

Integrating vector data into existing raster

Objective

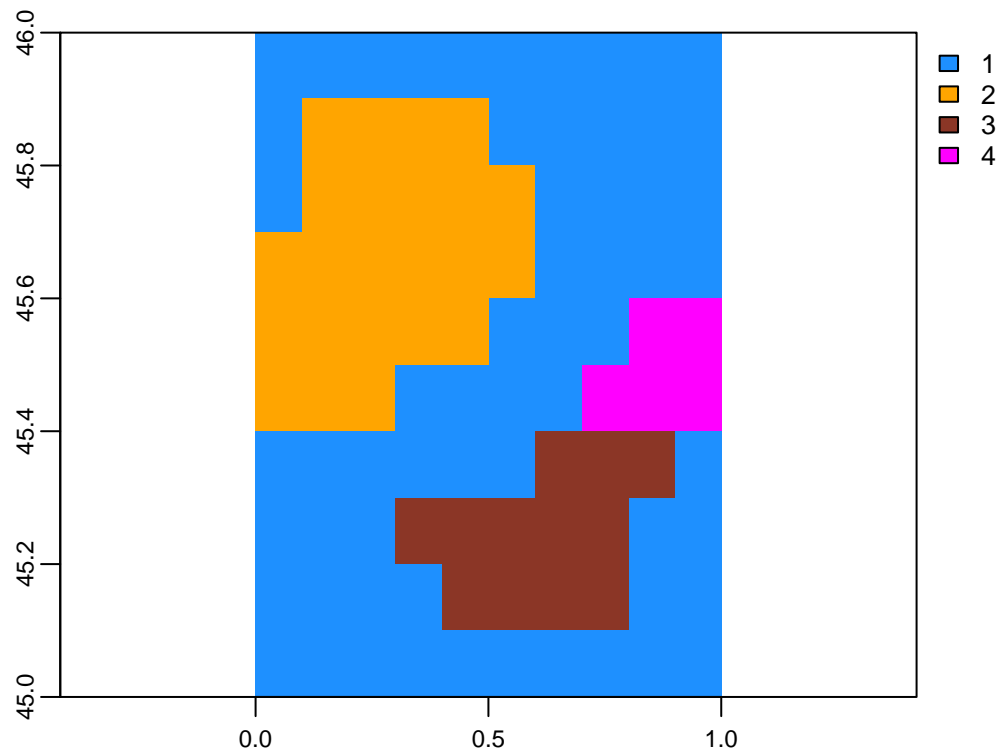
We want to augment the information contained in a raster file (e.g., land cover map) with information that was digitized in a vector format (e.g., lines, points or polygons).

Strategy

1. Convert the vector information into a raster file, using the same reference grid (origin, resolution and projection) as the raster we want to augment.
2. Replace the NA value from the newly created raster with the value contained in the first.

