



Land Cover Classification from Aerial Imagery

A Capstone Project for
the Galvanize Data Science Immersive
by Steven Weld

Aerial and Satellite Imagery

Classification Challenges

Viewing Techniques

Analysis and Classification

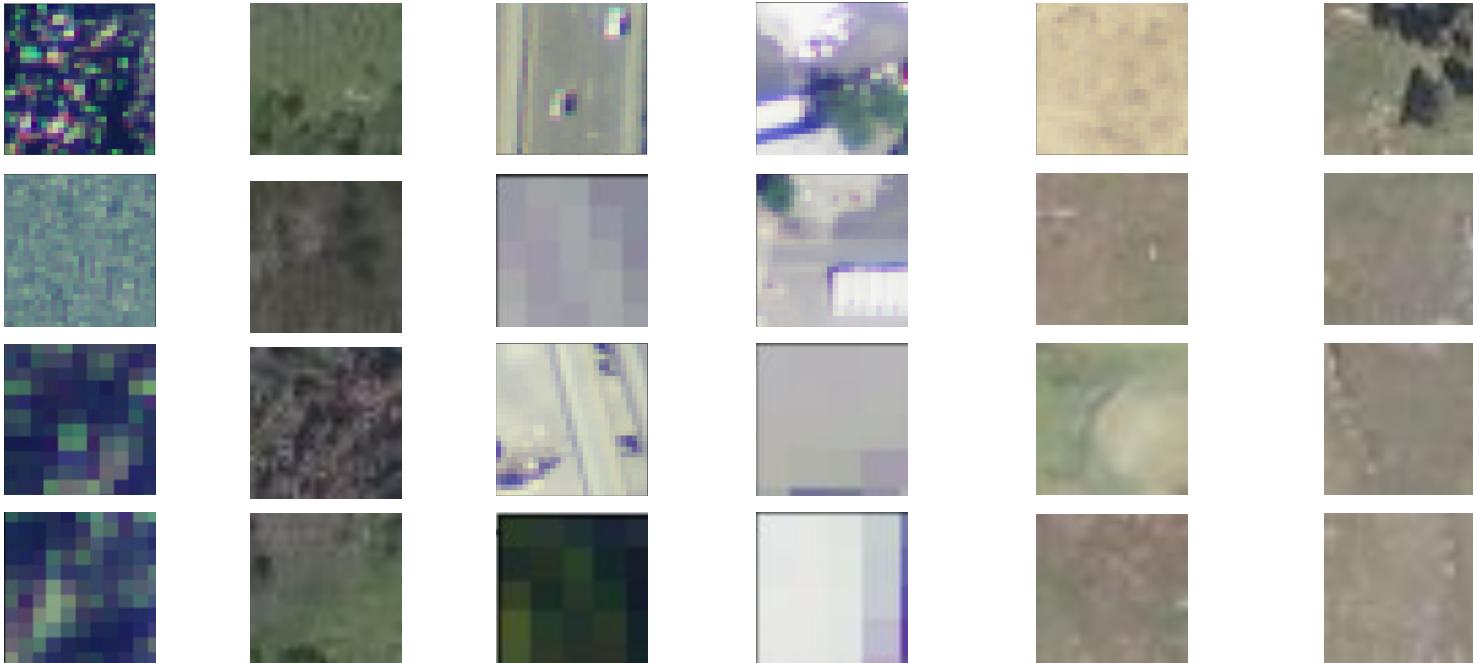
Aerial and Satellite Imagery -- NLCD SAT-6 dataset

Classification Challenges

Viewing Techniques

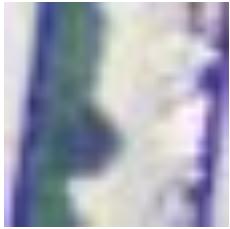
Analysis and Classification

Sample Images from SAT-6 dataset

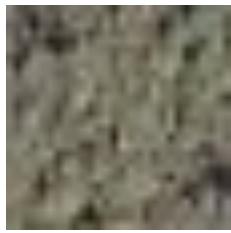


Building Water Trees

“True”
Color



Trees



“True”
Color

=



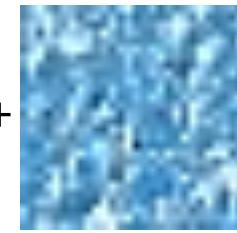
Red

+



Green

+



Blue

Water



=



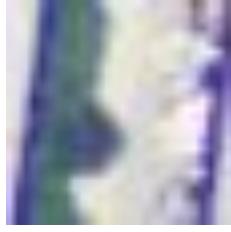
+



+



Building



=



+



+



Trees

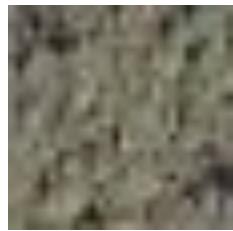
“True”
Color

Red

Green

Blue

Near
Infrared



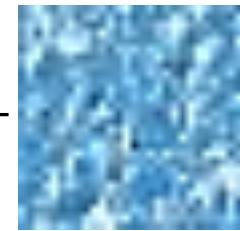
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&



Water



=



+



+



&



Building



=



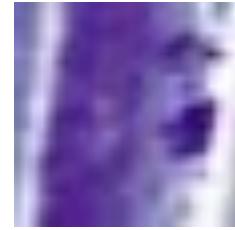
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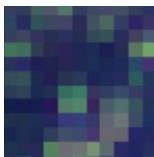
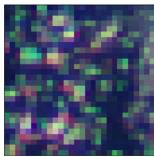


