

| | |
|----------------|---|
| Megan Sullivan | Each State will list data that addresses the agenda list. |
| Dave Barfield | |
| Doug Garrison | |
| Scott Ross | |
| George Aycok | C.L.U. database from the FSA '03 deadline for finishing the 1 st round |
| Mike Thompson | |
| Gayle Starr | |

Methods committee - Keeliker, Martin & Barfield are looking at using his methodology to connect to a GIS

Doug Garrison was working on Dam Inventory - NRCS has it & looks like DNR covers ~~all~~ of theirs.

Field Office Tech. Guide Link - Terrace & Tillage

Washington State - Historic temp & precip (PRISM)

FSA - in Nebraska has digital

★ Ask Kim Menke about Nov. ITEAM - FSA Photos

Ross, Scott - "Green Map" - terrace recognition using early season growth that is faster in bottom of terrace.

Dave B. sent "Soils Light" process, it can be downloaded at DA SC

(Nov. 18 meeting will require a budget & report)

- ★ Nov. 7th - Summary of State Owned Data
- ★ Nov. 12th - Conference Call to discuss report 2:30 ^{central}

Pat Mcgrane

437-5328

Room 343

Fed. Bldg.

Tom Riley
416-4469

Contour + Terracing ^{area}
Conservation

+ then started doing
ponds after it started

Heads up digitizing

≈ \$50,000

~~416-4469~~ w/ ponds

over 1000 hours

Mike Thompson

From: Mike Thompson [mthompson@dnr.state.ne.us]
Sent: Monday, October 06, 2003 12:53 PM
To: Gayle Starr; Derrel Martin; Hipple, Bob
Cc: Bleed, Ann
Subject: Conservation Data Group Meeting Notes

Nebraska Conservation Committee Members:

Last Thursday I received an e-mail message (see attached) from Dave Barfield regarding what he termed the "data task group" of the Conservation Committee. I was a little surprised to see my name listed as a group member, since I had not worked with the Committee or heard of the task group. As you can see from the attached e-mail, he wanted to have a conference the next afternoon. The MS Word document attached to his e-mail is the outline we used to discuss the various potential data sources (you will have to open his message to read it).

His outline document is an excerpt from the attached July 18, 2003 MS Word file which is a work product of the Committee. The attached Adobe pdf is a scan of my notes taken during the conference call Friday afternoon. The items in the pdf notes are numbered like the MS Word documents, so you can refer to them for the categories of data we discussed.

We agreed to have another conference call on October 24 at 1:30 PM central time. If you don't think this is an appropriate way to proceed, please let me know.

Regards,

Mike

Mike Thompson
Natural Resources Specialist
State of Nebraska
Department of Natural Resources
301 Centennial Mall South
Lincoln, Nebraska 68509-4676

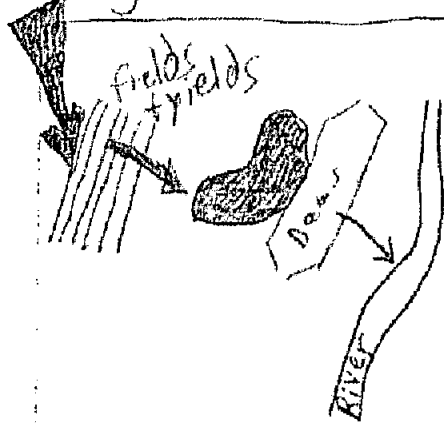
Phone: (402) 471-1026
FAX: (402) 471-2900

e-mail: mthompson@dnr.state.ne.us

Homepage: <http://www.dnr.state.ne.us>

10/9/2003

Attending: Dave B.
Mike T. Steve G.
Megan S.



Task for full committee is to concentrate on structure

① Can improvements be made to the accounting impacts estimates of Ponds

② Terraces - how can we ignore tillage + cropping practices above the terraces themselves

Jim Koelliker of K-State is advising

(Refer to e-mail for outline numbers as written below)

1 Potential Data sources - Federal Task

2 Non-Federal Reservoirs - State Task

KS - Satellite Data processing

- to see if some are still functioning

- to see if some are not

NE - improved location

- sending survey crew as needed

CO - jurisdictional + non-jurisdictional ("live stock water tank")

Area-Capacity Table Questions - is evap. adequate for determining the actual impact (evap.) Shouldn't the previous use, cropland/grassland be subtracted from the evap. to see the Δ in consumption

3 Land Terrace Info. - not enough detail in existing

NRI - problem is a sample, so its ok on basin level, does it break out the type of terrace

Derrel Martin - aerial photos for NE, how much \$ for KS

Mike Thompson - ask Derrel if NRCS has any records

Est. Terrace Acres { 160,000 CO }
 { 900,000 KS }
 { 700,000 NE }

Wayne will ask Larry "Kuder" in KS

NRI - national website

★

★ Classify + list + define terrace types

KS - east = open terrace west = closed terrace, can you tell on photo which is open + which is closed

3] cont. - When it rains - where does the water pond?

4] SSURGO & STASGO → Co + Part of KS
NE ↓ Part of KS

5] Aquitards & Aquicludes - Ask committee on when or why. or We don't have it anyway.

