



Updates to LULC Classification

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Land Use Work Group
March 15, 2023

Introduction

- The 2022 Edition (LULC released in May of 2022) has 54 LULC classes
- The 2024 Edition (LULC to be released in June of 2024) will have 64 classes
- There are changes to the classification schema between the 2022 and 2024 editions, including:
 - New wetlands classes
 - Updates to solar classes
 - Decisions around proposed water classes
 - New animal operations classes
 - Separating pasture and hay

Chesapeake Bay Land Use/Cover Classification (2022 Edition – 54 Classes)

1. Water (11)

1.1 Estuarine / Marine

1.2 Lentic (fresh)

1.2.1. Lakes and reservoirs

1.2.2 Riverine ponds

1.2.3 Terrene ponds

1.3 Lotic (fresh)

1.3.1 Channels

1.3.1.1 Open Channel

1.3.1.2 Tree Canopy over Channel

1.3.1.3 Culverted

1.3.2.Ditches

1.3.2.1 Open Ditch

1.3.2.2 Tree Canopy over Ditch

1.3.2.3 Tree Canopy over Culverted

2. Developed (12)

2.1 Impervious

2.1.1 Roads

2.1.2 Structures

2.1.3 Other Impervious

2.1.4 Tree Canopy (TC) over Impervious

2.1.4.1 TC over Roads

2.1.4.2 TC over Structures

2.1.4.3 TC over Other Impervious

2.2 Pervious

2.2.1 Turf Grass

2.2.2 Transitional- barren

2.2.3 Suspended Succession

2.2.3.1 Barren

2.2.3.2 Herbaceous

2.2.3.3 Scrub-shrub

2.2.4 Tree Canopy over Turf Grass

3. Forested (7)

3.1 Forest (≥ 1 acre, 240-ft width)

3.2 Other Tree Canopy

3.3 Harvested Forest (≤ 3 years)

3.3.1 Barren

3.3.2 Herbaceous

3.4 Natural Succession (> 3 years)

3.4.1 Barren

3.4.2 Herbaceous

3.4.3 Scrub-shrub

4. Production (17)

4.1 Agriculture

4.1.1 Cropland

4.1.1.1 Barren

4.1.1.2 Herbaceous

4.1.2 Pasture/Hay

4.1.2.1 Barren

4.1.2.2 Herbaceous

4.1.2.3 Scrub-shrub

4.1.3 Orchard/vineyard

4.1.3.1 Barren

4.1.3.2 Herbaceous

4.1.3.3 Scrub-shrub

4.1.4 Animal Operations

4.1.4.1 Impervious

4.1.4.2 Barren

4.1.4.3 Herbaceous

4.2 Solar fields

4.2.1 Impervious

4.2.2 Pervious

4.2.2.1 Barren

4.2.2.2 Herbaceous

4.2.2.3 Scrub-shrub

4.3 Extractive (active mines)

4.3.1 Barren

4.3.2 Impervious

5. Wetlands and Water Margins (16)

5.1 Tidal

5.1.1 Barren

5.1.2 Herbaceous

5.1.3 Scrub-shrub

5.1.4 Other Tree Canopy

5.1.5 Forest

5.2 Riverine (Non-tidal)

5.2.1. Barren

5.2.2 Herbaceous

5.2.3 Scrub-shrub

5.2.4 Other Tree Canopy

5.2.5 Forest

5.3 Terrene/Isolated (Non-tidal)

5.3.1 Barren

5.3.2 Herbaceous

5.3.3 Scrub-shrub

5.3.4 Other Tree Canopy

5.3.5 Forest

5.4 Bare shore

Note: Yellow and blue classes mapped for 2022 Ed. Grey classes were planned for 2024 Ed.

Harvested Forest Wetlands: NAIP Imagery 2018

“Barren and herbaceous lands resulting from recently cleared forests and other tree canopy in association with a timber harvest permit (DE, MD, PA, VA, WV) or having a land use history of forest rotation since the mid 1980’s”



