South Fork of the Iowa River Watershed: Status of CEAP Research

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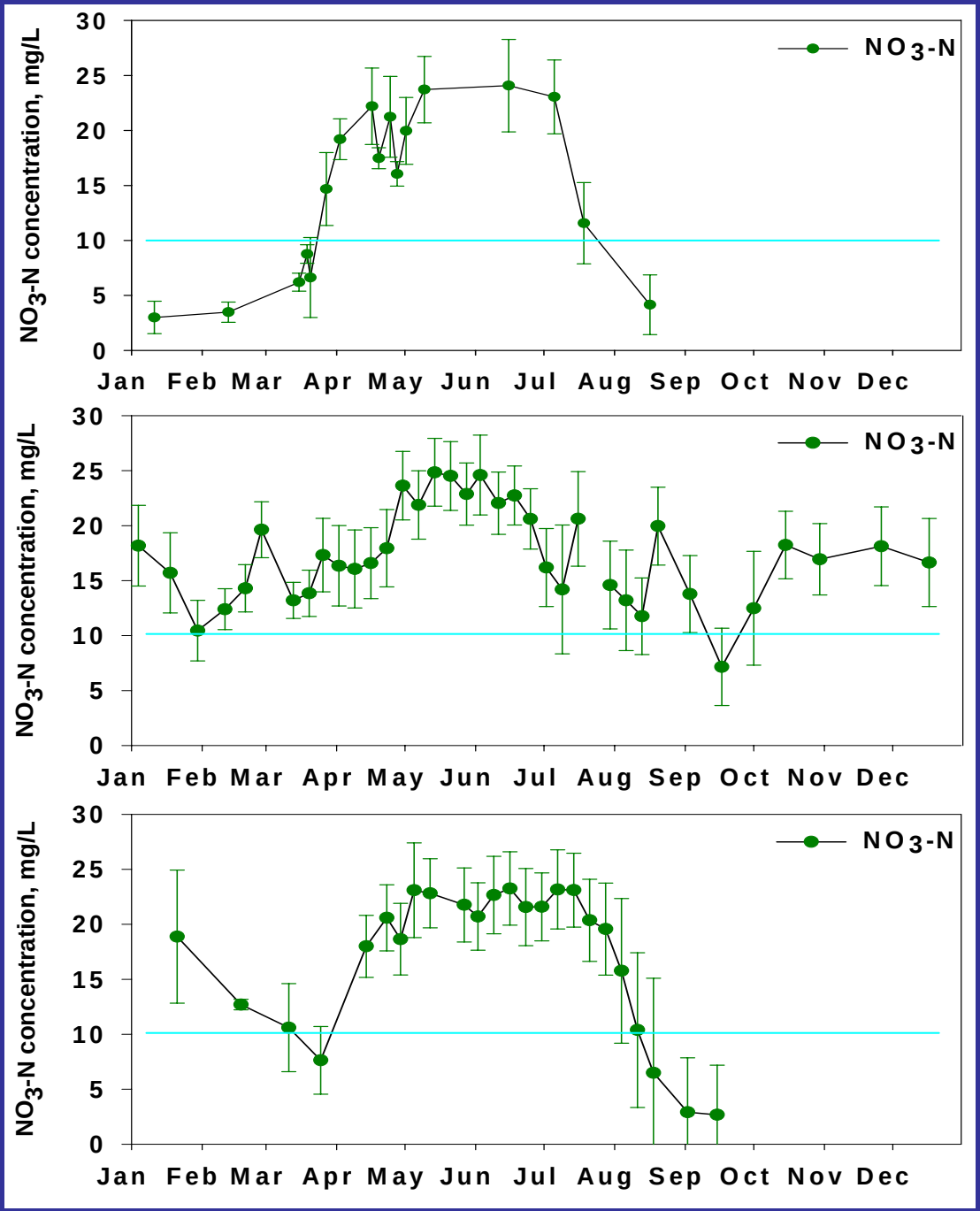
Research objectives

