How to convert a point layer to a raster grid that shows the frequency of points per cell in QGIS

I have a point layer that shows the distribution of a species. Is it possible in QGIS to convert this point layer to a raster grid in which the value of each cell corresponds with the amount of points within that cell? Until now, I only managed to attach attribute values to the grid cells. I have already added a column in my attribute table that has the value '1' for each point, hoping that there is a way to use a sum of attributes for each grid cell. Can anyone please help me? Thanks!

qgis point rasterization

asked Apr 28 at 16:00
Murphy
25 5

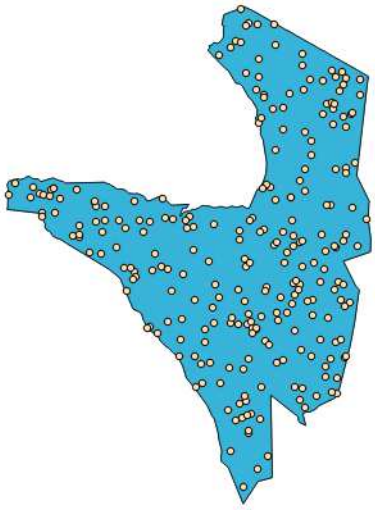
1 Just a quick note about your logic: If you just sum the values of 1 for each grid cell then you are very likely overestimating richness (if this is what you want to calculate) as this calculation does not check if a species has already been added to a gridcell.– CurlewApr 28 at 16:19

I have a species distribution pattern, one point per observed individual. I want to check for aggregation and link the distribution of the species to underlying habitat in GIS. Now many points are lying above and very close to each other, so for visualisation I woud like to 'simplify' this pattern and use a grid that shows the number of individuals that have been observed per cell. I hope this explains it a bit better.– Murphy Apr 28 at 16:37

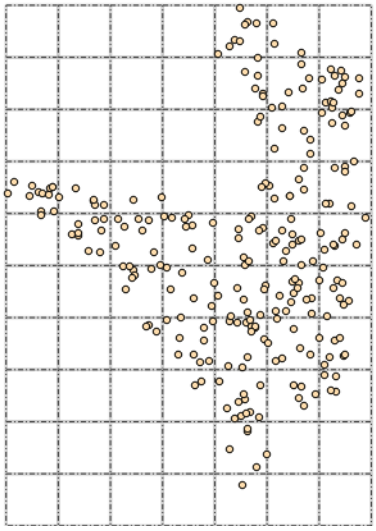
2 Answers

This is a kludge but it does work - haven't found a way to go directly from points to raster yet (but am hoping someone gives a solution here!).

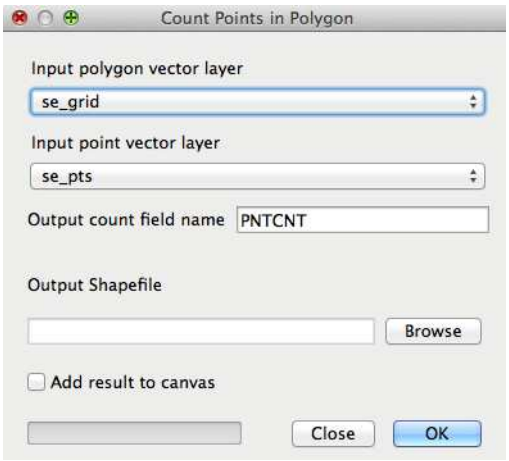
Starting with a point grid (random points in the Serengeti from the `Vector|Research tools|Random points` tool):



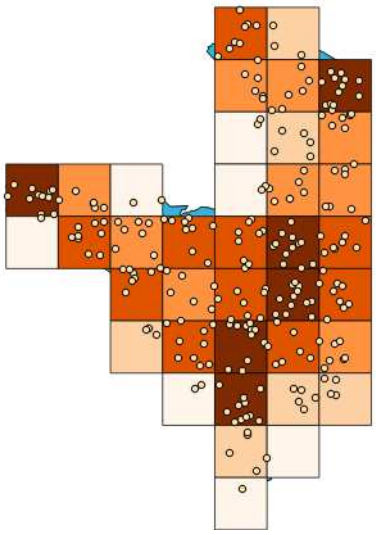
Create a polygonal grid of the same extent and cell size as the raster you'd like to have (this from `Vector|Research tools|Vector grid`):