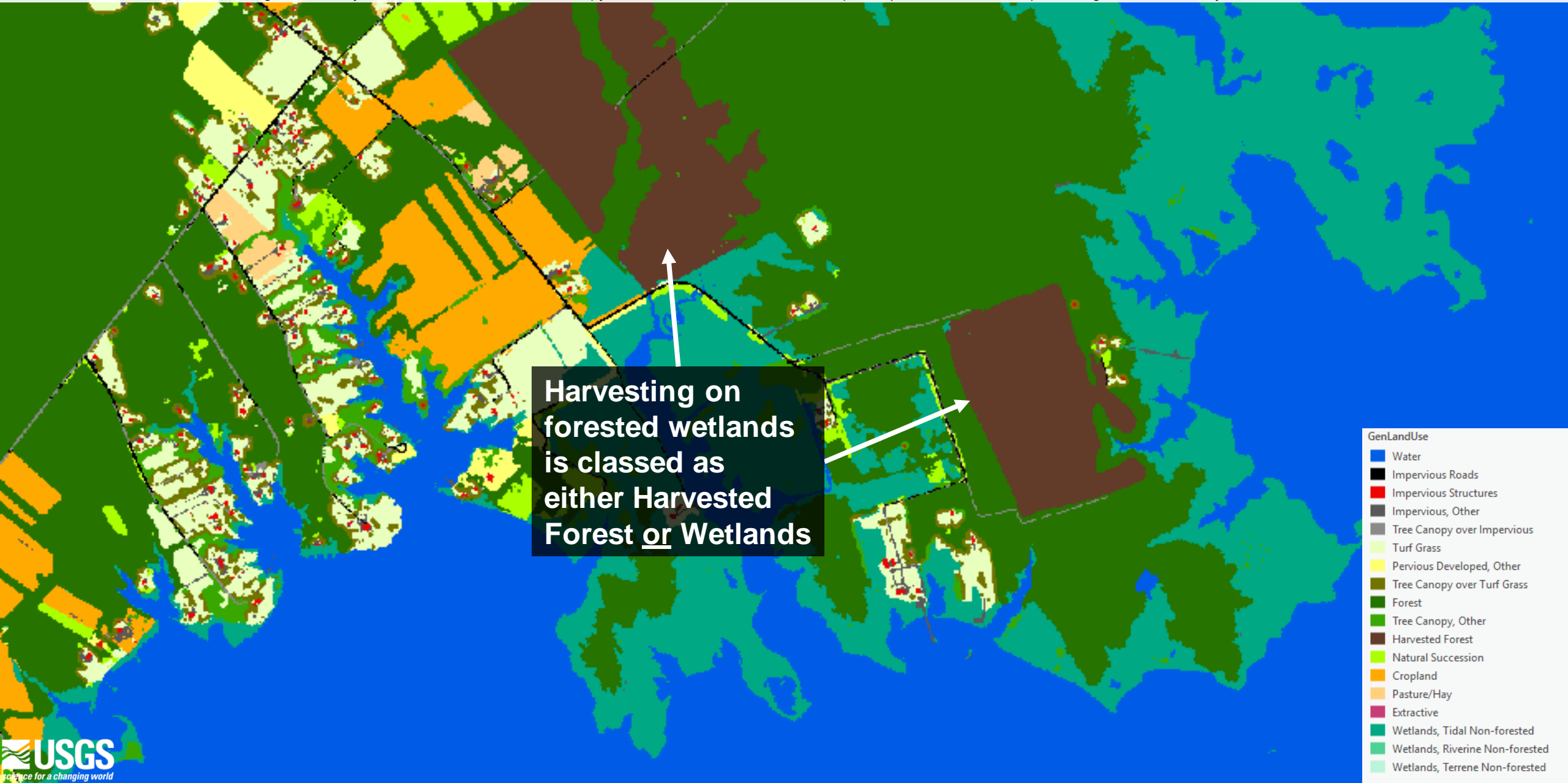
Harvested Forest Wetlands

“Barren and herbaceous lands resulting from recently cleared forests and other tree canopy in association with a timber harvest permit (DE, MD, PA, VA, WV) or having a land use history of forest rotation since the mid 1980’s”



