

Using New Technologies to Update the National Wetland Inventory

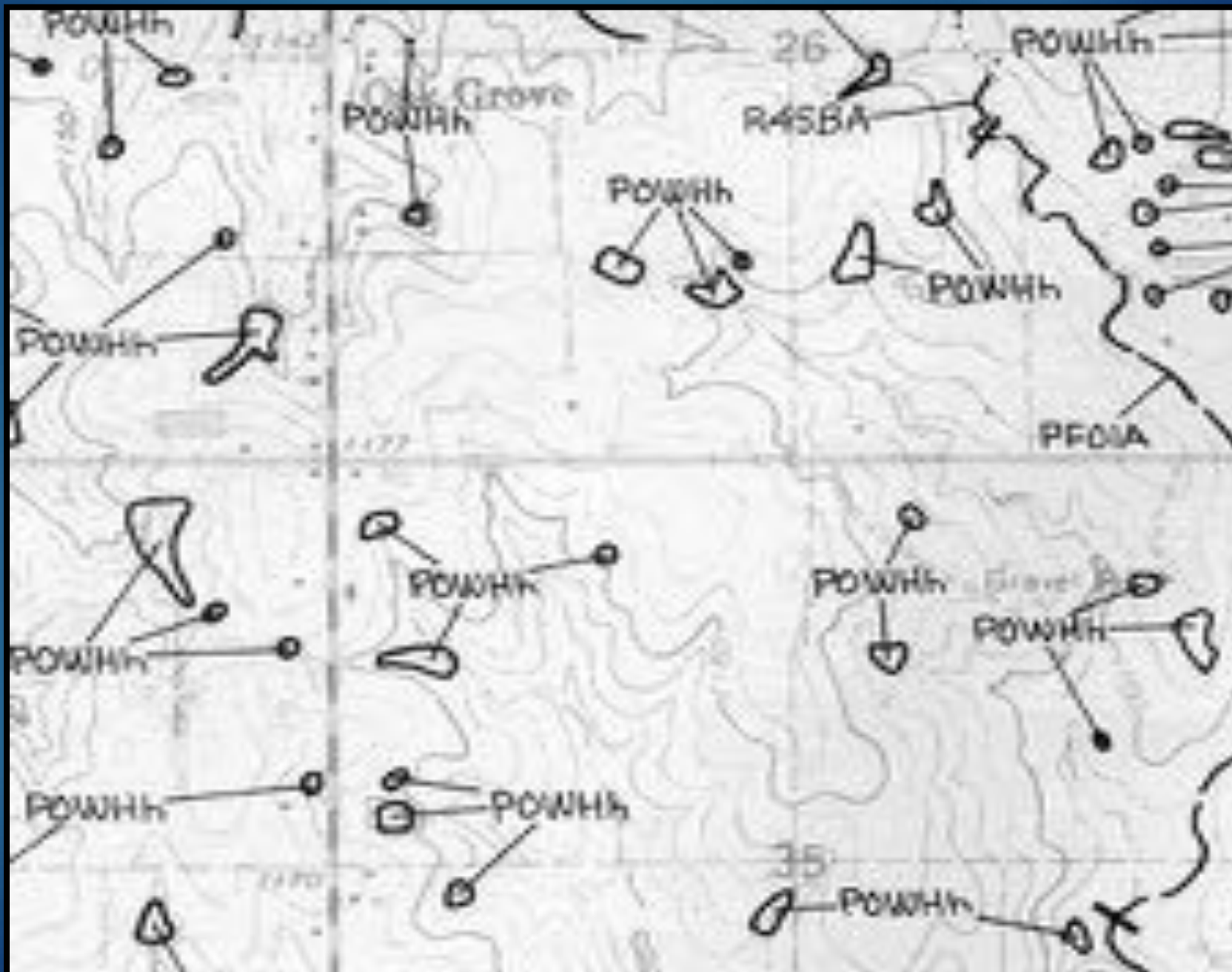
JEREMY JONES MDEQ



National Wetlands Inventory Data:

METHODS

NWI METHODOLOGY: The Beginning



100



NWI METHODOLOGY: The 2nd Generation

Digital NWI Maps Available to GIS Professionals



NWI METHODOLOGY: The 3rd Generation

Digital NWI Maps Available Online



DEQ Wetlands
Map Viewer

USFWS
Wetlands
Mapper



NWI UPDATE: Tracking One Wetland in Time

Example of Attribute System for Updating and Tracking Wetlands

Original NWI (1978 - 1983)



Palustrine Emergent Wetland

Example of Attribute System for Updating and Tracking Wetlands

Update 1 1998

NWI CODE	PEM
NWI NUM	1
NEW N 1	
OTYPE 1	
PART 1	Y
MTYPE 1	
IM DATE 1	1998
SOIL IN 1	ROM
SEDATE 1	5/1/2006
FIELD VERT	
COMM 1	

