Water Resources Board Comprehensive Model

- On-Farm Water Resiliency Program
  - Research, Development & Demonstration (RDD) Farms
  - Practical Implementation Project (PIP) Farms

Total: $2.25 Million

- Planning & Water Management
- Groundwater Monitoring
- Mesonet & Gaging
- Water Quality Monitoring and Assessments

Total Need: $2.5 Million

MEMORANDUM OF UNDERSTANDING
BETWEEN
THE KENTUCKY AGRICULTURAL DEVELOPMENT BOARD
AND
THE ENERGY AND ENVIRONMENT CABINET

BACKGROUND RECITALS

1. The **Kentucky Agricultural Development Board** ("KADB") was created by the General Assembly pursuant to KRS 248.707 and charged with the responsibility of administering funds from the "Rural Development Fund," established in KRS 248.655 to provide economic assistance to the agriculture community of the Commonwealth. The KADB is attached to the Governor's Office of Agricultural Policy ("GOAP") for administrative purposes.

1. The **Kentucky Water Resources Board** ("KWRB") was created by the General Assembly pursuant to KRS 151.113. The KWRB is tasked with addressing water resource challenges affecting agriculture and rural industries. The KWRB is attached to the **Energy and Environment Cabinet** ("the Cabinet") for administrative and contracting purposes.

1. The KADB and the EEC pursuant to their individual statutory authority desire to enter into this Memorandum of Understanding in furtherance of their stated purposes, goals and objectives. Said Memorandum of Understanding shall be in full force and effect until such time as the Parties elect to terminate the relationship, as set forth in Section VII, or until the KADB elects to terminate the On-Farm Water Resiliency Program ("the Program") in accordance with Section III below.

Accordingly, the Parties agree to the following:

On-Farm Water Resiliency Program Goals

- **Water Resilience** on Farms
- Promote **innovation** in on-farm water management
- Increase on-farm **water availability** and farm **profitability**
- **Institutionalize** practices into traditional funding programs
- **Normalize** "innovative practices

KADF
KENTUCKY AGRICULTURAL DEVELOPMENT FUND

On-Farm Water Resiliency Program: Research, Development and Demonstration (RDD) Project Guidelines

*The **On-Farm Water Resiliency Program** provides funding to promote water resilience on farms.*

The Kentucky Agricultural Development Fund and the Kentucky Water Resources Board are dedicated to helping Kentucky agriculture become more sustainable and profitable for generations to come by supporting this program.

Kentucky Water Resource Board 2018-2019

Expected Measurable Outcomes

Kentucky
Water Resources Board

Project 1: Purpose and Benchmarks for the Research, Development and Demonstration (RDD) Farms for the On-Farm Resiliency Program

Soil Moisture Drought Risk Indexing

Three classes of factors related to soils moisture suitability under moderate drought conditions

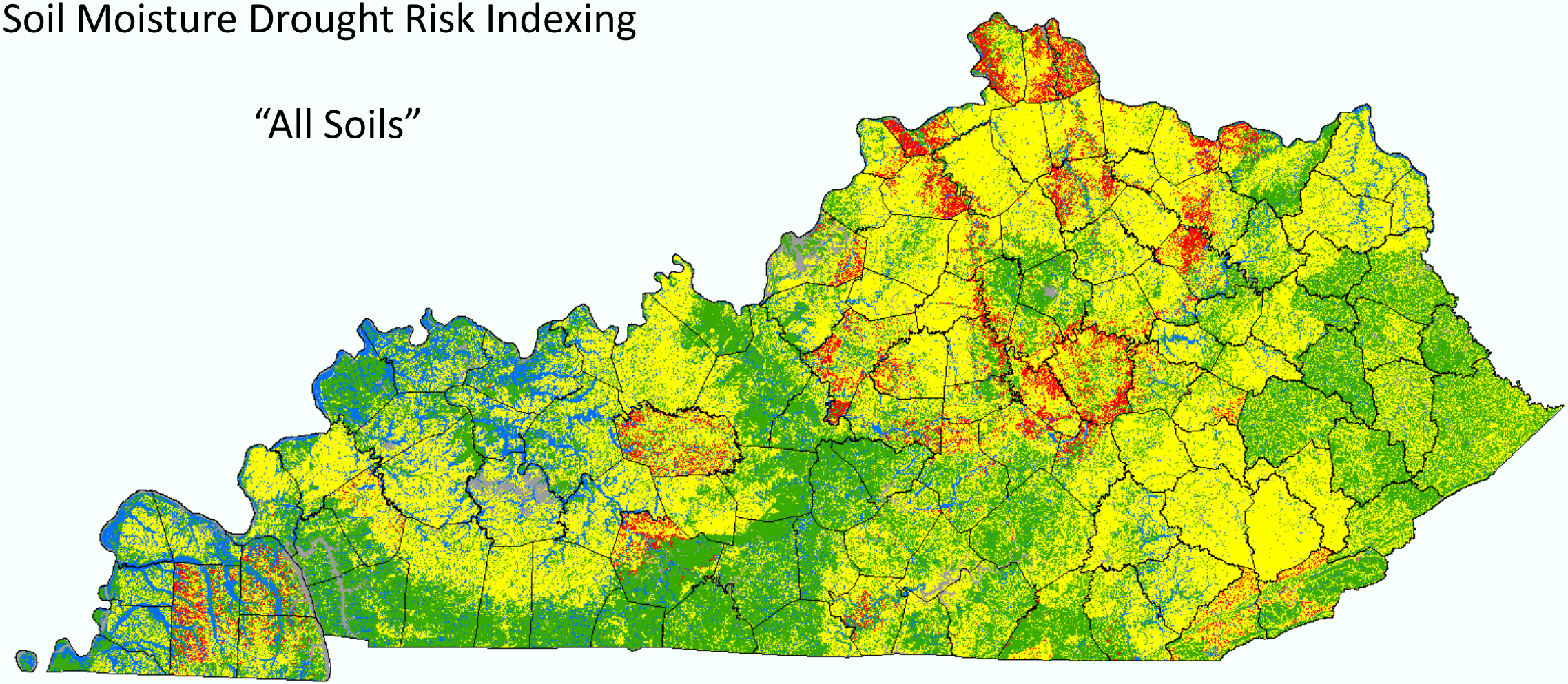
- Infiltration Factors - slope and hydrologic soil group (runoff potential)
- Water Movement Factors – Internal Drainage Class and Ksat
- Water Supply Factors - Available Water Storage and Depth to Restrictive Layer