Harvested Forest Wetlands

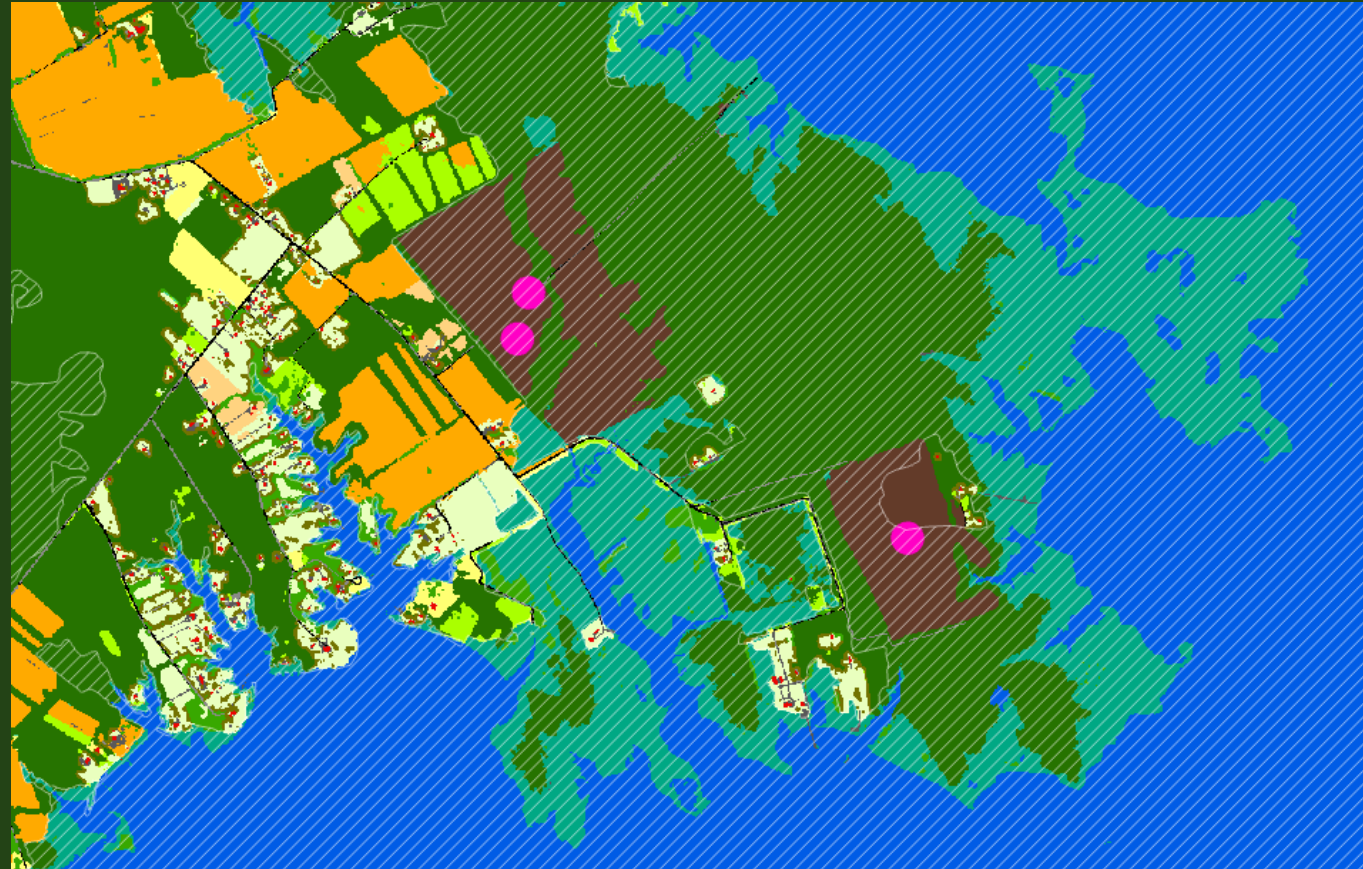
"Barren and herbaceous lands resulting from recently cleared forests and other tree canopy in association with a timber harvest permit (DE, MD, PA, VA, WV) or having a land use history of forest rotation since the mid 1980's"



New Harvested Forest Wetlands Classes

Add 3 classes of Harvested Wetlands Forest:

- New Classes:
 - Harvested Tidal Wetland Forest
 - Harvested Riverine Wetland Forest
 - Harvested Terrene Wetland Forest
- Preserve harvesting and wetlands classes