No Change

Palustrine Emergent To Drained by Agriculture

Palustrine Emergent To Palustrine Unconsolidated Bottom

New Palustrine Unconsolidated Bottom

NWI CODE	PEM
NWI NUM	1
NEW N 1	
OTYPE 1	
PART 1	Y
MTYPE 1	PEB
IM DATE 1	1998
SOIL IN 1	ROM
SEDATE 1	5/1/2006
FIELD VERT	
COMM 1	

NWI CODE	PEB
NWI NUM	1
NEW N 1	
OTYPE 1	
PART 1	
MTYPE 1	
IM DATE 1	1998
SOIL IN 1	ROM
SEDATE 1	5/1/2006
FIELD VERT	
COMM 1	

Example of Attribute System for Updating and Tracking Wetlands

Update 2 (2006-2007)

NWI CODE	PEM
NWI NUM	1
NEW N 1	
OTYPE 1	
PART 1	Y
MTYPE 1	PEB
IM DATE 1	1998
SOIL IN 1	ROM
SEDATE 1	5/1/2006
FIELD VERT	
COMM 1	

No Change From Update 1

From Drained by Agriculture To Palustrine Scrub-Shrub

No Change

No Change From Update 1

NWI CODE	PEM
NWI NUM	1
NEW N 1	
OTYPE 1	
PART 1	Y
MTYPE 1	PEB
IM DATE 1	1998
SOIL IN 1	ROM
SEDATE 1	5/1/2006
FIELD VERT	
COMM 1	

NWI CODE	PEB
NWI NUM	1
NEW N 1	
OTYPE 1	
PART 1	
MTYPE 1	
IM DATE 1	1998
SOIL IN 1	ROM
SEDATE 1	5/1/2006
FIELD VERT	
COMM 1	