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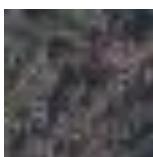


Sample Images from SAT-6 dataset

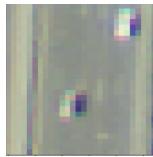
Water



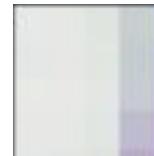
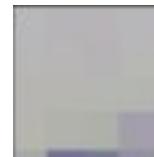
Trees



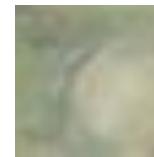
Road



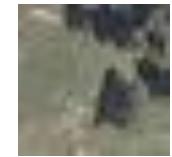
Buildings



Barren



Grassland



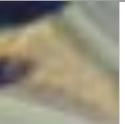
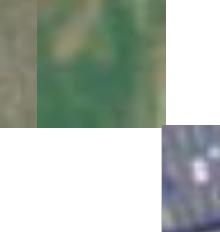
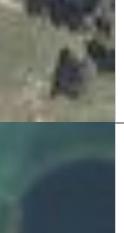
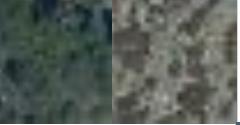
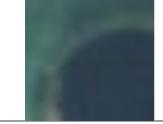
Aerial and Satellite Imagery

Classification Challenges -- complexity

Viewing Techniques

Analysis and Classification

Actual

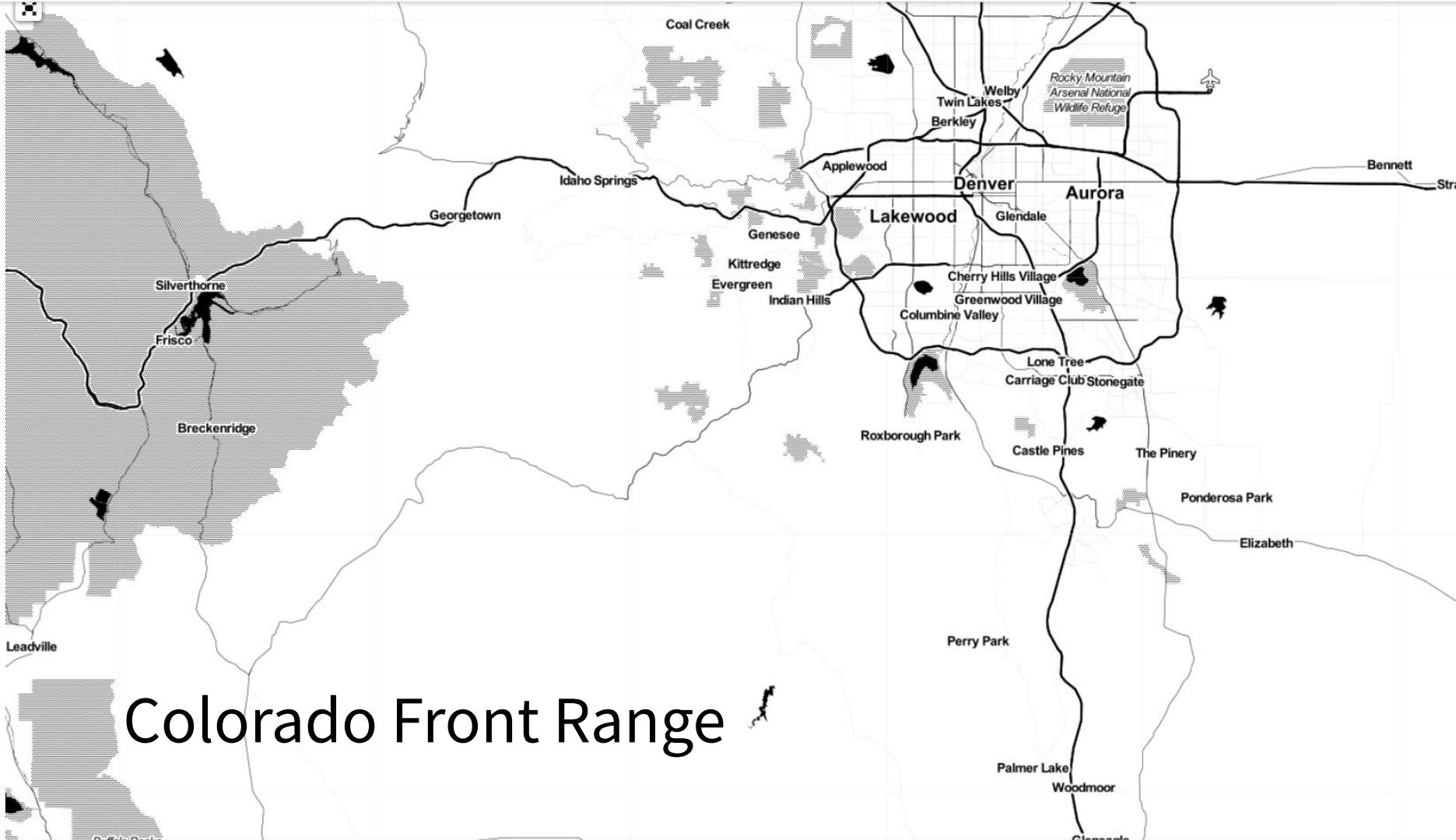
Predicted	81,000 test images	barren land	building	grassland	road	trees	water
barren land							
building							
grassland	468					120	
road	9		15				
trees				6			
water				3			