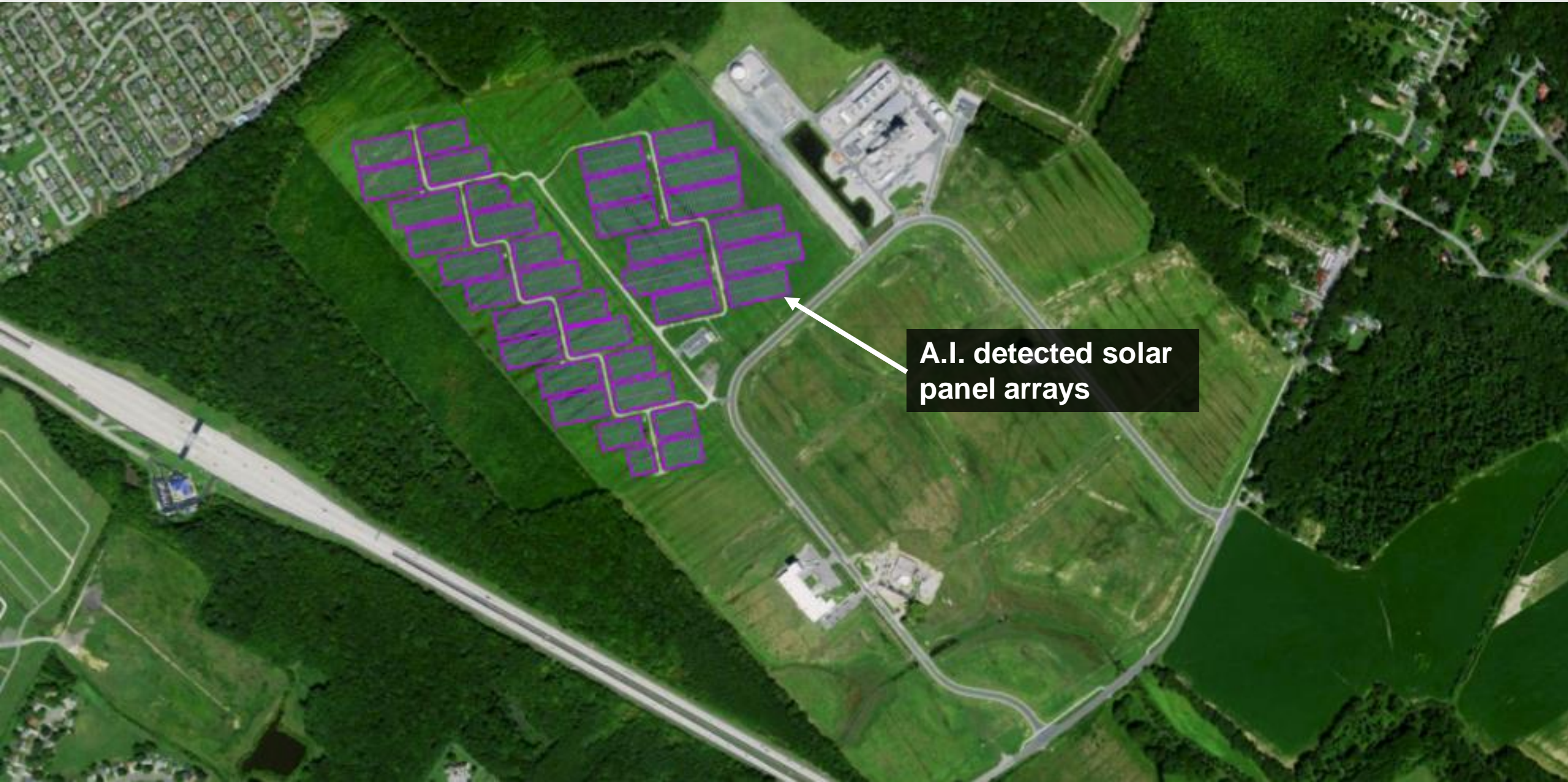


“Barren and herbaceous lands resulting from recently cleared forests and other tree canopy in association with a timber harvest permit (DE, MD, PA, VA, WV) or having a land use history of forest rotation since the mid 1980’s”