1. Evaluate spatial and temporal patterns in water quality.
2. Assess current land use and conservation practices that are in place.
3. Develop planning tools that identify optimal locations to place specific conservation practices.
4. Encourage implementation of new conservation practices and identify their water quality impacts.
5. Calibrate/ test SWAT model

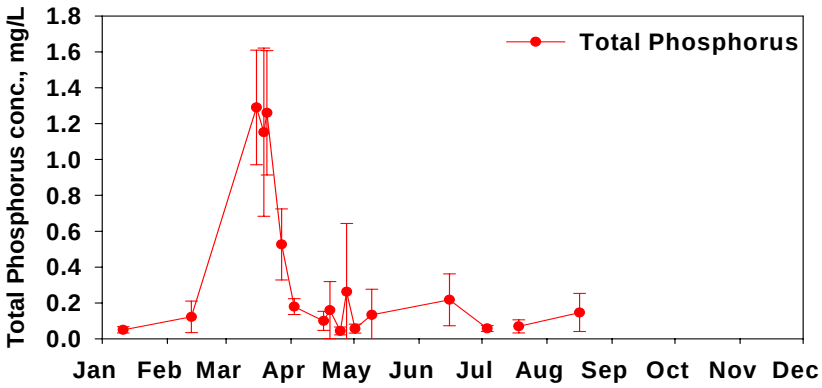
South Fork NO_3-N Concentrations



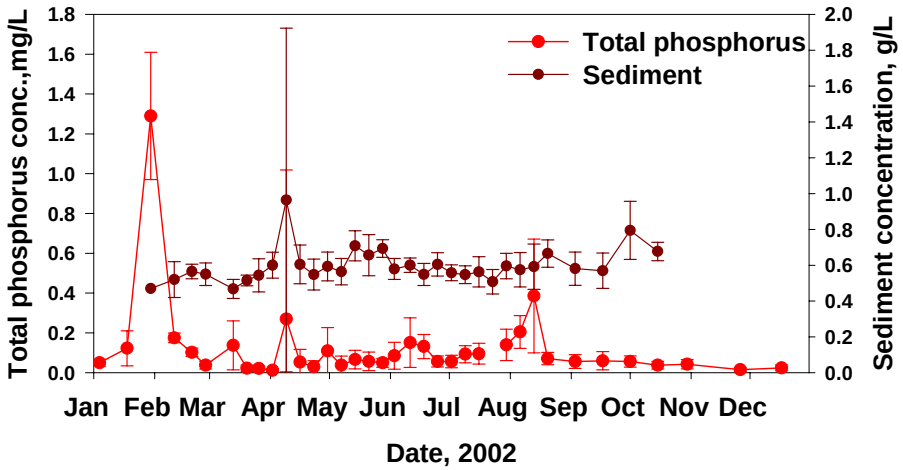
Obj. 1

Total phosphorus concentrations by date 2001-2003