From Palustrine Unconsolidated Bottom To Scrub-Shrub

NWI UPDATE: Tracking One Wetland in Time



NWI UPDATE: Tracking One Wetland in Time



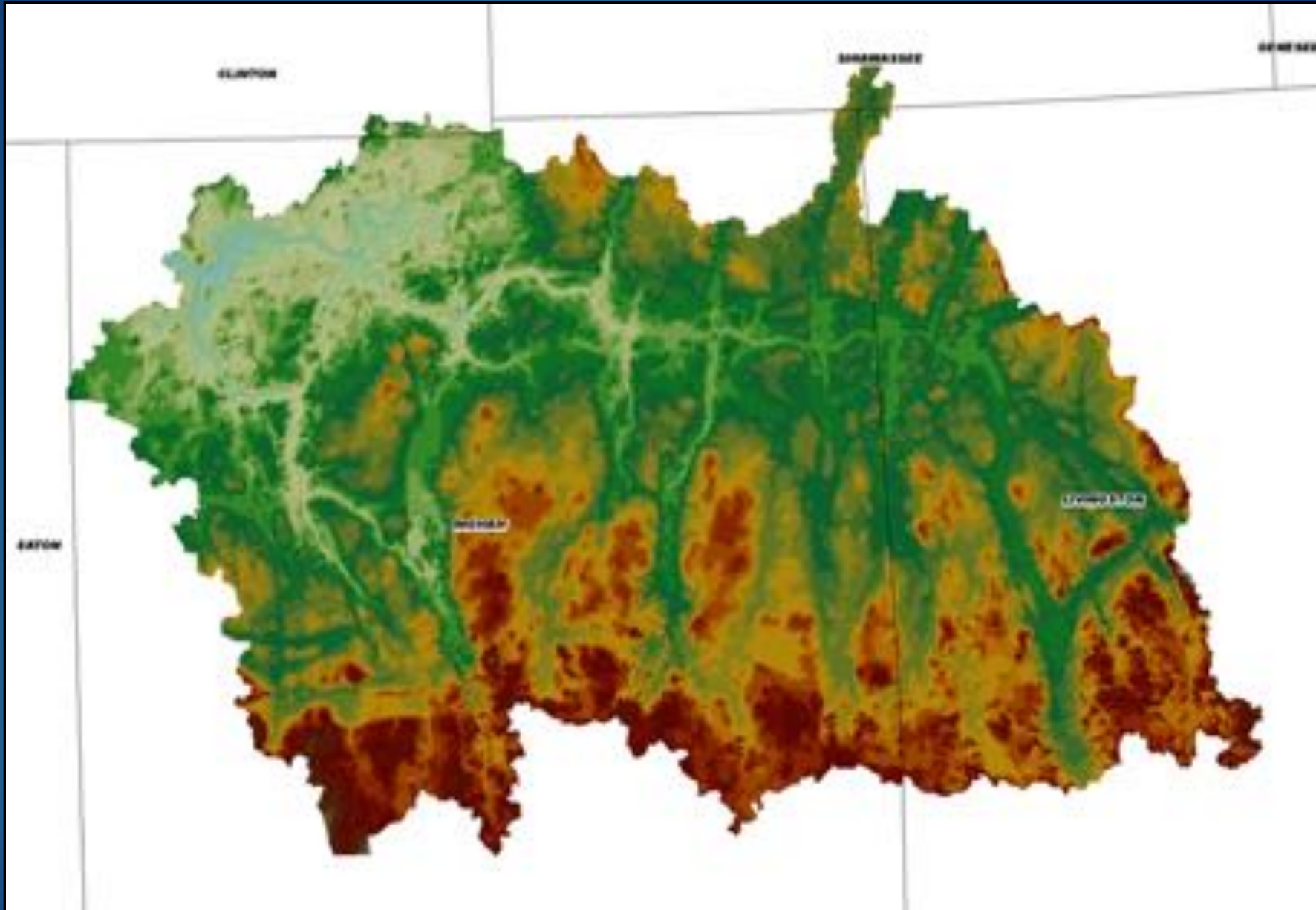


NWI Update 2016

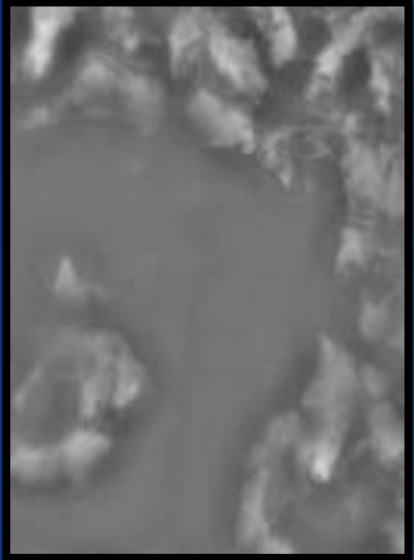
WASHTENAW AND KENT COUNTY

New High Resolution Imagery & Topographic LiDAR

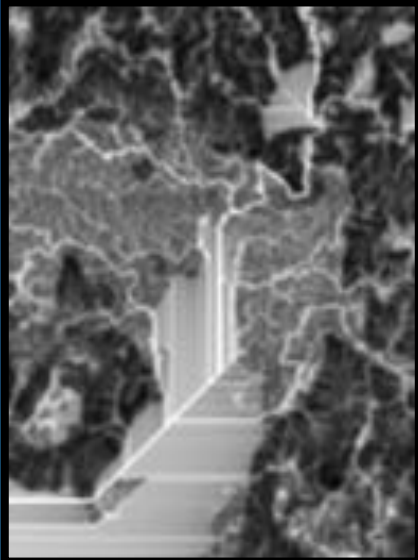




Digital Elevation Model (DEM)



