000,000	\$ 500,000
Real-Time Water Mgmt - Telemetry		\$ 25,000	\$ -
Water Supply Restoration Program		\$ 465,000	\$ -
<b>SUBTOTAL--KDA</b>	<b>\$ 9,824,087</b>	<b>\$ 11,614,087</b>	<b>\$ 9,826,388</b>
<b>Kansas Water Office</b>			
Assessment and Evaluation	\$ 700,000	\$ 700,000	\$ 629,900
MOU - Storage Operations & Maintenance	\$ 410,000	\$ 480,100	\$ 480,100
Stream Gaging	\$ 423,130	\$ 423,130	\$ 423,130
Technical Assistance to Water Users	\$ 325,000	\$ 425,000	\$ 325,000
Vision Education Strategy	\$ 100,000	\$ 100,000	\$ 100,000
Reservoir and Water Quality Research	\$ 350,000	\$ 350,000	\$ 350,000
Water Tech Farms	\$ 75,000	\$ 75,000	\$ 75,000
Watershed Conservation Practice Imp	\$ 700,000	\$ 1,000,000	\$ 700,000
Equus Beds Chloride Plume Project	\$ 50,000	\$ 50,000	\$ 50,000
Milford Lake Watershed RCPP	\$ 200,000	\$ 200,000	\$ 200,000
Water Injection Dredging (WID)		\$ 660,000	\$ -
Arbuckle Study	*See Note	\$ 100,000	\$ -
Flood Response Study	*See Note	\$ -	\$ -
<b>SUBTOTAL--KWO</b>	<b>\$ 3,333,130</b>	<b>\$ 4,563,230</b>	<b>\$ 3,333,130</b>
<b>University of Kansas--Geological Survey</b>	<b>\$ 26,841</b>	<b>\$ 26,841</b>	<b>\$ 26,841</b>
<b>Total State Water Plan Expenditures</b>	<b>\$ 16,384,480</b>	<b>\$ 19,557,289</b>	<b>\$ 16,389,490</b>
<b>SGF &amp; EDIF Demand Transfers**</b>			
State General Fund Transfer	\$ 4,005,632	\$ 6,000,000	\$ 4,005,632
Economic Development Fund Transfer	\$ 500,000	\$ 2,000,000	\$ 500,000

\*The Governor's revised SWPF Budget Recommendations for FY2020 include the following changes:  
 \$100,000 for Flood Response Study (taken from KWO's FY2020 Assessment & Evaluation Program  
 \$68,000 for Arbuckle Study (additional item to be funded with FY2020 SWPF budget/revenues)

\*\*The Governor's FY2021 SWPF budget recommendations include \$4,505,632 of the KWA recommended  
 \$8,000,000 in demand transfers from SGF & EDIF.

# Riparian Quality Enhancement Initiative Update:

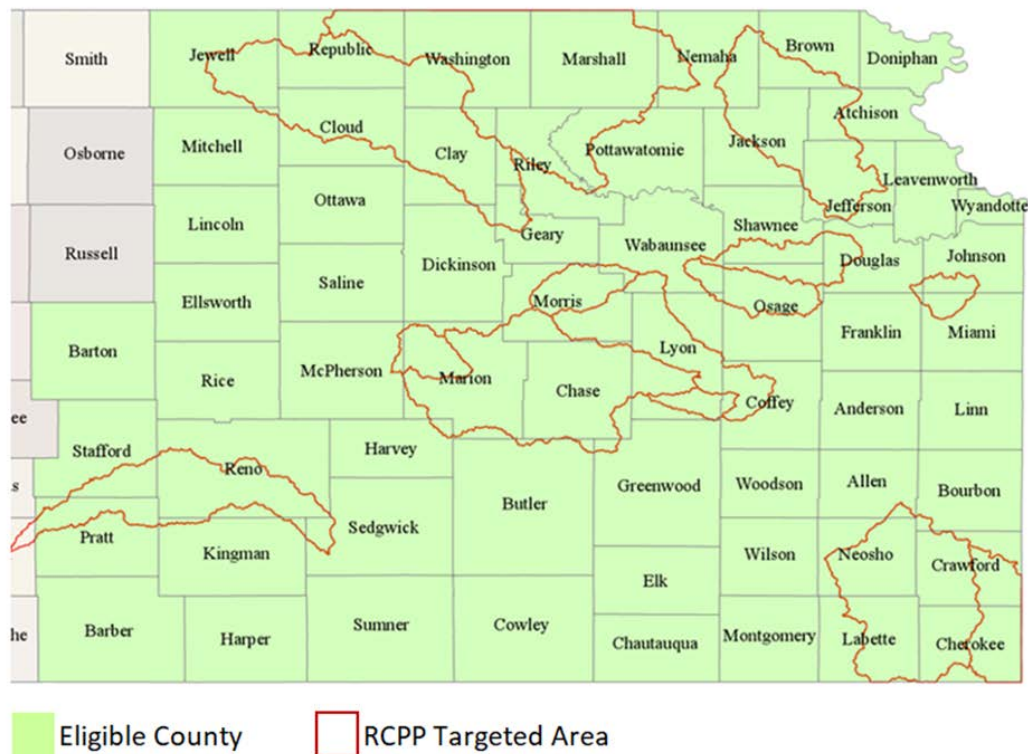
## Introduction

In the last survey sent to District Managers, a desire to have cost share for forestry practices was noted by several districts. Kansas Forest Service (KFS) supports a state cost share option for these practices that would help producers who do not elect, or are not eligible, to participate in the “Trees for Clean Water” Regional Conservation Partnership Program (RCPP). In partnership with KFS, the Division of Conservation’s Riparian and Wetland Program, is prepared to offer cost share for several forestry and structural practices that will benefit the soil health, water quality and quantity, wildlife habitat and economic diversity for the citizens of Kansas.

## Funding

Funding for this Initiative will be through the Riparian and Wetland Programs funds provided by the State Water Plan Fund of Kansas. For this first year (SFY 2020) \$94,024.00 is available for the initiative. With enough interest, we will grow this amount in the years to come by showing unmet needs.

## Eligible Areas



The initiative will be open to KACD/SCC Areas 3, 4 and 5. Additional ranking preference will be given to projects that within the targeted “Trees for Clean Water” RCPP. Producers in these areas would be eligible for financial assistance of 80% up to a landowner annual limit of \$10,000. The Initiative can also provide additional cost share for RCPP projects up to 90% of the RCPP/EQIP payment rate to a limit of \$10,000. Kansas Forest Service will be the technical service provider for this initiative.