Solar Panel Arrays: NAIP Imagery



Solar Panel Arrays: NAIP Imagery



**A.I. detected solar
panel arrays**

Solar Panel Arrays: Land Cover



Solar Panel Arrays: Land Use



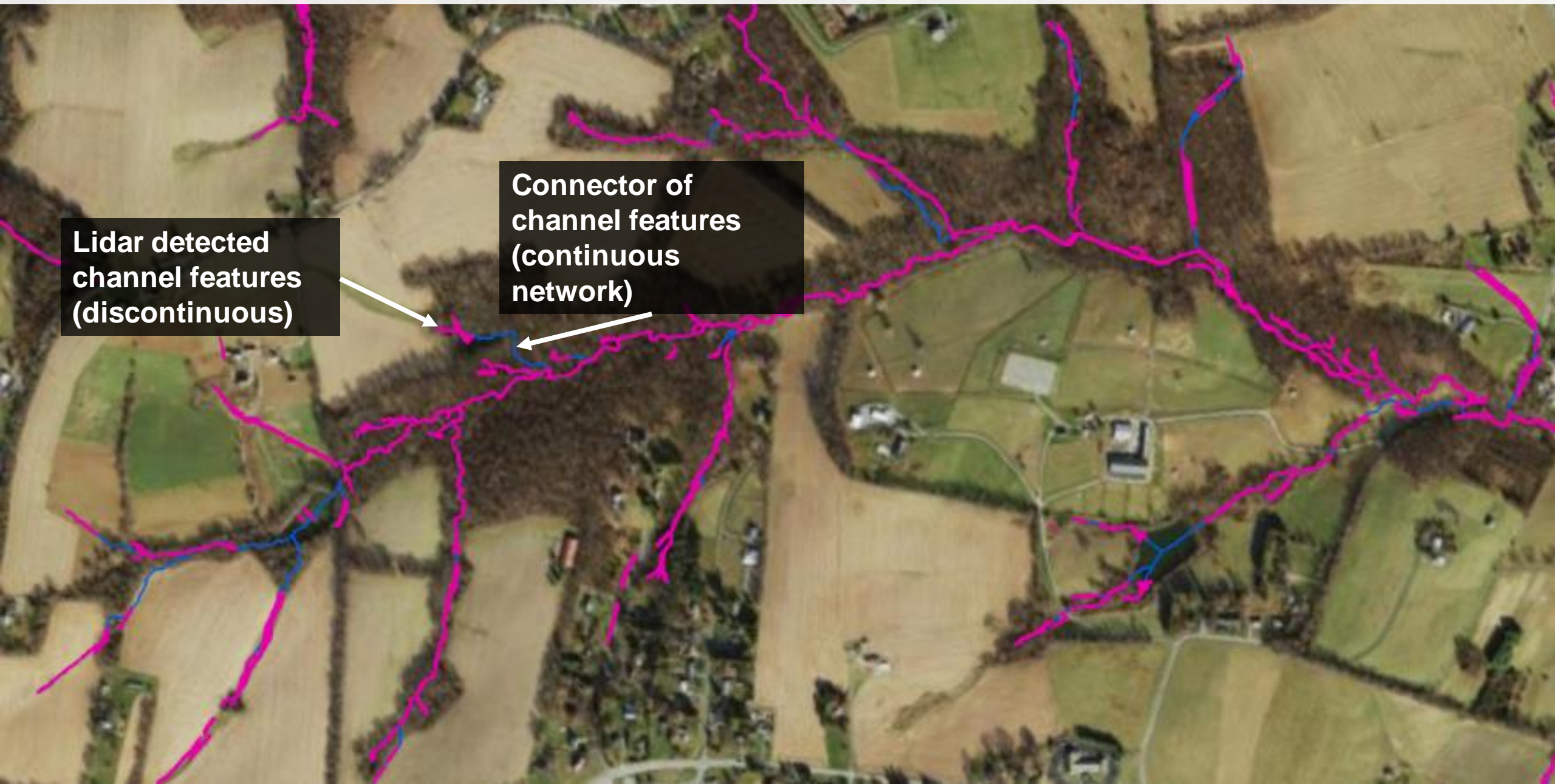
Mapped as solar
field pervious