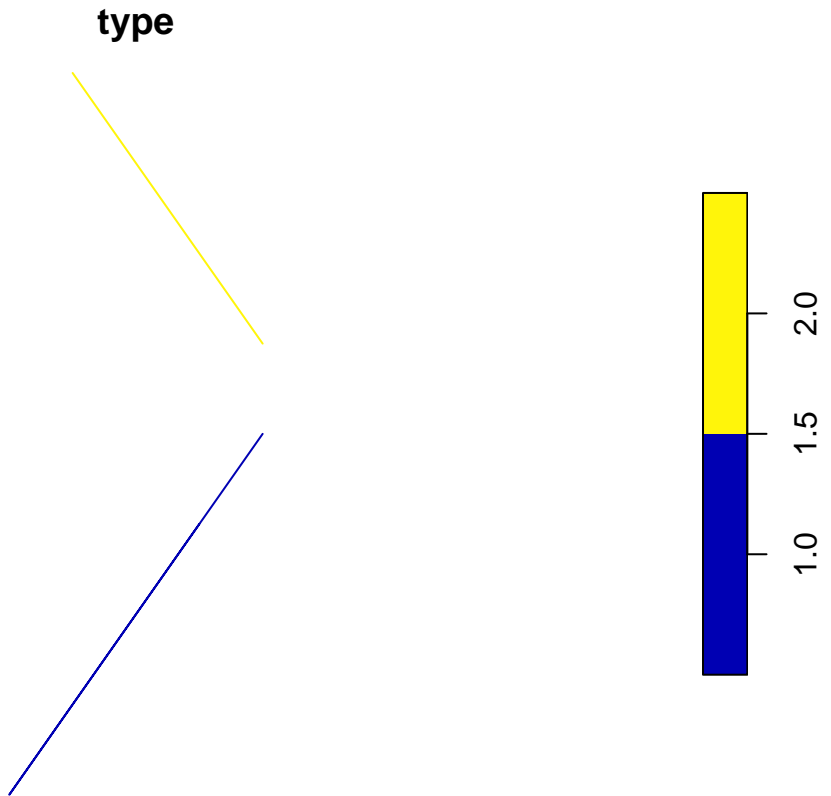
Example

```
library(terra)
lc_raster <- rast(xmin=0, xmax=1, ymin=45, ymax=46, crs = "EPSG:4326", res=0.1,
                 vals= matrix(nrow = 10, ncol = 10, byrow = TRUE,
                              data = c(1,1,1,1,1,1,1,1,1,1,
                                         1,2,2,2,2,1,1,1,1,1,
                                         1,2,2,2,2,2,1,1,1,1,
                                         2,2,2,2,2,2,1,1,1,1,
                                         2,2,2,2,2,2,1,1,1,1,
                                         2,2,2,2,2,1,1,1,4,4,
                                         2,2,2,1,1,1,1,4,4,4,
                                         1,1,1,1,1,1,3,3,3,1,
                                         1,1,1,3,3,3,3,3,1,1,
                                         1,1,1,1,3,3,3,3,1,1,
                                         1,1,1,1,1,1,1,1,1,1)),
                 name = "landcover")
lc_raster <- disagg(lc_raster, fact = 4)
plot(lc_raster, col = c("dodgerblue", "orange", "tomato4", "magenta"))
```



