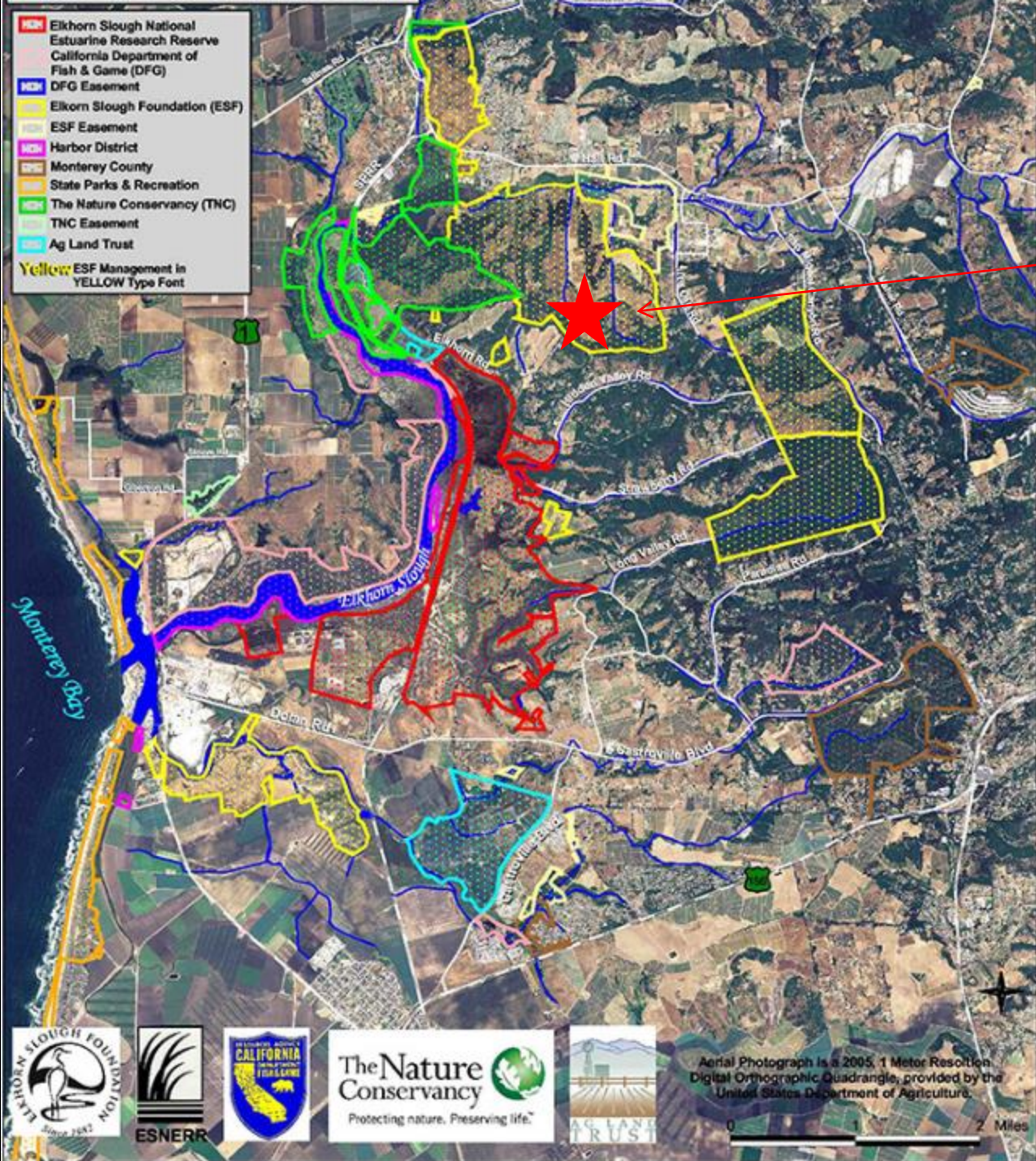


Mapping Vegetation using UAV Aerial Imagery

Case Study: Perennial Veldt Grass
(*Ehrharta calycina*)

Corey Hamza
Elkhorn Slough Symposium
January 24, 2017

-  Elkhorn Slough National Estuarine Research Reserve
 -  California Department of Fish & Game (DFG)
 -  DFG Easement
 -  Elkhorn Slough Foundation (ESF)
 -  ESF Easement
 -  Harbor District
 -  Monterey County
 -  State Parks & Recreation
 -  The Nature Conservancy (TNC)
 -  TNC Easement
 -  Ag Land Trust
- Yellow** ESF Management in YELLOW Type Font



Elkhorn Slough Foundation
Renteria Property



Aerial Photograph is a 2005, 1 Meter Resolution Digital Orthographic Quadrangle, provided by the United States Department of Agriculture.