Mapping of Solar Panel Arrays

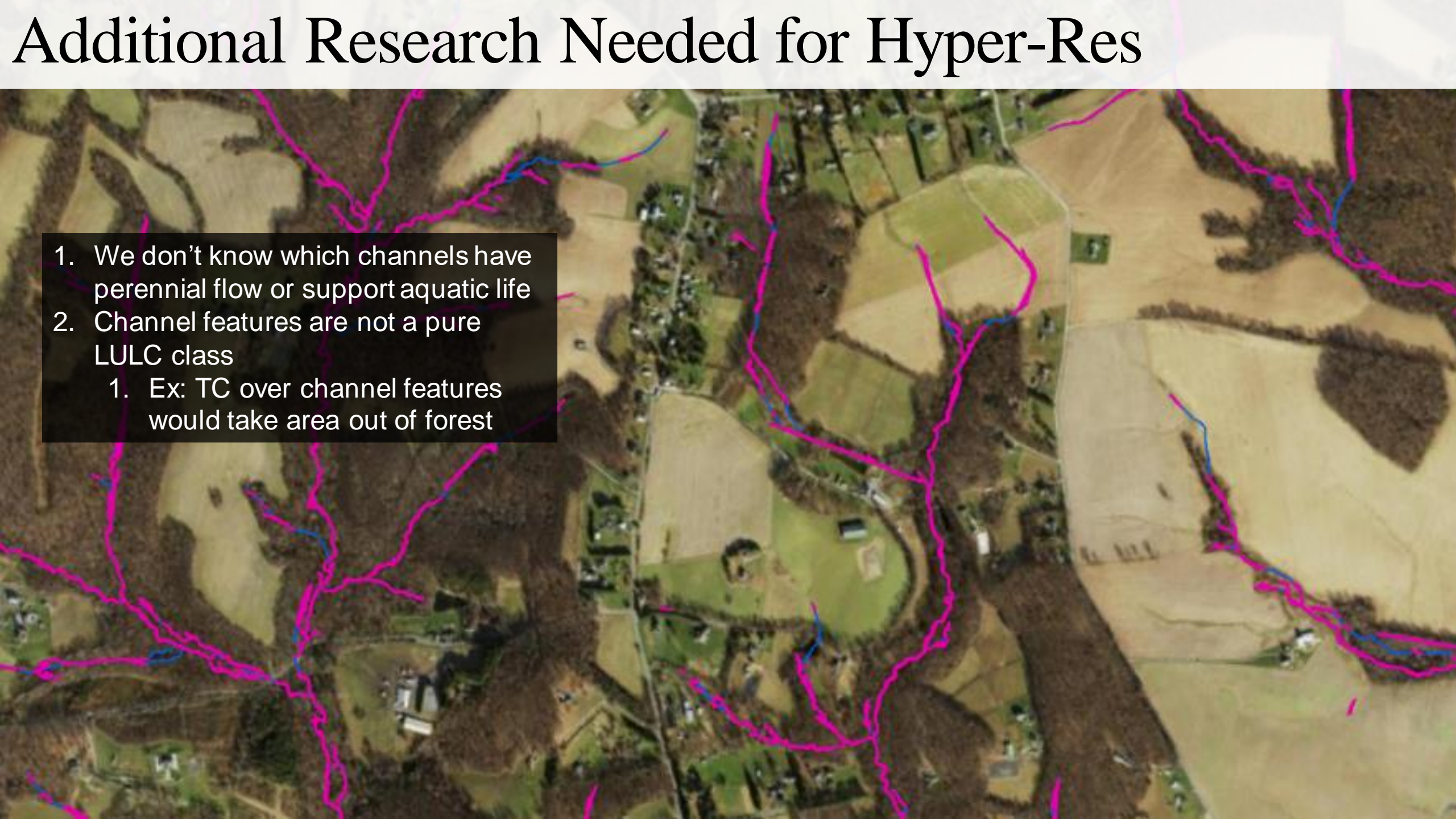
- Change name of class from *Solar Fields Impervious* to *Solar Field Panel Arrays*
- Utilize A.I. detected solar panel arrays to map them in the land cover and land use datasets