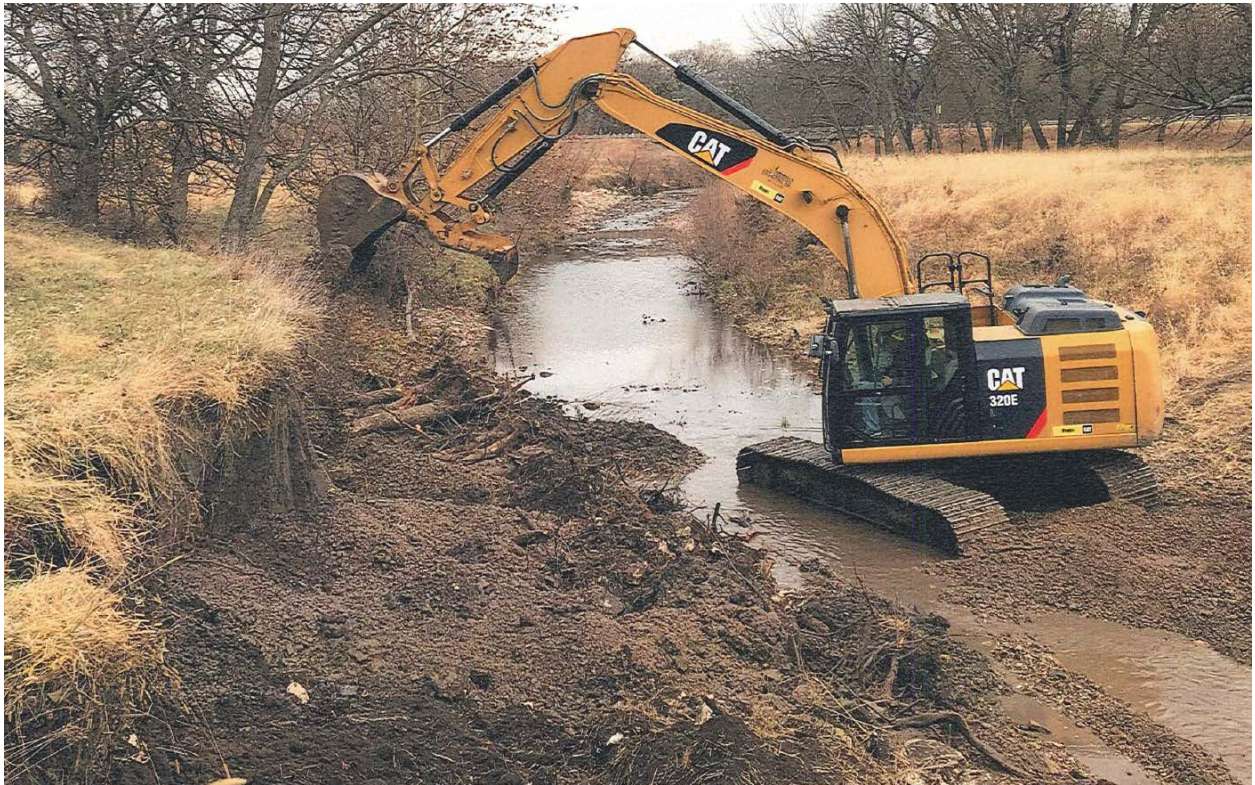
## Practices

Below are the practices that will be available for the Initiative. These practices are different from and should be confused with the first release of the RQEI. Kansas Forest Service identified these practices as being those that are of the greatest need and interest to producers. Forestry Practices will have the highest priority, structural practices second, and RCPP Assistance payments given third priority. All projects shall be ranked within the priority on a basis of acres protected. Practices that include forestry and structural practices will be prioritized as a forestry practice.

Eligible Practices		
Forestry Practices	Structural Practices	RCPP Assistance
Forest Stand Improvement (666)	Fence (382)	RCPP Assistance Payment
Tree/Shrub Site Preparation (490)	*Channel Bed Stabilization (584)	
Tree/Shrub Pruning (660)	*Streambank and Shoreline Protection (580)	
Tree/Shrub Establishment (612)	Grade Stabilization (410)	
Riparian Forest Buffer (391)		
Herbaceous Weed Control (315)		
Cover Crop (340)		



1. Riparian Forest Buffer- DOC



*2. Toe wood and Bank full Bench- KFS*



*3. Timber Stand Improvement- KFS*

All practices will be designed to Natural Resources Conservation Service (NRCS) specifications except for 580 and 584 which will be designed to KFS/DOC specifications as adopted from the Iowa Department of Natural Resources River Restoration Toolbox. These practices will require KFS to evaluate the site for feasibility and provide an estimated cost to the landowner prior to application submittal.

## **Process**

The Landowner completes an application for in consultation with KFS and the Conservation District. The District Manager should enter the project information into CSIMS (to capture unmet needs) and provide DOC with a copy of the Application Form.

