

To Spatially Smooth or Not, Developing Rules to Clean a Thematic Layer

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Outline

- Define problem
- Generate data
- Exploratory charts
- Recommendations

Define problem

Land Cover Categories

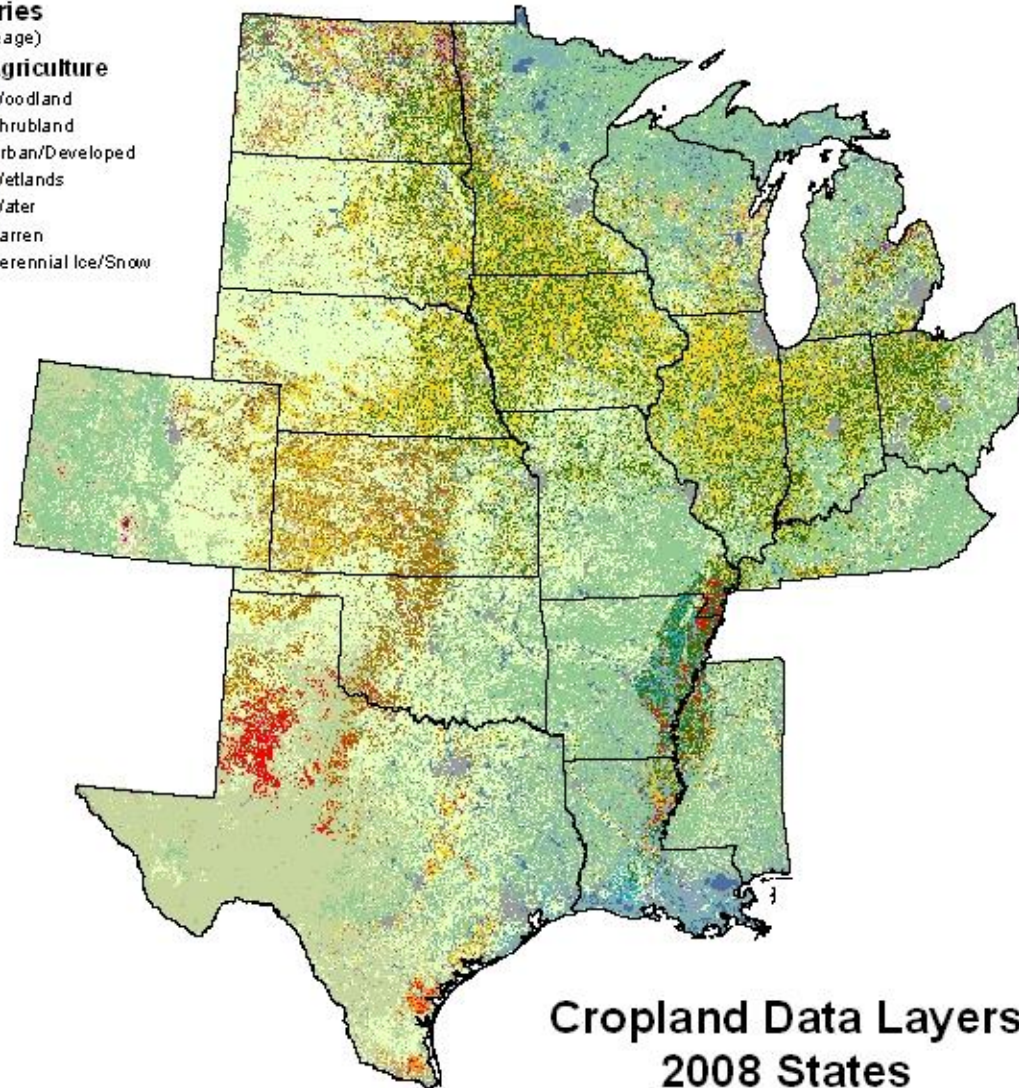
(Ordered by Decreasing Acreage)

Agriculture

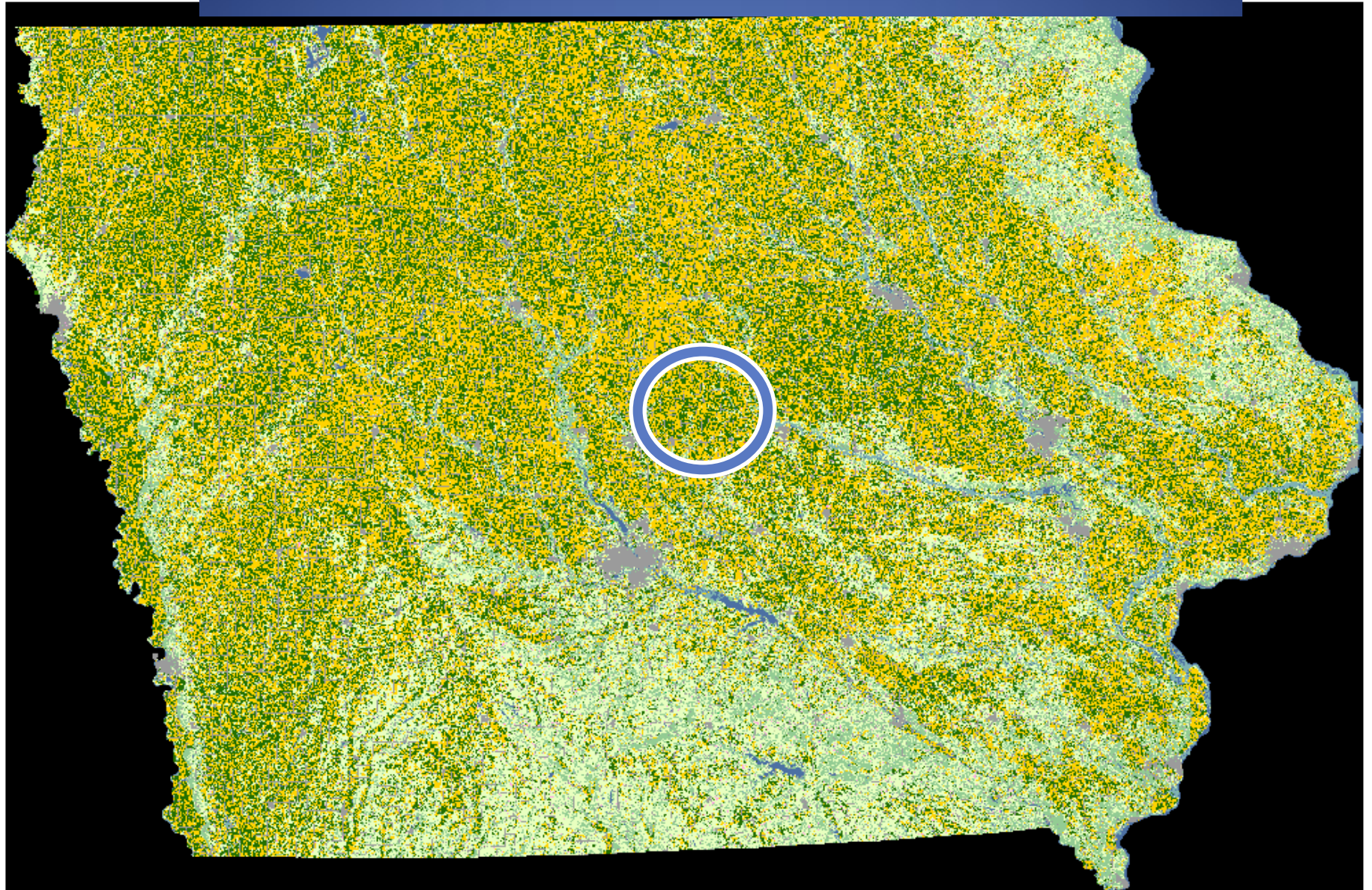
- Pasture/Grass
- Corn
- Soybeans
- Winter Wheat
- Spring Wheat
- Fallow/Idle Cropland
- Cotton
- Sorghum
- Alfalfa
- W. Wht./Soy. D bl. Crop.
- Rice
- Sunflowers
- Durum Wheat
- Barley
- Dry Beans
- Canola
- Sugarbeets
- Peas
- Oats
- Millet
- Sugarcane
- Rye
- Flaxseed
- Potatoes
- Seed/Sod Grass
- Aquaculture
- Lentils
- Peanuts
- Other Small Grains
- Other Crops
- Misc. Veggies. & Fruits
- Other Tree Nuts & Fruits
- Clover/Wildflowers
- Safflower
- Sweet Potatoes
- Apples/Cherries
- Christmas Trees

Non-Agriculture

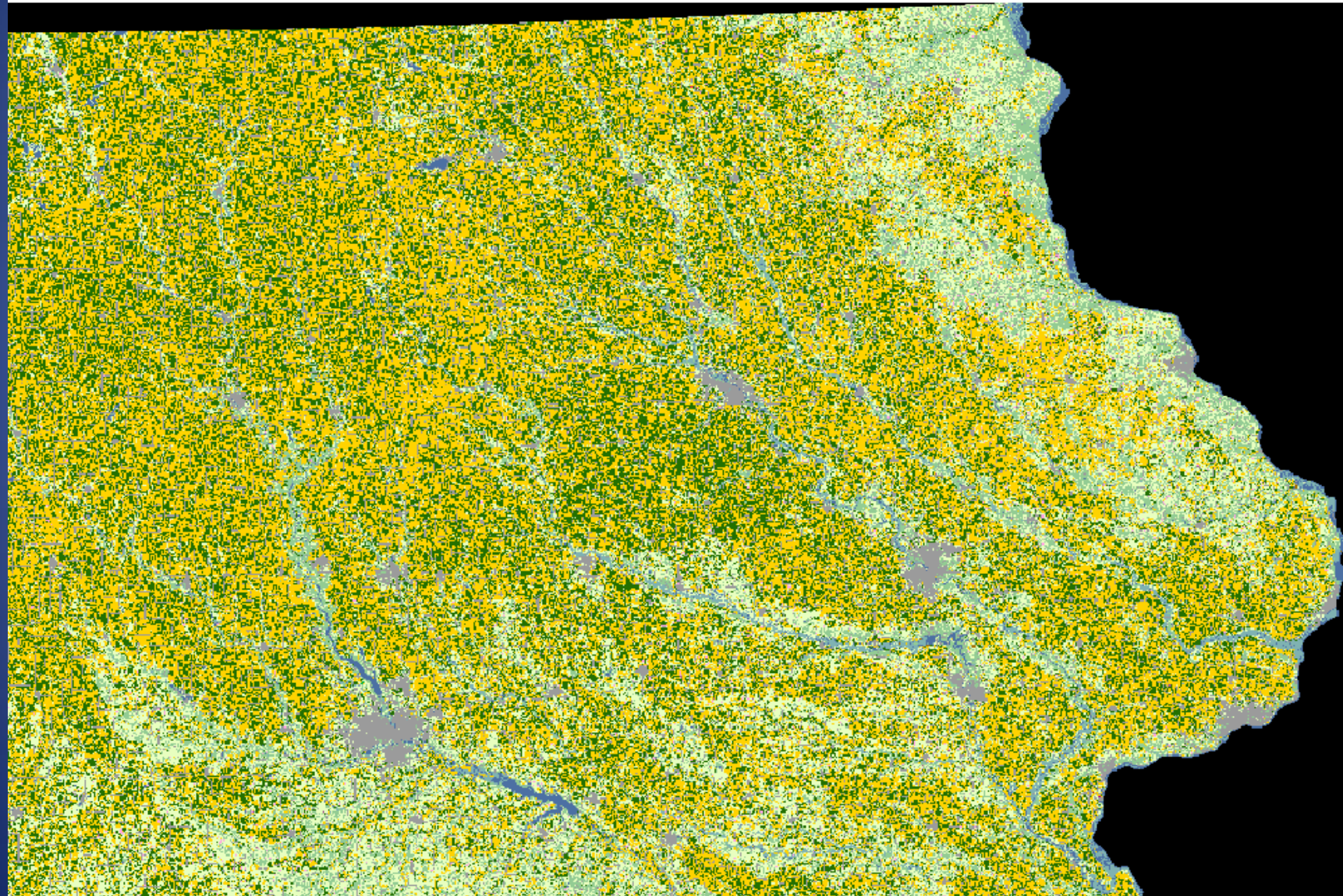
- Woodland
- Shrubland
- Urban/Developed
- Wetlands
- Water
- Barren
- Perennial Ice/Snow