Aerial and Satellite Imagery

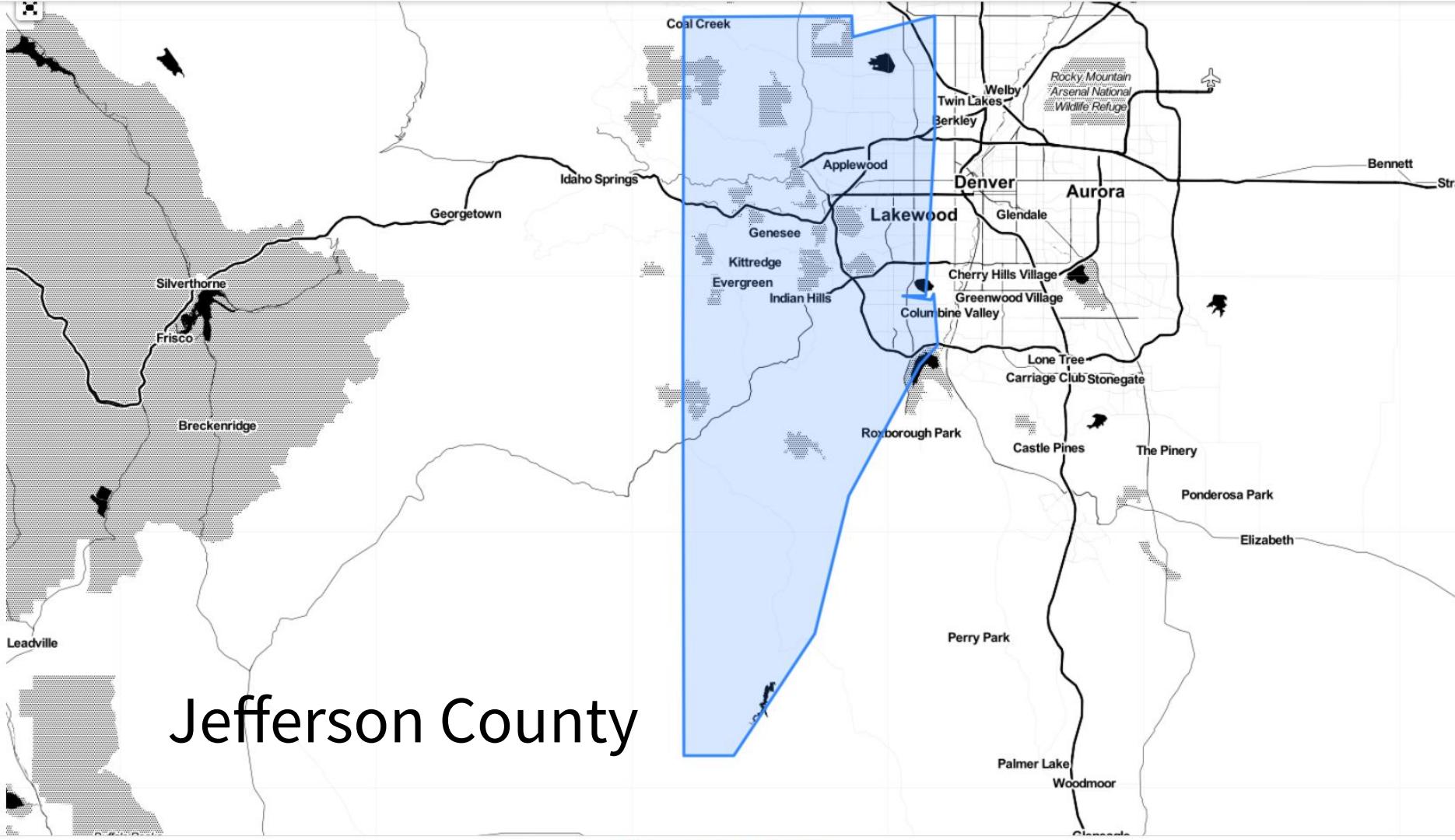
Classification Challenges