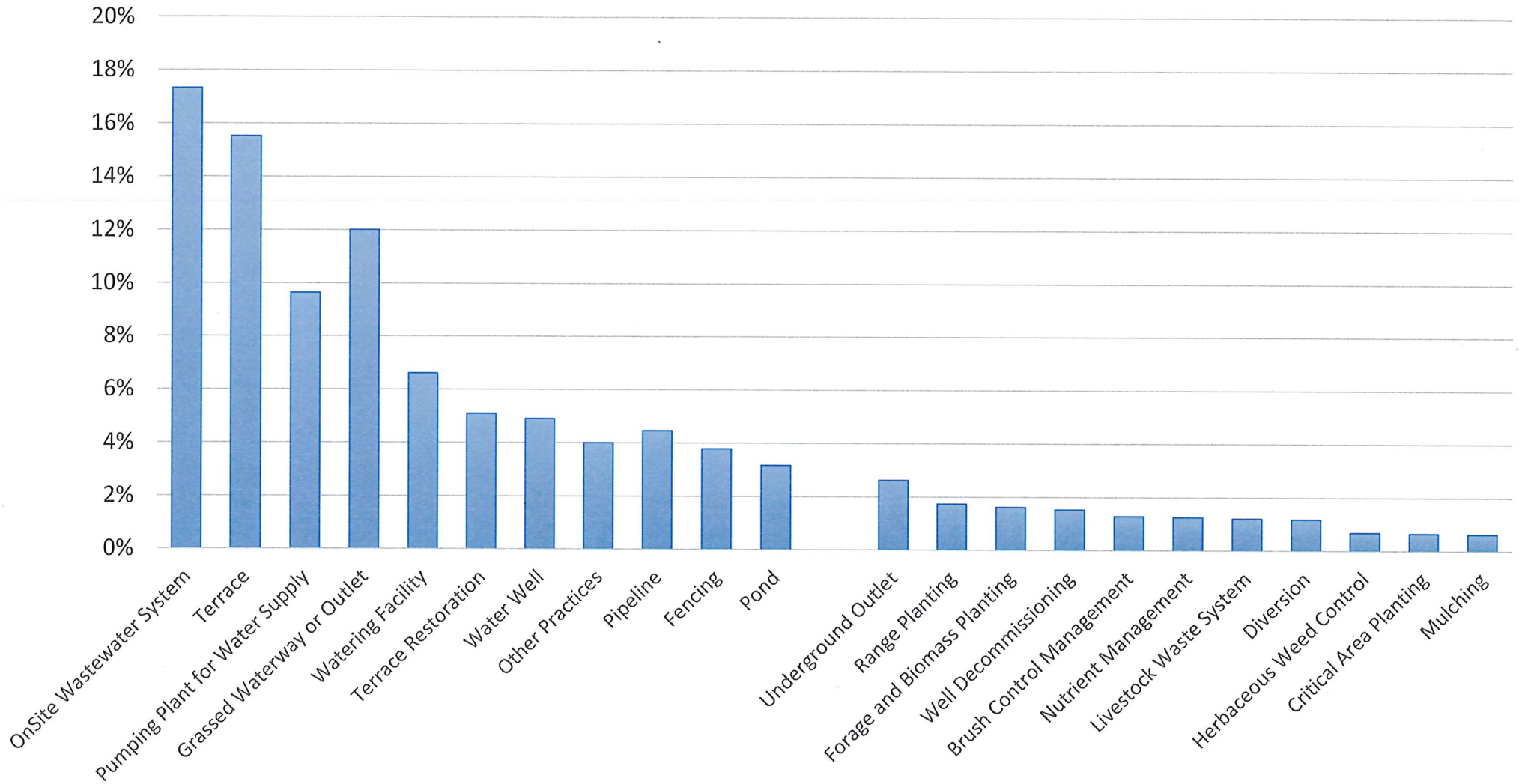
DOC will rank the applications and provide a ranking summary to all the counties. District Managers at this time can create a contract and get the landowner signature. Applications will be accepted on a continuous basis with project ranking occurring the first week of every month.

Funds can be encumbered for up to 2 years with proper approval.

Kansas Forest Service will provide practice design, oversight, and certification.

When practices are certified complete, the CS-4 can be submitted for payment.

### FY 2018-2019 Water Resources and Non-Point Source Cost-Share by Practice



## **FY 2018-2019 Water Resources and Non-Point Source Cost-Share Programs**

<b><u>Practice</u></b>	<b><u>Unit</u></b>	<b><u>Installed Amount</u></b>
OnSite Wastewater System	Each	397
Terrace	Linear Foot	1,144,072
Pumping Plant for Water Supply	Each	215
Grassed Waterway or Outlet	Acre	394
Watering Facility	Each	320
Terrace Restoration	Linear Foot	628,654
Water Well	Each	168
Pipeline	Linear Foot	195,497
Fencing	Linear Foot	142,433
Pond	Each	48
Grassed Waterway Restoration	Acre	130
Underground Outlet	Linear Foot	44,709

## **FY 2018-2019 Water Resources and Non-Point Source Cost-Share Programs**

<b><u>Practice</u></b>	<b><u>Cost-Share Dollars</u></b>
OnSite Wastewater System	\$864,202.28
Terrace	\$774,404.41
Pumping Plant for Water Supply	\$480,467.52
Grassed Waterway or Outlet	\$430,676.89
Watering Facility	\$329,213.77
Terrace Restoration	\$253,756.51
Water Well	\$244,645.55
Pipeline	\$222,639.16
Fencing	\$188,824.82
Pond	\$158,213.53
Grassed Waterway Restoration	\$131,609.32
Underground Outlet	\$130,669.22



**MEMO: Kansas Reservoir Protection Initiative – Conservation Planning Considerations**

**DATE:** September 14, 2018

The Kansas Reservoir Protection Initiative (RPI) is a State funded conservation program that focuses on integrating cover crops and no-till farming into existing cropping rotations and systems to reduce erosion and decrease sediment delivery to Kansas reservoirs in specific watersheds. The program allows for cropped acres to be no-tilled and cover crops to be applied to decrease in-field erosion, or limit sediment leaving the crop field to improve water quality. RPI requires that current Natural Resources Conservation Service (NRCS) conservation practice standards be met to be eligible for payment.

The Kansas Department of Agriculture (KDA) Division of Conservation and NRCS have developed an informational sheet for conservation districts and producers to plan cover crops.

NRCS staff will be limited in availability to provide technical assistance to applicants under RPI. Technical assistance will not be required to be provided in developing cover crop seed mixes or grazing plans, if covers are grazed. If NRCS staff provides technical assistance, conservation planning will be carried out in accordance with current policy.

**KAREN A. WOODRICH**  
State Conservationist, USDA NRCS

**ROB RESCHKE**  
Director, KDA Division of Conservation

Attachments



Attachment A

Conservation Planning Considerations working with RPI.

**Cover Crop Considerations.** Cover crops, if used in combination with no-till and a diverse cropping rotation, provide numerous benefits. Cover crops or no-till by themselves are only a part of a complex cropping system which need to be carefully planned to gain the most benefit. In combination with other smart cropping practices, cover crops can maximize erosion reduction, soil organic matter, biodiversity, and weed suppression. In addition, covers can improve nutrient cycling, better manage soil moisture, provide supplemental forage, and minimize soil compaction. Careful consideration is needed when planning cover crops into an existing crop rotation. Species selection, timing of cover planting, and cover termination need to be well planned in advance of the planting window.

**Considerations for Grazing.** Grazing of cover crops is eligible under the RPI and requires grazing be managed to meet requirements identified in the NRCS Conservation Practice (340) Cover Crop standard. Grazing covers requires an understanding of cover crop growth and performance and animal consumption in order to balance biomass removal. Species selection should be strongly considered to decrease animal performance concerns. The producer needs to not plan to graze covers until ample forage is available and plan to leave 80-100 percent ground cover at the time livestock are removed. This will require close monitoring of the cover growth, livestock concentrations and use, and infrastructure to ensure overuse or other unintended consequences do not occur.





Attachment B

### FY2019 Kansas Reservoir Protection Initiative (KRPI) Cover Crop Mixes

The following cover crop mixes and seeding rates may be used to meet the requirements of the Kansas Reservoir Protection Initiative (RPI) in priority watersheds. Producers may use custom mixes that go beyond what is listed on this document. All requirements of the Natural Resources Conservation Service (NRCS) Kansas Conservation Practice Standard 340, Cover Crop, Construction Specifications must be followed and be used to meet the *Water Quality Degradation-Excessive Sediment in Surface Water* Resource Concern Planning criteria, as found in the Field Office Technical Guide (FOTG), Section 2.