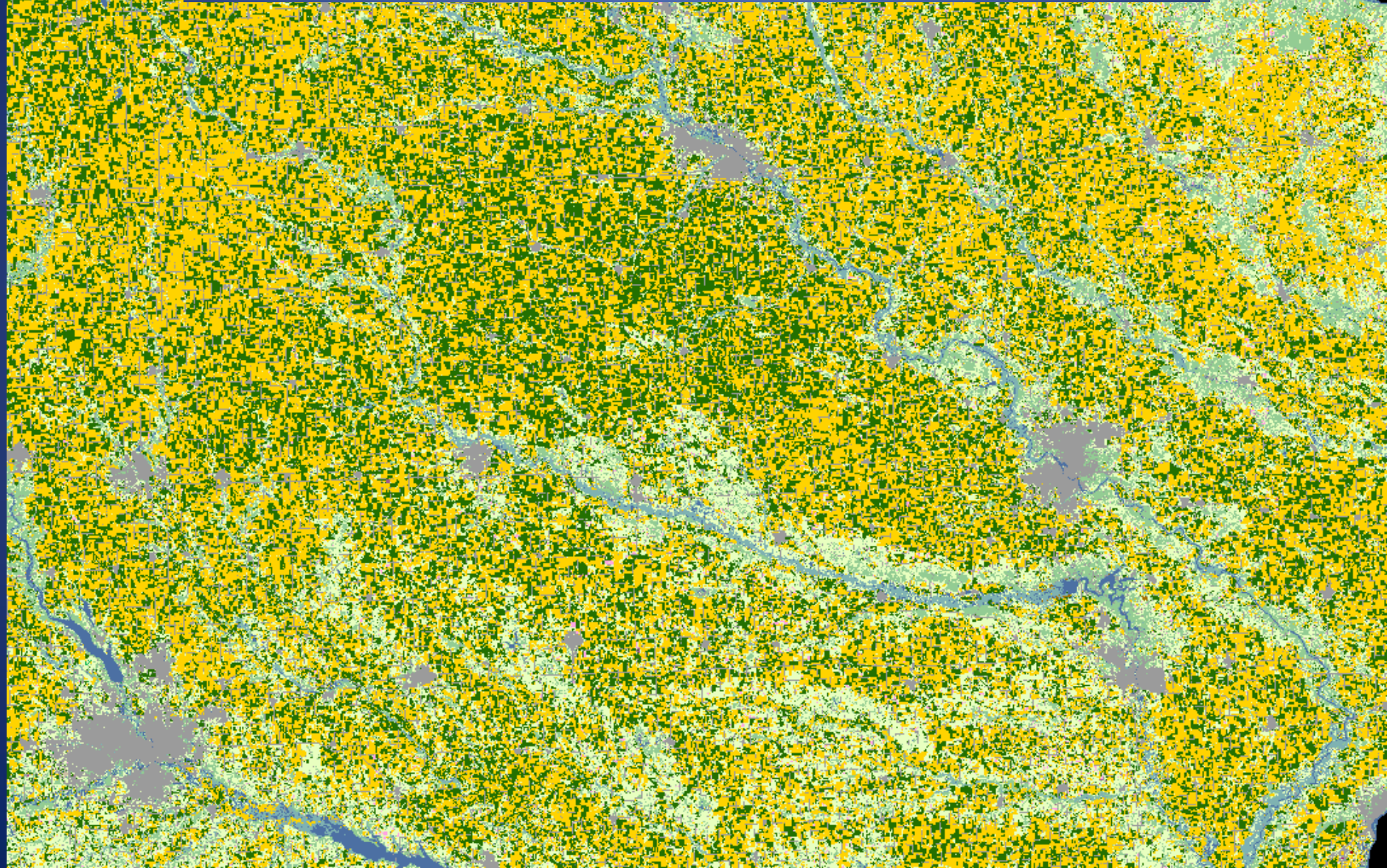
Define problem



Define problem



Define problem



Define problem



Define problem



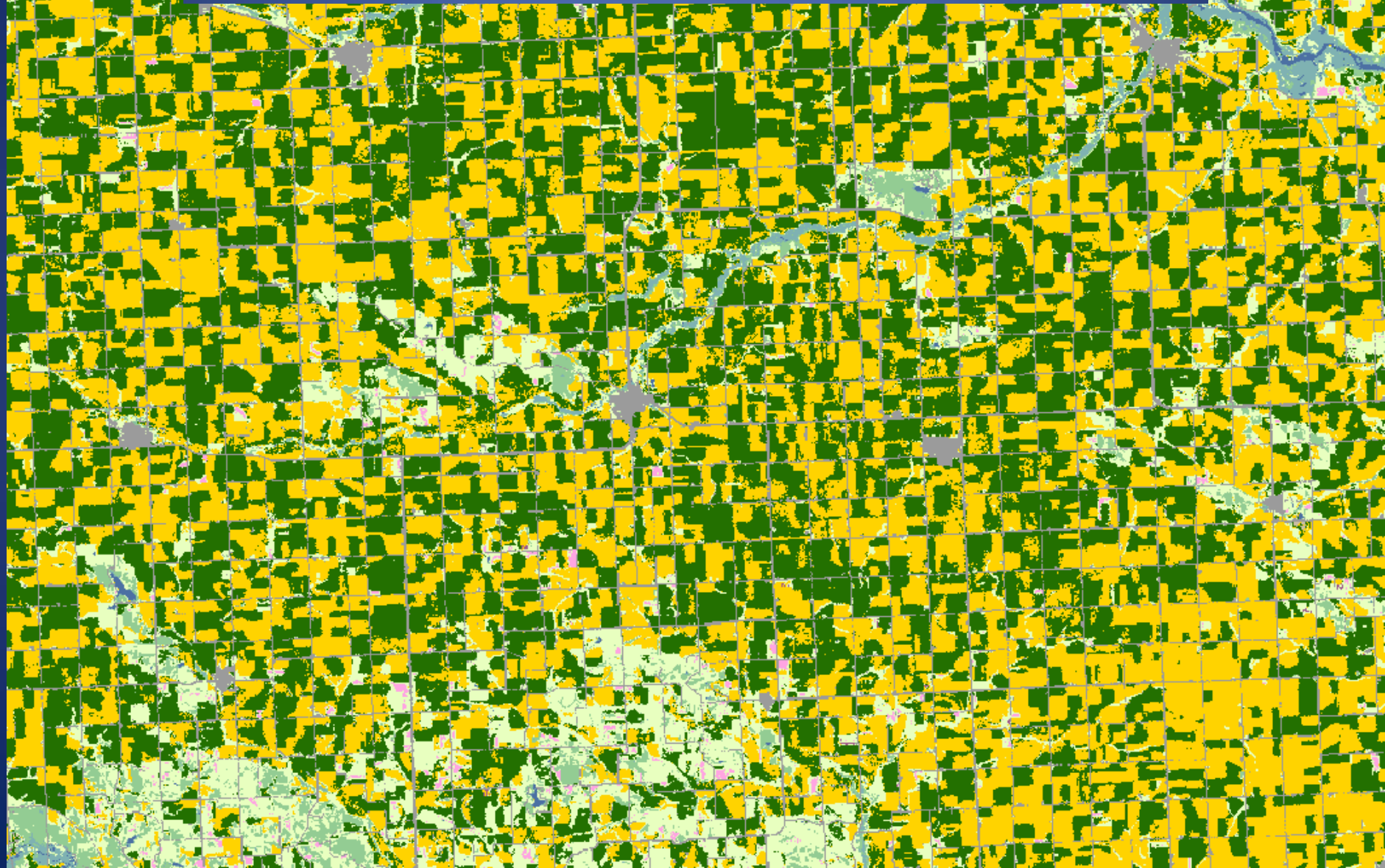
Define problem



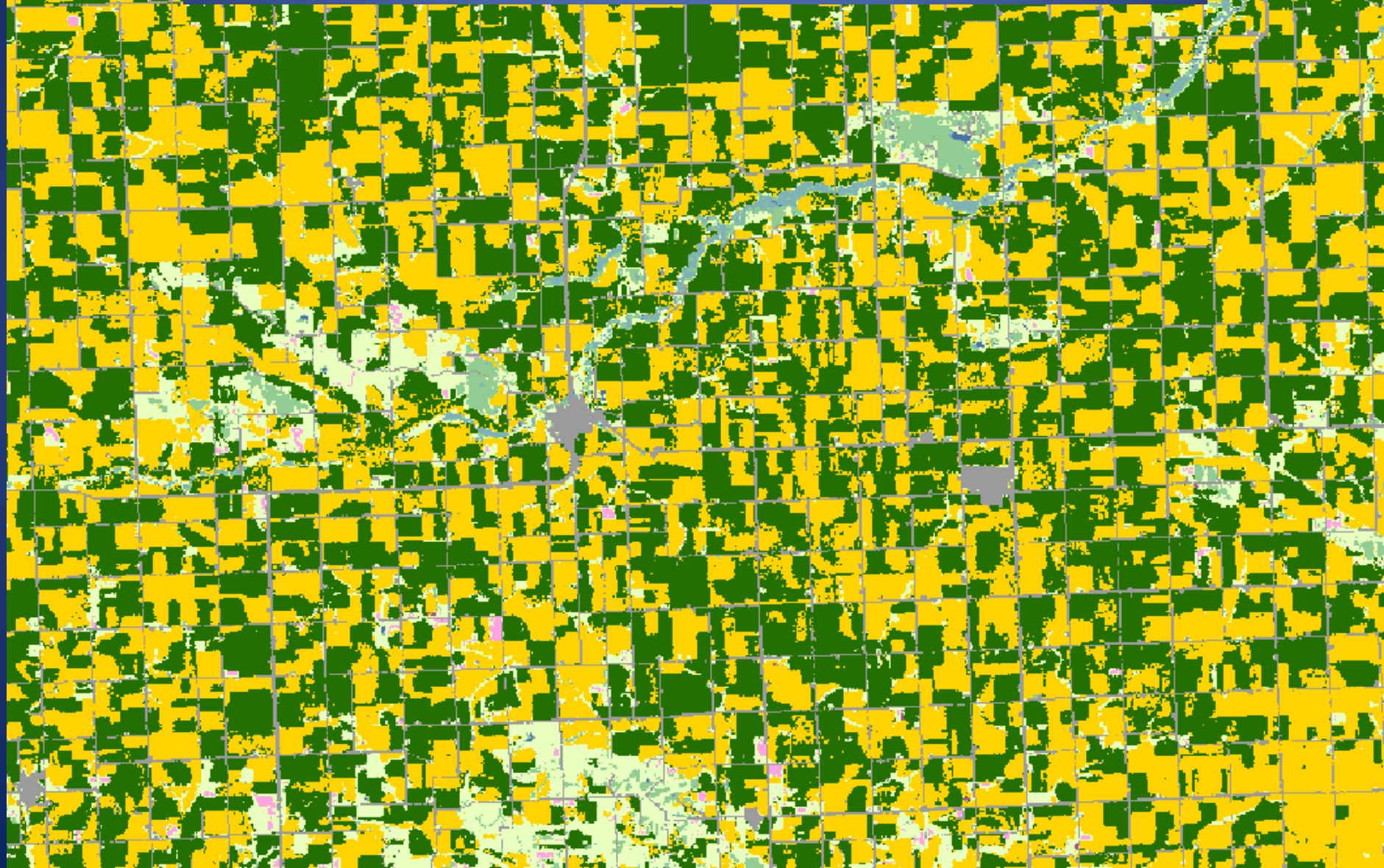
Define problem



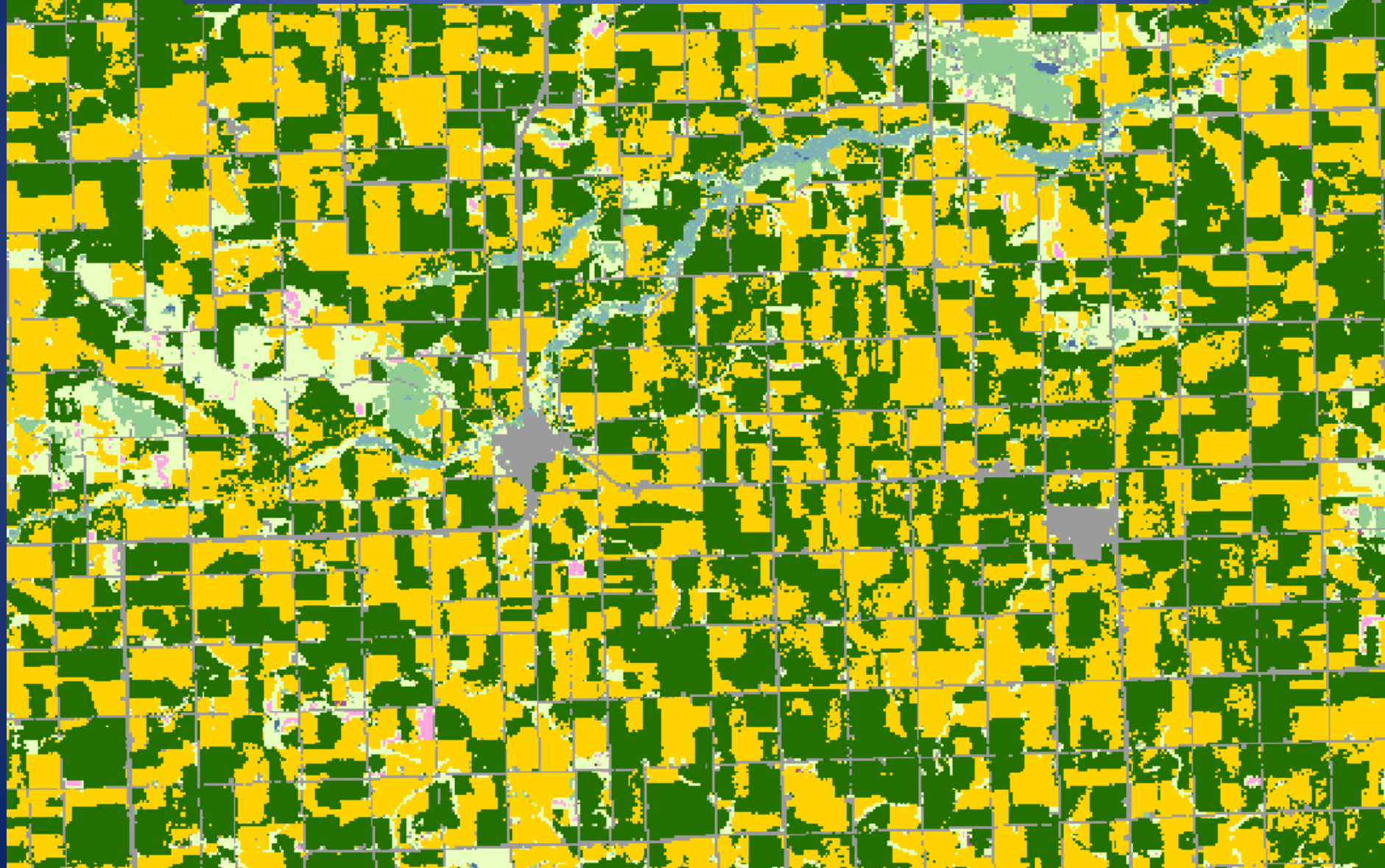
Define problem



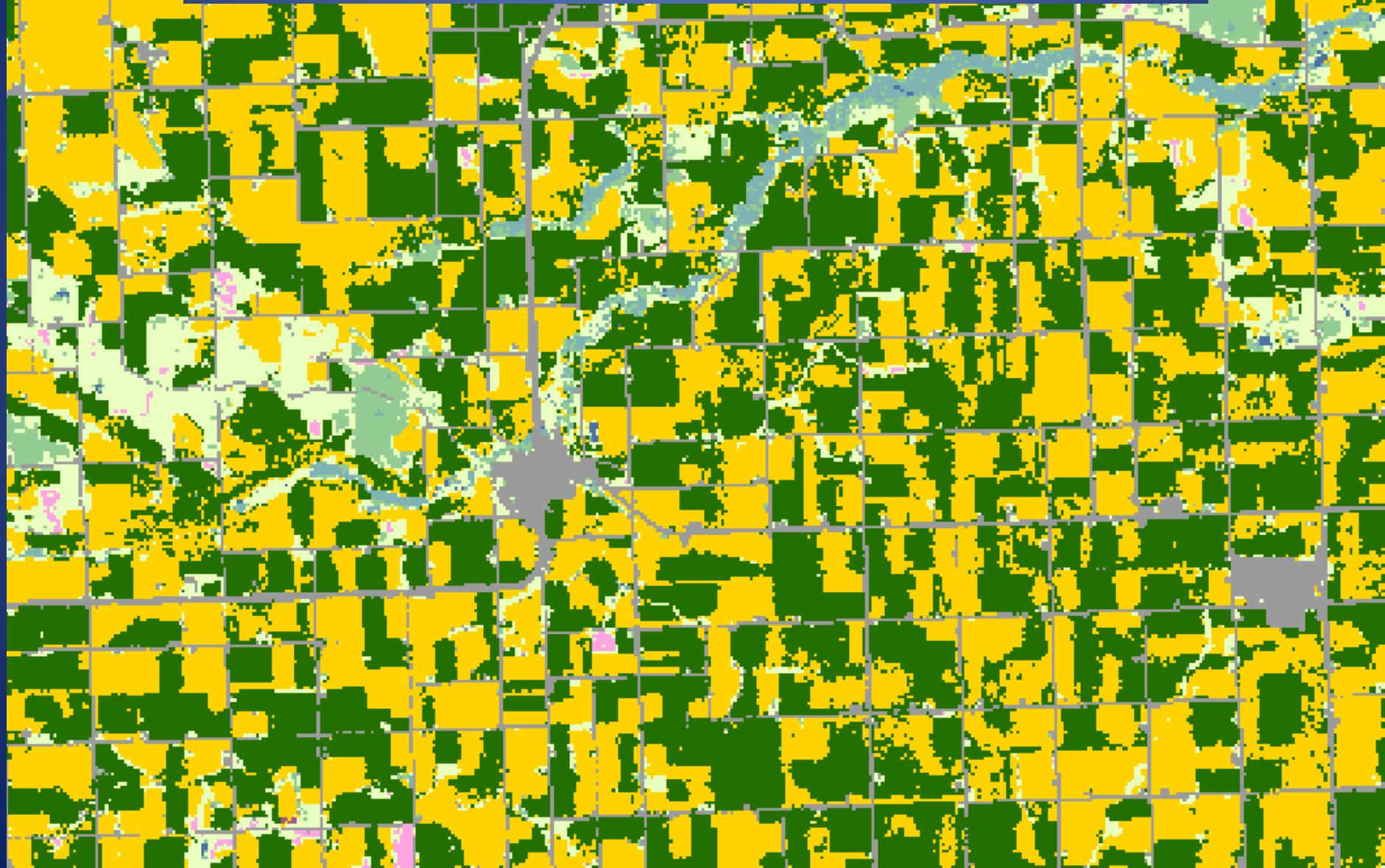
Define problem



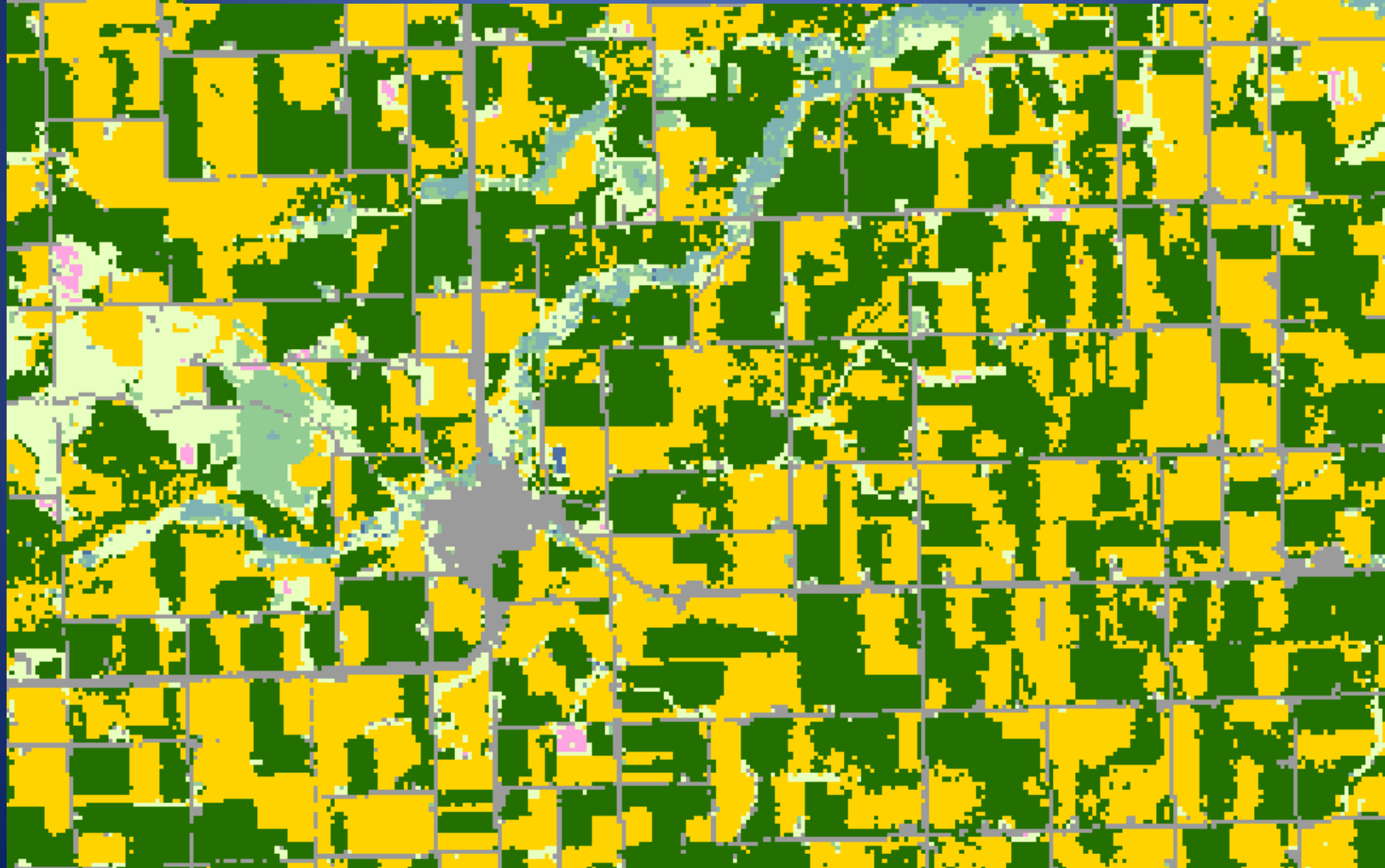
Define problem



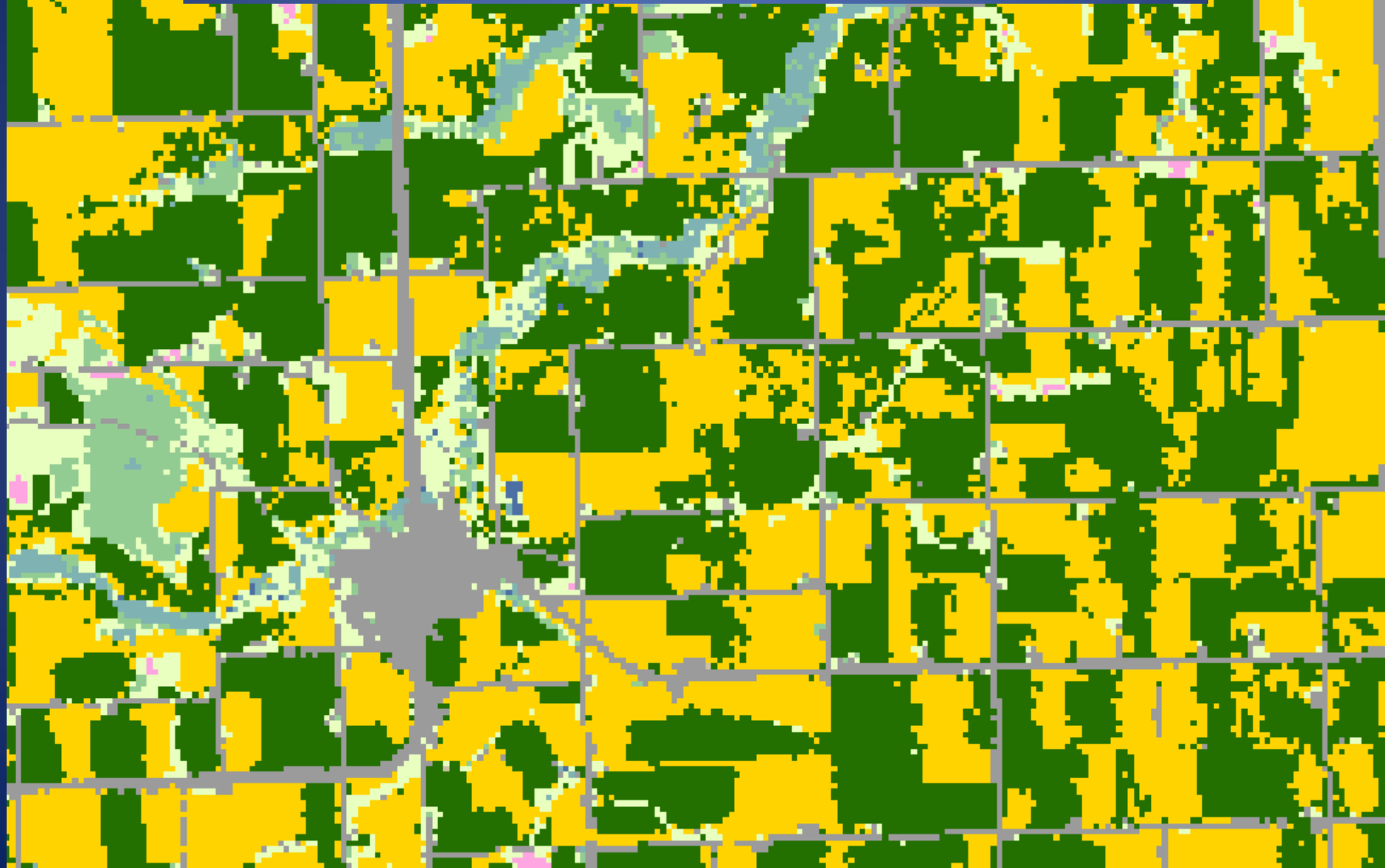
Define problem



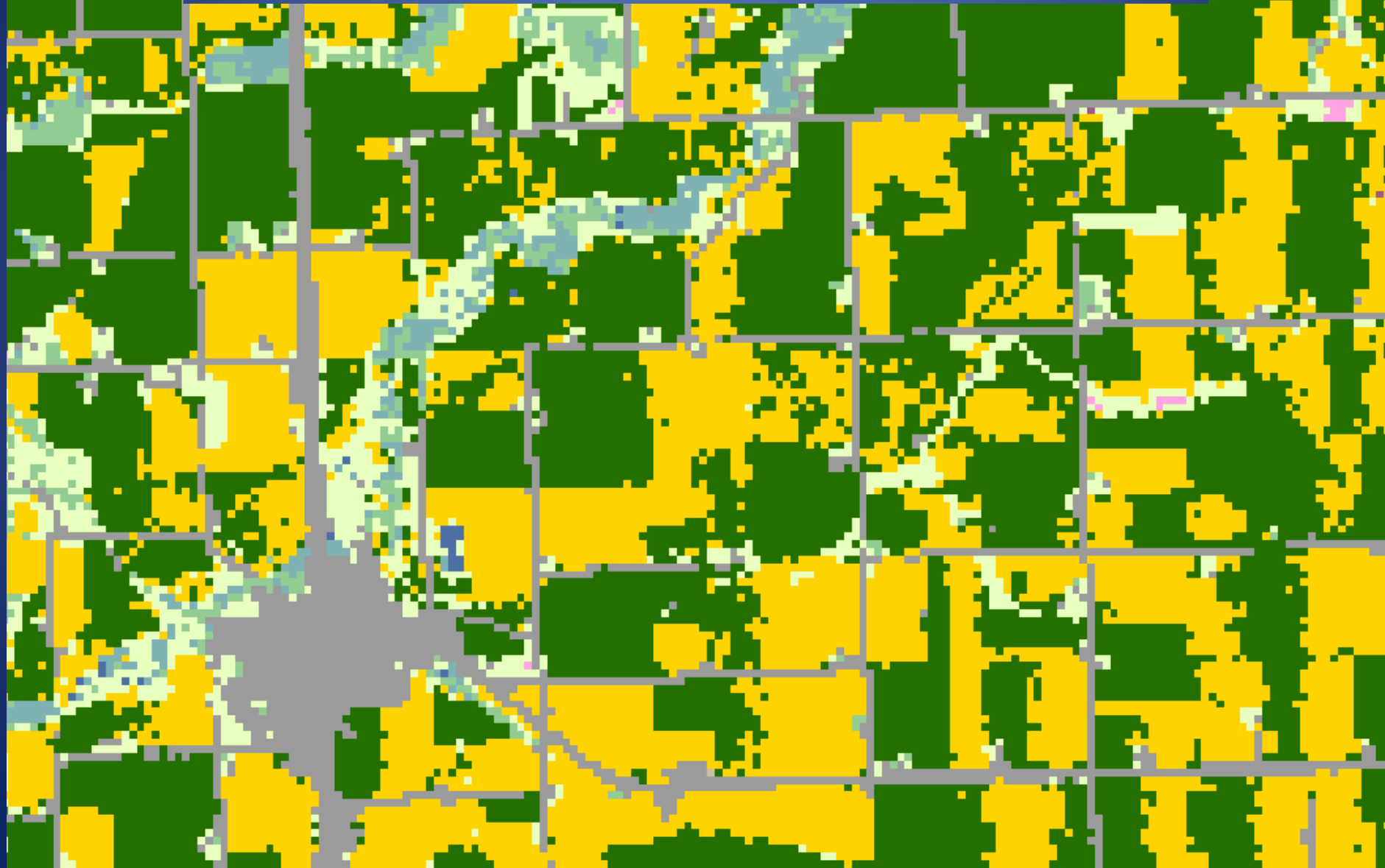