6] - Slopes & Topo. characteristics

NE - dens & tics 1:24000
KS - dens scales?

c- Topo. characteristics - Geomorphology
- NE has coarse data

7] - ^{streamflow} Rely on model inputs
- streamflow broken into base flow - Dave B. will wrap it.

8] - ^{precip.} Model Weather Station Info. - someone needs to characterize what was used & not used. Dave B. will do.

9] - Evapo/Transpiration
Step 1 - characterize the work done by the modelers
Phreatophytes what does this have to do with ponds & terraces
a.) climatic data
b.) Pan Evap
c.) RRCA Model

Crop sym is Koelliker, James K-State
Could summarize the work done by modelers

10 Landuse / Landcover

- ★ a. Past Cropping Patterns - NASS - model
Mike Thompson - NLCD & LULC
- b. Current Cropping Patterns - NASS

NE - 1970's - ^{80's} Crop distribution
County by County Land Use / Landcover

KS - Satellite Imagery & Photos
for a single year, mostly in NE,
by Kansas was partially covered
KU - KARS land cover database

c. Future? Who knows?

efotg
electronic field office
technical guide

- ★ d. Tillage Practices -
Mike T. ask Derrell about this - County Extension
agents & researchers.
Make list & explain
- ★ Categories ecofallow, no-till, conventional till, ridge till.

Wrap Up - - categorize & characterize what data we have
as listed on out line.
October 24th 2:30 PM central Mtn

Mike Thompson

From: Barfield, Dave [DBARFIELD@KDA.STATE.KS.US]
Sent: Thursday, October 02, 2003 11:09 AM
To: Doug Garrison; Megan Sullivan; Mike Thompson
Subject: RRC conservation committee



Data task group
report.doc

Fellow data task group members,

I would like to have a conference call to discuss the work on the data task group. Doug informed me that he is not available next week. I wonder if we could talk tomorrow just to get coordinated. How about 3:00 pm central/2:00 mountain? If so, the call-in number would be 1-702-759-8418. The passcode would be 2963830#. Let me know if another time tomorrow would work better.

Doug Garrison's phone number is incorrect in the notes of the committee. His contact information is below.

I have taken the data section from the proposal study outline and made it its own document for our work. It is attached. NRCS has provided us with quite a bit of information that fits into the outline. When should be plugging what we know into the outline.

We will need to work closely with the other groups as the methods selected will drive the needed data and data that is not found will drive the field work that is needed.

<<Data task group report.doc>>

David Barfield
KS Department of Agriculture
Division of Water Resources
785-296-3830

Doug Garrison, Resource Specialist
USDA/NRCS Seward Field Office
(402) 643-4586 Ext. 115
(402) 641-7693 Cell
(402) 643-2326 FAX

**Data task group
Conservation Committee
Republican River Compact Settlement
October 2, 2003 Draft**

A. General types of relevant data available

1. Potential data sources

- a. NRI – Terraces/Tillage → GIS? Ask Doug on a small basin basis
- b. SSURGO data base - Small reservoirs - MS Access Database for NE
- c. Digital Orthoquads ✓
- d. State Inventory of Dams ✓
- e. RRCA Model: Input and output data
- f. CTIC – Tillage
- g. Satellite/Aerial Photos → can it be shared. Does KS have land classifications
- h. NHD

2. Non-Federal Reservoirs data needs

- a. Surface area of reservoirs
- b. Reservoir Volume
- c. Reservoir type (use)
- d. Condition of reservoir (% silted in, breached, etc.)
- e. Reservoir location
- f. Contributing Drainage Area
- g. Date Reservoir Constructed/retired

Dam Safety

3. Land Terraces data needs

- a. Surface area of land terrace — Flat Water Group
- b. Land terrace type
- c. Condition of Terrace (% silted in, replaced with sprinkler irrigation, etc)
- d. Land terrace location
- e. Contributing Drainage Area
- f. Date Terrace Constructed/retired or replaced with sprinkler irrigation.

4. Soil Characteristics - KS did "Soils Light"

- a. Permeability
- b. Hydrologic group
- c. Soil water holding capacity

SSURGO

5. Geologic Characteristics

- a. Presence and distribution of aquitards or aquicludes

Sub-surface

6. Drainage Characteristics

- a. Slope Percent or Degree
- b. Slope Length
- c. Topographic characteristics - Geomorphology

DEM 10 meter

7. Streamflow Records

- a. Total stream flow
- b. Baseflow
- c. Surface Flow (non-baseflow)

8. Precipitation

- a. Amount
- b. Timing
- c. Frequency
- d. Intensity
- e. Location

9. Evaporation/Evapotranspiration

- a. Climatic data
- b. Pan Evap
- c. RRCA Model

10. Landuse / Landcover

- a. Past Cropping Patterns
- b. Current Cropping Patterns
- c. Future Cropping Patterns
- d. Tillage practices

CLU along with cropping info. from 1991 ^{database}

B. Basin wide data availability and assessment of accuracy and precision of that data

- 1. RRCA Model (data has been verified and accepted)
- 2. Sampling and Ground Truthing
- 3. Statistical tests
- 4. Missing data will need to be addressed (fill in holes)

C. Data standards

D. Additional data needs

**STUDY TO DETERMINE THE IMPACTS OF
NON-FEDERAL RESERVOIR AND LAND TERRACING
ON THE REPUBLICAN RIVER VIRGIN WATER SUPPLY
7/18/03 Draft Outline**

I. Settlement Requirements – Section VI.

A. Evaluate available methodologies, existing data and relevant studies related to determining the impacts of Non-Federal Reservoirs and land terracing practices on water supplies.