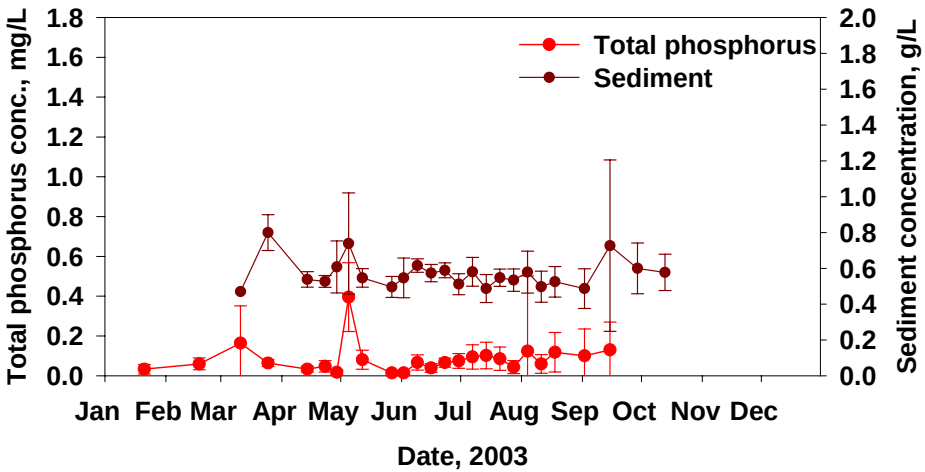
2001



2002

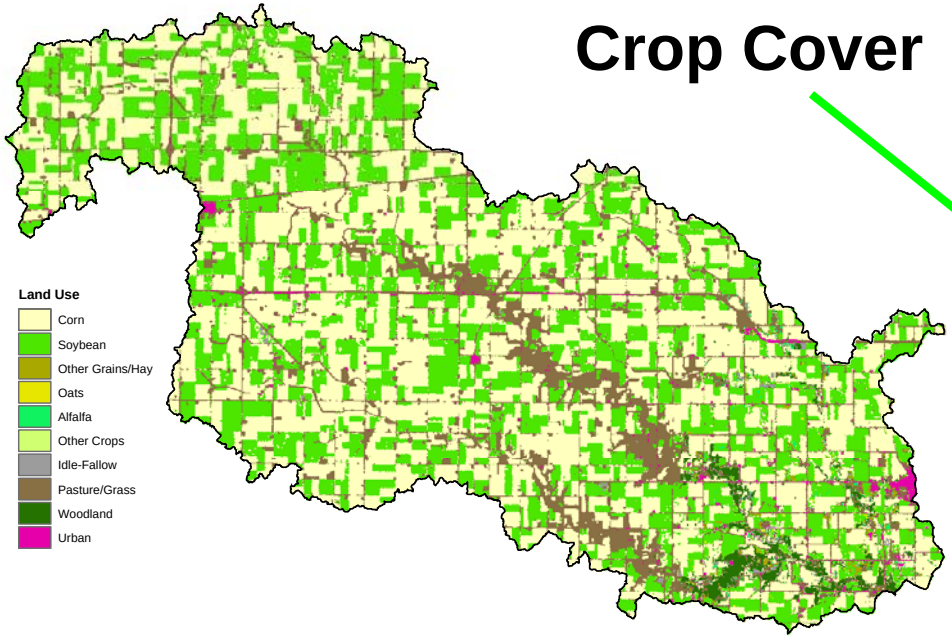


2003



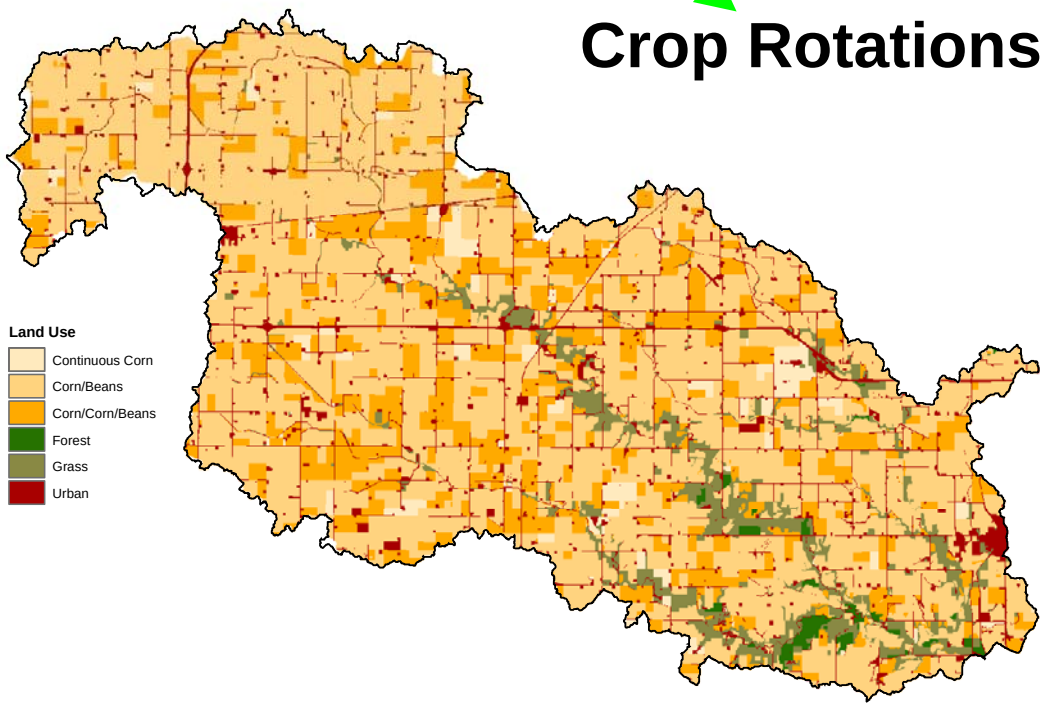
Obj. 1

Crop Cover

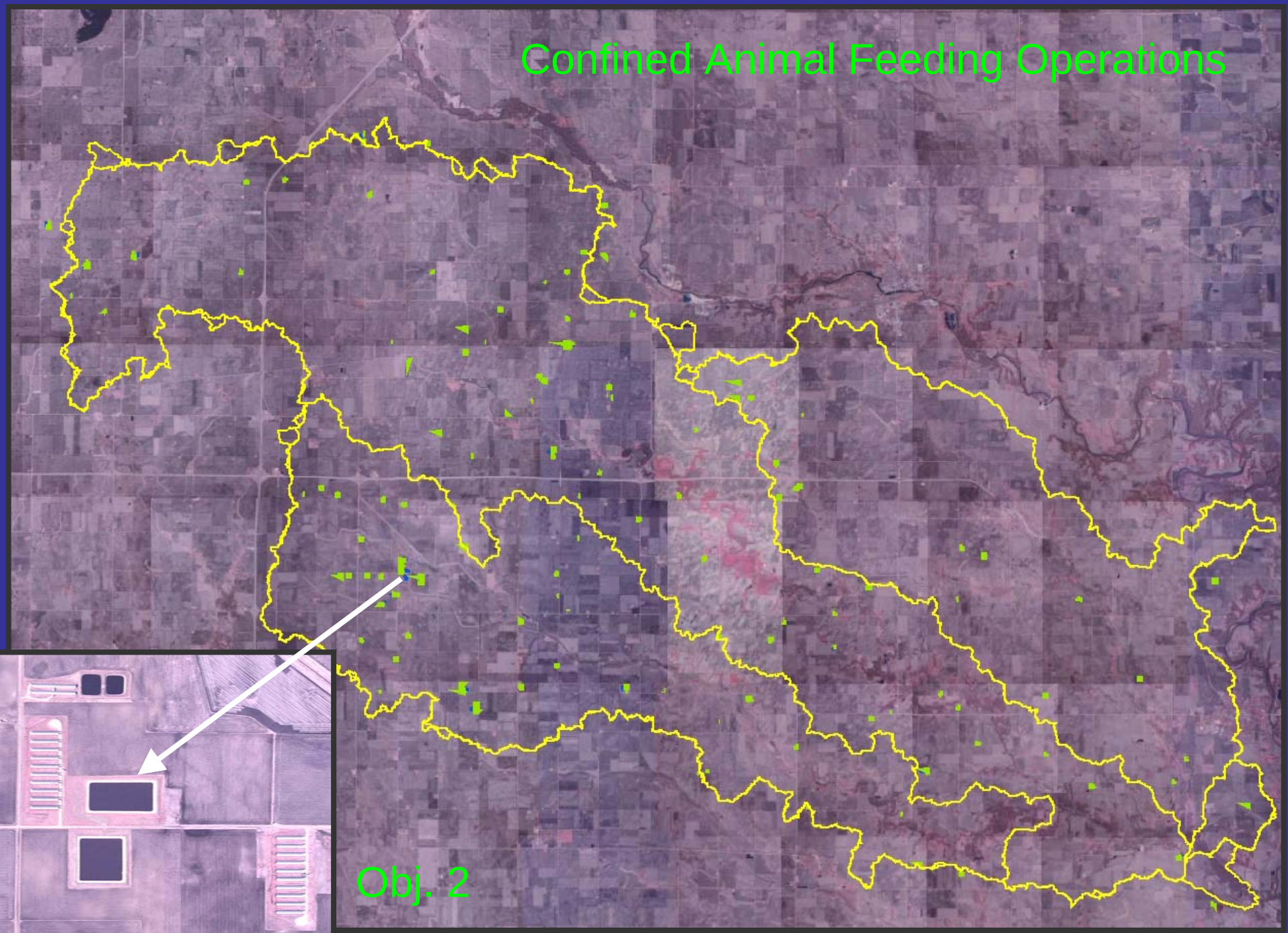


Multiple years of NASS data

Crop Rotations



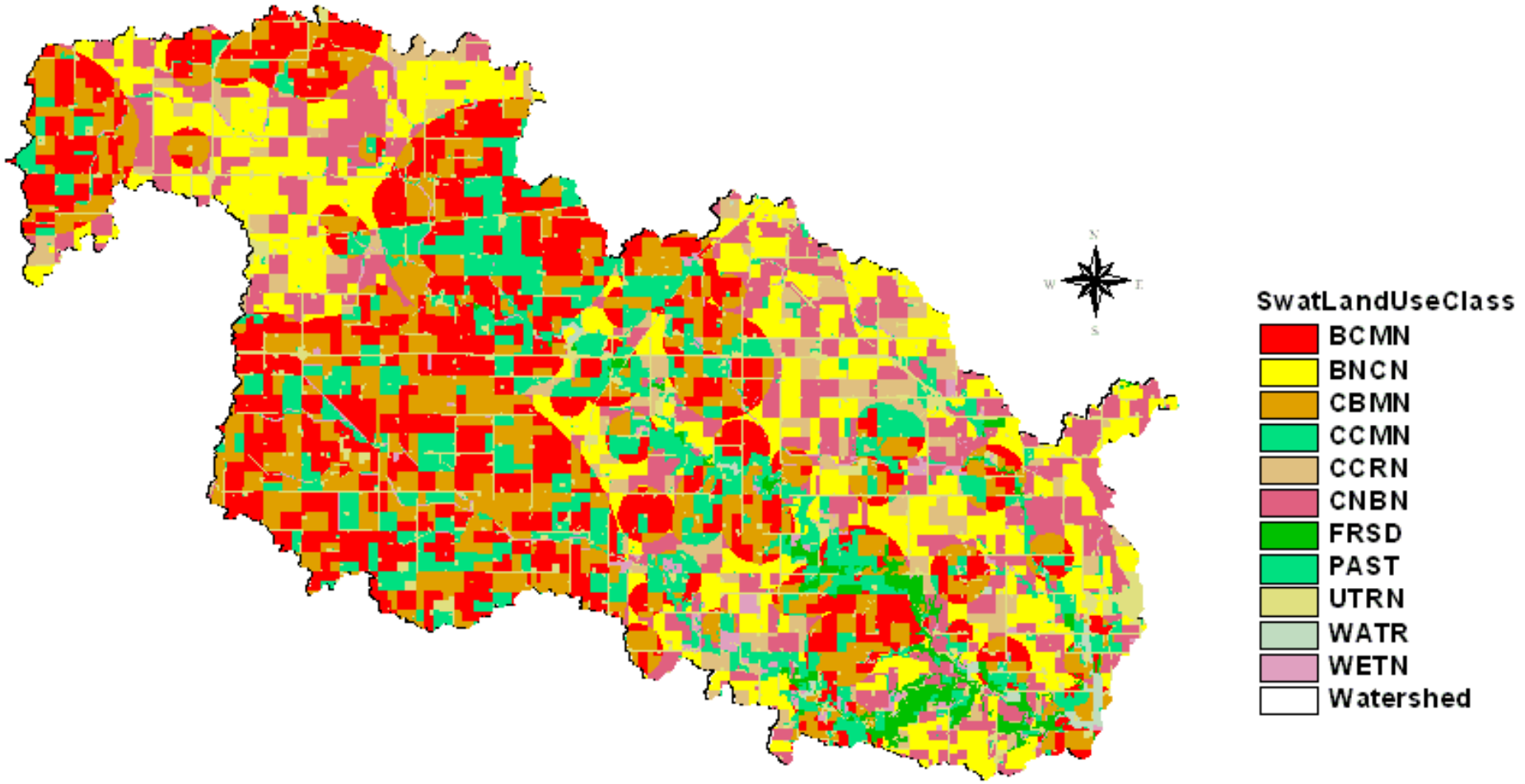
Obj. 2


Confined Animal Feeding Operations
Obj. 2

Manure application and its distribution in the watershed

Obj. 2

Crop Rotations and SWAT modeling



- Included 2-year crop rotations and hog manure application
- Utilized AVSWAT-X and its splitting and SSURGO extension tools