Salinas Rd

Las Lomas

Hall Rd

Major Rd

G12

Eikhorn Rd

Strawberry Rd

Elkhorn

© 2016 Google

Gabrillo Hwy

1

Perennial Veldt Grass (*Ehrharta calycina*)



Ehrharta calycina

Photos: S.M. Armstrong

Cal-IPC Inventory Rating: **HIGH**

UAV

DJI Phantom 3 Advanced



Advantages

- High Resolution Imagery
- Fly when conditions are ideal
- Fly many times over season or year
- Affordable: Current retail = \$800

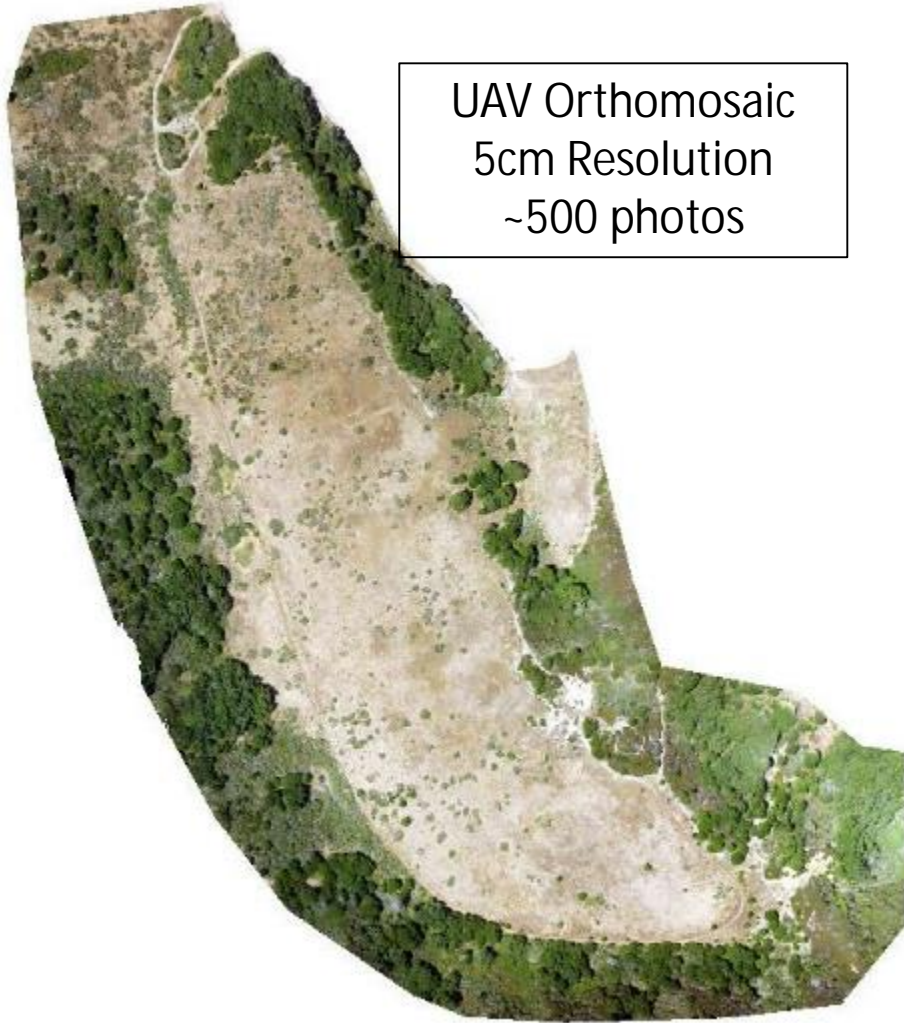


DroneDeploy

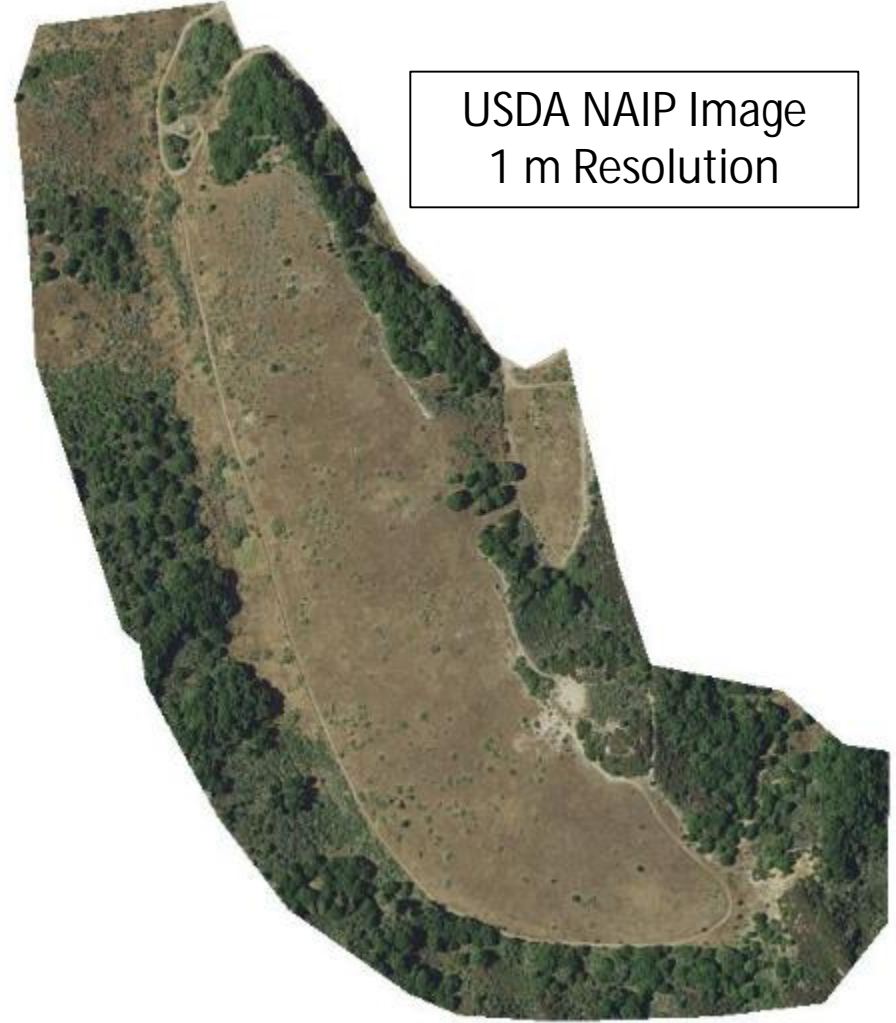


Drone2Map

Creates Orthomosaic



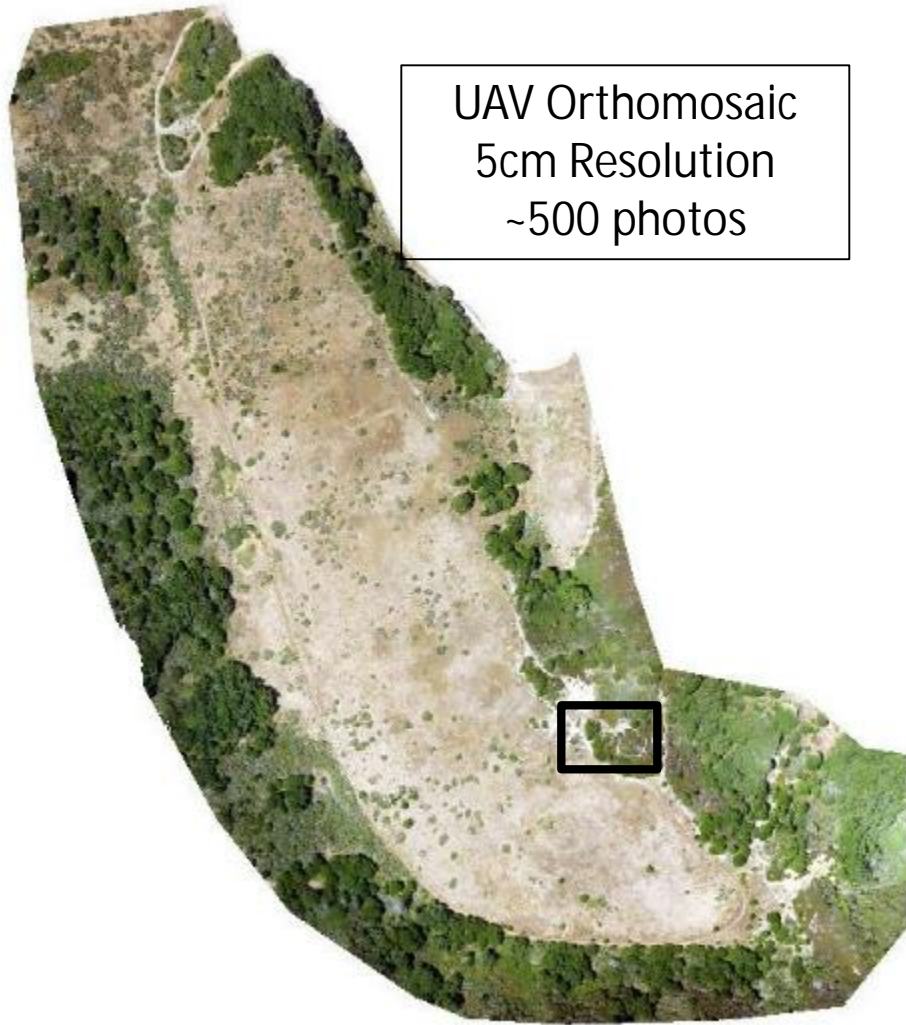
UAV Orthomosaic
5cm Resolution
~500 photos