Define problem



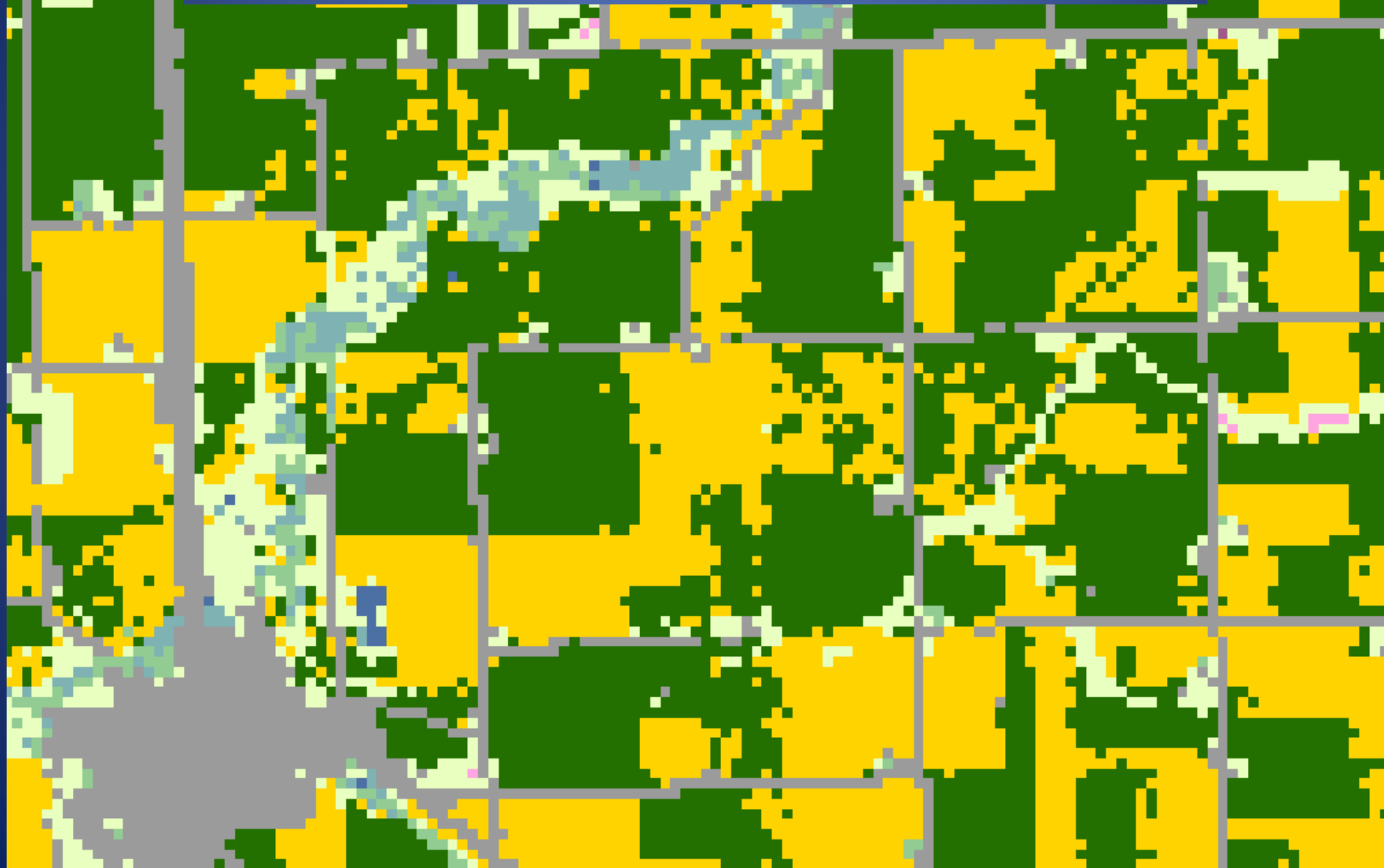
Define problem



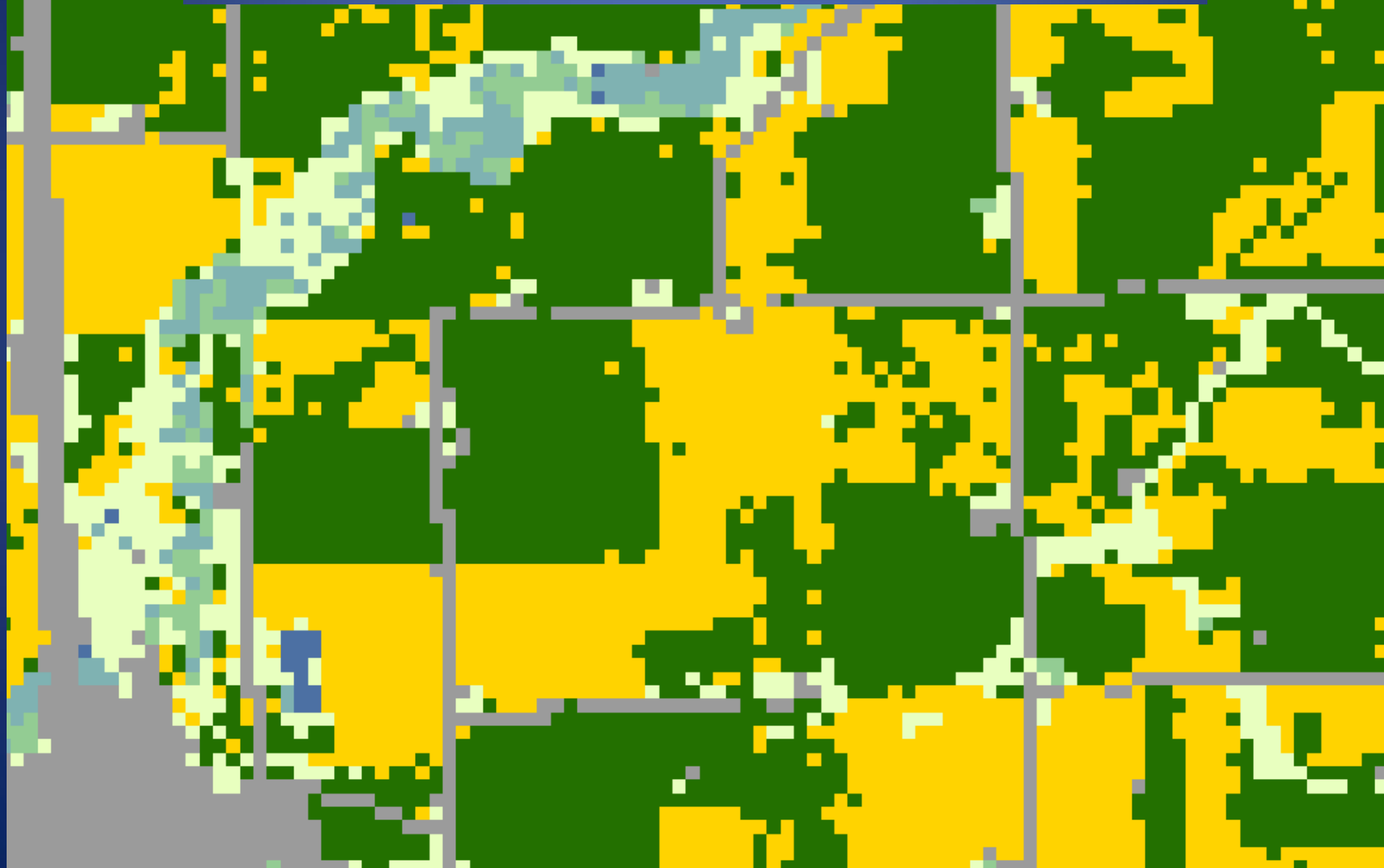
Define problem



Define problem



Define problem

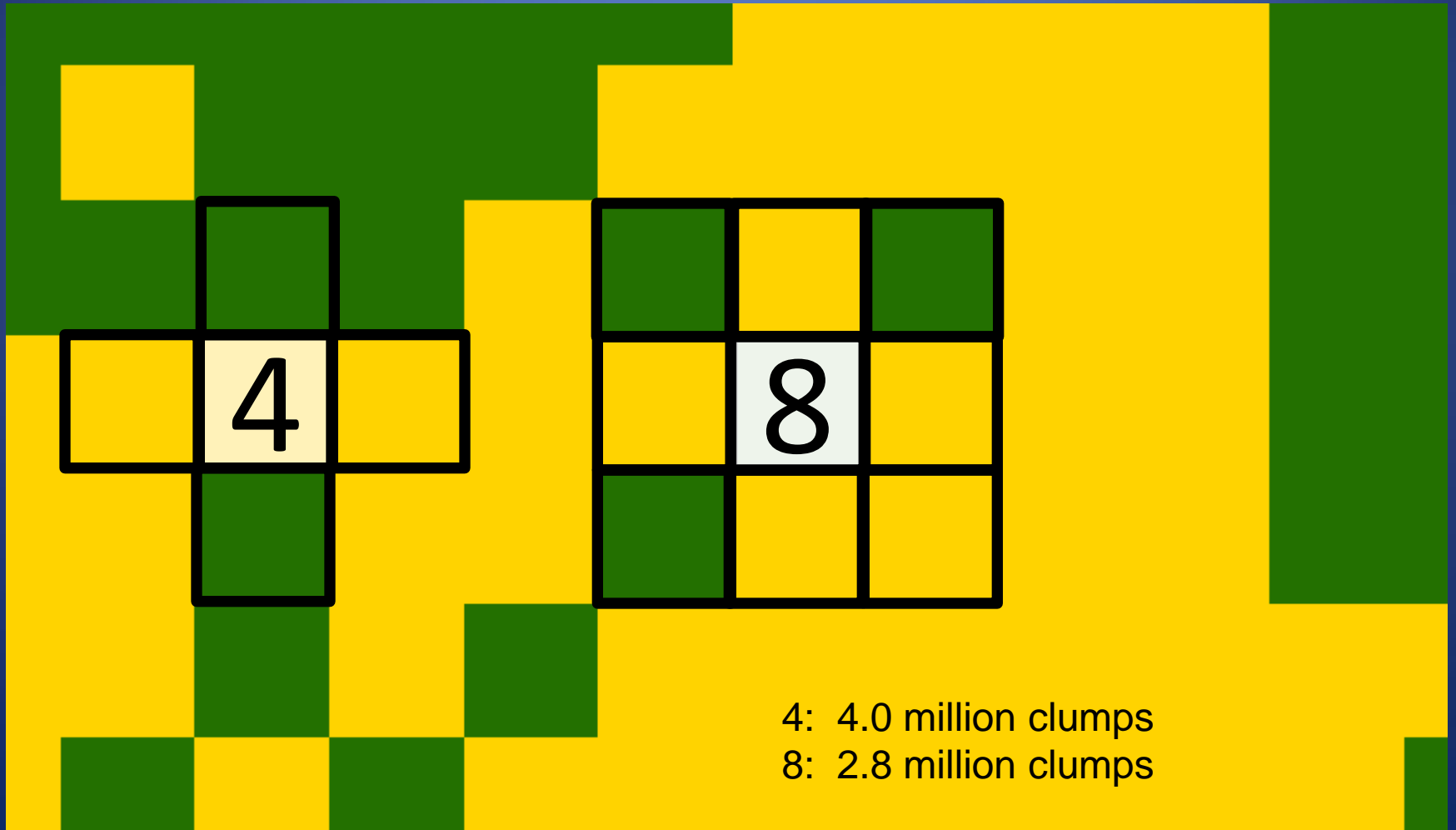


Generate Data

- Distribution of pixels
- Quality of pixel groups
- Effect of 3x3 majority filter

Generate Data

Distribution of pixels:Clump



Generate Data

Distribution of pixels:Clump

Raster Attribute Editor - ia08oct_clump4.img(:Layer_1)

File Edit Help



Layer Number:

1

Row	Original Value	X Pixel	Y Pixel	X Map	Y Map	Histogram
0	0	0	0	-52070	2.28827e+006	13131886
1	190	7798	0	384618	2.28827e+006	21
2	111	7799	0	384674	2.28827e+006	9172
3	190	7781	1	383666	2.28821e+006	553
4	190	7790	1	384170	2.28821e+006	2
5	111	7791	1	384226	2.28821e+006	1
6	190	7792	1	384282	2.28821e+006	2
7	190	7794	1	384394	2.28821e+006	5
8	111	7796	1	384506	2.28821e+006	2
9	111	7740	2	381370	2.28816e+006	74
10	195	7741	2	381426	2.28816e+006	44
11	111	7745	2	381650	2.28816e+006	2
12	1	7747	2	381762	2.28816e+006	1
13	190	7740	2	381818	2.28816e+006	2