Objs. 2 & 5

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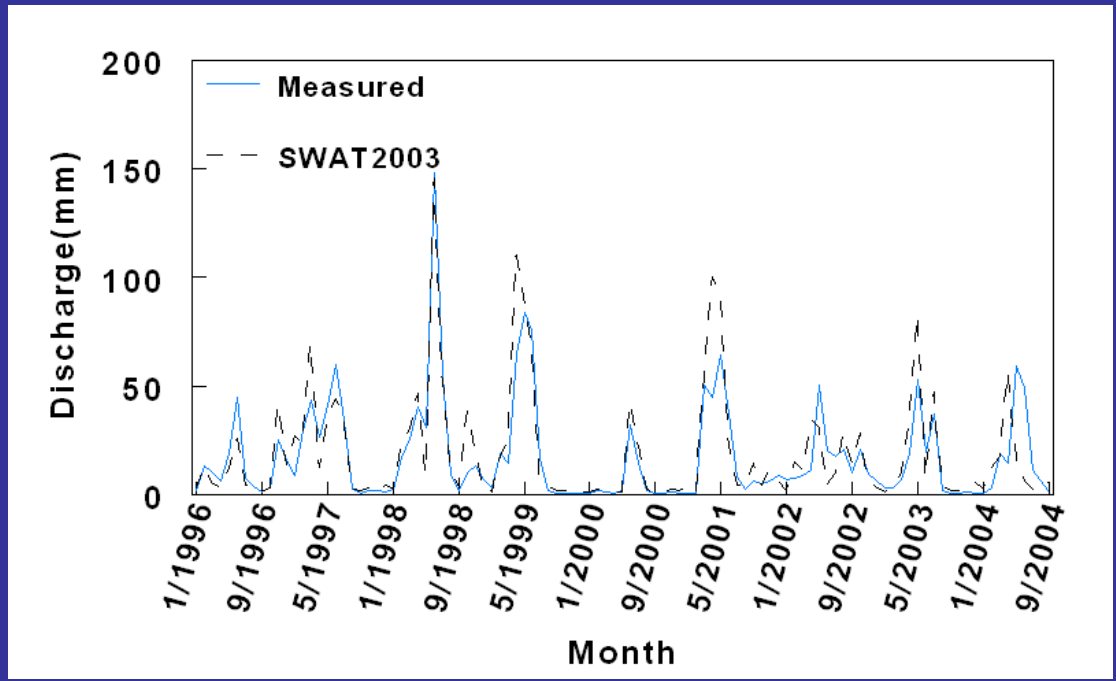
Hydrologic calibration of SWAT - completed!

- Completed annual, monthly, and daily discharge calibration and validation
- Completed tile flow calibration and validation
- Continuing work with pothole inclusion
- Performed parameter sensitivity analysis



Obj. 5

C.H. Green and J.G. Arnold, GSWRL-ARS, Temple, TX


Assessing conservation practices
in a watershed
NRCS to complete a field by
field inventory this year
Obj. 2

Optimal placement of conservation practices

Burkart, M.R., D.E. James, and M.D. Tomer. 2004. Hydrologic and terrain variables to aid strategic location of riparian buffers. *J. Soil & Water Conserv.* 59(5): 216-223.