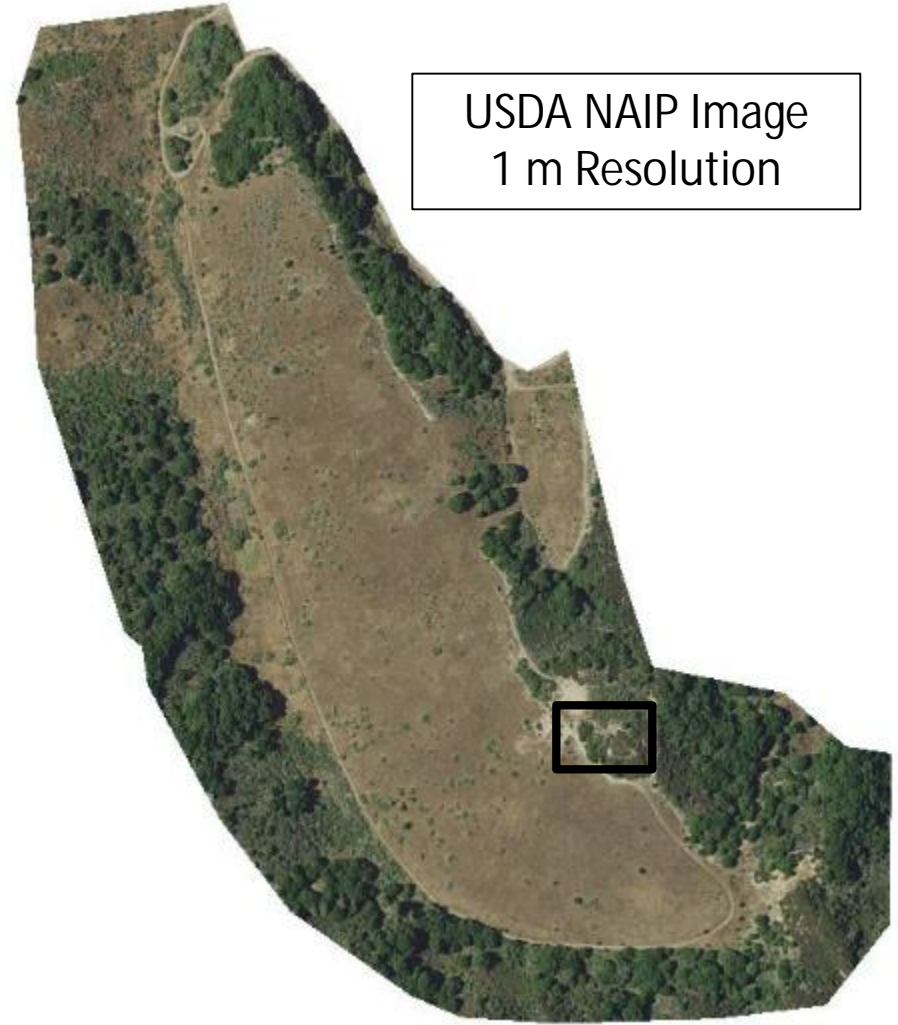
USDA NAIP Image
1 m Resolution

Drone2Map

Creates Orthomosaic



UAV Orthomosaic
5cm Resolution
~500 photos



USDA NAIP Image