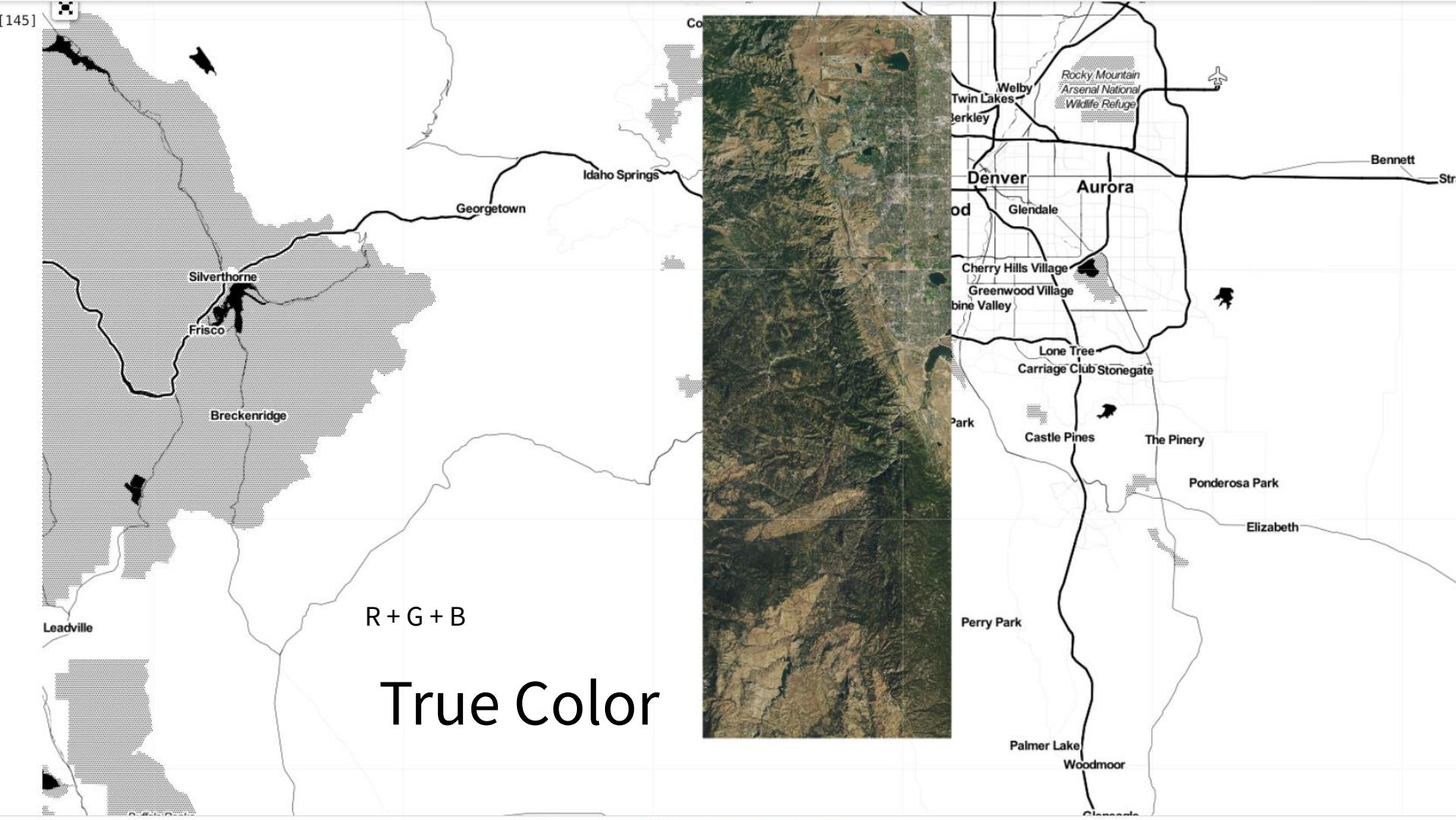
Viewing Techniques -- Jefferson County, Colorado