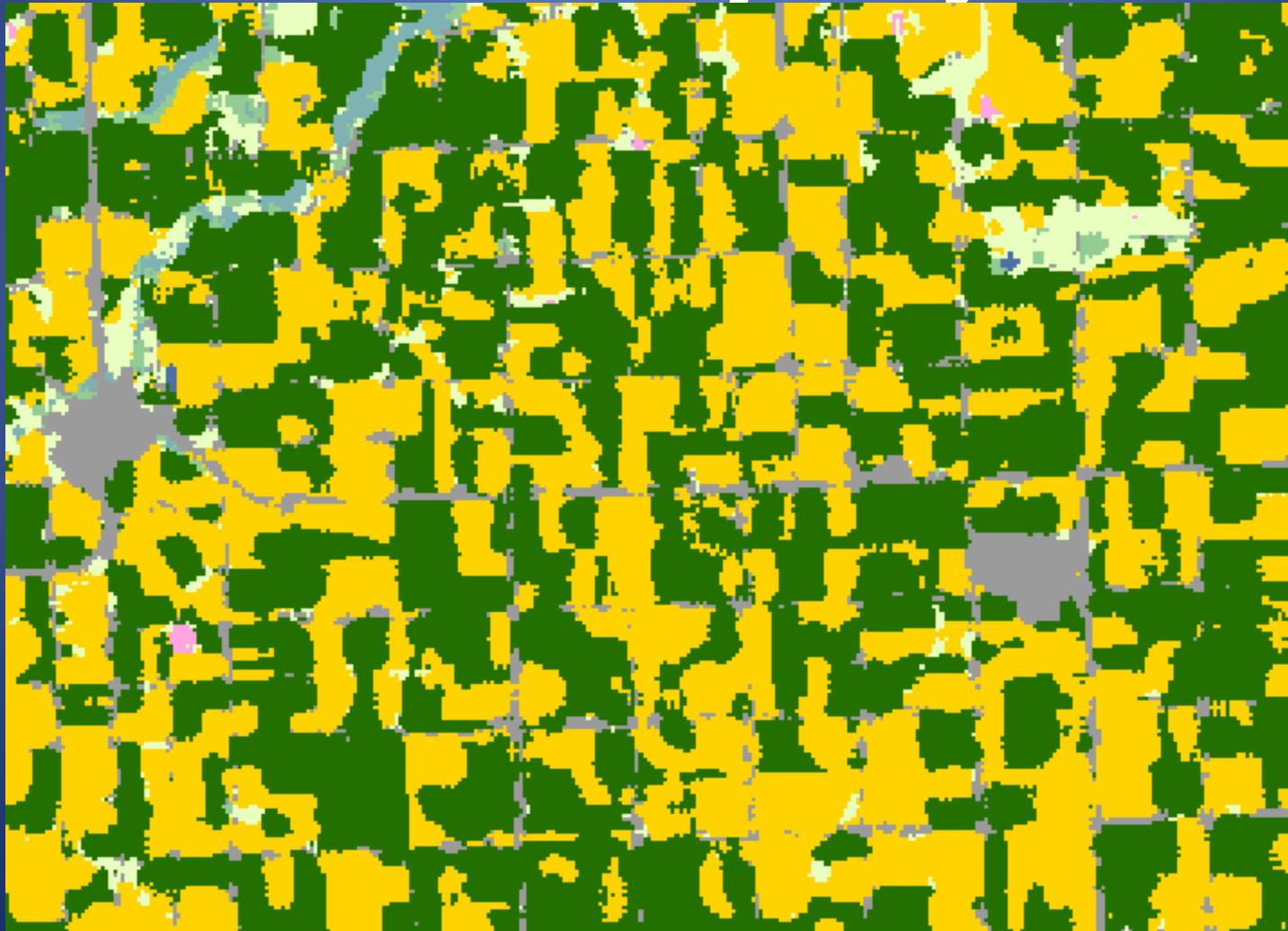
Generate Data

Quality of pixel groups



Generate Data

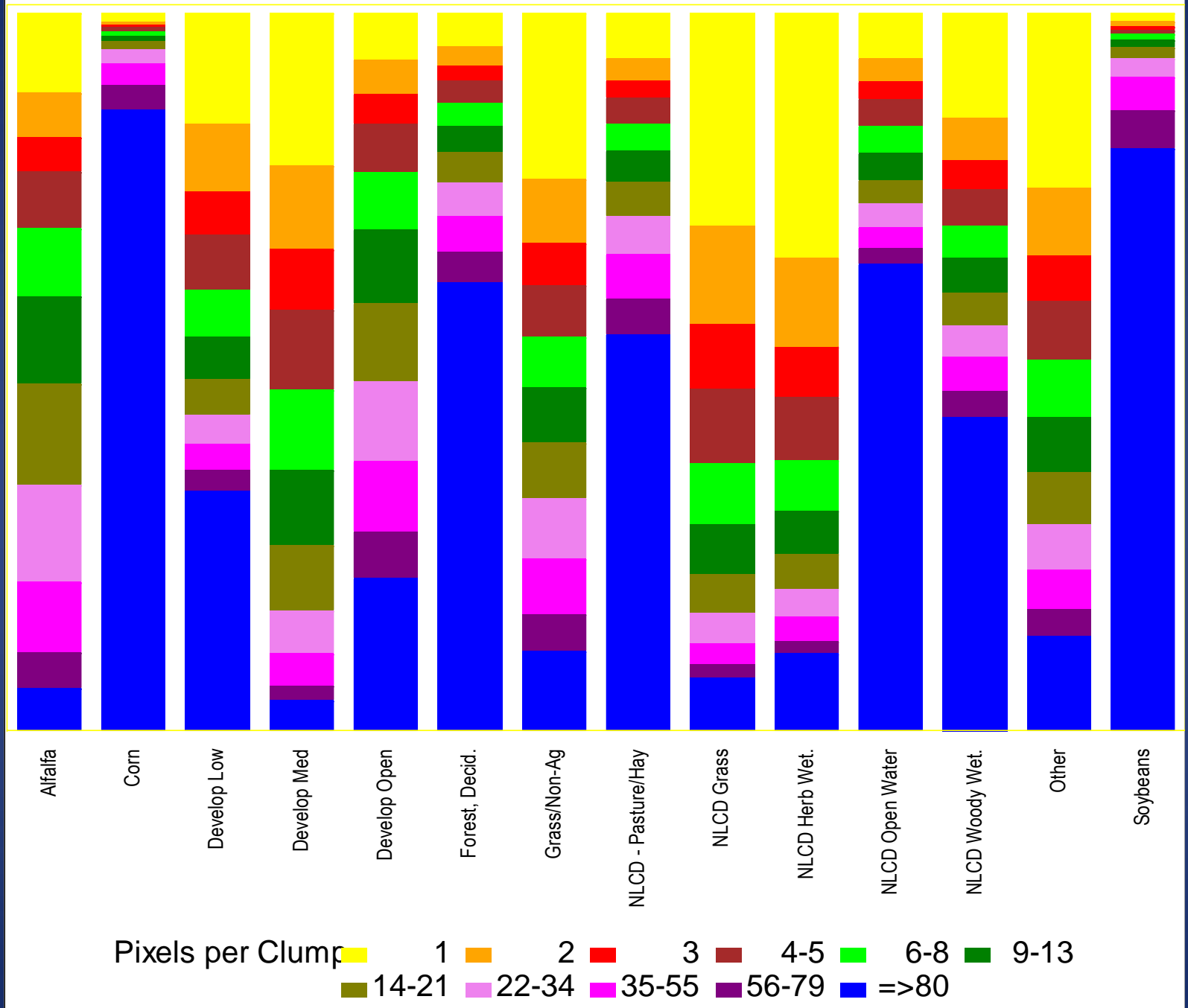
Effect of 3x3 majority filter



Exploratory charts

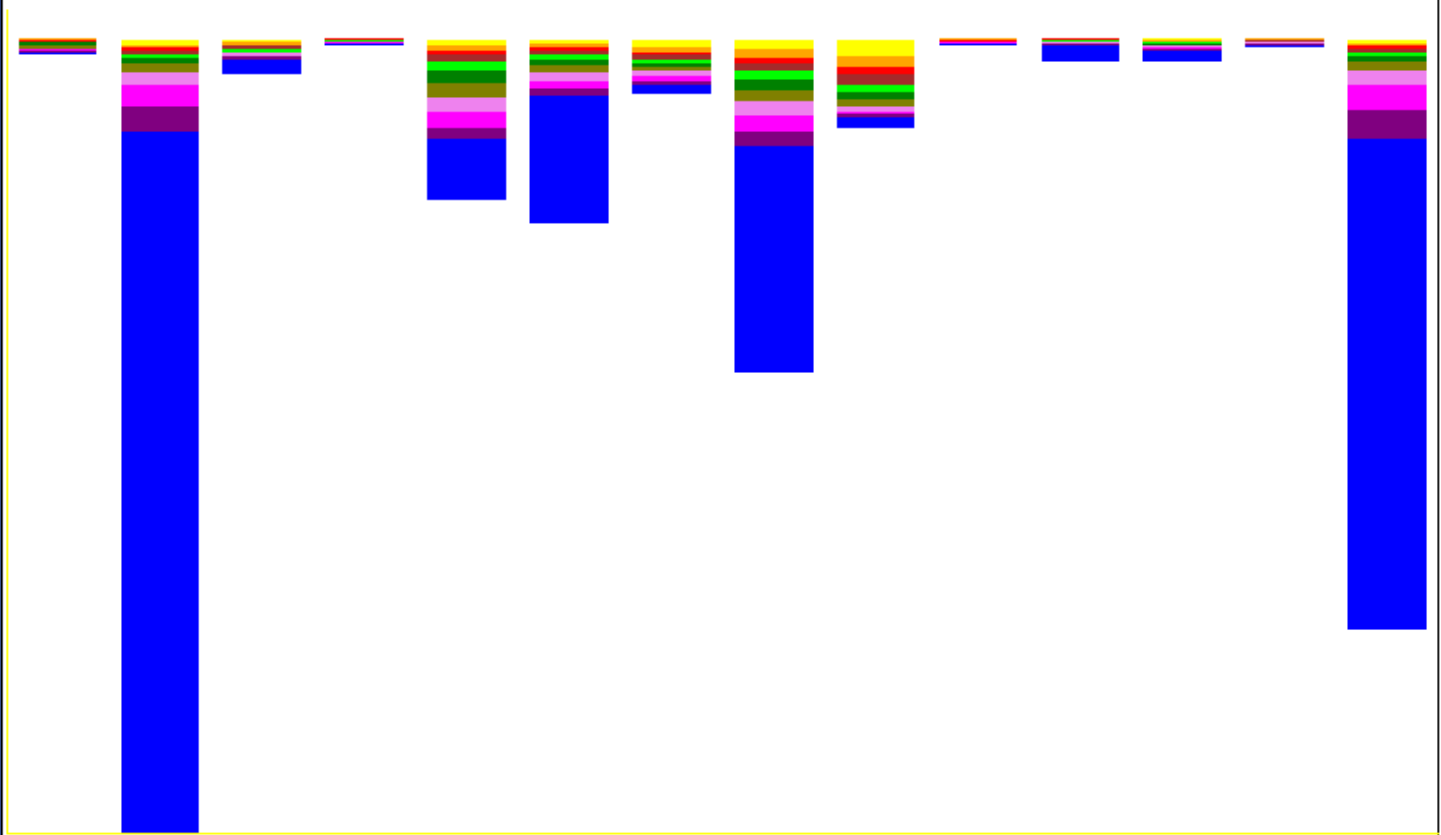
Distribution of clumps

Iowa 08 Percentage distribution, > 100,000 pixels, Clump 4



Illinois 08 Relative Distribution of Pixels

Classes with > 100,000 pixels, Clump Size 8



Alfalfa

Corn

Develop Low

Develop Med

Develop Open

Forest, Decid.

Grass/Non-Ag