Topographic Position Index



Compound Topographic Index

Using LiDAR for Wetland Mapping

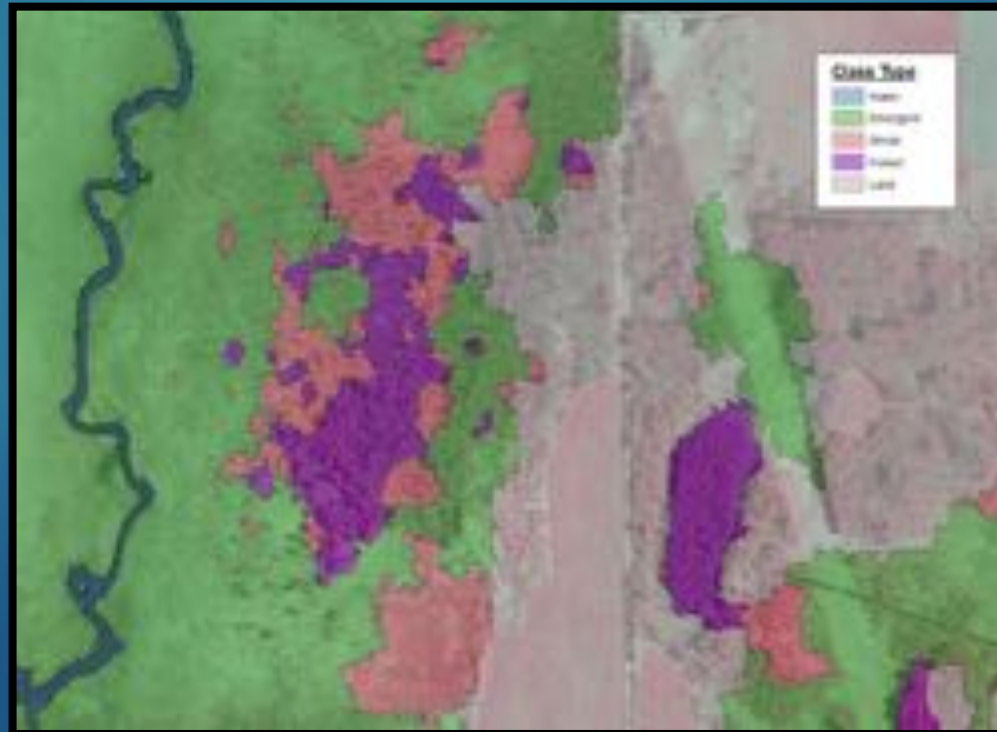