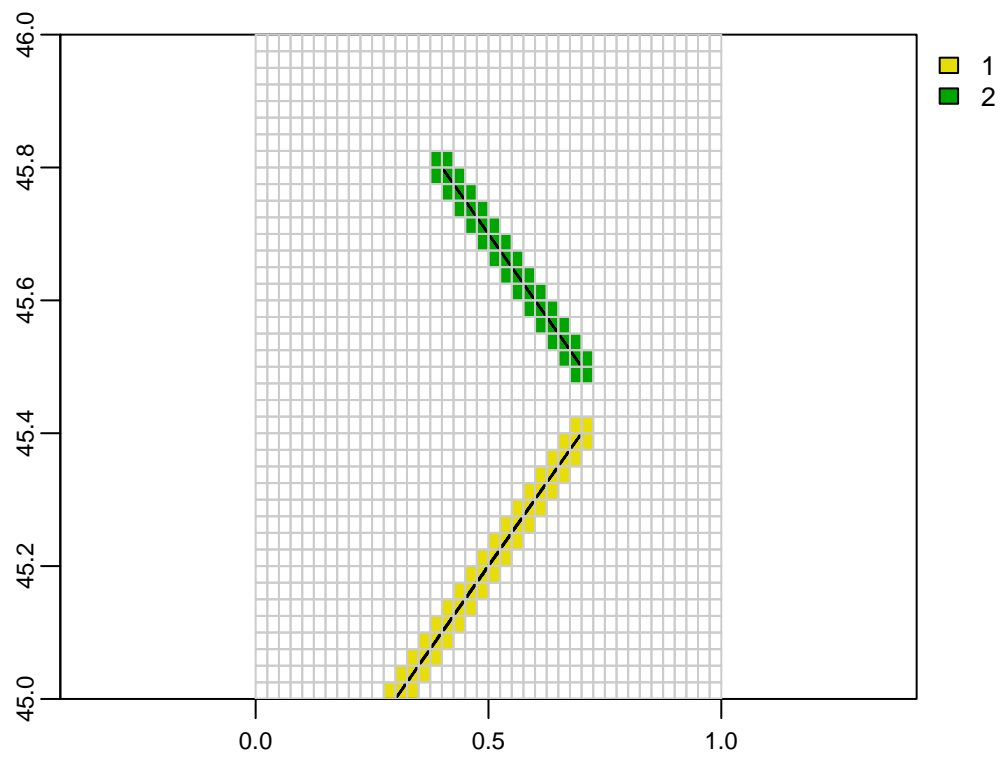
preamble

```
library(sf)
library(tidyverse)
hedgerow_pts_df <- data.frame(x = c(seq(0.3, 0.7, by = 0.1), seq(0.7, 0.4, by = -0.1)),
                              y = c(seq(45, 46, by=0.1)[seq_along(c(seq(0.3, 0.7, by = 0.1), seq(0.7, 0.4, by = -0.1))),
                              type = c(rep(1, length(seq(0.3, 0.7, by = 0.1))), rep(2, length(seq(0.7, 0.4, by = -0.1))))
hedgerow_pts_sf <- sf::st_as_sf(hedgerow_pts_df, coords = c("x", "y"), crs = 4326)
hedgerow_line_sf <- hedgerow_pts_sf %>% group_by(type) %>% summarize() %>% st_cast("LINESTRING")
plot(hedgerow_line_sf)
```



```
hedgerow_raster <- rasterize(vect(st_buffer(hedgerow_line_sf, 10)), lc_raster, field = 'type', touches = TRUE)
plot(hedgerow_raster)
plot(st_buffer(hedgerow_line_sf, 10), add = TRUE)

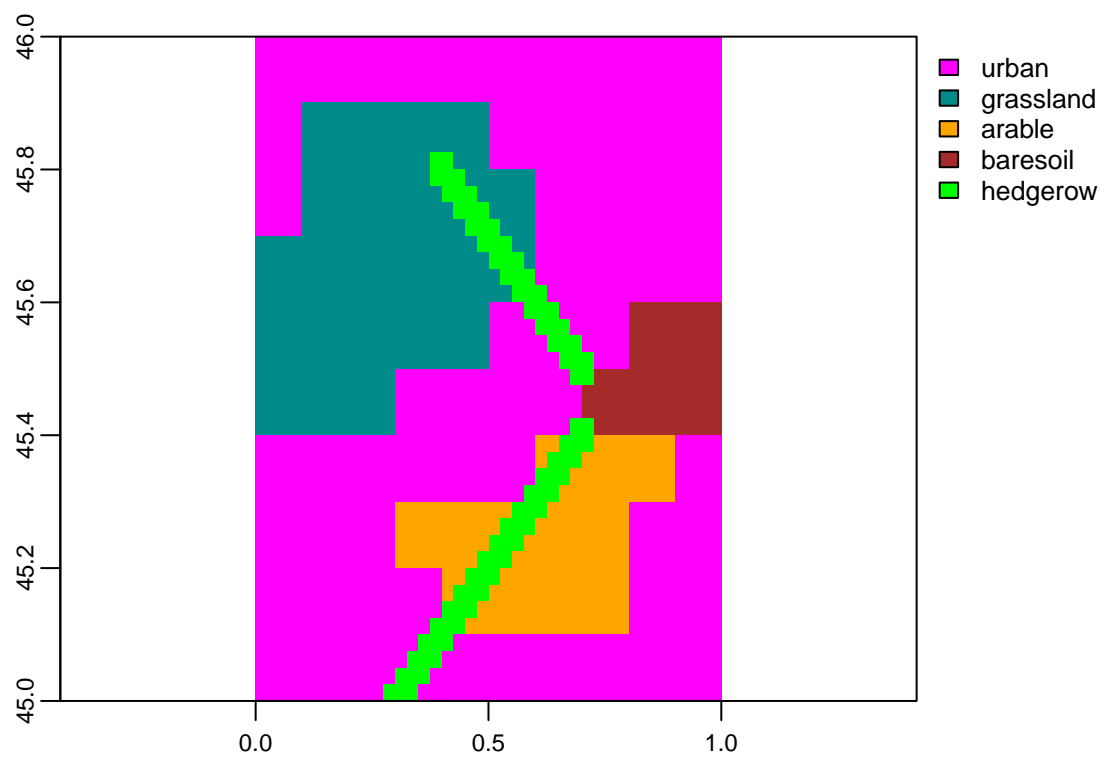
grid_sf <- st_make_grid(st_bbox(lc_raster), cellsize = res(lc_raster))
plot(grid_sf, border = 'grey80', add = TRUE)
```



Step 1.

```
hedgerow_raster[] <- hedgerow_raster[] + max(values(lc_raster))
hedgerow_lc_raster <- cover(hedgerow_raster, lc_raster)

coltab(hedgerow_lc_raster) <- c("NA", "magenta", "cyan4", "orange", "brown", "green", "green")
levels(hedgerow_lc_raster) <- c("NA", "urban", "grassland", "arable", "baresoil", "hedgerow", "hedgerow")
plot(hedgerow_lc_raster)
```



Step 2.