NLCD - Pasture/Hay

NLCD Grass

NLCD Herb Wet.

NLCD Open Water

NLCD Woody Wet.

Other

Soybeans

Pixels per Clump



1



2



3



4-5



6-8



9-13



14-21



22-34



35-55

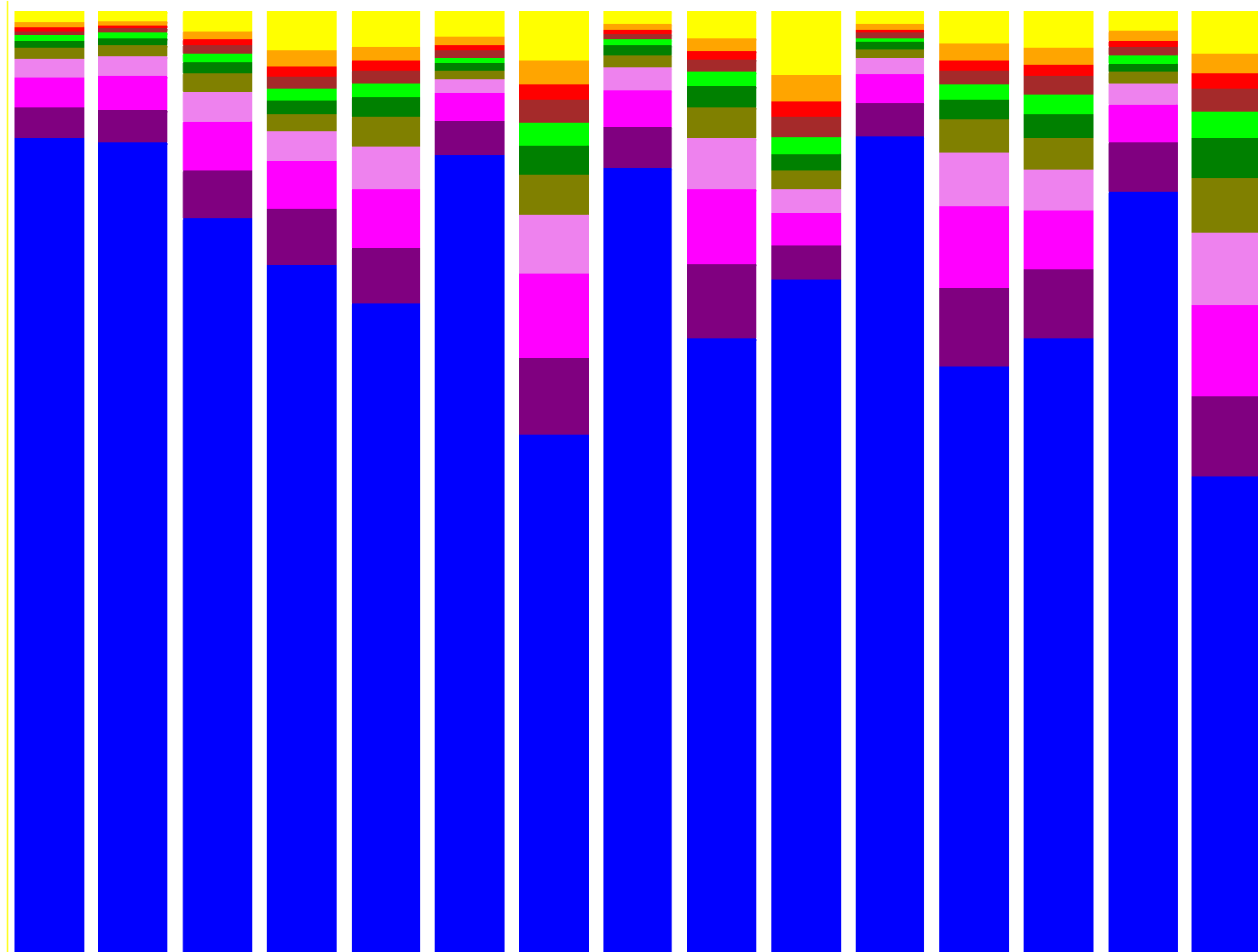


56-79



=>80

Crop Across States 08 Percentage distribution, > 100,000 pixels, Clump 4
 MasterCat=Corn 001



IA IL IN KS KY LA MI MN MO MS NE OH OK SD WI

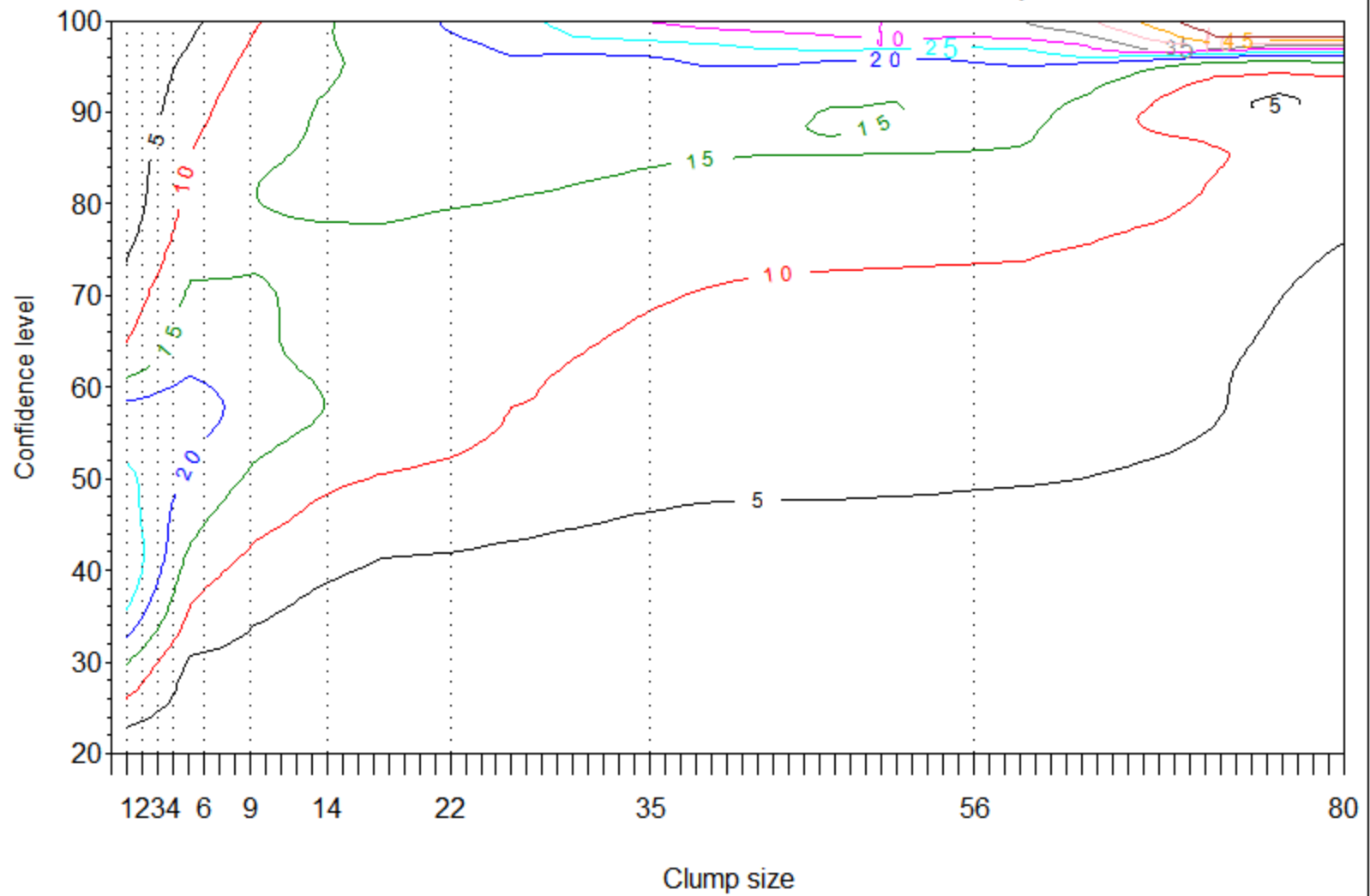
Pixels per Clump 1 2 3 4-5 6-8 9-13
 14-21 22-34 35-55 56-79 =>80