Lidar Derived Layers



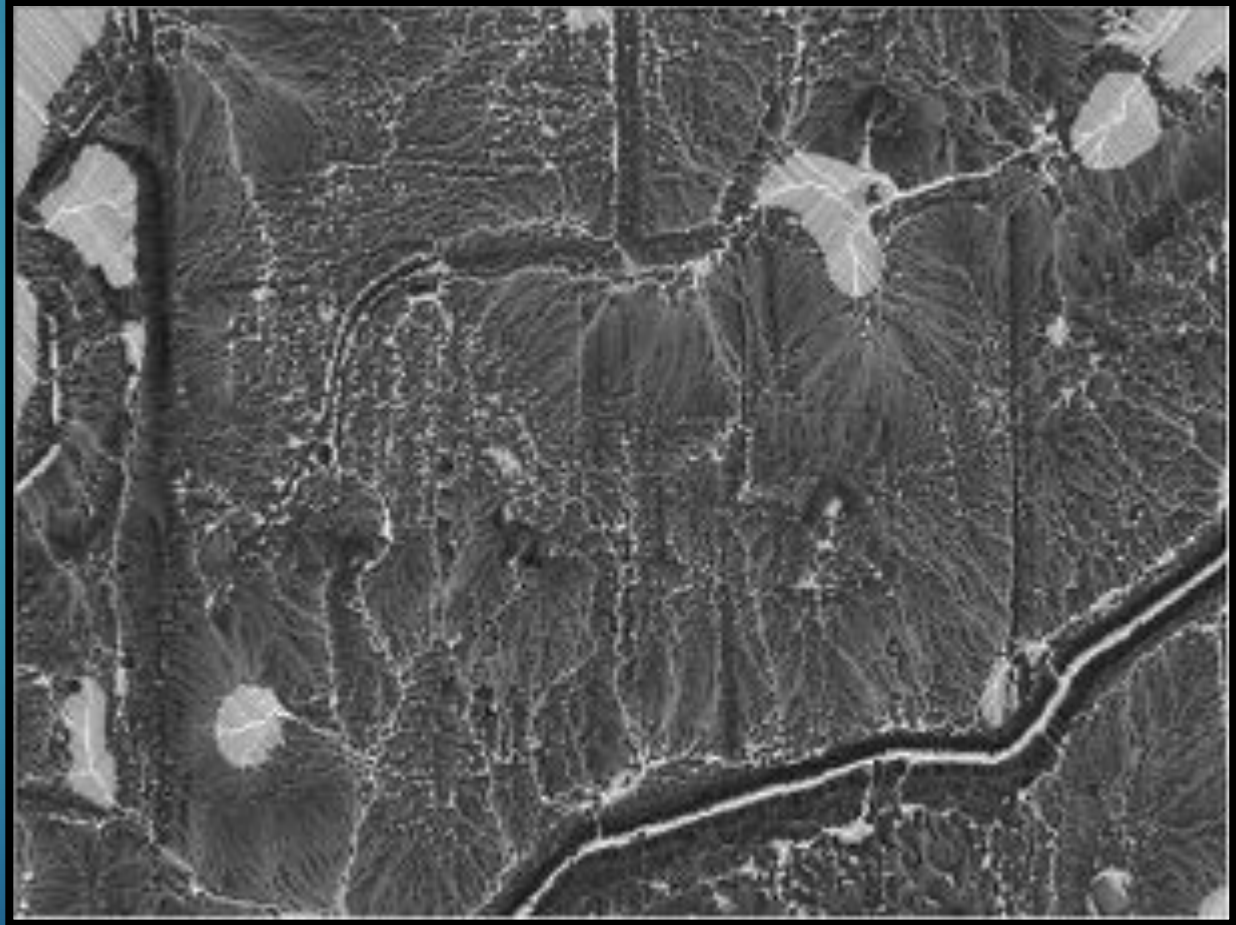
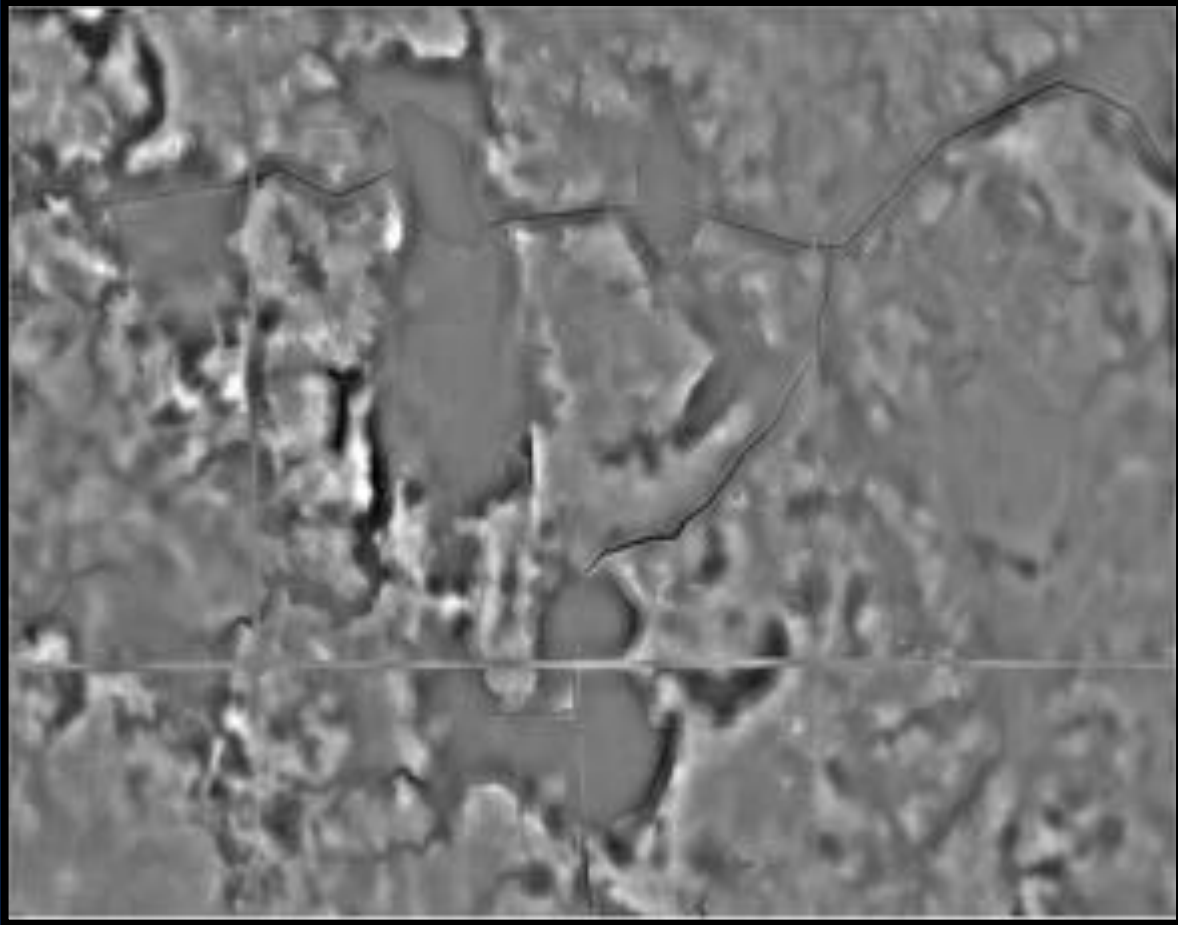
Max Height