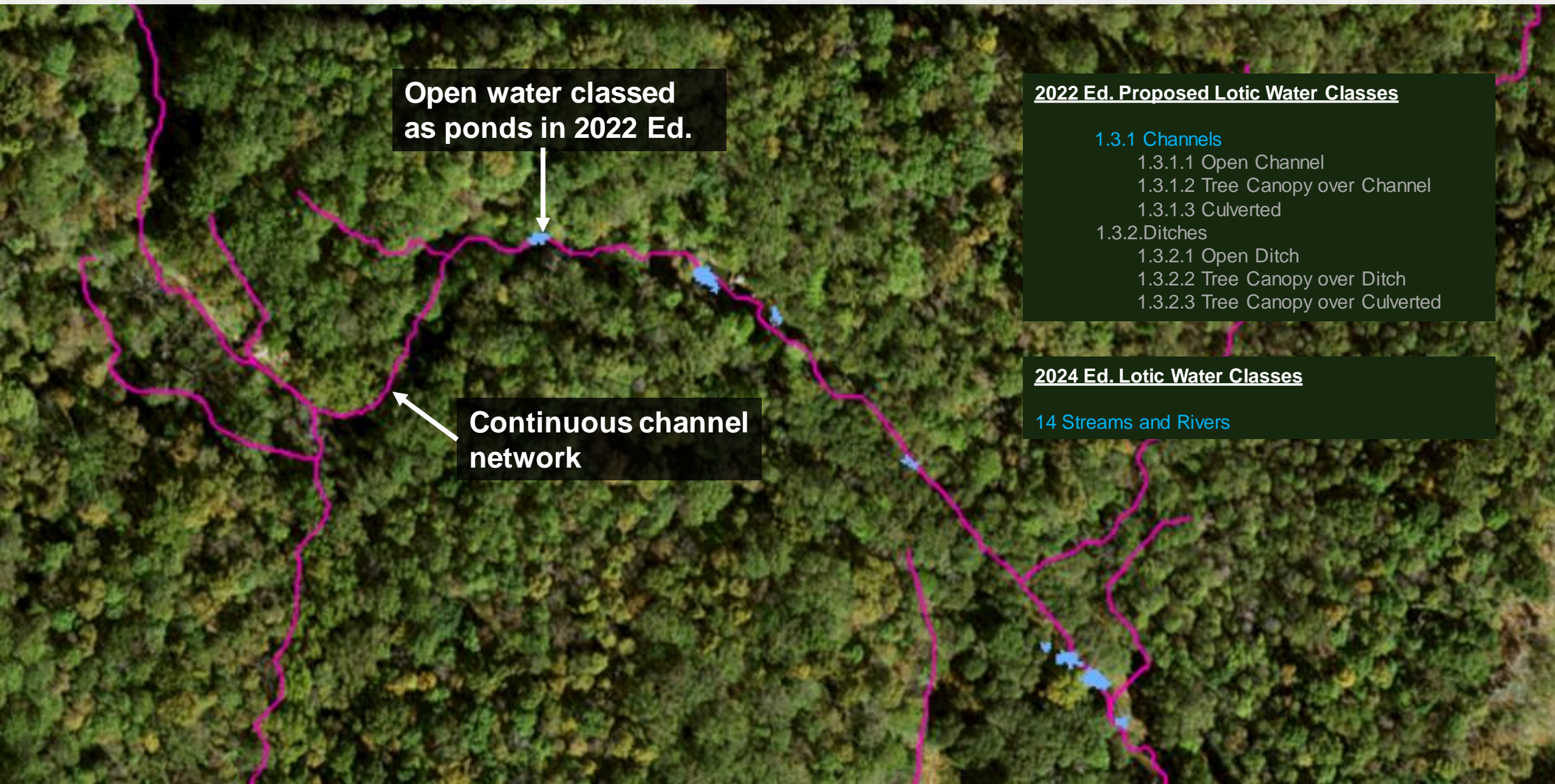
Hyper-Res Hydrography



Additional Research Needed for Hyper-Res

- 
- 1. We don't know which channels have perennial flow or support aquatic life
 - 2. Channel features are not a pure LULC class
 - 1. Ex: TC over channel features would take area out of forest

Plans to use Hyper-Res in LULC 2024 Ed.



Open water classed
as ponds in 2022 Ed.

Continuous channel
network

2022 Ed. Proposed Lotic Water Classes

1.3.1 Channels

- 1.3.1.1 Open Channel
- 1.3.1.2 Tree Canopy over Channel
- 1.3.1.3 Culverted

1.3.2. Ditches

- 1.3.2.1 Open Ditch
- 1.3.2.2 Tree Canopy over Ditch
- 1.3.2.3 Tree Canopy over Culverted

