**Processing Landcover Data for SDM Workflow**

1. Crop by North American boundaries (**DONE**)
2. Reclassify from 32 types (**DONE**)
3. Separate into rasters based on Value column & reclassify again (binary raster: 1 for “presence” of landcover 0 for “absence”) (**DONE**)
4. Resample using nearest neighbours’ approach to 1km2 grid size (**DONE**)
5. Moving window analysis: 9x9 grid cell convert categorical to continuous (**DONE**)
6. Code into existing pipeline (**DONE**)
7. Assess model: OR and AUC: with landcover and climate, without landcover, without climate (**DONE**)

**Landcover Types**

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| **Value** | **Original Landcover Type** | **Reduced types (12)** | **Further reduced types (8)** |
| 10 | Cropland, rainfed | Combine:  10 Cropland, rainfed and Mosaic cropland and natural vegetation (tree, shrub, herbaceous cover) | Cropland 10 |
| * 11 | * Herbaceous cover |
| * 12 | * Tree or shrub cover |
| 30 | Mosaic cropland (>50%) / natural vegetation (tree, shrub, herbaceous cover) (<50%) |
| 40 | Mosaic natural vegetation (tree, shrub, herbaceous cover) (>50%) / cropland (<50%) |
| 50 | Tree cover, broadleaved, evergreen, closed to open (>15%) | Combine:  50 Tree cover, broadleaved, closed to open (evergreen, deciduous) | Forests (Broadleaved, needleleaved, and mixed)  50 |
| 60 | Tree cover, broadleaved, deciduous, closed to open (>15%) |
| * 61 | * Tree cover, broadleaved, deciduous, closed (>40%) |
| * 62 | * Tree cover, broadleaved, deciduous, open (15‐40%) |
| 70 | Tree cover, needleleaved, evergreen, closed to open (>15%) | Combine:  70 Tree cover, needleleaved, closed to open (evergreen, deciduous) |
| * 71 | * Tree cover, needleleaved, evergreen, closed (>40%) |
| * 72 | * Tree cover, needleleaved, evergreen, open (15‐40%) |
| 80 | Tree cover, needleleaved, deciduous, closed to open (>15%) |
| 90 | Tree cover, mixed leaf type (broadleaved and needleleaved) | Keep:  90 Tree cover, mixed leaf type (broadleaved and needleleaved) |
| 100 | Mosaic tree and shrub (>50%) / herbaceous cover (<50%) | Combine:  100 Shrubland (Evergreen, Deciduous) and Mosaic tree and shrub / herbaceous cover | Other vegetation 100  (Combine 100, 140, 150) |
| 110 | Mosaic herbaceous cover (>50%) / tree and shrub (<50%) |
| 120 | Shrubland |
| * 121 | * Evergreen shrubland | 130 Grassland |
| * 122 | * Deciduous shrubland |
| 130 | Grassland | Keep:  130 Grassland |
| 140 | Lichens and mosses | Keep:  140 Lichens and mosses |
| 150 | Sparse vegetation (tree, shrub, herbaceous cover) (<15%) | Combine:  150 Sparse vegetation (tree, shrub, herbaceous cover) |
| * 152 | * Sparse shrub (<15%) |
| * 153 | * Sparse herbaceous cover (<15%) |
| 160 | Tree cover, flooded, fresh or brakish water | Combine:  160 Flooded Tree cover, shrub, or herbaceous cover (fresh or brakish water, saline water) | Flooded vegetation 160 |
| 170 | Tree cover, flooded, saline water |
| 180 | Shrub or herbaceous cover, flooded, fresh/saline/brakish water |
| 190 | Urban areas | Keep:  190 Urban areas | Urban 190 |
| 200 | Bare areas | Combine:  200 Bare areas (consolidated) | Bare areas 200 |
| * 201 | * Consolidated bare areas |
| 220 | Permanent snow and ice | Keep:  220 Permanent snow and ice | Permanent snow and ice  220 |