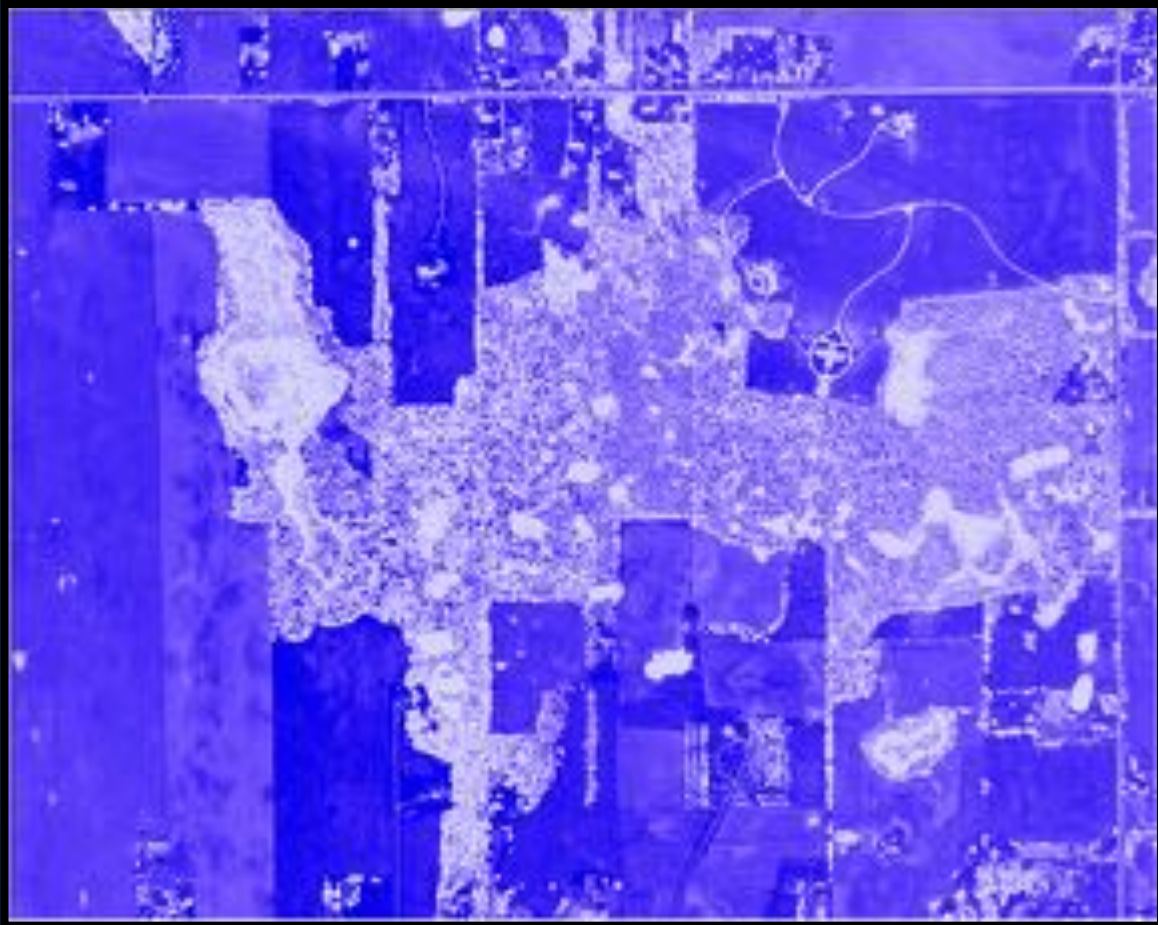
Intensity



Topographic Position Index & Compound Topographic Index

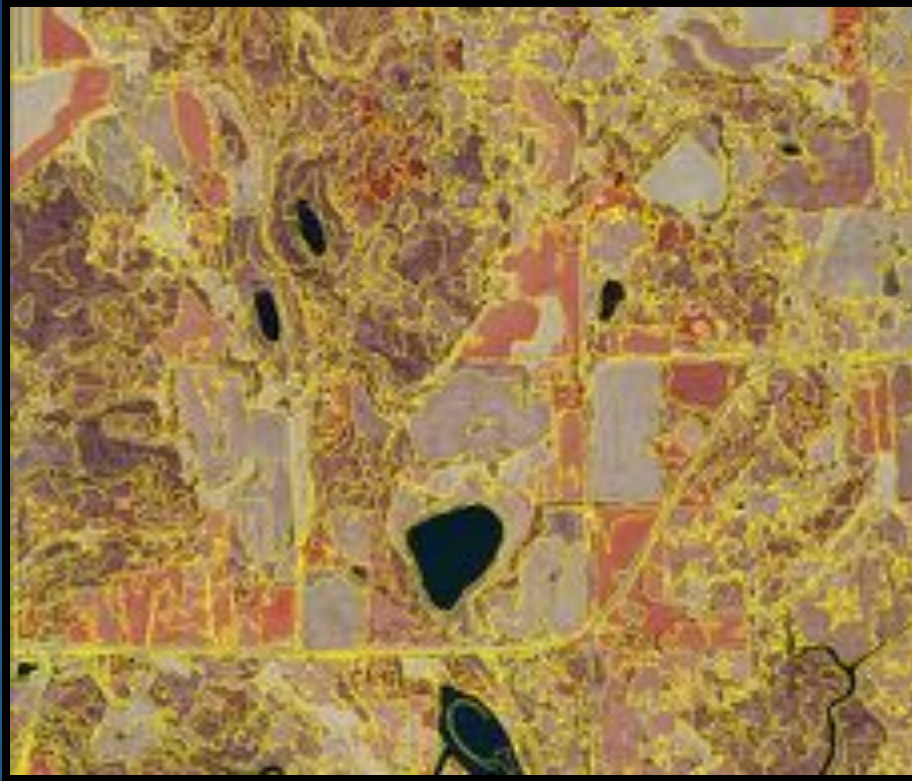


Intensity of bare earth & Max Height returns



The Future of Wetland Mapping: Automation and Remote Sensing

AUTOMATED Image Segmentation



Vs.