#### Fall Mix, Single Species – Example 1

This example mix will provide erosion control and is good to seed in the fall or early spring between corn and soybeans or soybeans and corn. The seeding rate can be adjusted up or down, but should never drop below 55 bulk pounds per acre (lbs/acre). Please refer to Kansas Conservation Practice Standard 340, Cover Crop, for additional requirements. Cereal rye will overwinter.

Planned Cover Crop Mixture: Fall Mix, Single Species – Example 1								
Species	Seed Rate lbs/acre	Seeds/Bulk lbs	Acres	Percent of Mix	Seeds Per Acre	Total Pounds	Crop Type	Minimum Germination Temperature
Cereal Rye	60.00	18,160	1.0	100	1,089,600	60.00	CS-Grass	34° F

#### Fall Mix, Single Species – Example 2

This example mix will provide erosion control and is good to seed in the fall or early spring between corn and soybeans or soybeans and corn. The seeding rate can be adjusted up or down, but should never drop below 50 bulk lbs/acre. This example provides an alternative for situations where wheat may be in rotation and cereal rye (or triticale) is not preferred. Please refer to Kansas Conservation Practice Standard 340, Cover Crop, for additional requirements. Winter oats are not guaranteed to overwinter, although they often do. If overwintering is desired, replace the oat mix below with 55 pounds of winter barley for a comparable alternative.

Planned Cover Crop Mixture: Fall Mix, Single Species – Example 2								
Species	Seed Rate lbs/acre	Seeds/Bulk lbs	Acres	Percent of Mix	Seeds Per Acre	Total Pounds	Crop Type	Minimum Germination Temperature
Winter Oats	65.00	14,000	1.0	100	910,000	65.00	CS-Grass	38° F



**Fall Mix, Multi Species – Example 3**

This example mix will provide erosion control and is good to seed in the fall between corn and soybeans or soybeans and corn. Please refer to Kansas Conservation Practice Standard 340, Cover Crop, for additional requirements. This mix should not be used unless seeding will occur prior to October 1st, because the turnip, radish, and winter peas won't have adequate time to establish in order to provide the needed benefit prior to winterkilling.

<b>Planned Cover Crop Mixture: Fall Mix, Multi Species – Example 3</b>								
Species	Seed Rate lbs/acre	Seeds/Bulk lbs	Acres	Percent of Mix	Seeds Per Acre	Total Pounds	Crop Type	Minimum Germination Temperature
Cereal Rye	21.00	18,160	1.0	39	381,360	21.00	CS–Grass	34° F
Barley	22.00	18,000	1.0	41	396,000	22.00	CS–Grass	35° F
Turnip	0.50	192,800	1.0	10	96,400	0.50	CS–Brassica	45° F
Oilseed Radish	2.00	34,000	1.0	7	68,000	2.00	CS–Brassica	45° F
Winter Pea	14.00	1,840	1.0	3	25,760	14.00	CS–Legume	41° F

**Summer Mix, Multi Species – Example 4**

This example mix will provide erosion control and is good to seed in the summer after the wheat crop. Please refer to Kansas Conservation Practice Standard 340, Cover Crop, for additional requirements.

<b>Planned Cover Crop Mixture: Summer Mix, Multi Species – Example 4</b>								
Species	Seed Rate lbs/acre	Seeds/Bulk lbs	Acres	Percent of Mix	Seeds Per Acre	Total Pounds	Crop Type	Minimum Germination Temperature
Sudan Sorghum	15.00	17,280	1.0	35	259,200	15.00	WS–Grass	65° F
Pearl Millet	4.00	82,320	1.0	45	329,280	4.00	WS–Grass	65° F
Cowpeas	10.00	3,600	1.0	5	36,000	10.00	WS–Legume	58° F
Sunflower	1.50	7,500	1.0	2	11,250	1.50	WS–Broadleaf	48° F
Ethiopian Cabbage	0.50	145,000	1.0	10	72,500	0.50	CS–Broadleaf	40° F
Grazer Radish	0.50	50,000	1.0	3	25,000	0.50	CS–Brassica	45° F

**Summer Mix, Single Species – Example 5**

This example mix will provide erosion control and is good to seed in the summer window, possibly after a wheat crop. Please refer to Kansas Conservation Practice Standard 340, Cover Crop, Specification Guide Sheet 340B, for additional requirements.



Planned Cover Crop Mixture: Summer Mix, Single Species – Example 5								
Species	Seed Rate lbs/acre	Seeds/Bulk lbs	Acres	Percent of Mix	Seeds Per Acre	Total Pounds	Crop Type	Minimum Germination Temperature
Pearl Millet	20.00	82,230	1.0	100	1,644,600	20.00	WS-Grass	65° F

**Considerations for Grazing Covers**

Grazing is permitted for RPI and should be conducted at rates to allow regrowth to provide the necessary cover for the intended purpose of the cover crop. Ground cover after livestock is removed should be at or above 90% for reduction of sediment in surface water and erosion control.

Additional information for grazing cover crops can be found in Kansas Conservation Practice Standard 528, Prescribed Grazing, to ensure an adequate forage balance is achieved for the intended purpose of the cover crop and the nutritional needs of the livestock are met (refer to Kansas Conservation Practice Standard 340, Cover Crop, Specification Guide Sheet 340A, Cover Crop Table–Performance and Roles).

Caution is needed when grazing a cover crop (single species or a mix) after a period of drought or a series of frosts due to the potential of high nitrates or prussic acid poisoning. The amount of prussic acid is affected by soil fertility, such as soils high in available nitrogen and low in phosphorus. It is recommended that feed be tested prior to grazing.

Review past herbicide usage and observe any planting or grazing interval requirements on the herbicide label.

# Kansas Association of Conservation Districts Employees' Organization

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AMANDA SCOTT, President



February 2020

I am looking forward to serving as the new KACD-EO President to promote the growth of Conservation Districts in Kansas.

- We held our annual business meeting in November at the KACD Convention in Wichita. There were 58 districts in attendance. Our 50/50 Raffle brought in \$435 and the Silent Auction brought in \$770. Thank you for all your support.
- The KACD-EO Executive Board will be assisting Dan Meyerhoff, KACD Director, at the Conservation Day at the Capital on February 4, 2020.
- Districts are currently hosting their annual meetings. They are also preparing for Area Spring Meetings, the Envirothon, youth educational programs, women in ag workshops, grass seedings and tree plantings.
- The KACD-EO Executive Board will be meeting in Salina on April 16, 2020. We will meet from 10 AM - 12 PM and will include reports from DOC, SCC & KACD.