1 m Resolution

USDA NAIP Imagery



UAV Imagery



5 cm Resolution

Orthomosaic



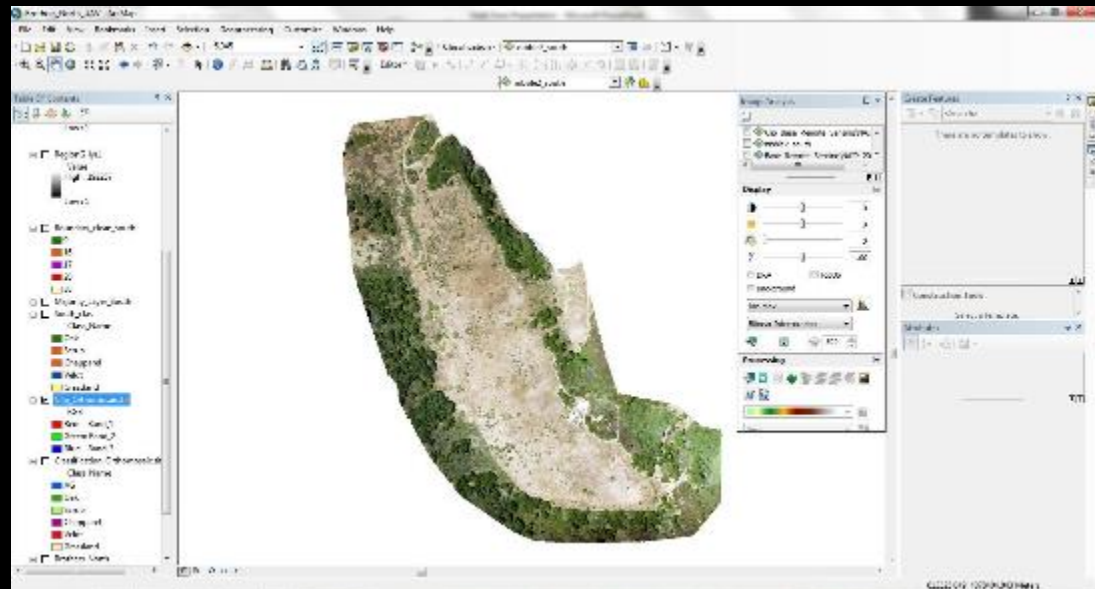


ArcMap

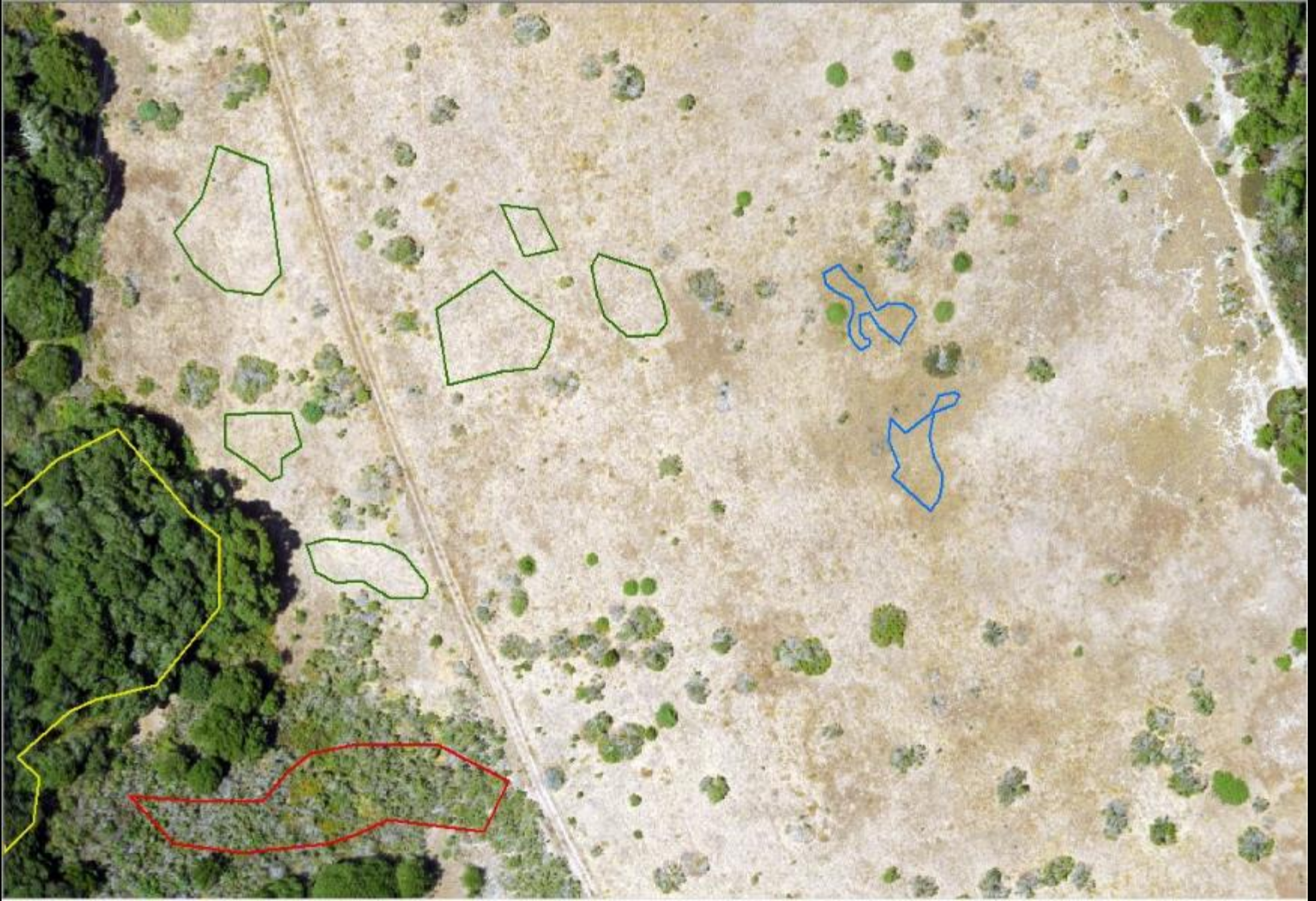