Washtenaw Example 1



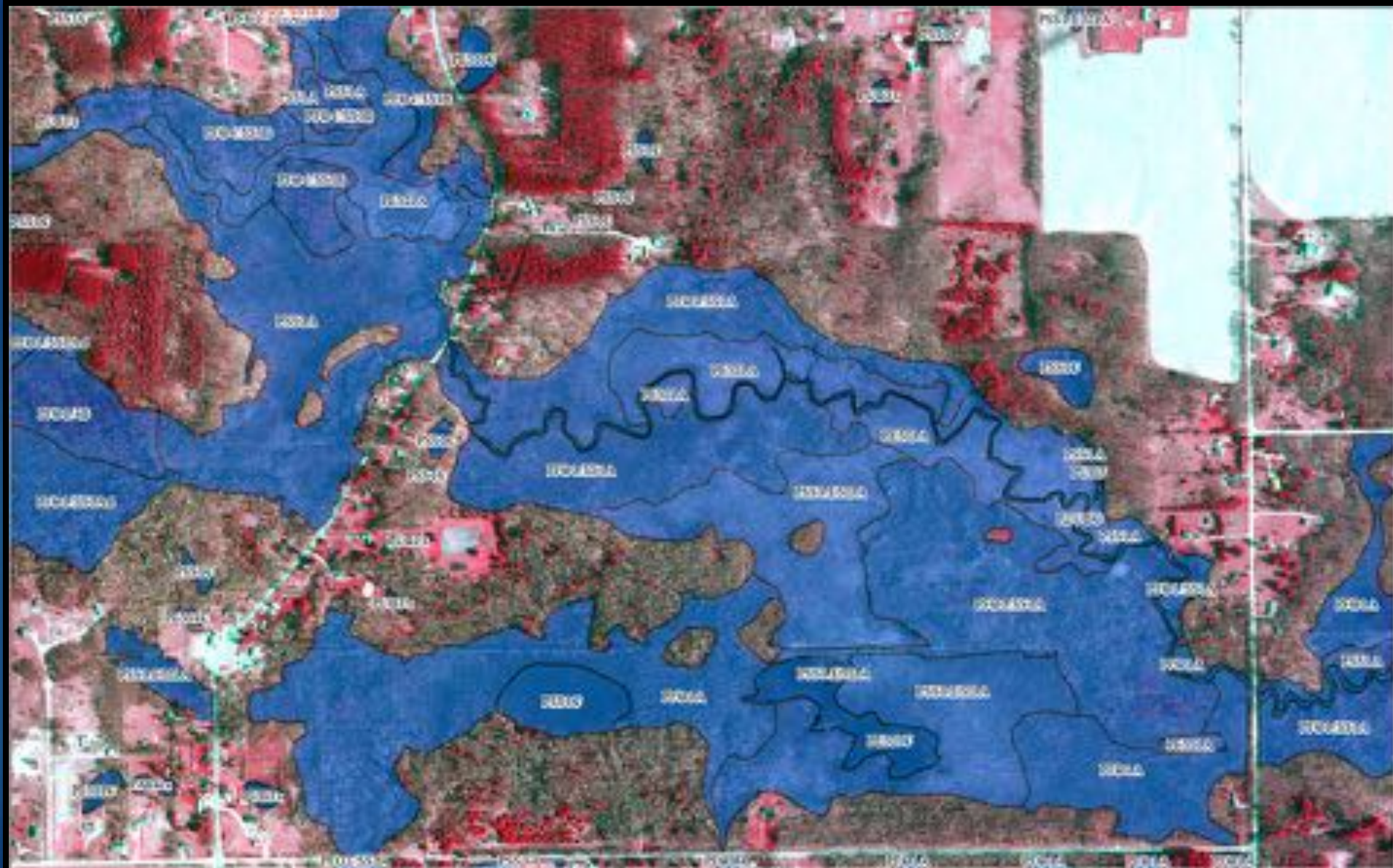
Washtenaw Example 2



Kent Example 3



Kent Example 4



By the Numbers.....