As always, if anyone has any questions, concerns or needs assistance please contact myself or any of the Area KACD-EO Representatives for assistance.



**NRCS HIGHLIGHTS OF ACTIVITIES**  
**for the joint meeting of the**  
**STATE CONSERVATION COMMISSION**  
**and**  
**KANSAS ASSOCIATION OF CONSERVATION DISTRICTS**  
**Topeka, Kansas**  
**February 3, 2020**

## **MANAGEMENT AND STRATEGY**

- We are still waiting for our final fiscal year 2020 budget allocations.
- We are continuing to work on our reorganization plan. We recently gathered feedback from our supervisory district conservationists.
- Current staffing level is 221 FTEs. We had 8 new employees hired at our field offices this fall with some additional partner positions starting soon. There were 11 retirements. We have 7 recent selections and 13 vacancy announcements that closed at the end of the year.
- Pathways Internship Program – One intern graduated in December and is in the conversion process. We plan to have one new student trainee engineer, six new student soil conservationist trainees, and one 1890 Scholar to join our returning four trainees this summer.

## **RESOURCES**

### **Agronomy**

- NRCS has worked with Kansas State University (KSU) to develop a short course on Precision Agriculture for our employees. University professors, extension specialists, and industry consultants covered yield monitor data, sprayers, remote sensing, nutrient management, irrigation technology, data analysis, and precision conservation. There were also demonstrations by KSU on small, unmanned aerial systems and by Veris Technologies on soil mapping.
- NRCS and KSU are working together on nutrient management training for NRCS field staff. KSU is updating their fertilizer recommendation spreadsheet for NRCS, so it will include the NRCS nutrient management field sheet. KSU will also be updating their extension publications on manure management.
- NRCS is also funding an update to the Kansas phosphorous assessment. This will evaluate and update the Kansas phosphorous index to accurately estimate and minimize phosphorous loss from agricultural fields to water resources, and to meet the NRCS phosphorous index assessment criteria.

### **Biology / Wildlife**

#### **CRP**

- The general signup started on December 9, 2019 and will run through February 28, 2020.
- Continuous signup started on December 9, 2019 and applications will be taken throughout the year.

- New Policy provides new grazing options, as it allows grazing on all CRP practices; except wildlife food plots and tree practices.

### **Working Lands for Wildlife**

- Southern Great Plains Initiative (SGPI) discussion group is asking the State Conservationist and NRCS Programs to prioritize 528 Prescribed Grazing, 338 Prescribed Burning, and 314 Brush Management.
- SGPI's next step is to develop a marketing campaign.

### **Rangeland / Grazing Lands**

- NRCS is currently working regionally to assess repost-sensing products for rangeland planning and monitoring.
- NRCS is reviewing and updating conservation planning documentation and guidance for grazing resources in Kansas.

### **CART**

- Resources staff compiled a draft for CART Assessment Guidance Documents for Kansas.

### **Training**

- Conservation Desktop Training has been completed statewide.

## **PROGRAMS**

- We received 531 applications for the Conservation Stewardship Program Grassland Conservation Initiative (CSP-GCI) Signup-1 application batching period that ended November 8, 2019. Field offices are working on application approval and obligation to be completed within the next couple weeks.
- Field offices continue to process 2019 annual payments for participants that elected to receive payment in calendar year 2020.
- NHQ provided NRCS Farm Bill Rollout Training during December 2019 in Dallas, Texas. Farm Bill Rollout Training for Kansas NRCS staff is scheduled for February 19-20 in Salina.
- Programs staff, in conjunction with ECS staff, continue to work in preparation for the release of the Conservation Assessment Ranking Tool (CART) on January 23.
- We anticipate having signup periods announced for CSP Renewals, EQIP, and CSP-GCI Signup-2 within the next couple of months.
- Interim Rules:
  - CSP Interim Rule was published November 12, 2019. Public comment period closed on January 13, 2020.
  - EQIP Interim Rule was published December 17, 2019. Public comment period ends February 17, 2020. Environmental review (EA or FONSI) comments were due January 16.

### **Agricultural Conservation Easement Program**

- Easement staff continue to work on closing the 2018 easements while working on the 2019 easement acquisitions.

## SOILS

### Highly Erodible Land (HEL) Determinations

- The Food Security Act requires that published soils information from 1990 be used for all HEL determinations. Kansas has been making these determinations manually using hard copy soil surveys and conversion legends, but this process is labor intensive and can be prone to human error. Kansas is in the process of implementing a new geospatial tool to assist with and automate the HEL determination process. To accomplish this, we are currently editing an old spatial dataset to match the 1990 published data and have completed approximately 1/5 of the State. Once the underlying dataset is complete, HEL determinations will be made quickly and accurately, and field staff will see a significant reduction in time spent on this process.

### State Off-Site Methods (SOSM) for Wetland Determinations

- Kansas is in the final stages of completing State off-site methods for wetland determinations. These State procedures will provide an efficient and repeatable process to accurately identify and delineate wetlands using remotely sensed data. The SOSM will allow trained staff to make preliminary technical determinations without the drive and field time associated with traditional on-site wetland determinations. The SOSM will be presented for comment to the Kansas Technical Committee (KTC). Once comments from the KTC are incorporated, the SOSM will be posted to the Federal Register prior to becoming official.

### National Resources Inventory (NRI)

- **Local Data Survey on Cropland for 2018**  
Kansas is in the final stages of completing review and certification of data collected for 1,615 segments across the State. These local data are collected predominantly by accessing FSA cropping information, conservation plans, and other local farming data, but sometimes field verification is required [Since the Cropland NRI relies heavily in imagery review (completed at one of the regional Remote Sensing Labs) the field office portions of the data collection are usually 1-2 years behind due to the imagery acquisition process].
- **Grazing Lands Onsite Survey for 2019 and 2020**  
The Grazing Lands Onsite Survey for 2019 is an important inventory effort of our Nation's range and pasturelands. Each year Kansas receives approximately 190 points across 95 segments that require on-site data collection. Due to reductions in staffing over the years, Kansas now employs a contractor to collect much of the on-site vegetation, soils, and landscape information. Kansas NRCS is still involved by providing training, making landowner contact, and performing quality assurance reviews. The 2019 Grazing Lands Onsite Survey was completed late last summer, and we are gearing up for 2020 data collection this summer.