Each factor numerically ranked for every soil type based on NRCS classifications

Soil Risk Index calculated as unweighted average of the sum of ranks for each soil type

Soil Moisture Drought Risk Indexing

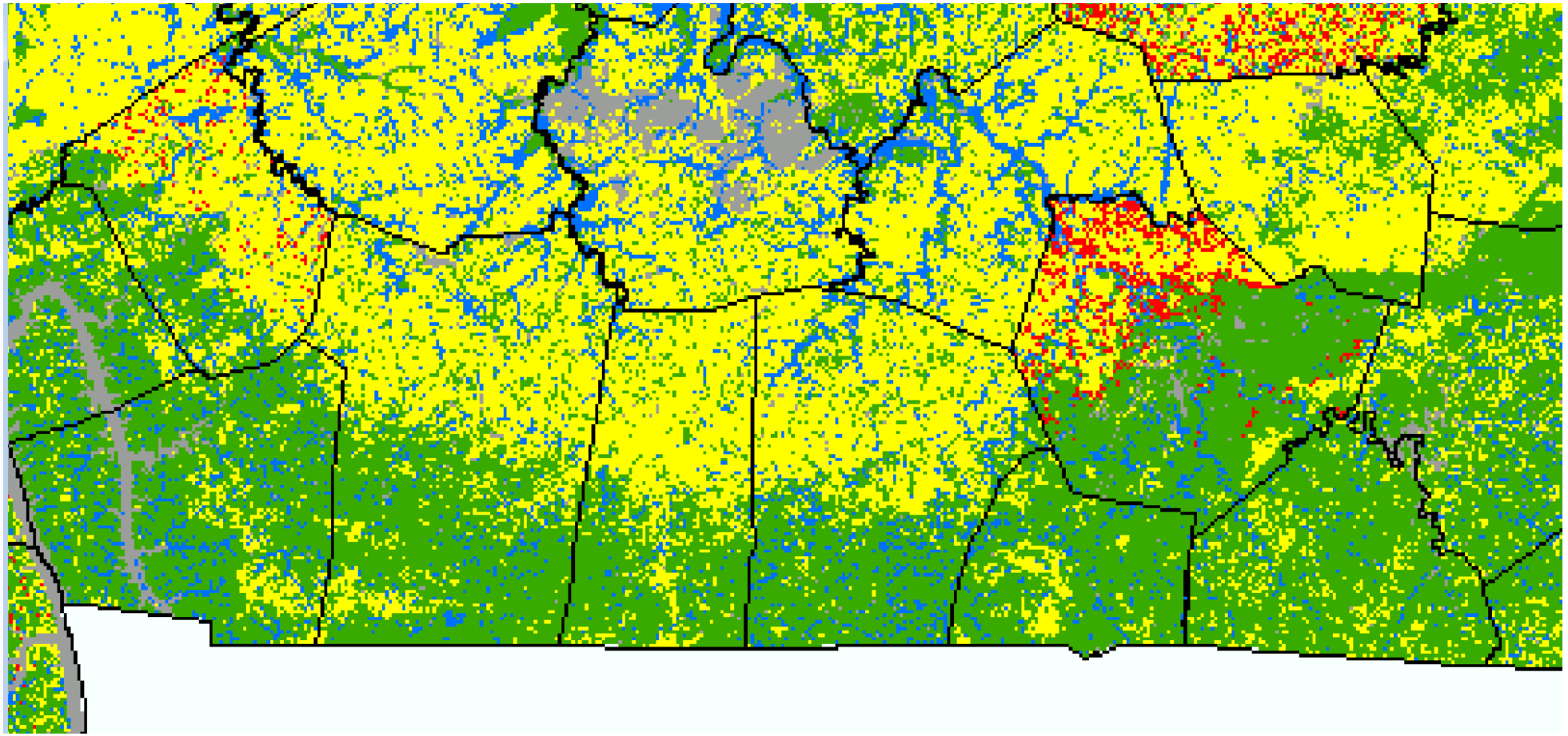
"All Soils"



