FRAGSTATS

1. Metrics grouped by aspect of landscape metric measured
   1. Area and edge metrics
      1. Loose collection of metrics that deal with the size of patches and the amount of edge created by these patches
   2. Shape metrics
      1. Interaction of patch shape and size can influence a number of important ecological processes
         1. Primary significance of shape in determining the nature of patches in a landscapes seems to be related to the ‘edge effect’
   3. Core area metrics
      1. The area within a patch beyond some specified depth-of-edge influence (i.e. edge distance) or buffer width
      2. Primary significance of core area in determining the character and function of patches In a landscapes appears to be related to the “edge effect”
   4. Contrast metrics
      1. The magnitude of difference between adjacent patch types with respect to one or more ecological attributes at a given scale that are relevant to the organism or process under consideration
   5. Aggregation metrics
      1. Tendency of patch types to be spatially aggregated
         1. Occur in large, aggregated or “contagion” distributions
         2. Landscape texture
         3. To describe – dispersion, interspersion, subdivision (broken up into separate pieces), and isolation
   6. Diversity metrics
      1. Richness and evenness across landscape
         1. Richness number of patch types present
         2. Distribution of area among different types
2. Then further classified into (level of organization)
   1. Patch metrics
      1. Indices of spatial character and context of individual patches
      2. Measure of the deviation from class and landscape norms
         1. How much the computed value of each metric for a patch deviates from the class and landscape means
   2. Class metrics
      1. Indices of the amount and spatial configuration of the class
      2. Distribution statistics that provide the patch metrics for the focal class
         1. Summarize mean, area-weighted mean, median, range, standard deviation, and coefficient of variation in the patch attributes across all patches in the focal class
   3. Landscape metrics
      1. Indices of the composition and spatial configuration of the landscape
      2. Distribution statistics that provide first and second order statistical summaries
         1. Summarize mean, area-weighted mean, median, range, standard deviation, and coefficient of variation in the patch attributes across all patches in the landscape
3. Metrics:
   1. Area and Edge metrics
      1. Loose collection of metrics that deal with the size of patches and the amount of edge created by these patches
      2. Patch metrics
         1. Patch area – area of the patch (converted to hectares)
         2. Patch perimeter – perimeter of the patch including any internal holes in the patch regardless of whether the perimeter represents a true edge or not
         3. Radius of gyration – mean distance between each cell in the patch and the patch centroid
            1. Measure of patch extent, so effected by patch size and compaction
      3. Class metrics
         1. Total (class) area – Sum of the areas of all patches of the corresponding patch type (hectares)
         2. Percentage of landscape – percentage of the landscape comprised of the corresponding patch type
         3. Largest patch index – percentage of the landscape comprised by the largest patch
         4. Total edge – sum of the lengths of all edge segments involving the corresponding patch type
         5. Edge density – sum of the lengths of all edge segments involving the corresponding patch type divided by total landscape area
         6. Patch area distribution -
         7. Radius of gyration distribution
      4. Landscape metrics
         1. Total area – total area of the landscape (hectares)
         2. Largest patch index – The percent of the landscape that the largest patch comprises
         3. Total edge – sum of the lengths of all edge segments in the landscape
         4. Edge density - sum of the lengths of all edge segments of the landscape divided by total landscape area
         5. Patch area distribution
         6. Radius of gyration distribution
   2. Shape metrics
      1. Patch metrics
         1. Perimeter-Area Ratio – ratio of the patch perimeter to area
         2. Shape Index – patch perimeter divided by the square root of patch area, adjusted by a constant to adjust for a square standard
         3. Fractal Dimension Index – 2 times the logarithm of patch perimeter divided by the logarithm of patch area (perimeter adjusted to correct for the raster bias in perimeter)
         4. Related Circumscribing Circle – 1 minus patch area divided by the area of the smallest circumscribing circle
         5. Contiguity index – Assesses the spatial connectedness of cells within a grid-cell patch to provide an index on patch boundary configuration and thus patch shape
      2. Class Metrics
         1. Perimeter-area fractal dimension – reflects shape complexity across a range of spatial scales
         2. Perimeter-area ratio distribution
         3. Shape index distribution
         4. Fractal index distribution
         5. Linearity index distribution
         6. Related circumscribing square distribution
         7. Contiguity index distribution
      3. Landscape metrics
         1. Perimeter-area fractal distribution
         2. Perimeter-area ratio distribution
         3. Shape index distribution
         4. Fractal index distribution
         5. Related circumscribing square distribution
         6. Contiguity index distribution
   3. Core Area Metrics
      1. Patch metrics
         1. Core area – area in the patch greater than the specified depth-of-edge distance from the perimeter.
         2. Number of core areas – number of disjunct core areas contained within the patch boundary
         3. Core area index – quantifies core area as a percentage of patch area, percentage of the patch that is comprised of core area.
      2. Class metrics
         1. Total core area
         2. Core area percentage of landscape
         3. Number of disjunct core areas
         4. Disjunct core area distribution
         5. Core area index distribution
      3. Landscape metrics
         1. Total core area
         2. Number of disjunct core areas
         3. Disjunct core area density
         4. Disjunct core area distribution
         5. Core area index distribution
   4. Contrast metrics
      1. Patch metrics
         1. Edge contrast index
      2. Class metrics
         1. Contrast-weighted edge density
         2. Total edge contrast index
         3. Edge contrast index distribution
      3. Landscape metric
         1. Contrast weighted edge density
         2. Total edge contrast index
         3. Edge contrast index distribution
   5. Aggregation metrics
      1. Patch metrics
         1. Euclidean nearest neighbor distance
         2. Proximity index
         3. Similarity index
      2. Class metrics
         1. Interspersion and juxtaposition index
         2. Percentage of like adjacencies
         3. Aggregation index
         4. Clumpiness index
         5. Landscape shape index
         6. Normalized landscape shape index
         7. Patch cohesion index
         8. Number of patches
         9. Patch density
         10. Landscape division index
         11. Splitting index
         12. Effective mesh size
         13. Euclidean nearest neighbor distribution
         14. Proximity index distribution
         15. Similarity index distribution
         16. Connectance
      3. Landscape metrics
         1. Contagion
         2. Interspersion and juxtaposition index
         3. Percentage of like adjacencies
         4. Aggregation index
         5. Landscape shape index
         6. Patch cohesion index
         7. Number of patches
         8. Patch density
         9. Landscape division index
         10. Splitting index
         11. Effect mesh size
         12. Euclidean nearest neighbor distribution
         13. Proximity index distribution
         14. Similarity index distribution
         15. Connectance
   6. Diversity metrics
      1. Landscape metrics
         1. Patch richness
         2. Patch richness density
         3. Relative patch richness
         4. Shannon’s diversity index
         5. Simpson’s diversity index
         6. Modified Simpson’s diversity index
         7. Shannon’s evenness index
         8. Simpson’s evenness index
         9. Modified Simpson’s evenness index