### Soil Health

- Dale Younker, western Kansas Soil Health Specialist, continues to make many presentations and demonstrations on soil health. In the past year, he has made new connections with the Kansas Water Office – Water Technology field days and with many local vocational ag instructors. Dale uses a variety of demonstrations including the rainfall simulator trailer and slake test which are great tools, not only to help participants visualize the importance of soil health, but often these

engage participants and initiate good discussion during questions and answers. Here are some recent and upcoming presentations that Dale has scheduled:

- January 9 - Kansas Water Office Irrigation Conference, Garden City (large rainfall simulator).
- January 10 - Garden City High School Vocational Agriculture Class (large rainfall simulator).
- January 22 & 23 - Soil Health U, Salina (multiple runs with the large rainfall simulator, coordinating with Candy Thomas).
- February 26 - Sumner County Soil Health School, Wellington (presentation on using cover crops and companion and relay cropping for weed suppression).

### **Personnel**

- Tania Nanna, Soil Scientist and Wetland Specialist, came on-board last spring and has made valuable contributions to the State Offsite Methods for Wetland Determinations. Tania came from North Dakota NRCS where she was a Compliance Specialist.
- Soil Scientist – USAJOBS vacancy just closed for a Resource Soil Scientist to be stationed in Salina, will provide technical soil services across the State, and will assist with Kansas specific soil survey projects.

### **ENGINEERING**

- Kansas engineering has been working/collaborating with engineering staff in Missouri, Iowa, and Nebraska to identify opportunities, share tools, procedures, expertise, etc., and potentially develop and host multi-State training for staff in these States.

### **Watershed Operations**

- Kansas NRCS continued a strong partnership with watershed districts across the State. Three Operation and Maintenance (O&M) workshops were hosted for district and NRCS employees to provide guidance and training on performing and documenting inspection activities on flood control dams.
- Kansas NRCS has entered into an agreement with the State Association of Kansas Watersheds (SAKW) to provide up to six training sessions on the use of DamWatch to monitor potential spillway flows during high rainfall events.

### **Watershed Rehabilitation**

- We are continuing progress on existing watershed rehabilitation projects, including dam assessments on 15 dams, and rehabilitation designs on 3 dams. We have received Watershed Flood Protection and Operation (WFPO) funding to begin design on 7 new dams and planning for 2 additional watersheds.

### **Emergency Watershed Protection Program (EWPP)**

- EWPP has been the highest workload priority. State office and area office engineering staff are completing agreements and designs for flood damages that occurred during the spring/summer of 2019. These include streambank repairs to help cities and counties protect roads, bridges, and power transmission lines. EWPP funding was also received to repair damages to auxiliary spillways on NRCS funded watershed dams.



- Construction is being completed on EWPP projects from September 2018 flooding on Wildcat Creek in the City of Manhattan to protect city infrastructure, including a stormwater transmission system.

## **PARTNERSHIPS**

- The deadline for applying for a National Conservation Collaborative Grants or Agreements (CCGA) is February 7, 2020 (USDA-NRCS-NHQ-CCG-20-GEN0010619).
- We anticipate having the announcement for Kansas CCGAs submission out in February.
- We are currently reviewing the fiscal year 2020 Regional Conservation Partnership Program (RCPP) applications received. Applications were submitted to NHQ for funding consideration by January 31, 2020.
- Joshua Boisvert was recently hired as the new Public Affairs Specialist for Kansas NRCS.

## Kansas Water Resources Institute Funded Projects for 2020-2021

Daniel L. Devlin, Director, KWRI

### USGS State Base Projects

Total Kansas USGS Funds Committed: \$250,000

Total University Matching Funds Committed: \$500,000

**1) Title: Simulating the Effects of Reservoir Management Strategies on In-Stream Sediment Load, Streambank Stability, and Water Quality**

Tony Layzell, KGS, Andrea Brookfield, KU, and Erin Seybold, KU.

**PROJECT GOALS AND OBJECTIVES** – The objective of the proposed work is to develop and demonstrate the importance of reservoir management on streambank stability and in-stream sediment loads using a model capable of simulating both surface water operations and streambank erosion. In addition, the implications of sediment loading from eroding streambanks on downstream water quality will be assessed. This objective will be met through: (1) further development of an existing reservoir management model to simulate streambank stability; (2) demonstration of this model through characterization of a reservoir-controlled basin in Kansas; and (3) collection and interpretation of water quality data. The goal is to show the importance of evaluating water management strategies on not only their ability to meet downstream water demands and reduce water shortages, but also their ability to restrict sediment loading, streambank erosion, and maintain water quality.

Despite the connections between (1) reservoir management and sediment transport, and (2) sediment transport and water quality, very little research has investigated the influence of reservoir management on downstream sediment loads, streambank stability, and water quality. Existing models are available to independently simulate sediment transport and optimize reservoir operations for water use, however, there are currently no frameworks available to consider the interactions between these two systems. This proposed work will address this research gap by developing and demonstrating a modeling framework that can optimize reservoir management, predict the effect on streambank stability, and infer the effects of changing sediment loads on water quality.

**2) Title: A New Statewide System for Tracking and Forecasting Drought**

Andres Patrignani, KSU and Christopher Redmond, KSU

**PROJECT GOALS AND OBJECTIVES** - The overall goal of this project is to develop a web-based system for tracking and generating short-term forecasts of drought conditions across the state of Kansas. This new system will provide fine temporal (daily) and spatial (field scale) soil moisture resolution currently unavailable from other drought monitoring tools (e.g. U.S. Drought Monitor and the Seasonal Drought Outlook). This new tracking system will enable timely and accurate identification of drought-vulnerable regions and communities across Kansas.

Specific Goal 1. Generate a new database of soil properties for the stations of the Kansas Mesonet. We will visit each station of the Kansas Mesonet to collect undisturbed soil cores at each soil moisture sensor depth for subsequent laboratory determination of soil physical properties. This step is essential to develop accurate drought indices based on Plant Available Water (PAW).

Specific Goal 2. Integrate soil moisture observations from the Kansas Mesonet with soil moisture predictions using gridded rainfall, soil, and vegetation products. Soil moisture maps generated from the Kansas Mesonet will be combined with independent soil moisture maps generated using a modeling approach that takes into account existing soil databases (e.g. USDA-NRCS Soil Survey), gridded rainfall products (e.g. NOAA River Forecast Center), and remote sensing vegetation products (e.g. NASA

MODIS). The resulting soil moisture maps will be the result of a merger between in-situ and modeled daily estimates of root-zone soil moisture. Root-zone plant available water and fraction of available water capacity (FAW) will be used as soil moisture-based drought-indicators.