▶ 2005 Kent County

- ▶ 15,907 Polygons
- ▶ 75,101 Acres

▶ 2014 Kent County

- ▶ 26,046 Polygons
- ▶ 104,704 Acres

▶ 2005 Washtenaw County

- ▶ 11,780 Polygons
- ▶ 65,580 Acres

▶ 2015 Washtenaw County

- ▶ 22,774 Polygons
- ▶ 63,328 Acres

By the Numbers..... Type

Kent 2005

- ▶ PEM 12,700 acres
- ▶ PSS 8,603 acres
- ▶ PFO 33,262 acres
- ▶ PAB 673 acres

Kent 2014

- ▶ PEM 36,553 acres
- ▶ PSS 16,972 acres
- ▶ PFO 32,981 acres
- ▶ PAB 2,943 acres

Washtenaw 2005

- ▶ PEM 17,761 acres
- ▶ PSS 16,691 acres
- ▶ PFO 22,131 acres
- ▶ PAB 543 acres

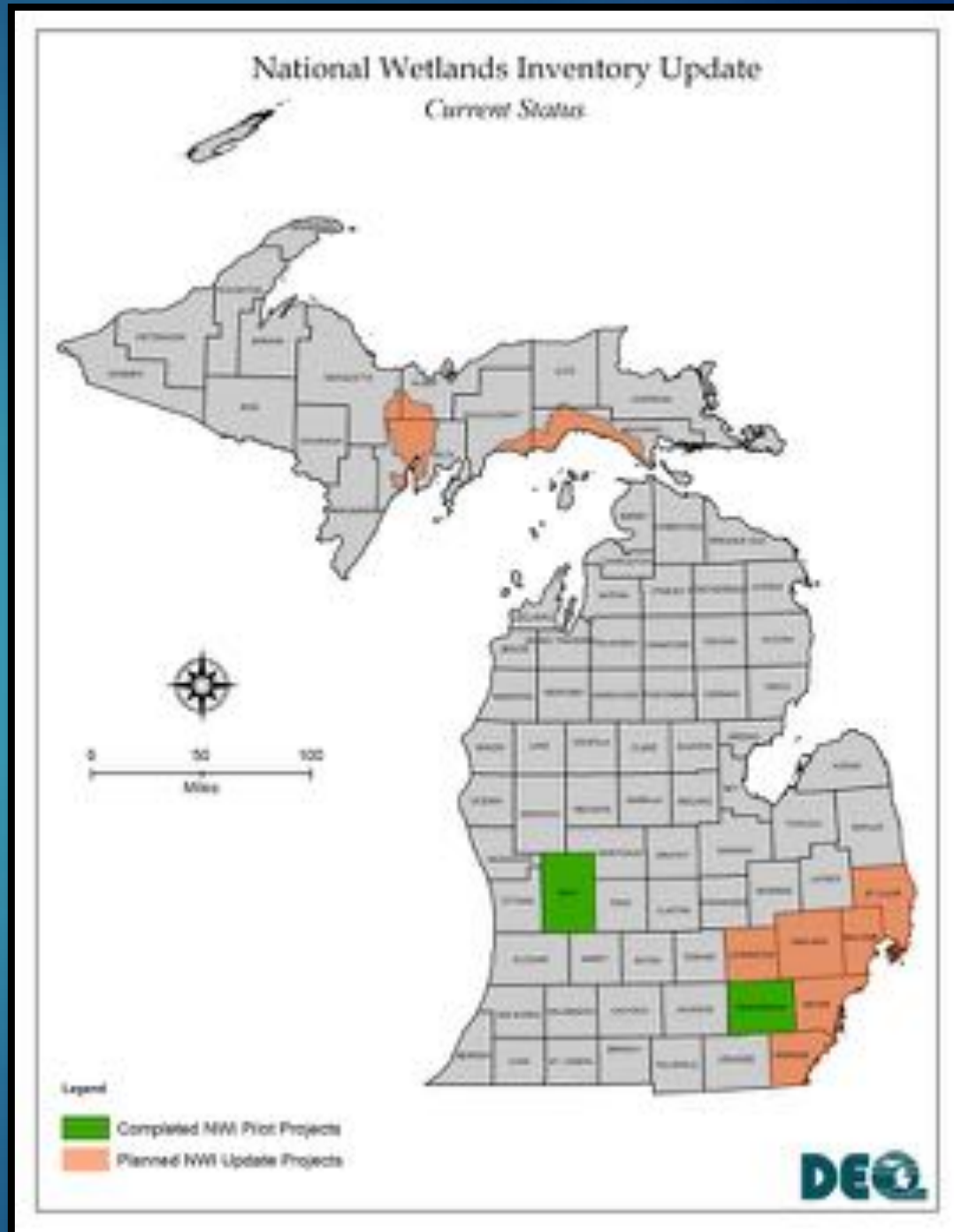
Washtenaw 2015

- ▶ PEM 20,085 acres
- ▶ PSS 9,671 acres
- ▶ PFO 18,991 acres
- ▶ PAB 3,251 acres

What does this all mean?

Where we are Headed....

- SEMCOG – Tentative Winter 2018
- FWS - UP Watersheds TBD
- What's Needed?
 - Partners
 - Funding
 - Data





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