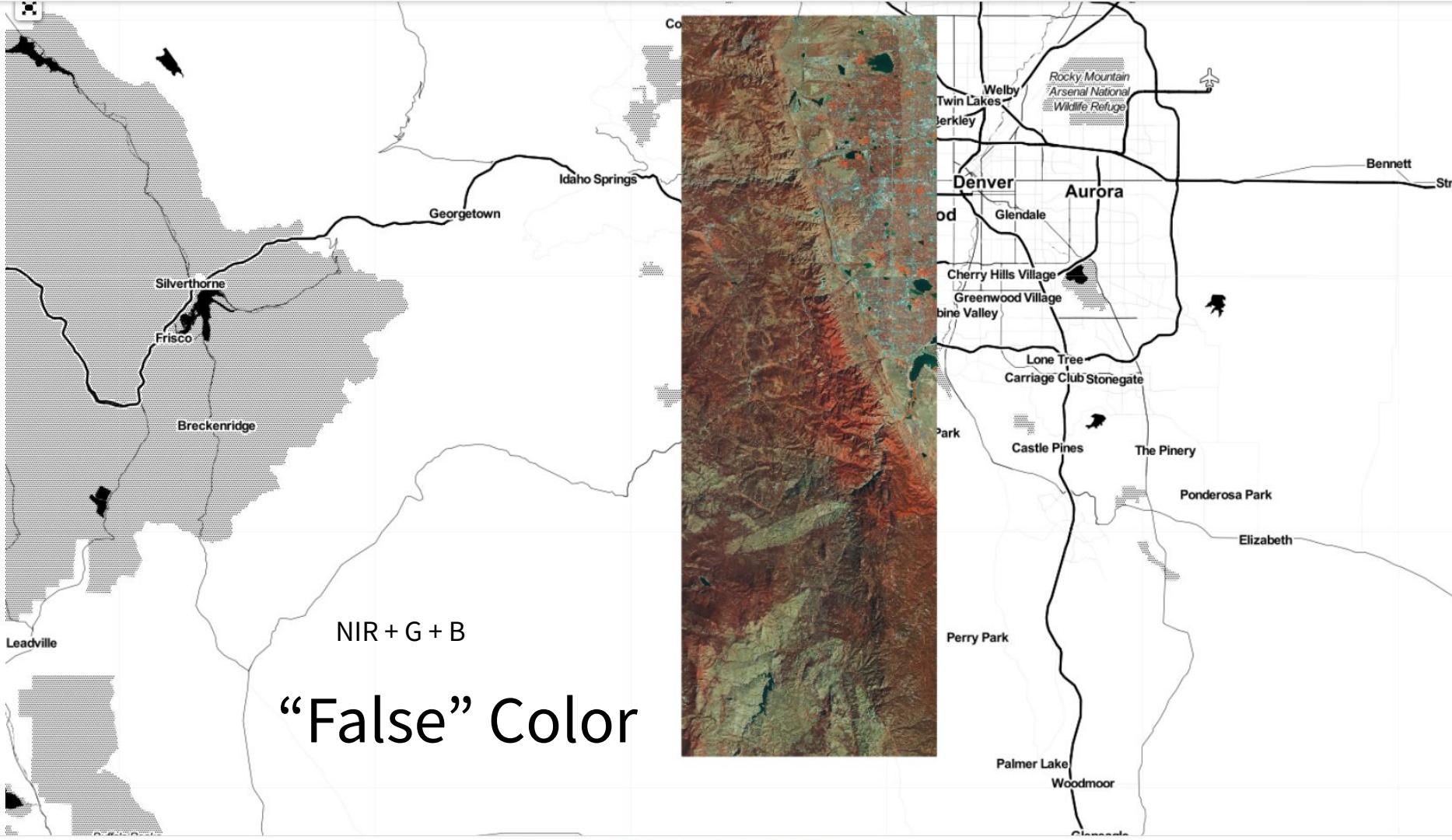
Analysis and Classification

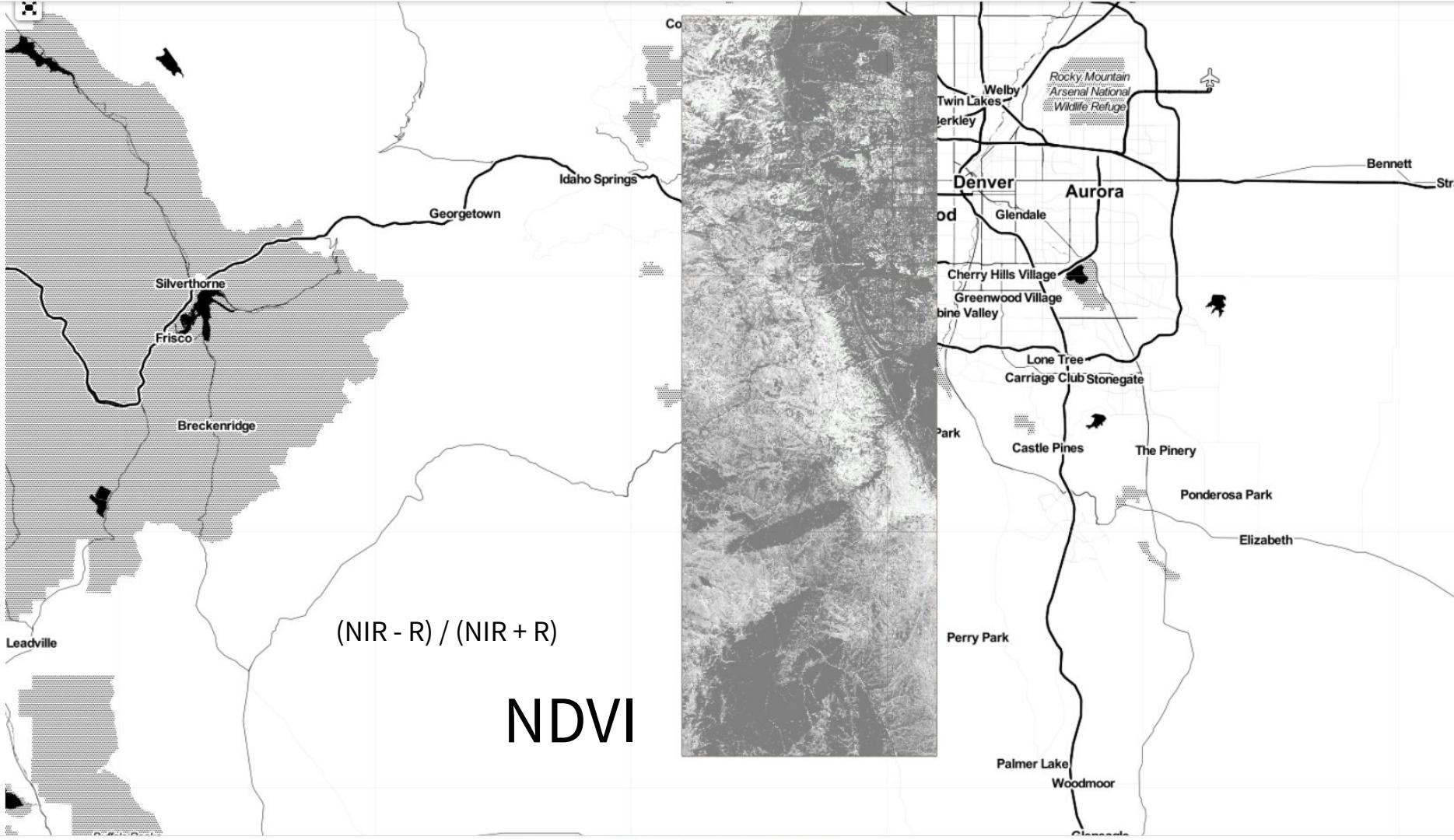


[145]