Exploratory charts

Quality of clump groups



Corn IL Distribution of Confidences, 2008, Clump 8

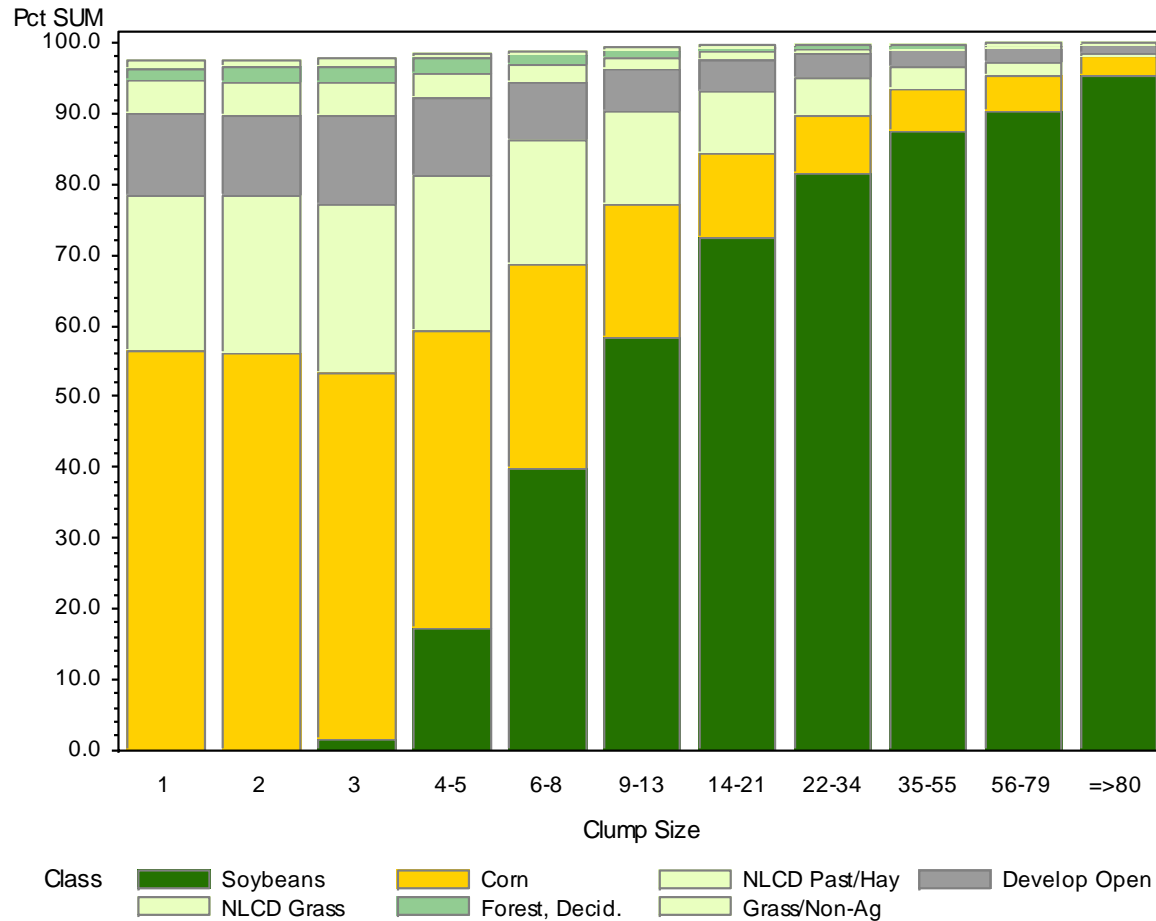


Pixel percent — 5 — 10 — 15 — 20 — 25 — 30 — 35 — 40 — 45 — 50

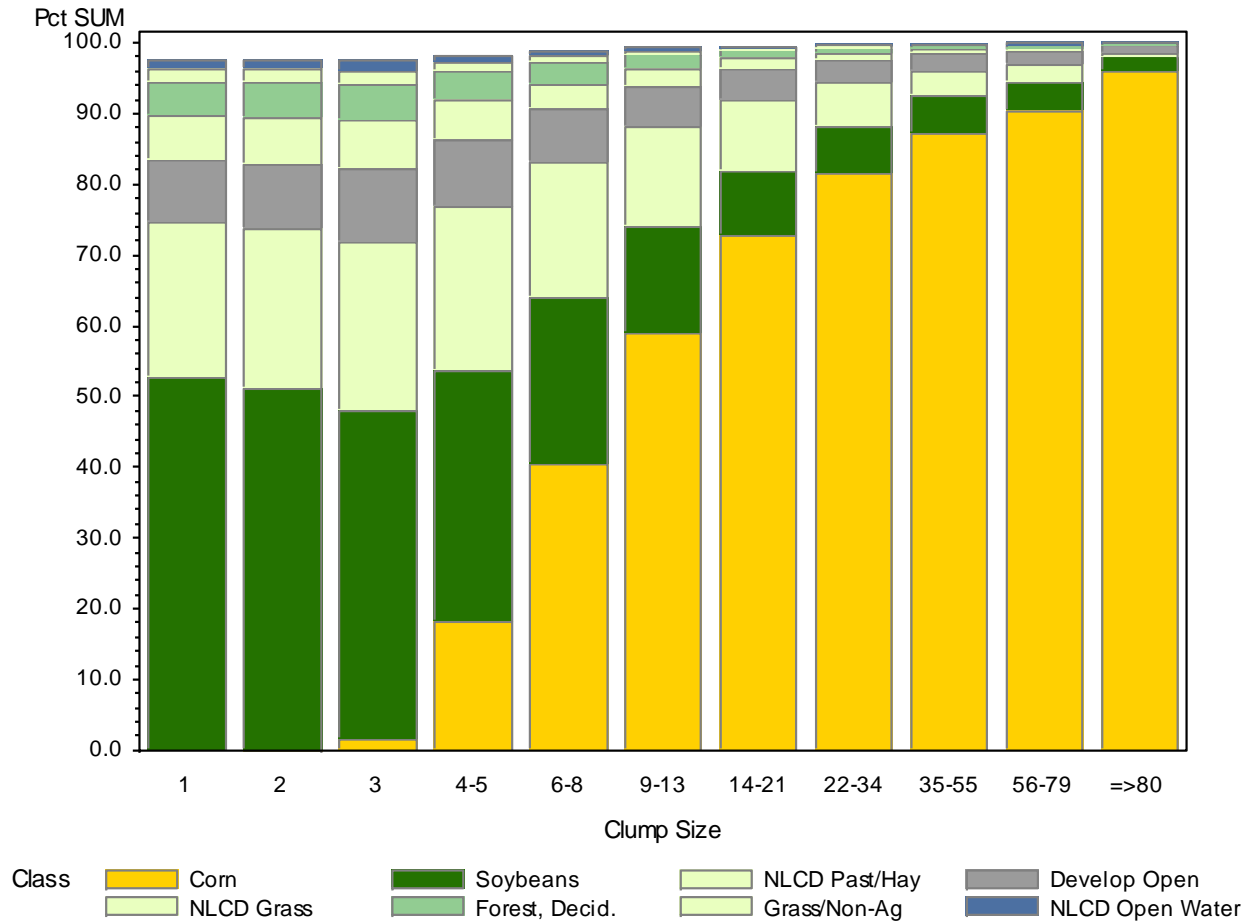
Exploratory charts

Effect of 3x3 majority filter

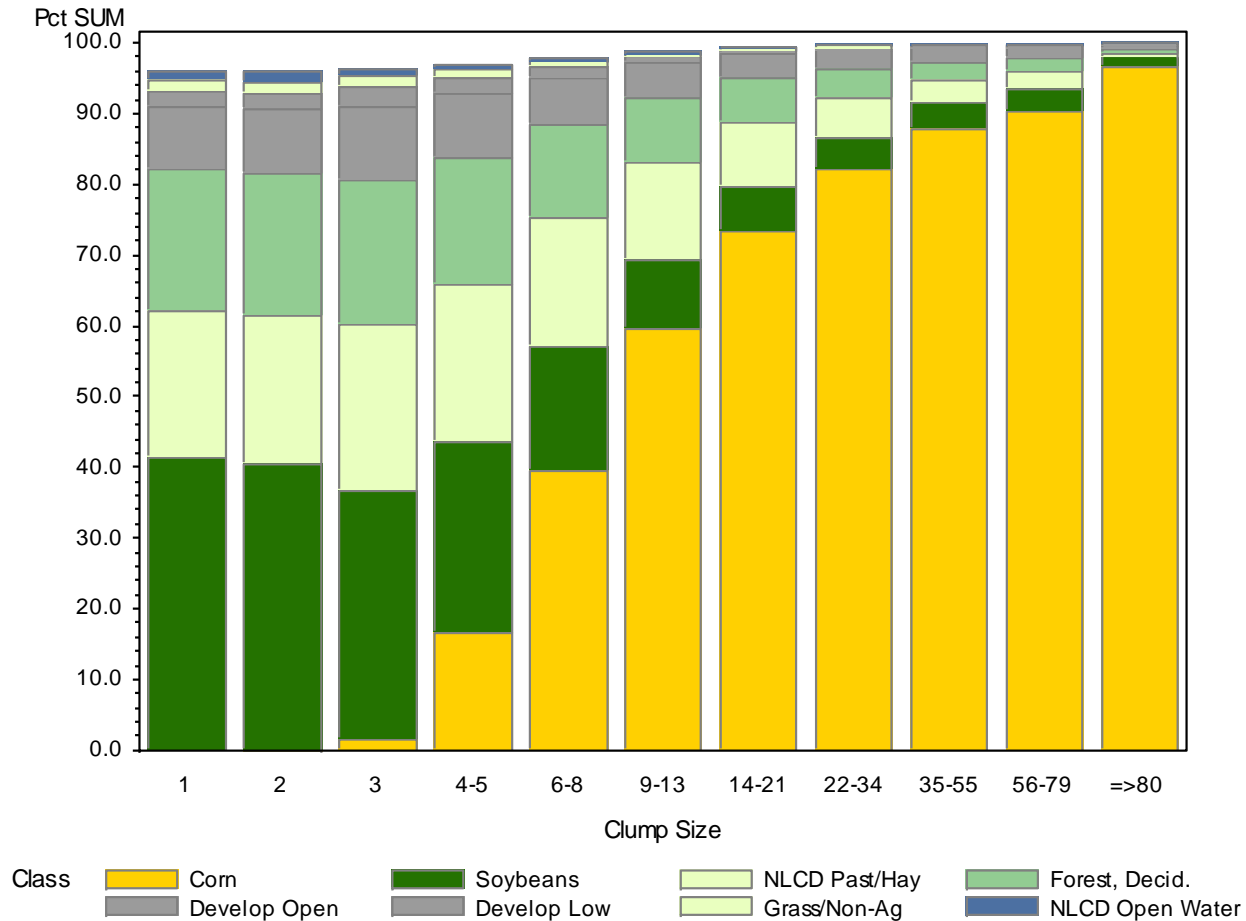
Assignment by 3x3 Majority and Clump Size, Clump 8 Iowa Soybeans