1. Methodologies

- a. Multiple Regression: (doesn't tell case & data records may not be significant statistically) should summarize what previous studies have shown.
- b. Synoptic – Hydrogeomorphic: (may not have basins that we can compare to address with and without but we do have before and after)
- c. Water Budget Approach
- d. Rational Method: (Tech. Bulletin 1352)
- e. Soil Water Balance Models: (POTYDR , SWAT and others)
- f. Direct Measurement at Sample Locations: Ground measurements (metering of terraces and ponds), satellite photos, etc.
- g. Change in Crop Yield Trends (with and without terraces)
- h. Combination of above

3. Studies/Reports

- a. Perspectives on Sustainable Development of Water Resources in Kansas, 1998
- b. Estimating Yield from Watershed Undergoing Changes, 1995
- c. Republican River Basin Water Management Study, 1985
- d. Impact of Improved Agricultural Water Use Efficiency on Reservoir Storage, 1984
- e. Missouri River Basin Hydrology Study Final Report, 1983
- f. Agriculture Water Use Including Identification of Irrigated Lands, 1982
- g. Missouri River Comprehensive Framework Study, 1966
- h. Evaluation of Relative Effect of Conservation Measures & GW Pumping, 1999
- i. Republican River Basin Neb. Water and Related Land Resources Study, 1978
- j. Technical Bulletin No. 1352, 1966
- k. Statistical Estimation of Streamflow Depletion from Irrigation Wells, 2002

B. Determine general types of relevant data available.

1. Potential Data Resources

- a. NRI – Terraces/Tillage
- b. SURGO data base - Small reservoirs
- c. Digital Orthroquads
- d. State Inventory of Dams
- e. RRCA Model: Input and output data
- f. CTIC – Tillage
- g. Satellite/Aerial Photos

2. Non-Federal Reservoirs data needs

- a. Surface area of reservoirs
- b. Reservoir Volume
- c. Reservoir type (use)
- d. Condition of reservoir (% silted in, breached, etc.)
- e. Reservoir location
- f. Contributing Drainage Area
- g. Date Reservoir Constructed/retired

2. Land Terraces data needs

- a. Surface area of land terrace
- b. Land terrace type
- c. Condition of Terrace (% silted in, replaced with sprinkler irrigation, etc)
- d. Land terrace location
- e. Contributing Drainage Area
- f. Date Terrace Constructed/retired or replaced with sprinkler irrigation.

3. Soil Characteristics

- a. Permeability
- b. Hydrologic group
- c. Soil water holding capacity

4. Geologic Characteristics

- a. Presence and distribution of aquitards or aquicludes

5. Drainage Characteristics

- a. Slope Percent or Degree
- b. Slope Length
- c. Topographic characteristics

6. Streamflow Records

- a. Total stream flow
- b. Baseflow
- c. Surface Flow (non-baseflow)

7. Precipitation

- a. Amount
- b. Timing
- c. Frequency
- d. Intensity
- e. Location

8. Evaporation/Evapotranspiration

- a. Climatic data
- b. Pan Evap
- c. RRCA Model

9. Landuse / Landcover

- a. Past Cropping Patterns
- b. Current Cropping Patterns
- c. Future Cropping Patterns
- d. Tillage practices

C. Determine basin wide availability and assess accuracy and precision of data.

1. RRCA Model (data has been verified and accepted)
2. Sampling and Ground Truthing
3. Statistical tests
4. Missing data will need to be addressed (fill in holes)

D. Agree on standards for data.

E. Identify additional data required to determine quantitative changes in the water supply resulting from the construction of terraces or non-federal reservoirs.

F. Propose a method for assessing area-capacity relationship for non-federal reservoirs.

1. Field sampling
2. NRCS Method

G. Submit a study plan to determine the quantitative changes in the water supply resulting from the construction of terraces and non-federal reservoirs, including if such changes can be determined for each Designated Drainage Basin, to the RRCA.

II. Define the Study Proposal Outline –

A Background

B. Statement of Problem

C. Purpose of Study

D. Survey of Literature

1. Methodologies
2. Data Evaluation

E. Proposed Methodology

1. Data Needs
2. Analytical Procedures
3. QA-QC

F. Outputs

G. Study Administration

H. Timeline for completing study within 5 years of date proposed study is accepted by RRCA

I. Budget Needs

J. Evaluation and follow up.

III. Study Administration: The Conservation Committee will administer the Study but may contract certain portions to a university or other entity.