Prepared by Chip Zimmer

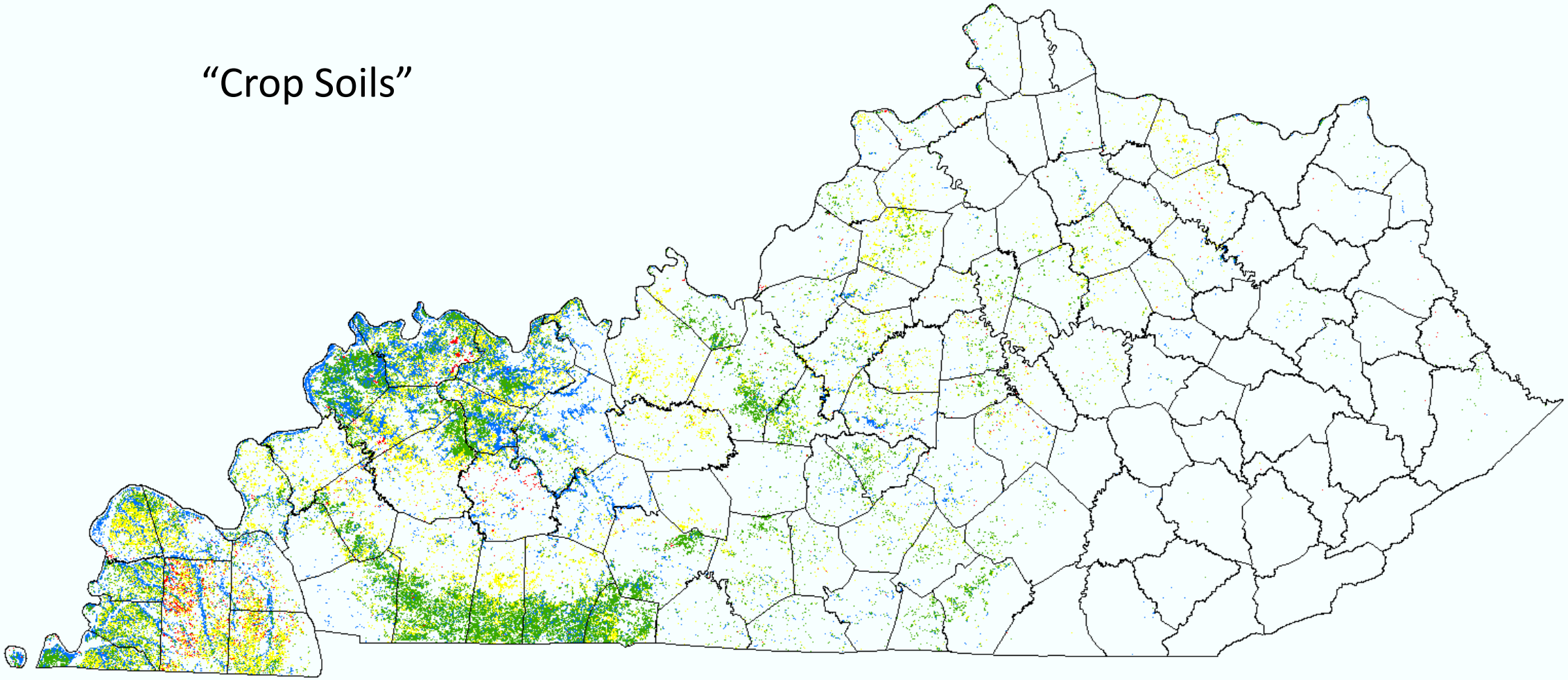
Soil Moisture Drought Risk Indexing

"All Soils"



