**Density of HCV forests within a given radius from each cell**

**Script**

density\_analysis.py

**Description**

The model identifies the density of HCV forests (% of forest land) within a given radius from each cell and delineates areas based on defined density thresholds.

**Mapset**

density\_analysis

**Necessary preparations**

1. Run the script update\_NMD.py (see separate documentation) to generate an updated land-use map map
2. Copy a study area to the mapset and name it "study\_area".
3. Generate a land use map and a forest map for the study area using the script density\_analysis\_nmd.py
   * Mapset: density\_analysis
4. Count cells classified as protected or restricted forest within a given radius from each cell in the study area using the script density\_analysis\_count\_HCV.py
   * Mapset: density\_analysis\_count\_HCV
5. Count cells classified as protected, restricted or continuity forest within a given radius from each cell using the script density\_analysis\_count\_HCV\_kskog.py
   * Mapset: density\_analysis\_count\_HCV\_kskog
6. Count cells classified as forest land within a given radius from each cell using the script density\_analysis\_count\_forest.py
   * Mapset: density\_analysis\_count\_forest

4-6 can be run in parallel by opening three instances of GRASS GIS and running one in each.

**Necessary input data**

Generated above

**Output data**

Multiple output data. Main outputs include:

* **result\_density\_forest\_HCV\_[radius]m\_v2**
  + density of protected or restricted forest (% of total forest land) within a defined radius from each cell
  + saved as GRASS raster and geotiff (see path in script)
* **result\_density\_forest\_HCV\_kskog\_[radius]m\_v2**
  + density of protected, restricted or continuity forest (% of total forest land) within a defined radius from each cell
  + saved as GRASS raster and geotiff (see path in script)
* **result\_vardetrakter\_[percentage]\_HCV\_[radius]**
  + areas having a density of protected or restricted forest (% of total forest land) exceeding a specific threshold (percentage) within a defined radius.
  + saved as GRASS raster, GRASS vector and and shapefile (see path in script)
* **result\_vardetrakter\_[percentage]\_HCV\_kskog\_[radius]**
  + areas having a density of protected, restricted or continuity forest (% of total forest land) exceeding a specific threshold (percentage) within a defined radius.
  + saved as GRASS raster, GRASS vector and and shapefile (see path in script)

**Usage**

1. Complete the preparations
2. Open the script and uncomment the functions to run.
3. Thresholds can be set freely. To use a different radius from what is pre-filled, preparatory steps 4-6 need to be run with updated scripts.
4. Run the script from a GRASS console within the given mapset.

**Updating the analysis**

Just run the script after having completed the necessary preparations.