Specific Goal 3. Validate the generated map of soil moisture and plant available water created in Goal 2. We will use an innovative cosmic-ray neutron detector capable of non-invasively measuring field-scale soil moisture on-the-go while driving on county roads. Validation surveys will span the entire state to capture soil moisture conditions across the different Kansas climate divisions.

**3) Title: Improving Irrigation Water Use Efficiency Using Novel Root Sensors**

Colby Moorberg, KSU, Dorivar Ruiz Diaz, KSU, Gerard Kluitenberg, KSU, Naiqian Zhang, KSU and Yuqi Song, KSU

PROJECT GOALS AND OBJECTIVES - The focus of this study is to improve water use efficiency in irrigated agriculture by continuing development of a root sensor system. This root sensor system will facilitate the collection, analysis, and use of root data in near-real time in order to improve in-season management decisions by farmers to increase water use efficiency in irrigated systems. Our primary goal is to apply and test a root sensor that can automate the determination of rooting depth and root distribution by depth. The research objectives required to achieve the primary goal are to 1) instrument a corn (*Zea mays* L.) field with RhizoPi camera systems, 2) determine daily rooting depth of corn and weekly plant-available water content by depth, and 3) adjust irrigation scheduling based on the rooting depth and soil moisture in order to maximize irrigation water use efficiency.

**4) Title: Experimental and Modeling Investigation of Fluid-Fluid and Rock-Fluid Compatibility Between Arbuckle and Lansing Kansas City Formations with the Purpose of Produced Water-Exchange Between the Two Formations to Reduce Both Fresh Water Usage and Water Disposal Problems**

Reza Barati (KU), Justin Hutchison (KU) and Edward Peltier (KU)

PROJECT GOALS AND OBJECTIVES - To demonstrate the potential of brine exchange between geological formations as a method for reusing oil and gas industry wastewater (produced water) in Kansas for further oil production. Increasing produced water reuse simultaneously addresses two issues of importance to state water resources by reducing the necessity for produced water disposal, which has known environmental and seismic impacts, and by reducing the need for freshwater use in oil production. This study will generate laboratory-scale data and an economic feasibility model that will guide the development of a pilot-scale test study of brine exchange by KS oil and gas producers. The scientific merit of this proposal is a determination of the stability of the Lansing-Kansas City (LKC) brine in the presence of brine from the Arbuckle formation, the development of geochemical models to predict scale-formation potential in the mixed systems, and a preliminary economic and environmental analysis of the exchange process. The broader impacts of this research include the training of a graduate student in Environmental Engineering, the incorporation of new educational materials in a Water Management and Reuse course, and the support of an early career faculty member (Dr. Hutchison).

Objectives:

- 1) Evaluate the interaction of LKC formation cores in the presence of Arbuckle formation brines and determine the composition of any resulting precipitates,
- 2) Provide data that can be used to model complex surface interactions between the geological formation and the injected brine to understand the scaling potential of the brine-rock interactions,
- 3) Estimate the preliminary economic and environmental tradeoffs of brine exchange versus business-as-usual disposal processes.
- 4) Provide guidance for a future pilot-scale test of produced water reuse in a brine-exchange process.

**5) Title: Benthic Cyanobacterial Mats: A Potential Source of Harmful and Nuisance Compounds to Kansas Streams**

Admin Husic (KU), Ted Harris (KU) and Belinda Sturm (KU)

PROJECT GOALS AND OBJECTIVES - Few long-term studies exist aimed at understanding benthic cyanobacterial mat proliferation and toxin production. Physical disturbances and biogeochemical conditions are identified as important, but their interconnected relations with mat production and/or degradation are not well understood. Thus, we develop three goals:

1. Search for and study mat formation and toxicity in multiple Kansas streams
2. Correlate mat location and toxicity with parameters from *in situ* high-frequency sensor measurements and discrete sampling
3. Develop predictive models for mat occurrence and toxicity

To achieve these goals, we aim to complete the following specific objectives:

1. Search for benthic cyanobacterial mats in three streams of rapidly growing Johnson County, KS including the highly urbanized Indian Creek (98.3% urbanization), the mixed land use Mill Creek (67.4% urbanization), and the agriculturally dominated Blue River (20.8% urbanization).
2. Integrate spatially discrete data in the three streams over the course of two years to assess temporal variability in mat growth, decay, and toxin-release rates.
3. Relate temporal spot sampling of benthic cyanobacterial mats and cyanotoxins with *in situ* high-frequency sensor data of turbidity, chlorophyll (Chl-a), phycocyanin (PC), fluorescent dissolved organic matter (fDOM), and nitrate.
4. Compare explanatory variable signals within our tributary streams to the signal at the Kansas River (at DeSoto) to discern whether toxins are originating from benthic mats or reservoir releases.

**6) Spatial variability and subsurface controls of groundwater recharge and nutrient mobilization in dry streams**

Erin Seibold (KGS), Samuel C Zipper (KGS) and Chi Zhang (KU)

PROJECT GOALS AND OBJECTIVES - The overarching goal of this proposal is to understand the influence of intermittent and ephemeral rivers, streams, and ditches (herein referred to as 'dry streams') on water quantity and quality in Kansas in support of two guiding principles in the Kansas Water Plan. To address this goal, we propose two objectives: 1) quantify the quantity and variability of groundwater (GW) recharge and the physical controls on recharge in dry streams (supporting the principle of 'Conserving and Extending the High Plains Aquifer'), and 2) quantify the solute load from dry streams to receiving ecosystems (supporting the principle of 'Improving Our State's Water Quality'). We will accomplish this via synoptic physical and biogeochemical measurements at 10 sites and detailed geophysical surveys and long-term monitoring at three core sites, leveraging existing long-term data and instrumentation. Specific outcomes of this project will include: (i) multiple peer-reviewed publications documenting hydrogeological and biogeochemical findings; (ii) improved parameterizations of dry streams in future groundwater modeling efforts for the High Plains Aquifer; (iii) the development of a project team, methods, and instrumentation approach which will form the basis of future collaborative funding proposals (e.g., NSF); and (iv) education of at least 4 undergraduate students through an Applied Geohydrology Internship Program based at the KGS.