Soil Moisture Drought Risk Indexing

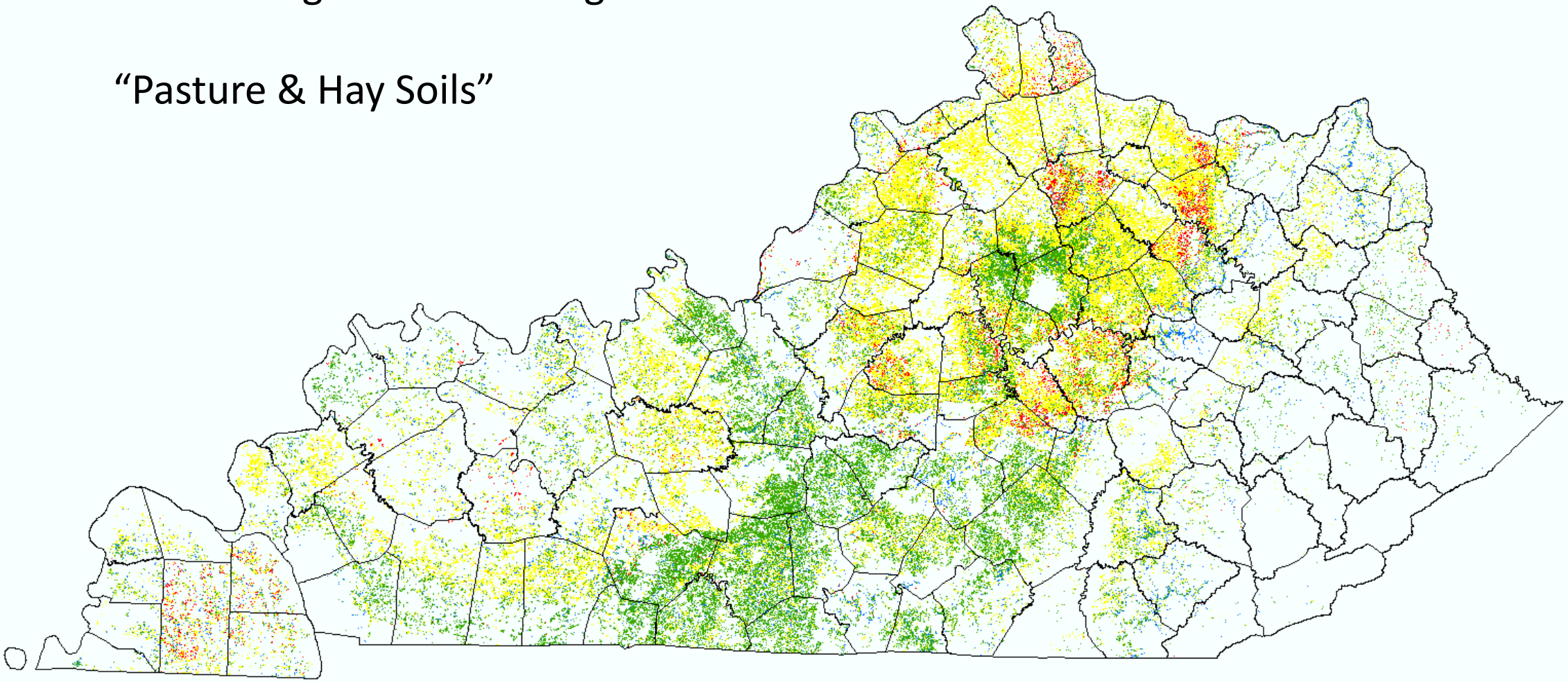
“Crop Soils”



Prepared by Chip Zimmer

Soil Moisture Drought Risk Indexing

“Pasture & Hay Soils”



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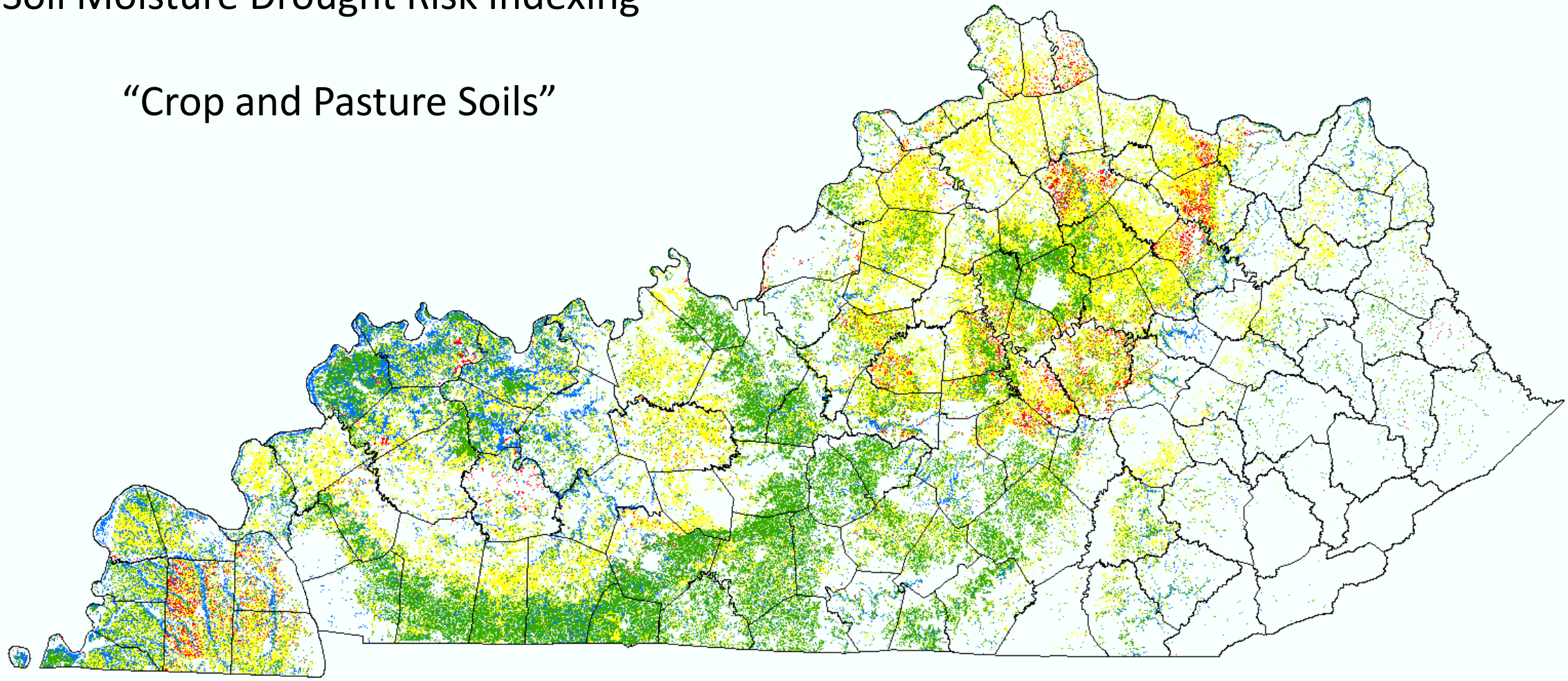
Soil Moisture Drought Risk Indexing