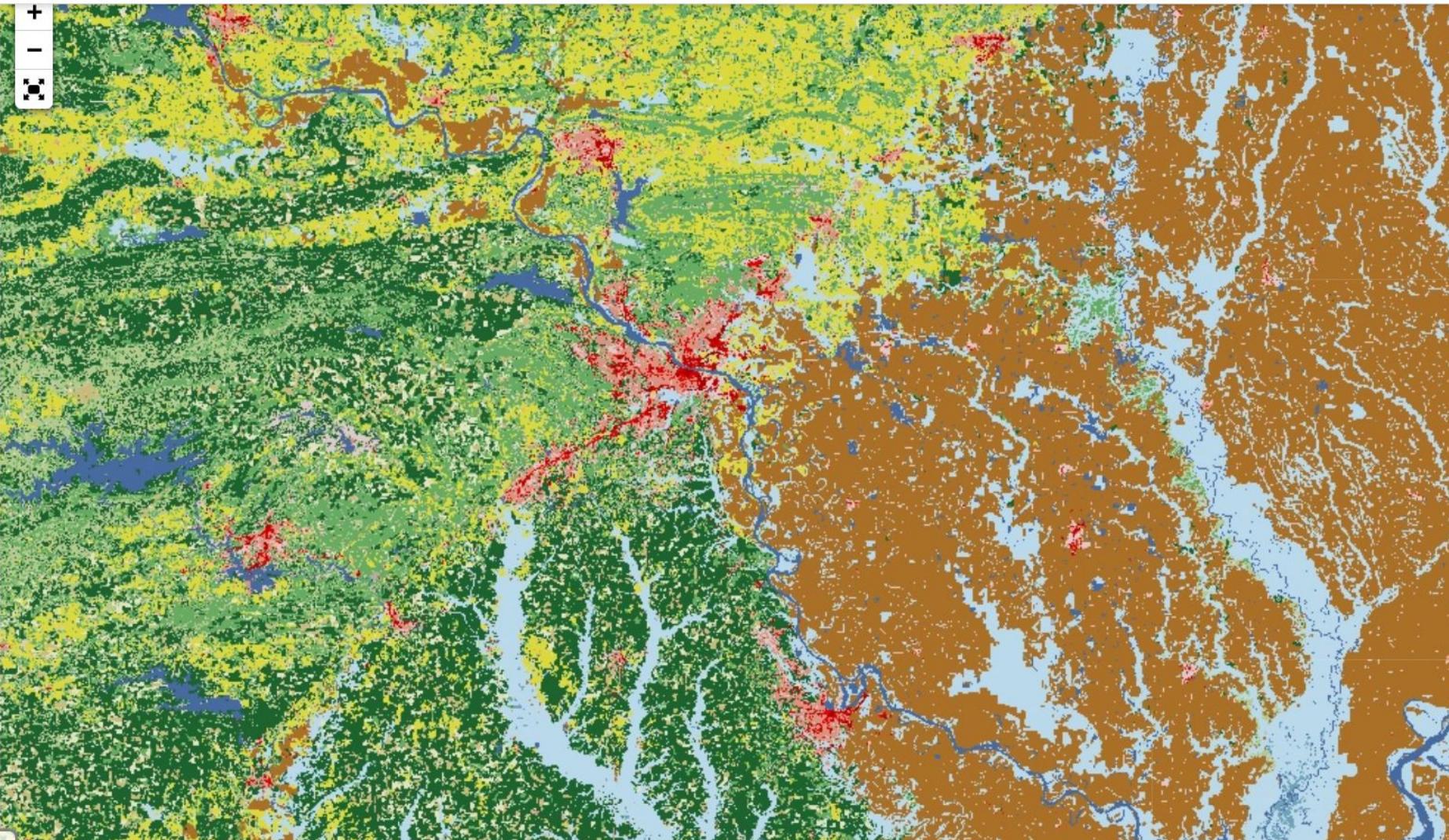


Aerial and Satellite Imagery

Classification Challenges