National USGS Competitive Grant

USGS Funds Committed: \$250,000 University Funds Committed: \$250,000

**Title: Interbasin Water Transfers, Hydrologic Modeling, Water Budget, Water Supply and Demand**

Landon Marston (KSU) and others

The primary goal of the proposed work is to advance understanding of the role Interbasin water transfers (IBTs) play in shaping water availability across the nation and the corresponding implications to the environment and society. This overarching goal will be achieved through three key objectives. Objective 1 is to produce a comprehensive and publicly available national inventory of interbasin water transfers. In creating a standardized IBT data product, we will work with USGS Co-PIs to leverage USGS's existing network of local, state, and federal stakeholders that maintain data on IBTs. Next, objective 2 is to generate models to estimate, predict, and gap fill IBT conveyance volumes. These data-driven models will help us uncover new knowledge buried with the data and enable prediction through applications of statistical, machine learning, and processed-based approaches. Finally, objective 3 we will determine the collective impact of IBTs under current and historical conditions, as well as under different water supply/demand and climate scenarios.

**Chief Engineer, David Barfield Retirement:** David Barfield will be retiring as Chief Engineer on February 28<sup>th</sup>. There will be a reception for David on February 27<sup>th</sup> at the Dillon House in Topeka from 3 – 5 PM.

**Floodplain Mapping Kick-off Meetings:** Kick-off meetings for the Walnut Custom Watershed (Butler and Cowley counties) were held December 12 and for the Verdigris Custom Watershed (Greenwood, Woodson, Wilson, Elk, Chautauqua, Montgomery and Lette counties) on January 28. The Base Level Engineering (BLE) phase marks the first stage of updating floodplain maps and will be further enhanced through Data Development that is scoped in FFY20. These initial draft floodplains are not yet ready to be released to the public since they will be further enhanced and potentially modified due to comments.

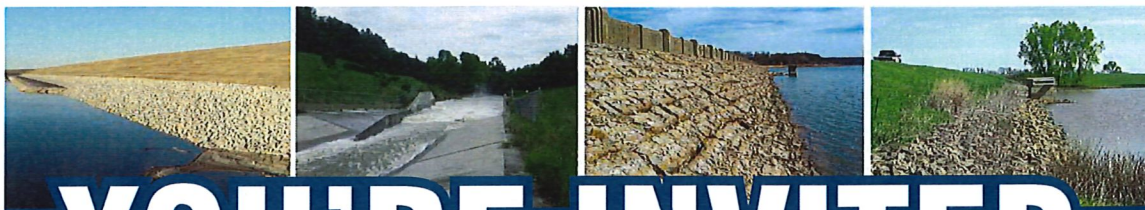
**Floodplain Mapping Discovery Meetings:** Discovery meetings are scheduled for the Osage Custom Watershed (Linn, Bourbon, and portions of Allen and Crawford counties) on February 5, the Lower Arkansas Custom Watershed (Barber, Harper, Kingman, Pratt and Sumner counties) on February 26 and 27, and the Walnut Custom Watershed (Butler and Cowley counties) on March 4. The Osage meeting will be held in Paola, the lower Ark meetings will be held in Mulvane, Medicine Lodge, Pratt and Kingman and the Walnut meetings will be held in El Dorado and Arkansas City. The draft floodplain maps will be presented and DWR will discuss how community and public review will take place over the next several months.

**Floodplain Mapping Open Houses:** The Nemaha county open house for the proposed Digital Flood Insurance Rate Maps (DFIRM) is scheduled for March 10 in Seneca. The open house is formatted so citizens can ask specific questions regarding their property or property of concern. National Flood Insurance Program (NFIP) specialists from FEMA also attend to answer questions regarding insurance.

**KDA-DWR Dam Safety Conference:** The dam safety conference will be held March 11, 2020 at the Washburn University Memorial Student Union. Registration is open and the cost of the conference is \$60. **Registration closes February 10.** Six PDHs are available for engineers and 6 CECs are available for CFMs.

**Staffing:**

New WS/CE Senior Administrative Specialist (Sheila Mathos) starts February 10  
Vacant Stream Permit Engineering Associate  
Vacant NFIP Specialist



# YOU'RE INVITED

## KANSAS DAM SAFETY CONFERENCE

March 11, 2020

Washburn University • Topeka, Kansas

Registration is due by February 10

Washburn University Memorial Union

Cost to attend the conference is \$60 per person

**REGISTER HERE**

The conference registration fee covers speakers, a hot breakfast, lunch, refreshments during breaks and professional development hours.

The objective of this conference is to educate attendees on regulations, technical topics, public safety, and issues affecting water structures in the state. A major focus will be to bring public awareness to the possible risks of lives, property and the environment from dam failure. This conference will encourage the implementation of site investigation, design, construction, operation, maintenance and emergency preparedness for dam owners, licensed engineers and agency officials.

- 8:00 a.m. ....DOORS OPEN** – Registration and Breakfast
- 8:30 a.m. ....WELCOME** – Mike Beam, Secretary, Kansas Department of Agriculture
- 8:35 a.m. ....WATER ISSUES AND WATER PLANNING FOR KANSAS** – Earl Lewis, Executive Director, Kansas Water Office
- 9:00 a.m. ....FUTURE OF DWR** – TBA
- 9:10 a.m. ....WATER RIGHT FILE DISPOSITION** – Katie Tietzort, Water Commissioner, Kansas Department of Agriculture
- 9:15 a.m. ....EXTREME PRECIPITATION IMPACTS ON RUNOFF CONTROL AND STORAGE INFRASTRUCTURES** –  
Vahid Rahmani, Assistant Professor, Kansas State University
- 10:00 a.m. ....BREAK**
- 10:15 a.m. ....WHAT IS A JURISDICTIONAL DAM?** – Mikayla Dendurent, Dam Safety Engineer, Kansas Department of Agriculture
- 10:30 a.m. ....KANSAS DAM PERMITTING** – Leonard Bristow, Water Structures Engineer, Kansas Department of Agriculture
- 11:15 a.m. ....HEC-RAS 2D RAIN ON GRID FOR DAM H&H** – Ben Rufenacht, Water Resource Engineer, Wood PLC
- 12:00 p.m. ....LUNCH**
- 1:00 p.m. ....SERVICE LIFE OF CORRUGATED METAL PIPE COATINGS** – Matt McCants, Region Engineer,  
Contech Engineered Solutions
- 1:15 p.m. ....DAM INSPECTIONS** – Larry Schieferecke, Civil Engineer, Natural Resources Conservation Service
- 1:45 p.m. ....DWR PANEL** – Kansas DWR Employees
- 2:30 p.m. ....BREAK**
- 3:00 p.m. ....KANSAS FLOODING 2019** – Angee Morgan, Deputy Director, Kansas Division of Emergency Management
- 3:30 p.m. ....HOLDING BACK WATER: KANSAS FEDERAL RESERVOIR CONDITIONS SURROUNDING THE  
SPRING 2019 FLOODS** – Jude Kastens, Research Associate Professor, Kansas Biological Survey
- 4:45 p.m. ....ADJOURN**