Assignment by 3x3 Majority and Clump Size, Clump 8 Iowa Corn

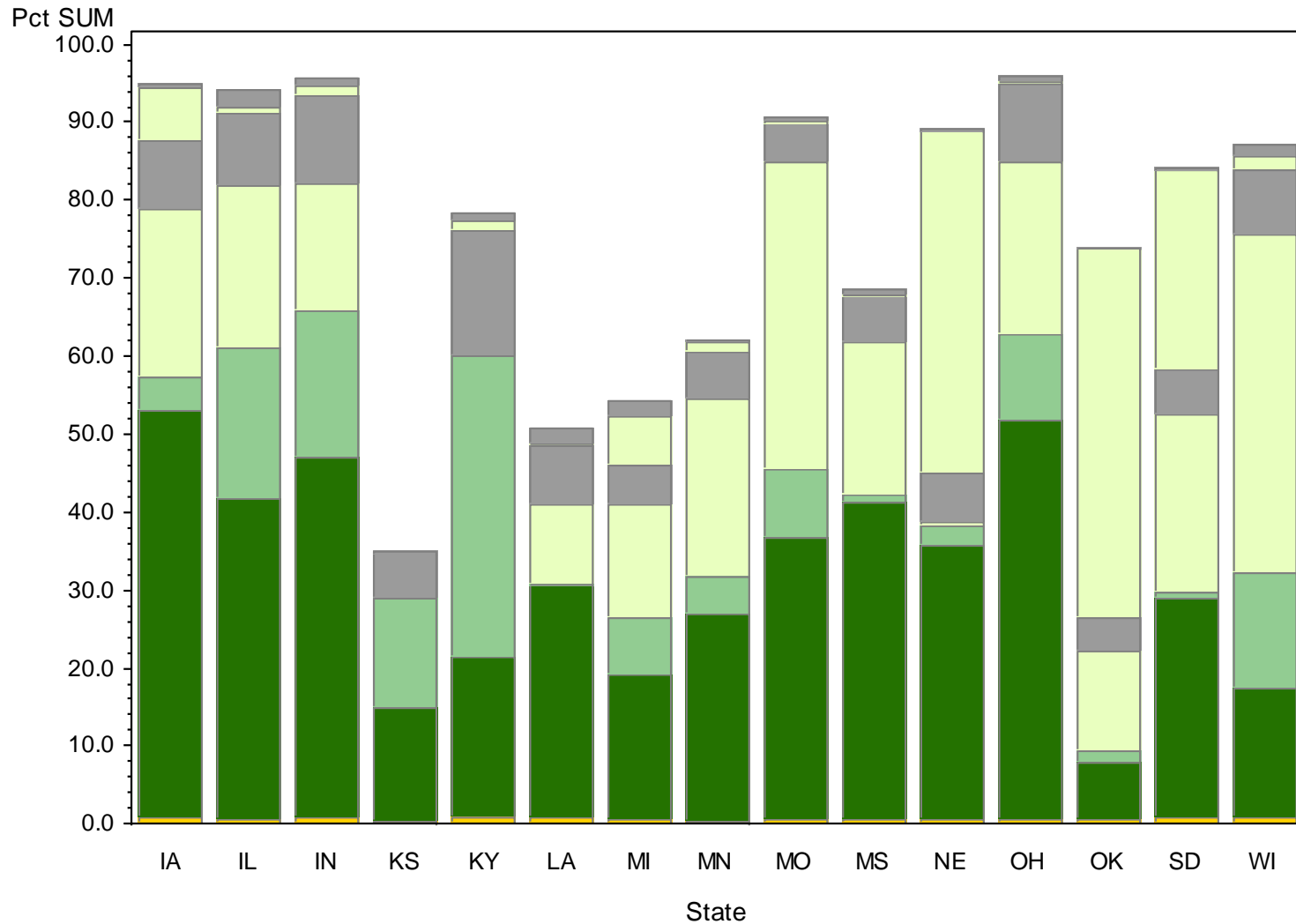


Assignment by 3x3 Majority and Clump Size, Clump 8 Illinois Corn










Assignment by 3x3 Majority and States, Clump 4

Corn across states, Clump size: 1

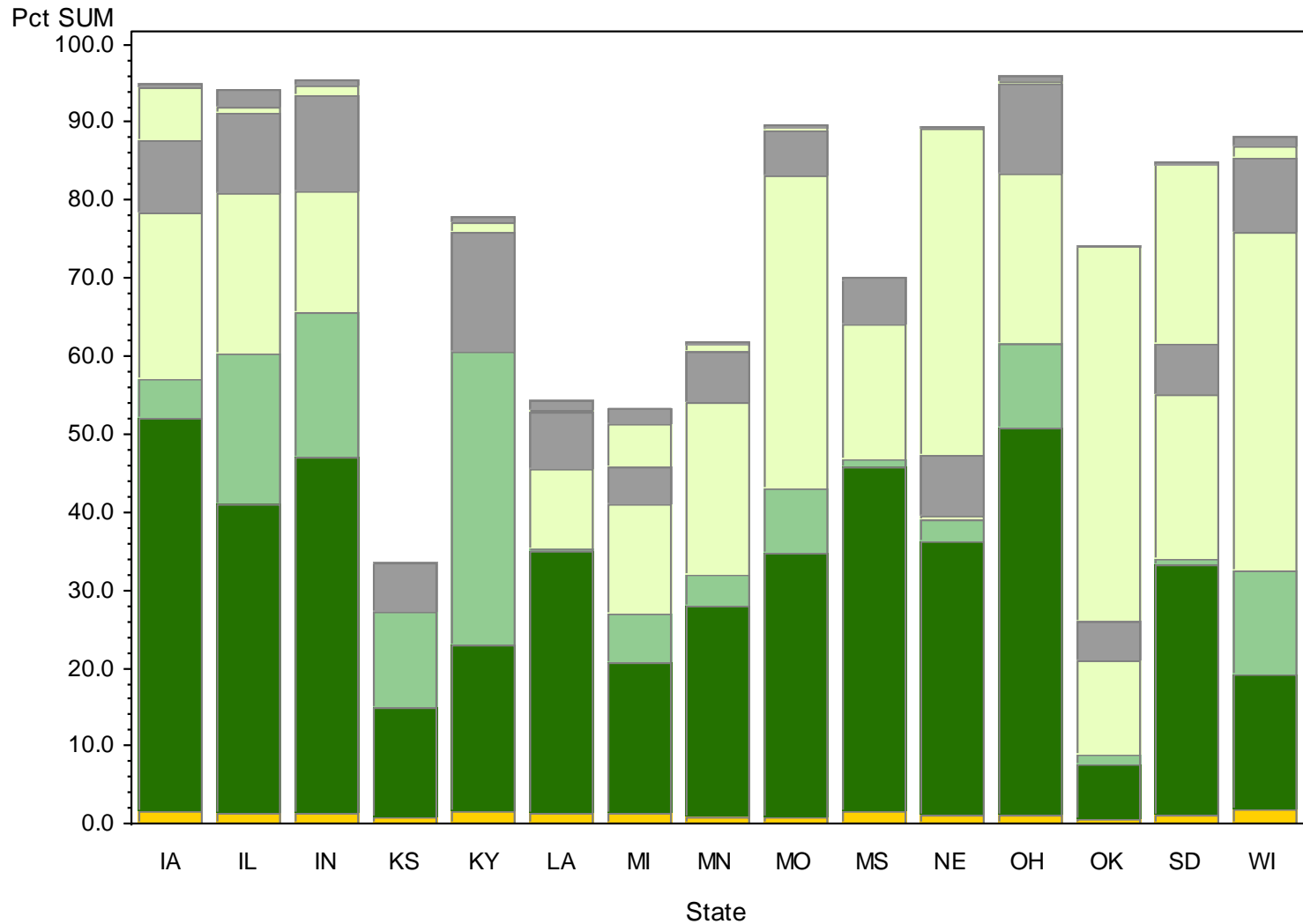


Class








 Corn	 Soybeans	 Forest, Decid.	 NLCD Past/Hay
 Develop Open	 NLCD Grass	 Develop Low	

Assignment by 3x3 Majority and States, Clump 4

Corn across states, Clump size: 2

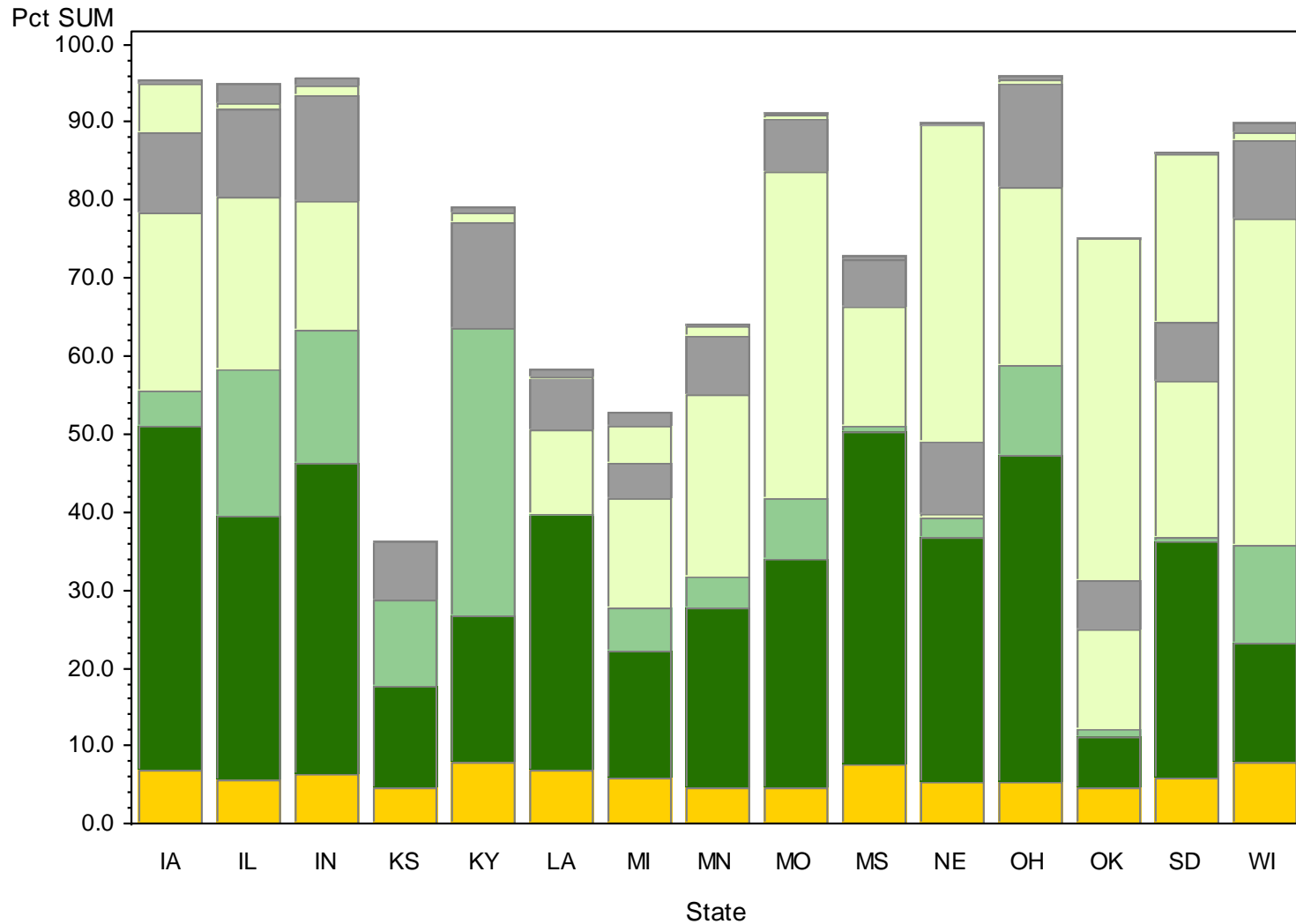


Class








 Corn	 Soybeans	 Forest, Decid.	 NLCD Past/Hay
 Develop Open	 NLCD Grass	 Develop Low	

Assignment by 3x3 Majority and States, Clump 4

Corn across states, Clump size: 3



Class

 Corn	 Soybeans	 Forest, Decid.	 NLCD Past/Hay
 Develop Open	 NLCD Grass	 Develop Low	

Review

- Distribution of clumps
- Quality of clump groups
- Effect of 3x3 majority filter

Rules

- Review ground truth
- Confidence level of 60% maximum
- Clump sizes 1, 2, 3, 4-5?:
 - Minimum mapping unit