Viewing Techniques

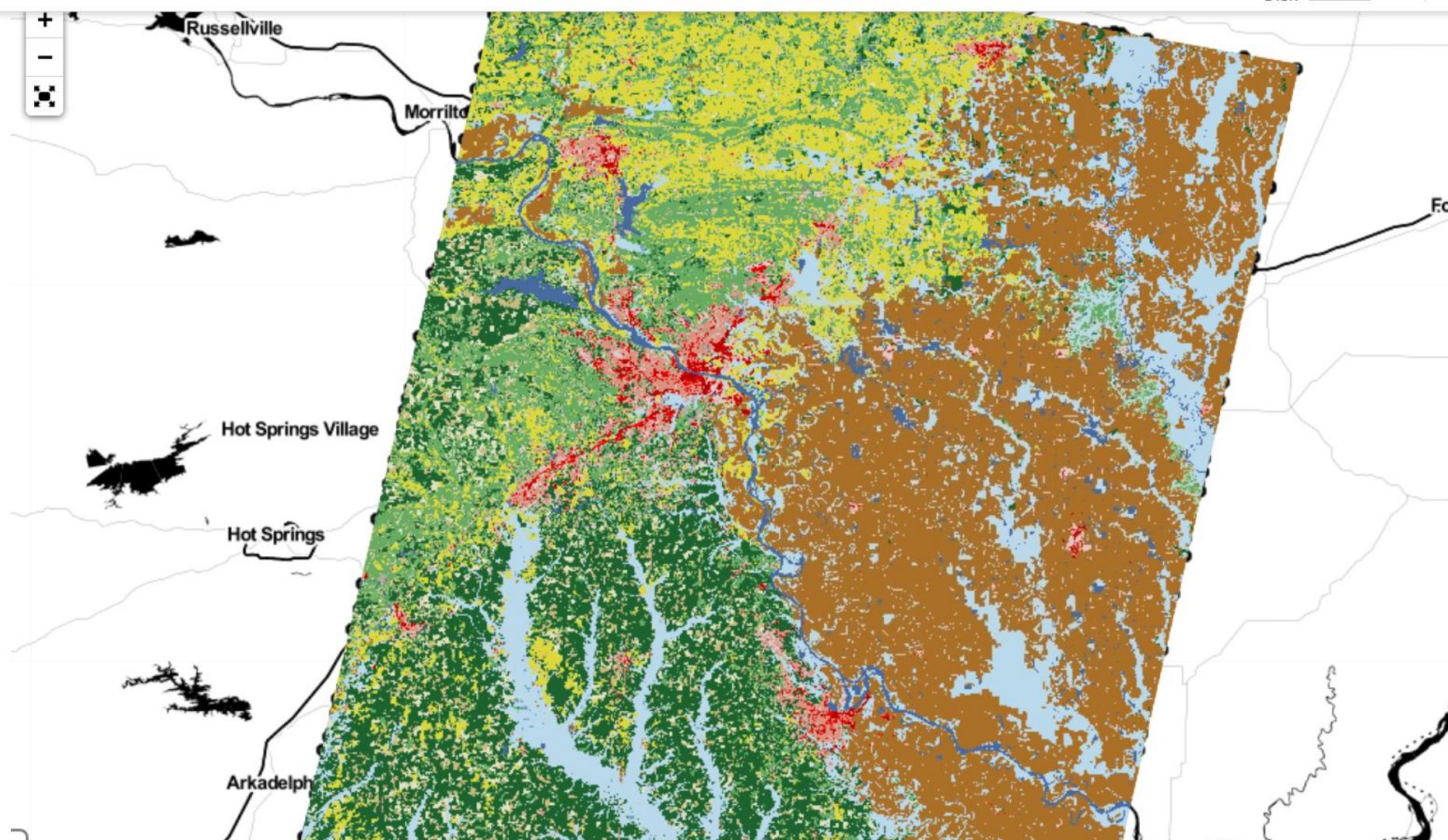
Analysis and Classification -- Lincoln County, Arkansas