Spatial Analyst Tools Used

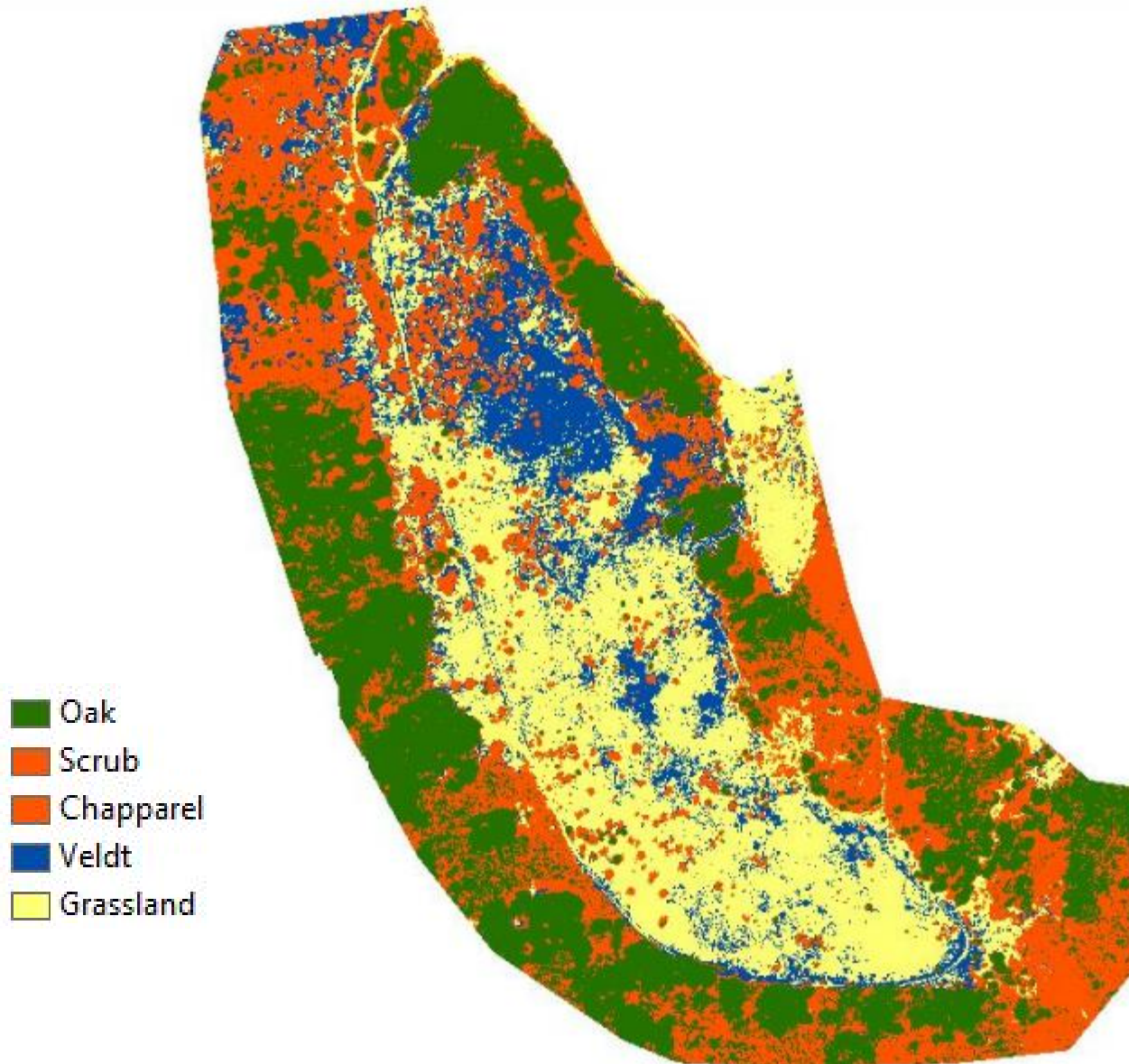
- Maximum likelihood Classification
- Majority Filter
- Boundary Clean
- Region Group
- Set Null
- Nibble