2024 Ed. Lotic Water Classes

14 Streams and Rivers

Animal Operations Classes

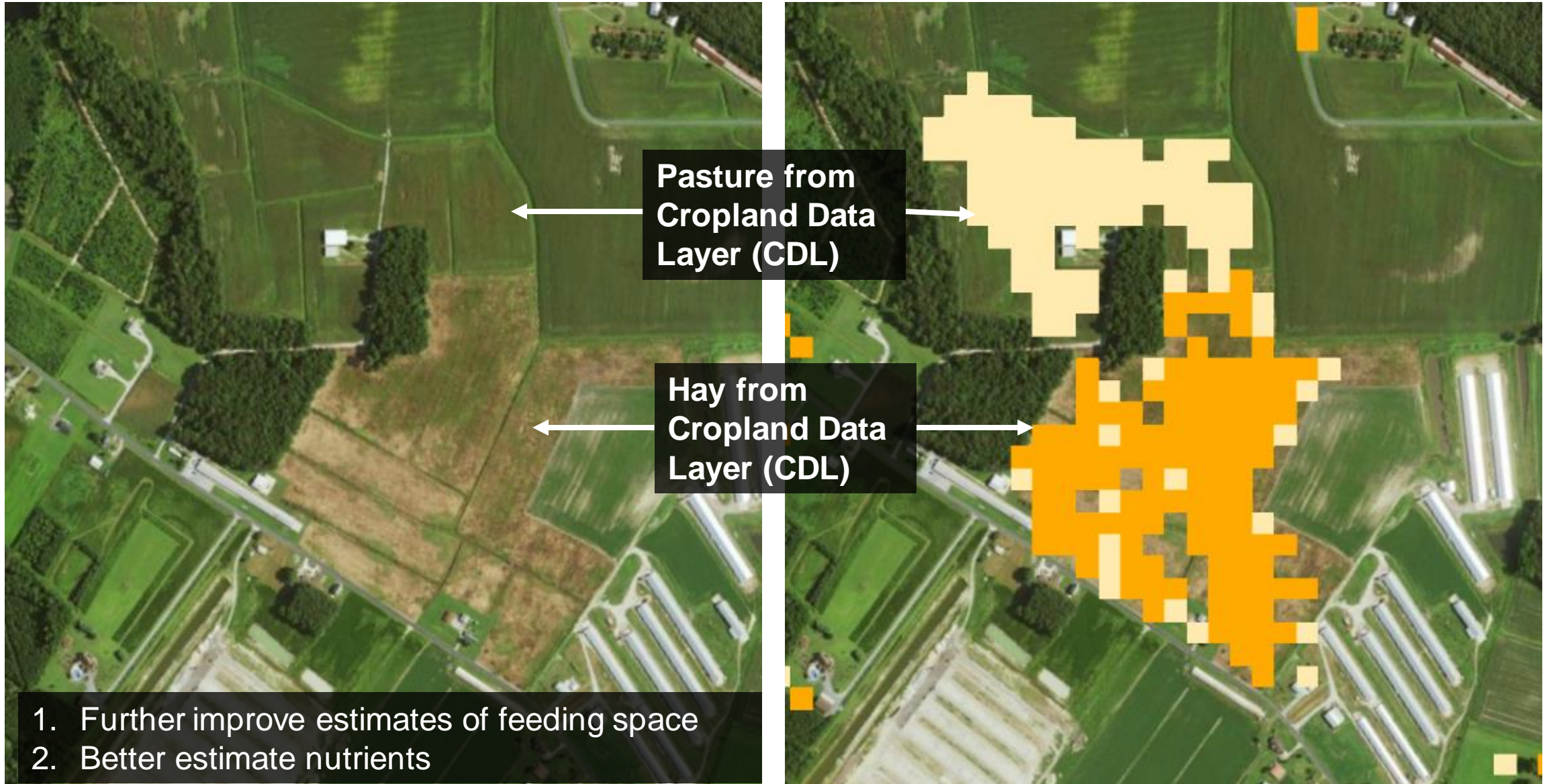
Agricultural Facilities

- 90 Agricultural Structure
- 91 Animal Operation Impervious
- 92 Animal Operation Barren
- 93 Animal Operation Herbaceous
- 94 TC over Agricultural Structure
- 95 TC over Animal Operation Impervious

Why map Animal Operations?

1. Improve feeding space area used in Phase 7
2. Improve agriculture land conversion to development ratios
 1. Agriculture intensification vs farm to residential/commercial development

Pasture vs Hay



Chesapeake Bay Land Use/Cover Classification (2024 Edition – 64 Classes)

Water and Water Margins (6)

10 Tidal Waters

Lentic

11 Lakes & Reservoirs

12 Riverine Ponds

13 Terrene Ponds

Lotic

14 Streams and Rivers

15 Bare Shore

Development (18)

Impervious

20 Roads

21 Structures

22 Other Impervious (Parking lots, driveways)

23 TC over Roads

24 TC over Structures

25 TC over Other Impervious

31 Extractive Impervious

32 Solar Field Panel Arrays

Pervious

26 Tree Canopy over Turf Grass

27 Turf Grass

28 Bare Developed

30 Extractive Barren

33 Solar Field Barren

34 Solar Field Herbaceous

35 Solar Field Shrubland

36 Suspended Succession Barren

37 Suspended Succession Herbaceous

38 Suspended Succession Shrubland

Forest (7)

Tree Canopy

40 Forest

41 Tree Canopy Other

Open Space (temporary)

42 Natural Succession Barren

43 Natural Succession Herbaceous

44 Natural Succession Shrubland

45 Harvested Forest Barren

46 Harvested Forest Herbaceous

Wetlands (18)

Riverine

50 Riverine Wetlands Barren

51 Riverine Wetlands Herbaceous

52 Riverine Wetlands Shrubland

53 Riverine Wetlands Tree Canopy

54 Riverine Wetlands Forest

55 Riverine Wetlands Harvested Forest

Terrene

60 Terrene Wetlands Barren

61 Terrene Wetlands Herbaceous

62 Terrene Wetlands Shrubland

63 Terrene Wetlands Tree Canopy

64 Terrene Wetlands Forest

65 Terrene Wetlands Harvested Forest

Tidal

70 Tidal Wetlands Barren

71 Tidal Wetlands Herbaceous

72 Tidal Wetlands Shrubland

73 Tidal Wetlands Tree Canopy

74 Tidal Wetlands Forest

75 Tidal Wetlands Harvested Forest

Agriculture (15)

Productive Lands

80 Cropland Barren

81 Cropland Herbaceous

82 Orchards and Vineyards Barren

83 Orchards and Vineyards Herbaceous

84 Orchards and Vineyards Shrubland

85 Pasture Barren

86 Pasture Herbaceous

87 Hay Barren

88 Hay Herbaceous

Agricultural Facilities

90 Agricultural Structure

91 Animal Operation Impervious

92 Animal Operation Barren

93 Animal Operation Herbaceous

94 TC over Agricultural Structure

95 TC over Animal Operation Impervious

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Chesapeake Bay Program

Science. Restoration. Partnership.