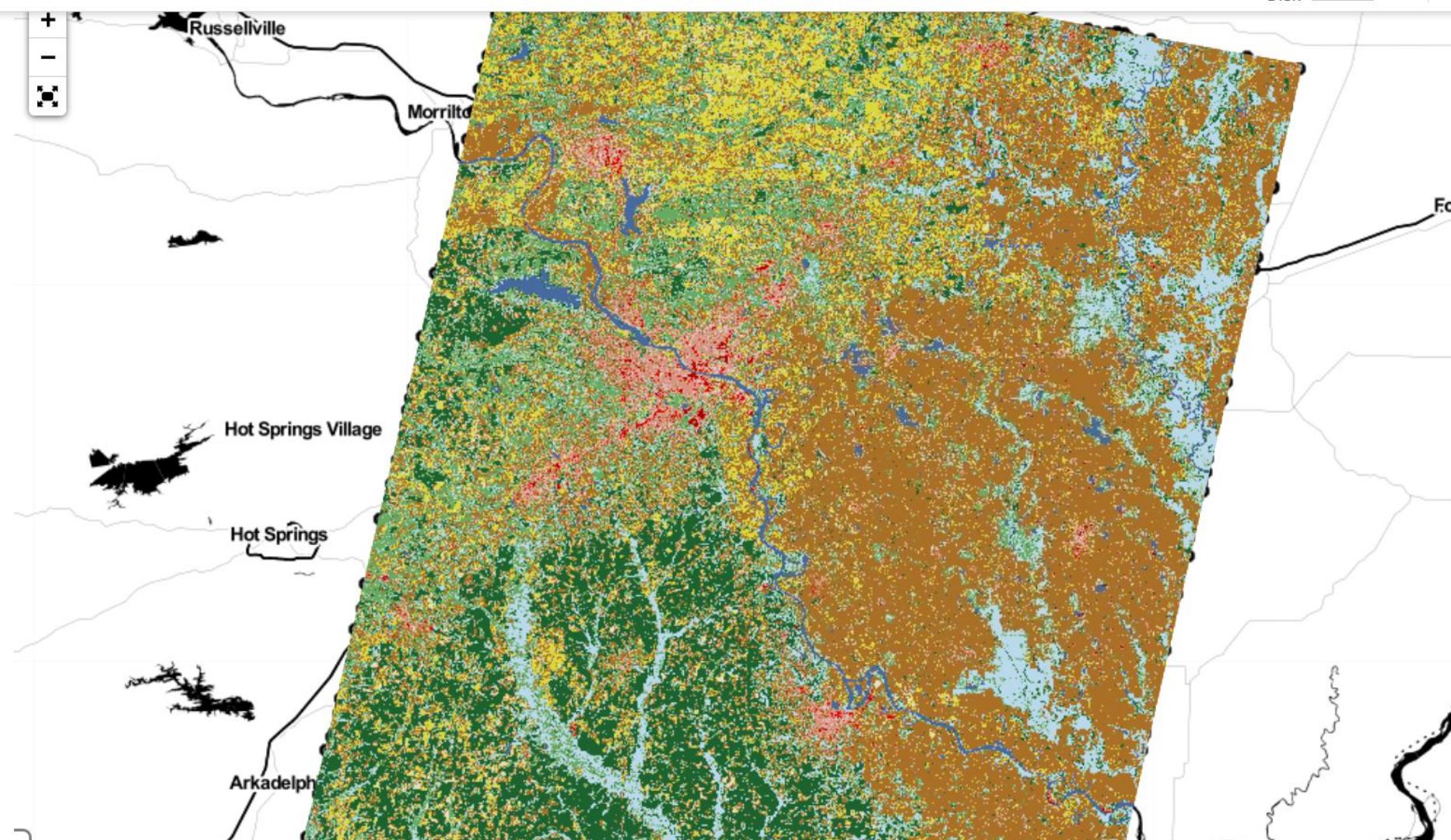


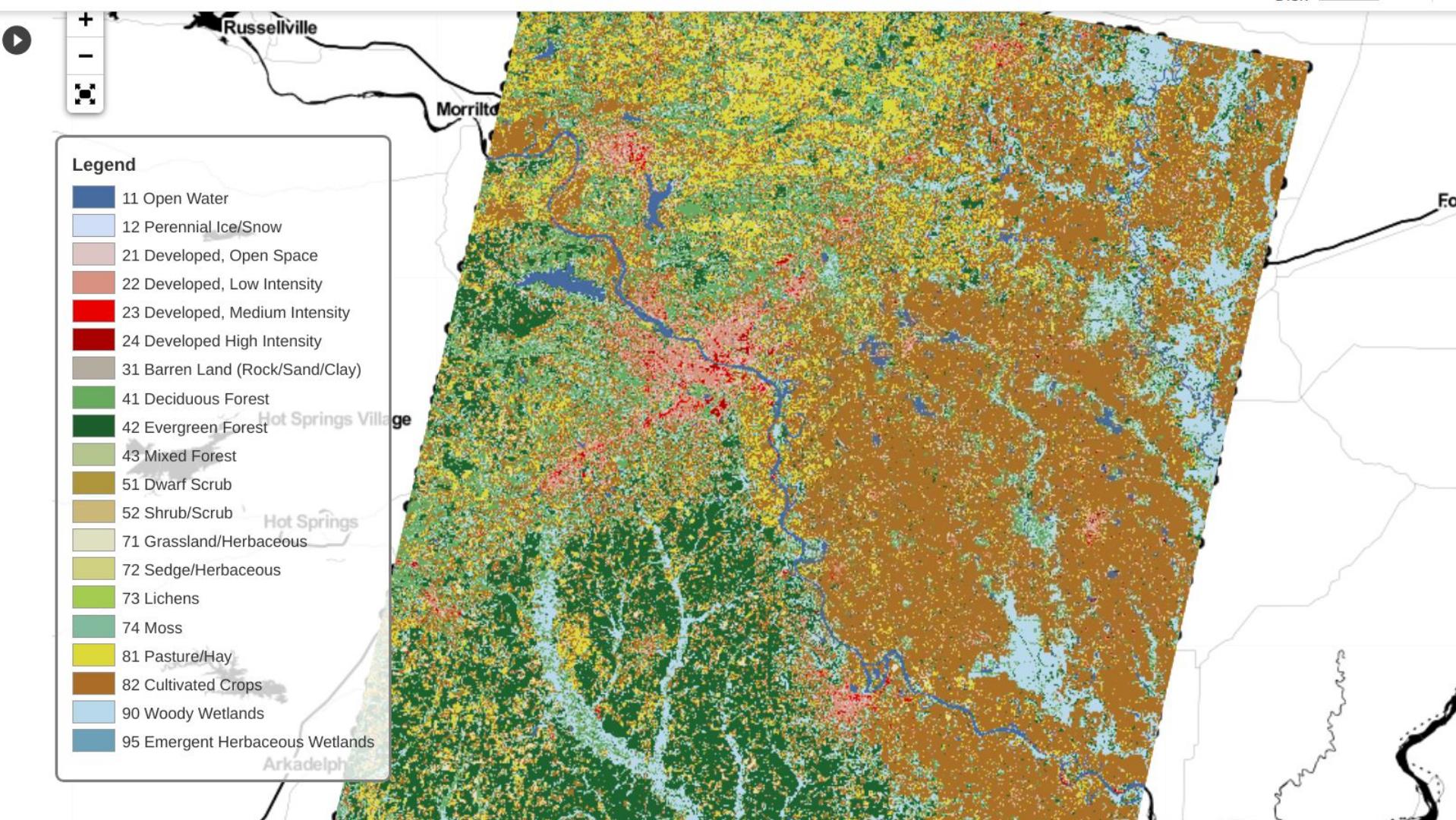
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