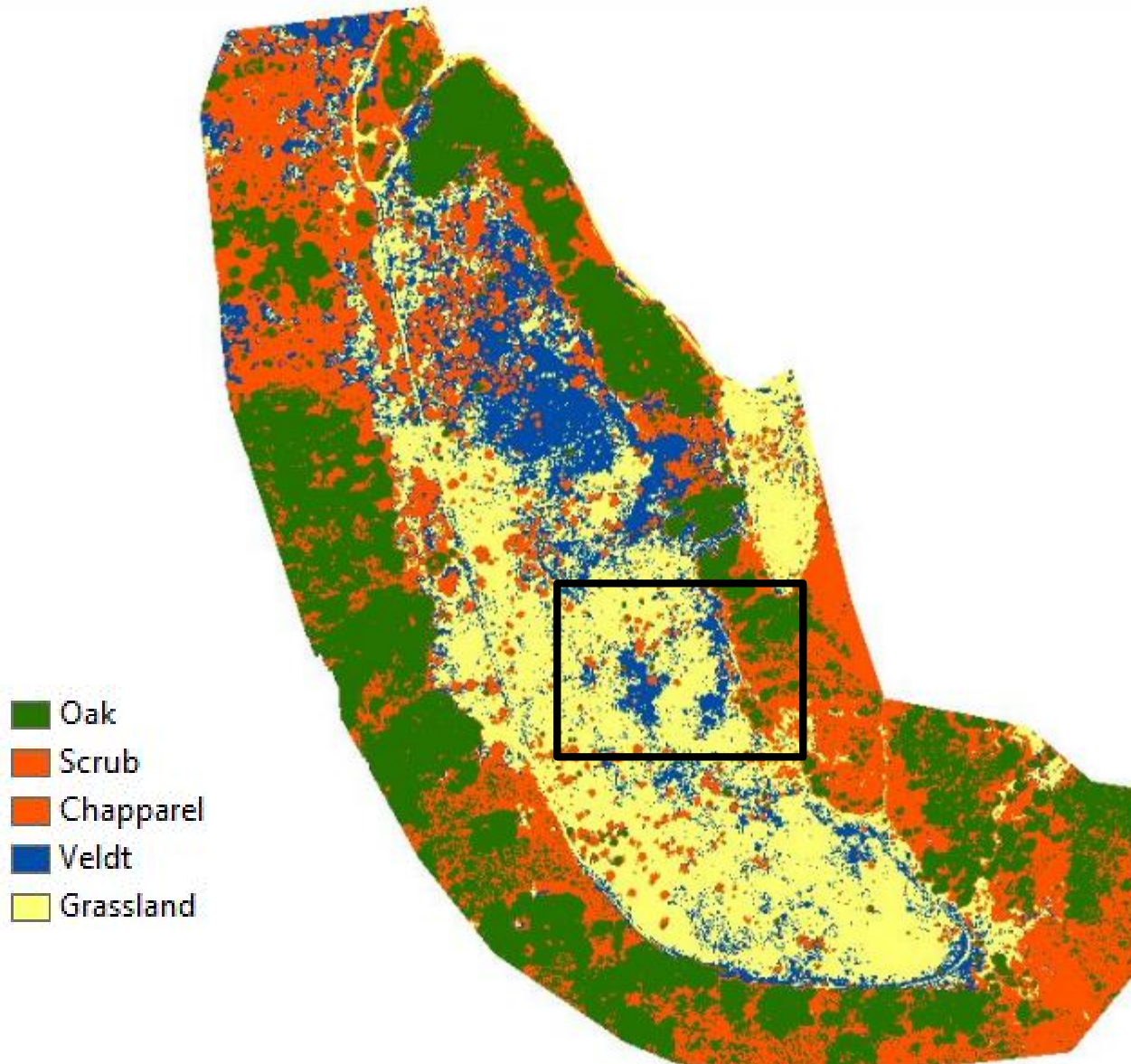
Training (Supervised Classification)