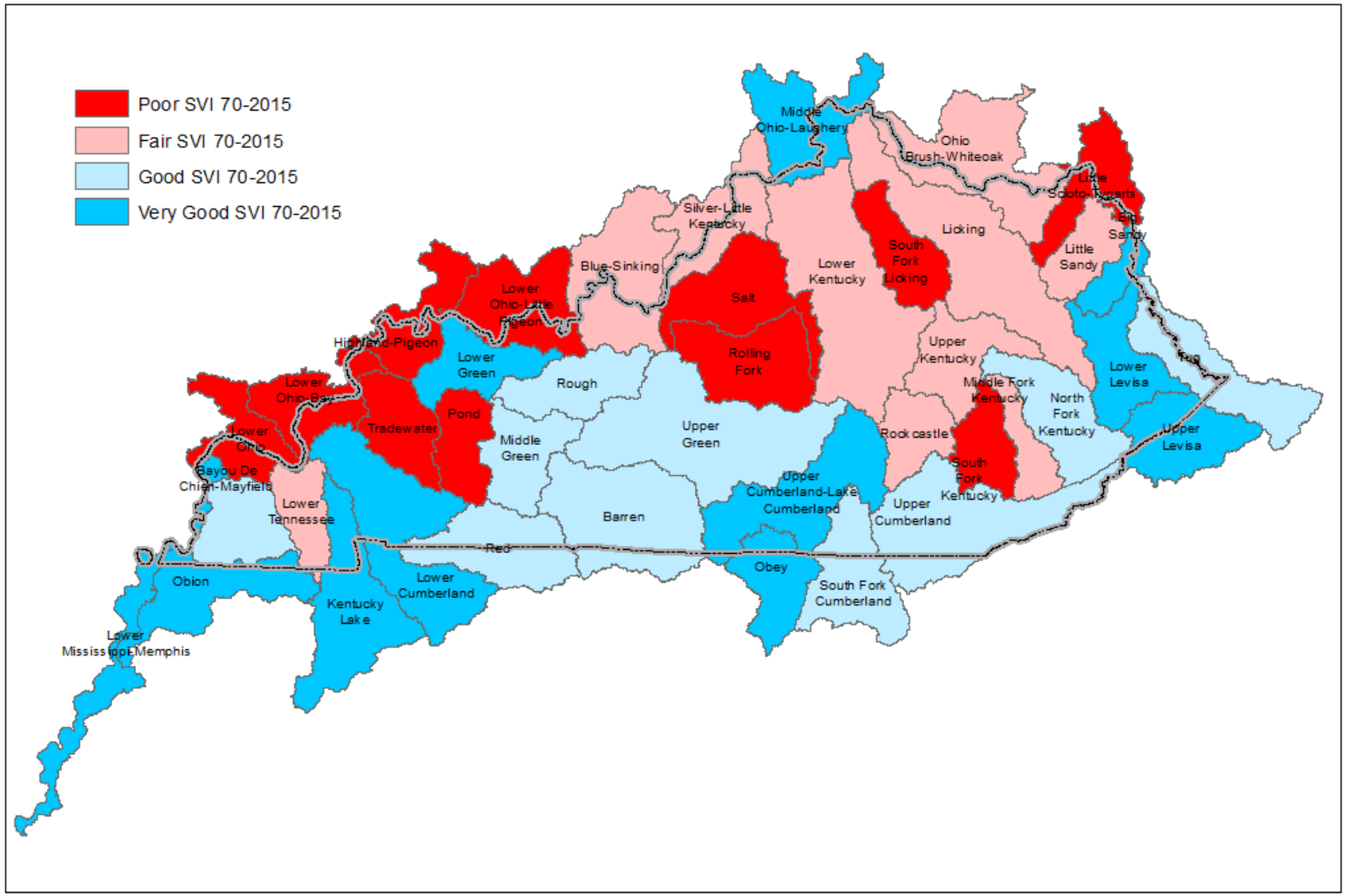
“Crop and Pasture Soils”

