



# UPDATE ON LAND USE CHANGE DATA FOR CAST-21

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**Land Use Work Group Call  
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# TIMELINE

- Land Use Change data posted to viewer: July 9, 2021
- LUWG met and found 2 systematic errors in the data: July 14, 2021
- Errors fixed and updated change data posted on the viewer: July 30, 2021

# ERROR 1

- Change Issue: Forest to Mixed Open transitions due to timber harvesting mis-classed as Forest to Agriculture
- Cause: Under-classification of timber harvest practices in 2017/2018 LU due to order of operations in the model and lack of timber harvesting data
- Fix:
  - Give timber harvest rules precedence over agriculture rules and tweak rule thresholds
  - Use New Data!
    - State timber harvest data for MD, PA, VA, DE
    - National Land Cover Dataset (NLCD) 2019





Tan was Forest to Pasture

Orange was Forest to Cropland

White Border is  
Forest to Mixed  
Open after fix

# TIMBER HARVEST EXAMPLE: KING WILLIAM, VA



| King William, VA | V1.0    | Updated V1.0 |
|------------------|---------|--------------|
| FORE to MO       | 3615.78 | 5741.72      |
| FORE to CRP      | 1647.23 | 175.5        |
| FORE to PAS      | 690.85  | 36.64        |

FORE = Forest; MO = Mixed Open; CRP = Cropland; PAS = Pasture



## ERROR 2

- Change Issue: Cropland and Pasture to other classes misclassified as Mixed Open to other classes
- Cause: Under-classification of agriculture in 2013/2014 LU
- Fix: Update input layers (Cropland Data Layer and National Land Cover Dataset) and lower agriculture thresholds
- Note: This update has a much smaller impact than Error 1

# ERROR 2 AFFECTED TRANSITIONS

- This fix will update the 2013/2014 LU to agriculture based on updated data and rules
- Potentially affects any transition whose V1.0 2013/2014 LU is updated to CRP or PAS
- Examples

| V1.0       | Updated V1.0 |
|------------|--------------|
| MO to INR  | CRP to INR   |
| MO to FORE | PAS to FORE  |