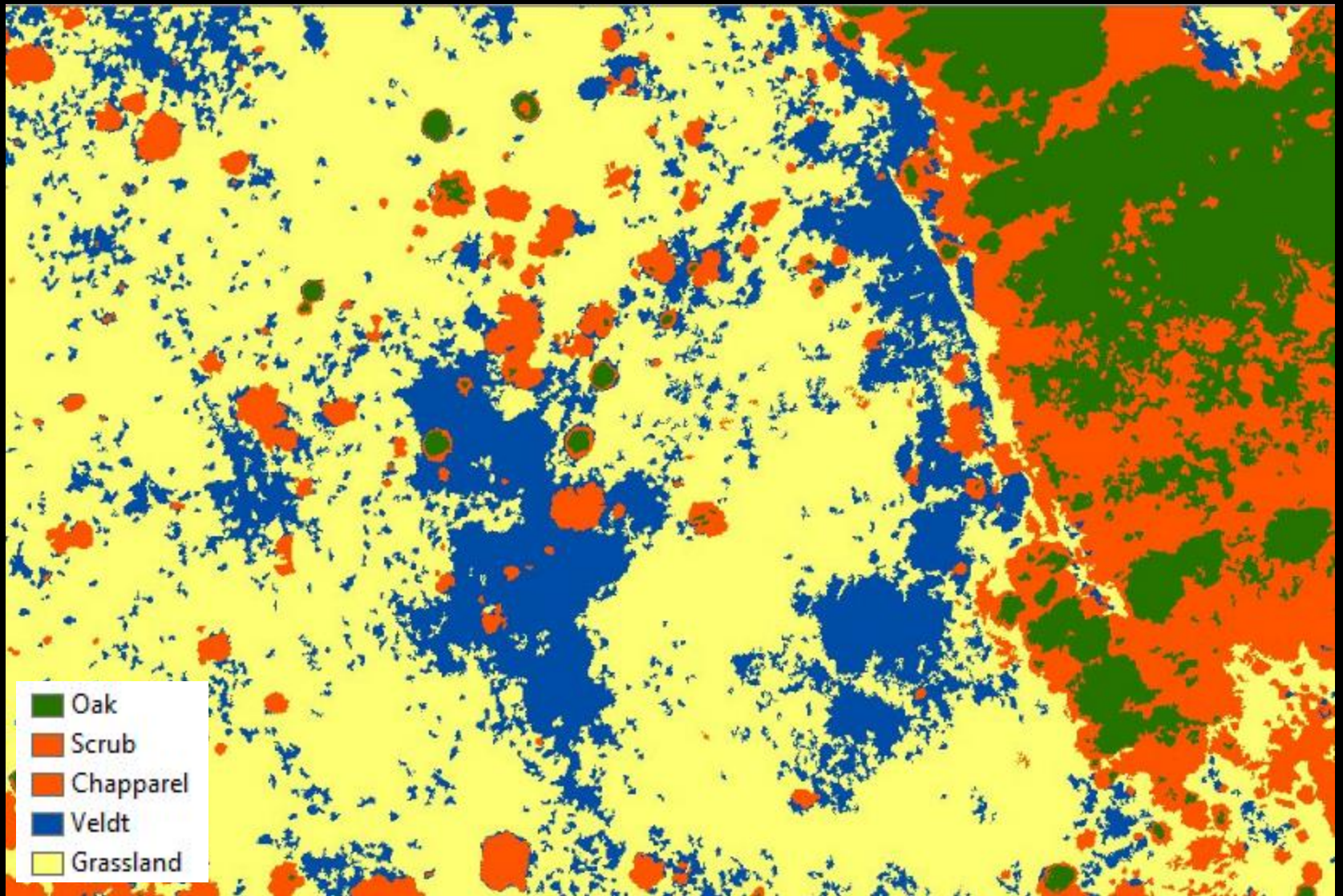


Classification

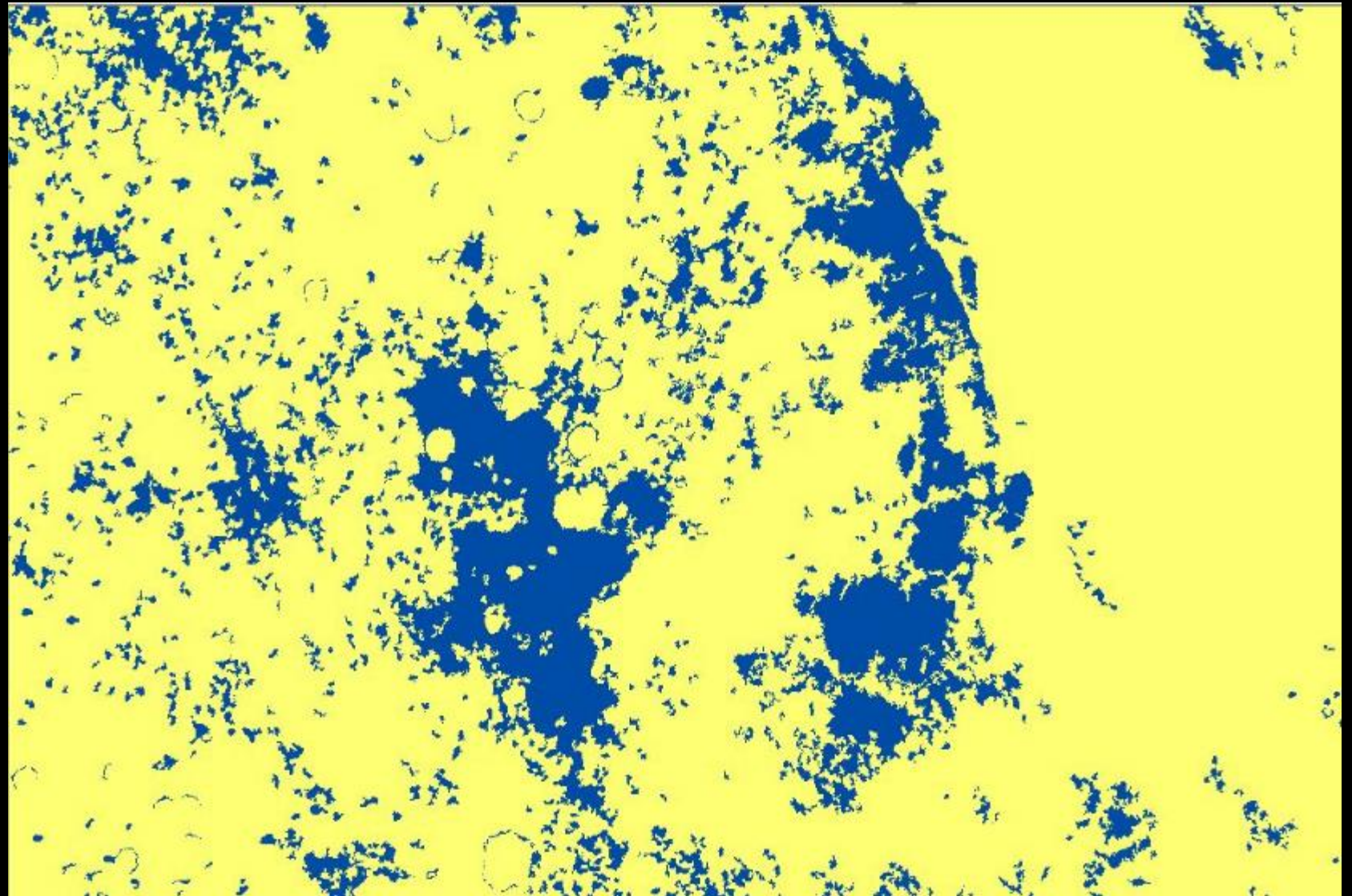


Classification









Results

Veldt Grass Area = 12.8 Acres

Total Site Area = 95.4 Acres



Special Thanks to:

Charlie Endris

John Haskins