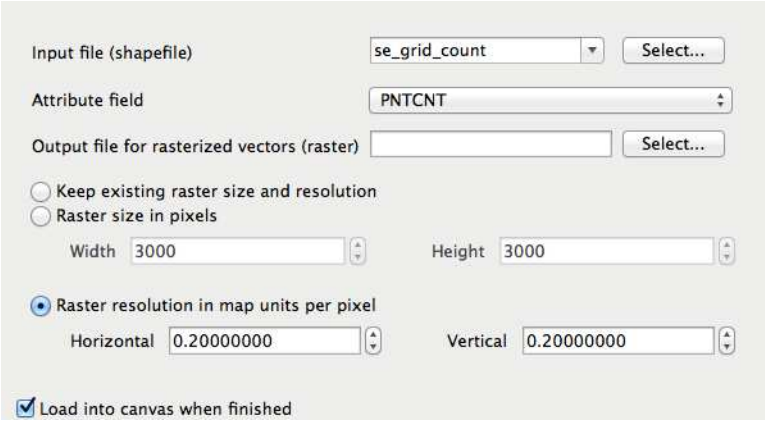
Use `Vector|Analysis tools|Points in polygon`, using the polygon grid and the point layer:



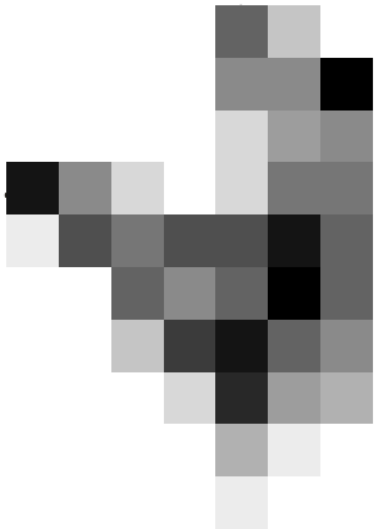
This gives you a new grid (here colour coded by the number of points in each polygon cell):



Now use `Raster|Conversion|Rasterize` to convert this to a raster, using the PNTCNT attribute for the raster values and the same cell size as chosend for the grid:



... giving a raster with values as per the points in each cell:



answered Apr 28 at 18:26
Simbamangu
4,972 12 47

@user29654 - did this work for you?– Simbamangu Apr 30 at 14:35

Yes! THANK YOU! This is exactly what I needed! (Sorry for the late response, had internet problems...)– Murphy May 1 at 20:17

Easiest and most straight-forward way:

- Assume you have a column with a unique point identifier (the species name)
- Split your Point layer by this Attribute (QGIS -> Data Management -> Split)
- Rasterize each individual point layer for instance with the GDAL Rasterize Tool, or the SAGA or GRASS tools available in the Processing Toolbox. Make sure that you use the same cell-size and resulting extent.
- Simply sum up all generated Rasterlayers. For instance with the SAGA function "Grids sum" or within GRASS "r.sum". Both functions are available in the Processing Toolbox as well.

In order to do this automatically I would suggest you ether write yourself a script, a processing-model or click x times on batch-processing in the QGIS Processing Toolbox. EDIT: If you are capable of using R then just start directly from here and adapt the code to your needs (looping through splitted points).
Or you wait for a little longer. In my freetime I am currently in the process of writing a new plugin for QGIS (dealing with macroecological calculations) and It might have a function similar to what you need.

answered Apr 28 at 16:34
Curlew
3,964 1 13 43

I think the question relates to a single **species** layer - which can't (and shouldn't) be split for a solution. OP needs a 'sum of points in raster cell' solution.– Simbamangu Apr 28 at 18:01

Well you can do it without splitting, but this requires almost certainly a loop, respectively a scripted solution. For a single species your solution is working of course as it simply shows aggregated occurrence density.– CurlewApr 28 at 18:32