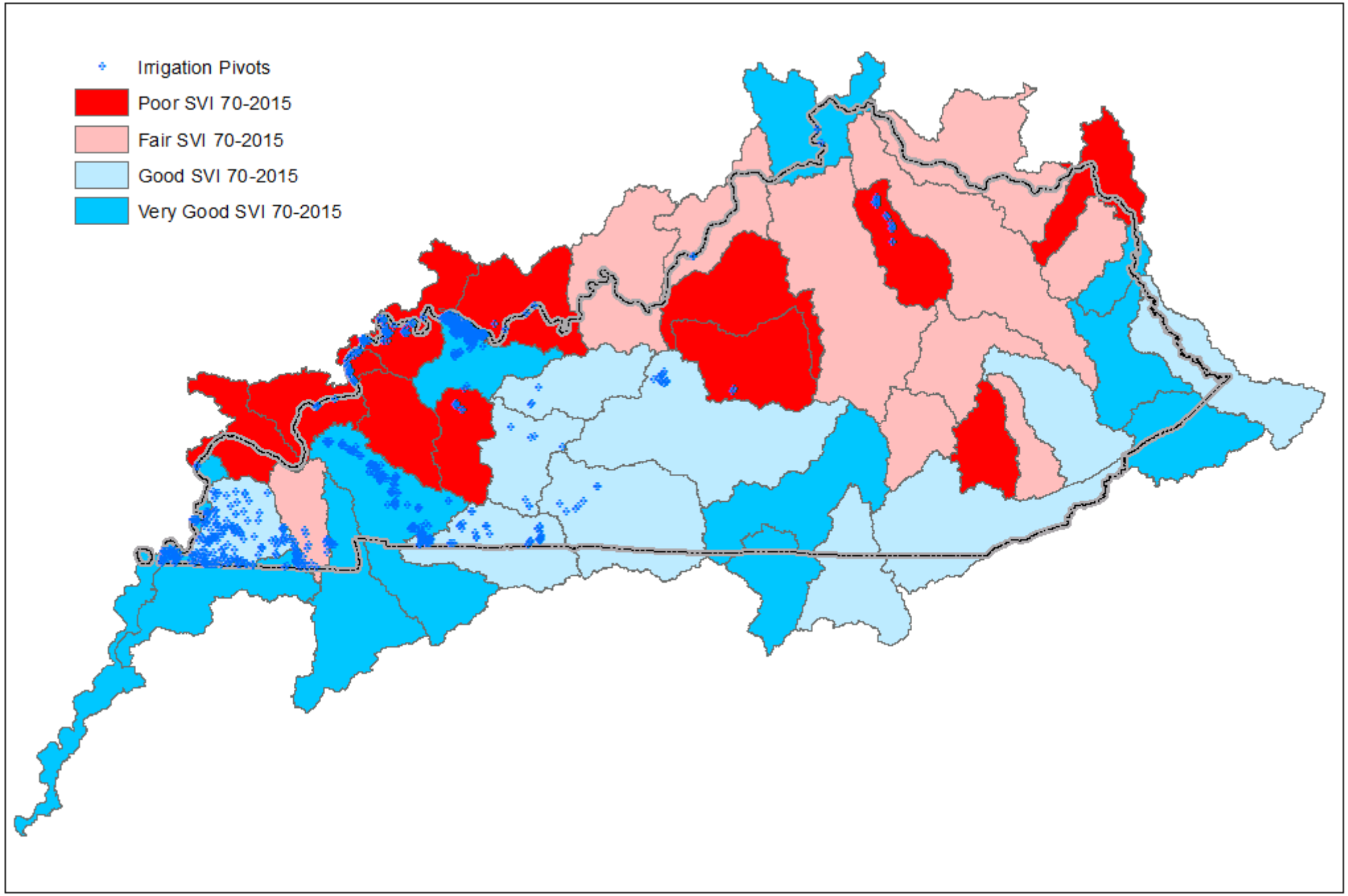


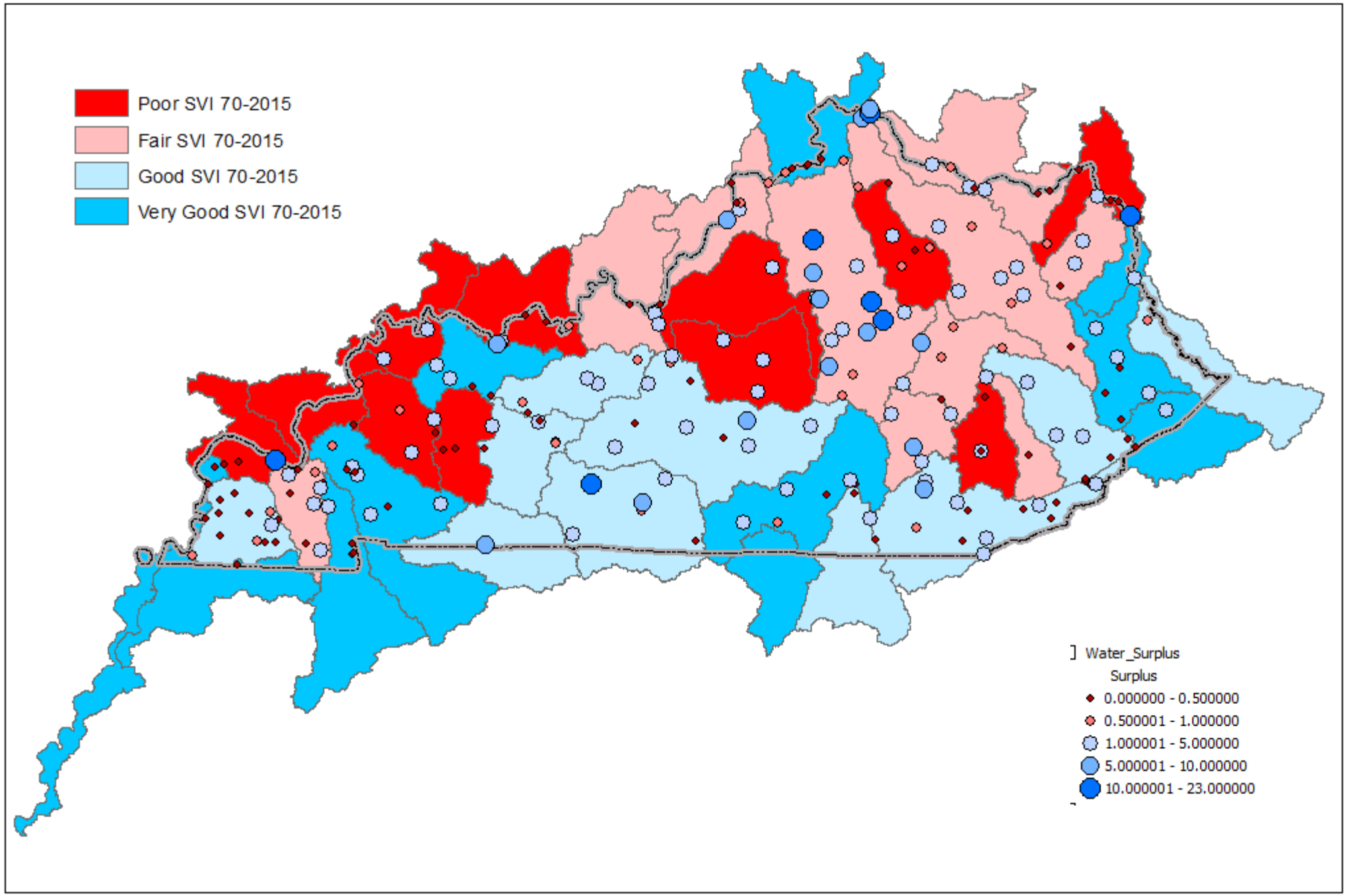
Prepared by Chip Zimmer

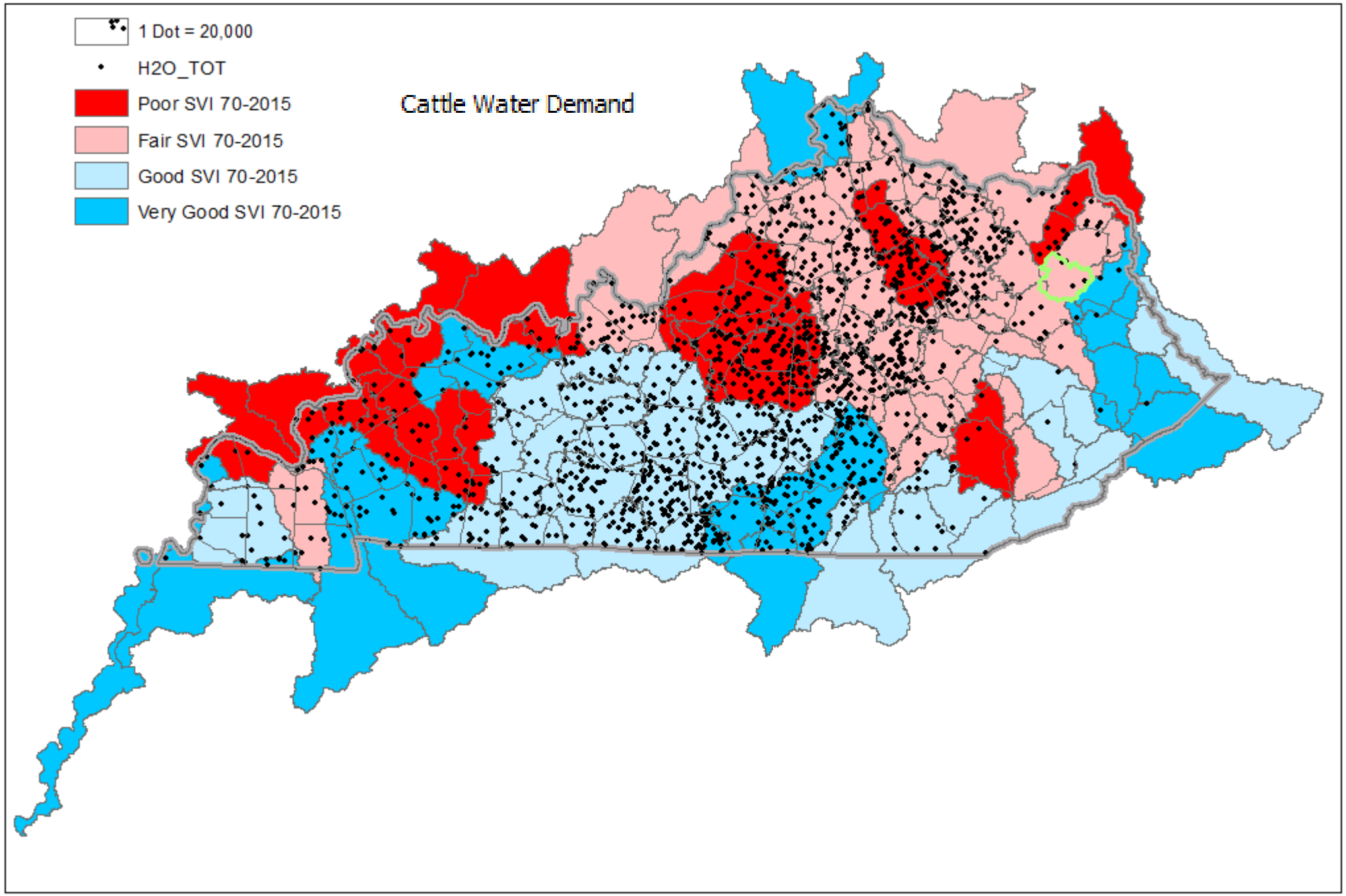
	Crop Soils Risk	Pasture Soils Risk	All Soils Risk
Very low risk:	27% (Blue)	8%	9%
Low risk:	40% (Green)	36%	33%
High Risk:	31% (Yellow)	52%	53%
Very High Risk:	1% (Red)	4%	4%

Hydrologic Unit Streamflow Reliability




Irrigation Pivots
Poor SVI 70-2015
Fair SVI 70-2015
Good SVI 70-2015
Very Good SVI 70-2015


Poor SVI 70-2015
Fair SVI 70-2015
Good SVI 70-2015
Very Good SVI 70-2015
Water_Surplus
Surplus
0.000000 - 0.500000
0.500001 - 1.000000
1.000001 - 5.000000
5.000001 - 10.000000
10.000001 - 23.000000


1 Dot = 20,000
H2O_TOT
Poor SVI 70-2015
Fair SVI 70-2015
Good SVI 70-2015
Very Good SVI 70-2015
Cattle Water Demand

Kentucky Water Resource Board
Strategic Plan 2018-2021

The **mission** of WRB is to promote solutions to water resource challenges by providing support, research and resources for Kentucky's agricultural and rural communities.

The **vision** of the WRB is a Kentucky with agricultural and rural communities that are more resilient, and using water resources to the fullest extent capable.

Goals and Objectives:

1. **Identify solutions for deficiencies in Kentucky's Water Resources**
    a. Investigate ways to increase water quantity for agriculture and rural communities
    b. Study ways to enhance water resources for agriculture and rural communities
    c. Develop new and reliable water resources
    d. Identify methods that improve agriculture water efficiency and conservation
2. **Research and Plan for long-term sustainability for water resources**
    a. Identify emerging water supply issues
    b. Investigate methods to improve water resiliency for agriculture
    c. Review and update state drought mitigation plan
3. **Communicate finding and recommendation to agriculture and rural communities**
    a. Promote water conservation
    b. Develop water resources policy recommendations
    c. Develop water resources guidance and provide technical assistance
    d. Develop data communication platforms
4. **Facilitate the establishment and maintenance of water data networks**
    a. Identify existing data, data gaps, and needs
    b. Develop financial needs assessment for identified data needs
    c. Facilitate data communication and use
    d. Develop models and tools