# AGRICULTURE

## EXAMPLE: CECIL, MD

- T1 NAIP
- T2 NAIP

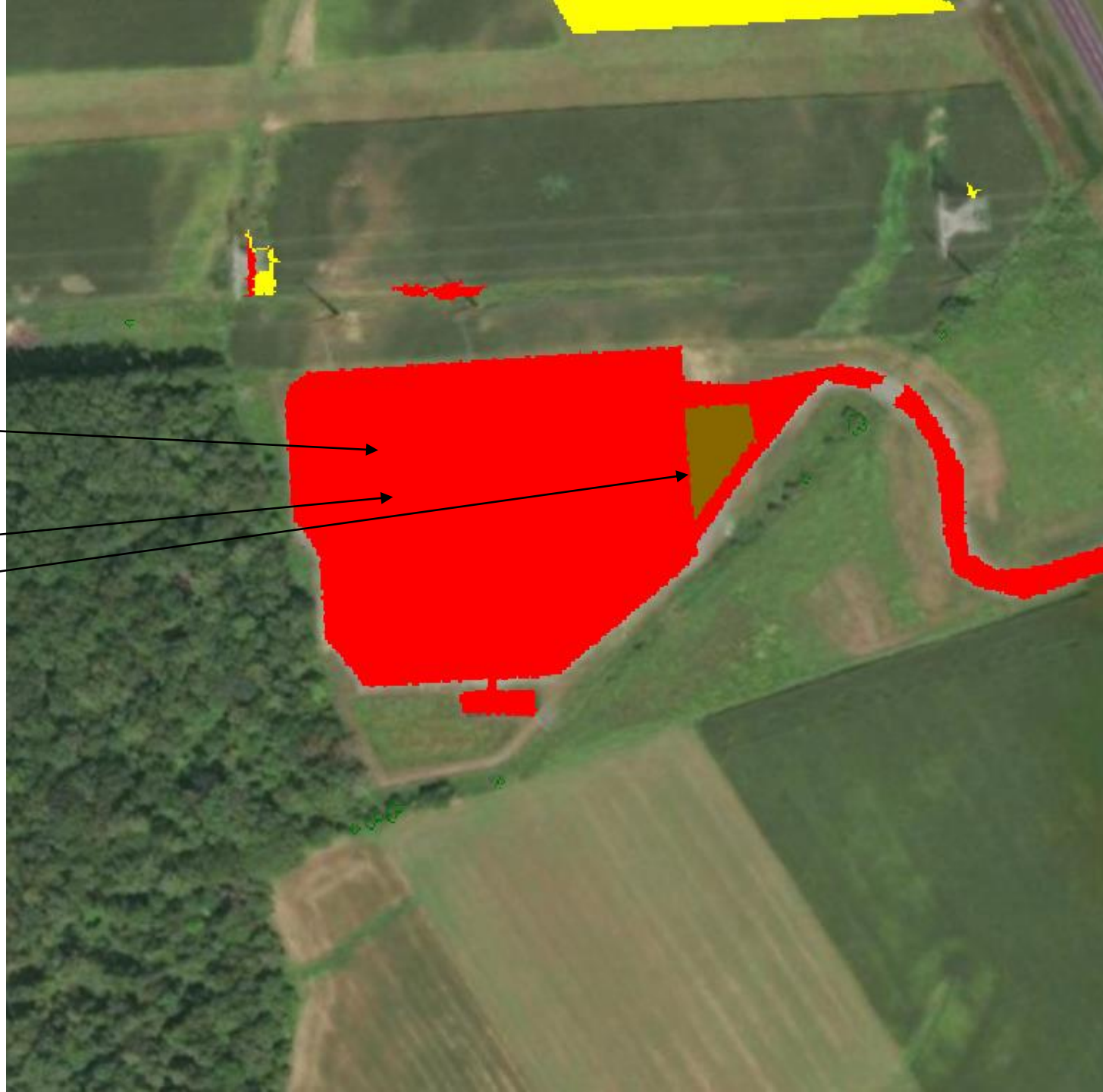




# AGRICULTURE

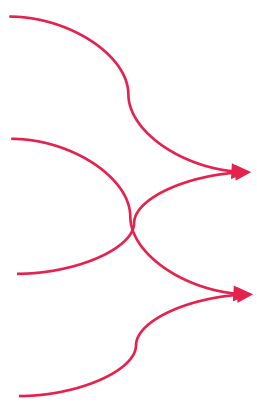
## EXAMPLE: CECIL, MD

- Mixed Open to Impervious in V1.0
- Cropland to Impervious in update
- Cropland to Mixed Open in update
  - This was missing in V1.0 since MO to MO was no change



# AGRICULTURE EXAMPLE: CECIL, MD

| Cecil, MD        | V1.0   | Updated V1.0 | Difference |
|------------------|--------|--------------|------------|
| <b>AG to DEV</b> | 97.73  | 131.15       | 33.42      |
| <b>AG to NAT</b> | 86.8   | 206.91       | 120.11     |
| <b>MO to DEV</b> | 656.19 | 622.86       | (33.33)    |
| <b>MO to NAT</b> | 357.91 | 243.72       | (114.19)   |



~33 acres of AG to DEV  
replacing MO to DEV  
~115 acres of AG to NAT  
replacing MO to NAT

AG: CRP, PAS

DEV: IR, INR, TG, TCT, TCI

NAT: FORE, WLO, WLT, WLF, WAT

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Update replaced ~150  
acres of Mixed Open in  
2013/2014 with AG

AG: CRP, PAS

DEV: IR, INR, TG, TCT, TCI

NAT: FORE, WLO, WLT, WLF, WAT

# IMPLICATIONS OF UPDATE

- Decrease Cropland and Pasture Acres
  - Add to Cropland/Pasture Loss (error 2)
- Increase Mixed Open Acres

Acres of Change For Chesapeake Bay Watershed

| V1.0                 | MO      | CRP    | PAS    |
|----------------------|---------|--------|--------|
| Gain                 | 315,469 | 22,818 | 25,770 |
| Loss                 | 169,132 | 9,213  | 11,070 |
| +3,401 Acres of Loss |         | 13,605 | 14,700 |

| V1.0   | MO      | CRP     | PAS      |
|--------|---------|---------|----------|
| Update |         |         |          |
| Gain   | 348,015 | 10,396  | 11,795   |
| Loss   | 158,938 | 12,614  | 24,515   |
| Net    | 189,077 | (2,218) | (12,720) |



# IMPLICATIONS OF UPDATE

- Decrease Cropland and Pasture Acres
  - Add to Cropland/Pasture Loss (error 2)
  - Remove from Cropland/Pasture Gain (error 1)
- Increase Mixed Open Acres
  - Remove from Mixed Open Loss (error 2)
  - Add to Mixed Open Gain (error 1)

Acres of Change For Chesapeake Bay Watershed

| V1.0                  | MO      | CRP    | PAS    |
|-----------------------|---------|--------|--------|
| <b>Gain</b>           | 315,469 | 22,818 | 25,770 |
| <b>Loss</b>           | 169,132 | 9,213  | 11,070 |
| -12,422 Acres of Gain |         | 13,605 | 14,700 |

| V1.0 Update | MO      | CRP     | PAS      |
|-------------|---------|---------|----------|
| <b>Gain</b> | 348,015 | 10,396  | 11,795   |
| <b>Loss</b> | 158,938 | 12,614  | 24,515   |
| <b>Net</b>  | 189,077 | (2,218) | (12,720) |

Change from V1.0 to update:      + 42,741   -15,823   -24,420



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