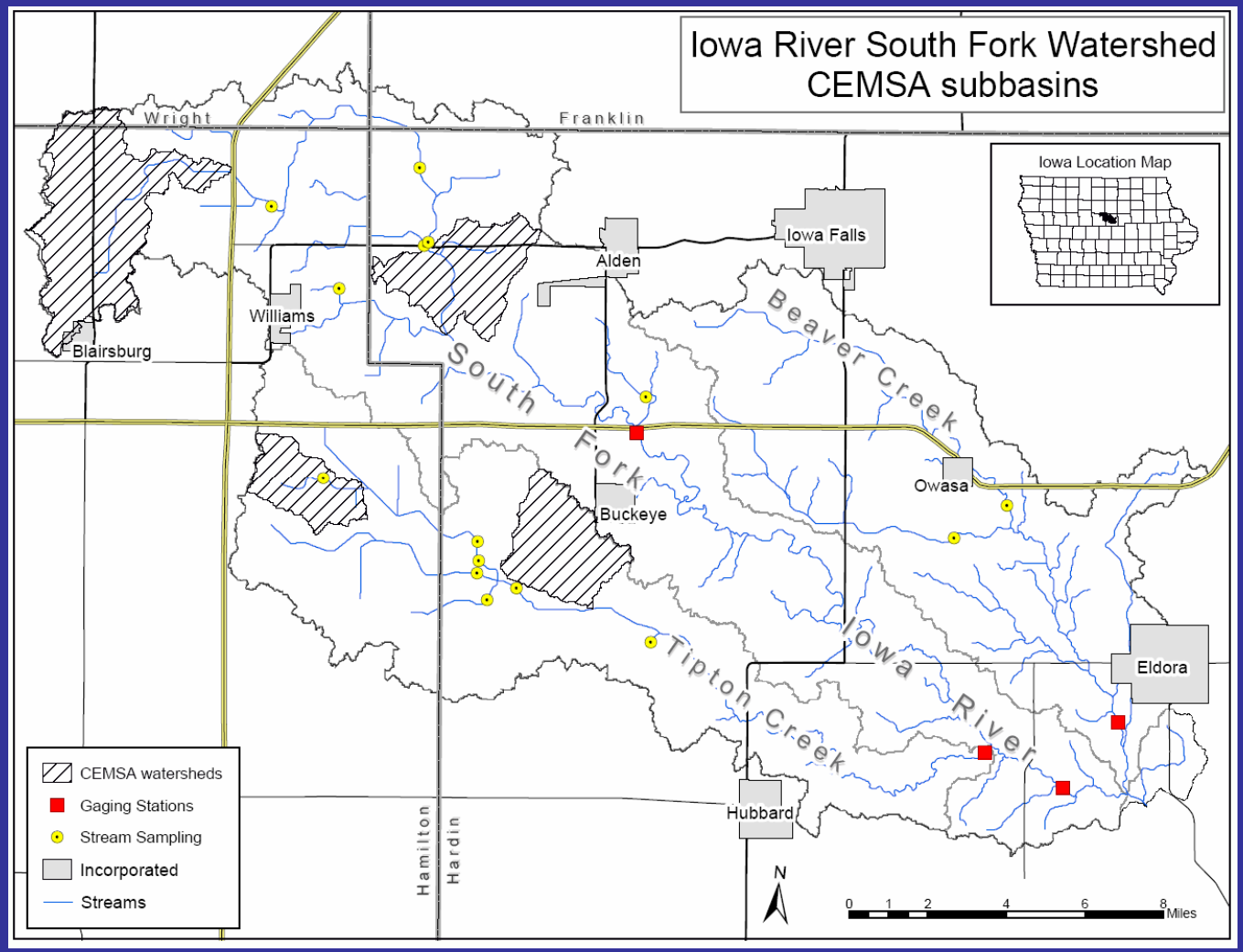
Tomer, M.D., D.E. James, and T.I. Isenhart. 2003. Optimizing the placement of riparian practices in a watershed using terrain analysis. *J. Soil Water Conserv.* 58(4):198-206

Tomer, M.D., and D.E. James. 2004. Do terrain analyses and soil survey identify similar priority sites for conservation? *Soil Sci. Soc. Am. J.* 68(6):1905-1915.

Obj. 3

Encouraging new practices

- Partnering with Southfork Alliance and Iowa Soybean Association
- Seeking additional funds for EQIP through NRCS Special Projects
- Establishing new monitoring stations for a tile-drained sub-basin



Obj. 4