

NDVI and Field Based NFI Carbon

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2010 NDVI Values—

```
library(raster)
```

```
## Loading required package: sp
```

```
library("sp")  
library("sf")
```

```
## Linking to GEOS 3.6.1, GDAL 2.2.3, PROJ 4.9.3
```

```
library("rgdal")
```

```
## rgdal: version: 1.4-4, (SVN revision 833)  
## Geospatial Data Abstraction Library extensions to R successfully loaded  
## Loaded GDAL runtime: GDAL 2.2.3, released 2017/11/20  
## Path to GDAL shared files: C:/Users/kyaws/Documents/R/win-library/3.6/rgdal/gdal  
## GDAL binary built with GEOS: TRUE  
## Loaded PROJ.4 runtime: Rel. 4.9.3, 15 August 2016, [PJ_VERSION: 493]  
## Path to PROJ.4 shared files: C:/Users/kyaws/Documents/R/win-library/3.6/rgdal/proj  
## Linking to sp version: 1.3-1
```

```
library(ggplot2)  
library(tidyverse)
```

```
## -- Attaching packages -----
```

```
## v tibble 2.1.3    v purrr 0.3.2  
## v tidyr  0.8.3    v dplyr 0.8.3  
## v readr  1.3.1    v stringr 1.4.0  
## v tibble 2.1.3    v forcats 0.4.0
```

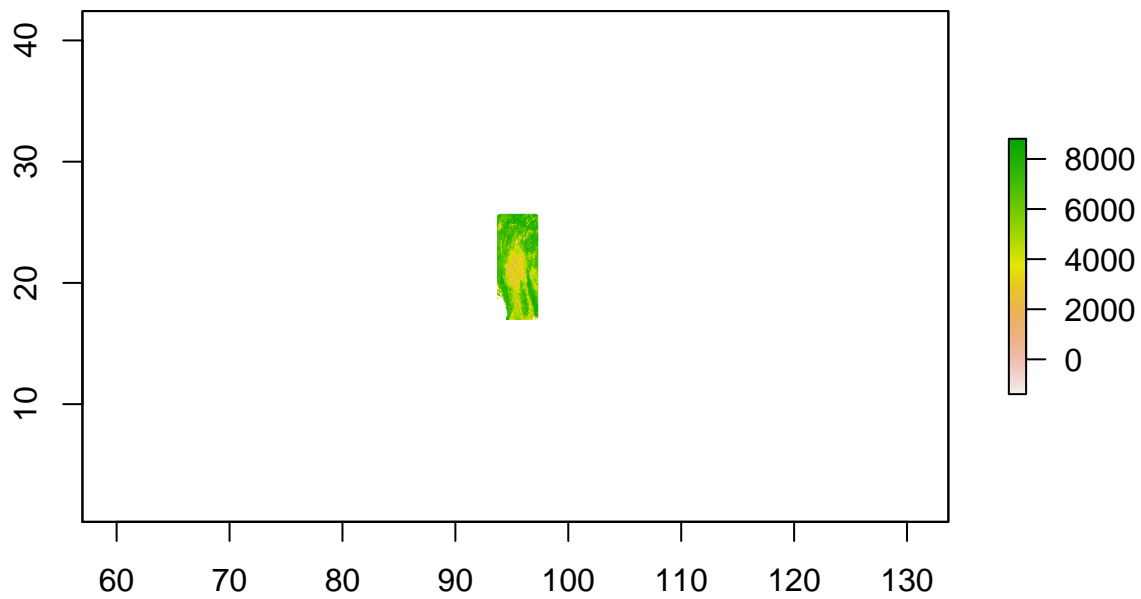
```
## -- Conflicts -----
```

```
## x tidyr::extract() masks raster::extract()  
## x dplyr::filter()  masks stats::filter()  
## x dplyr::lag()     masks stats::lag()  
## x dplyr::select()  masks raster::select()
```

```
NFI2010_PLT <-raster("Data/NDVI2010_NFI.tif")  
mypts <-readOGR("Plots_Locations/locations_WGS84.shp")
```

```
## OGR data source with driver: ESRI Shapefile  
## Source: "D:\PhD-Web\Plots_Locations\locations_WGS84.shp", layer: "locations_WGS84"  
## with 7881 features  
## It has 9 fields
```

```
NDVI2010 <- crop(NFI2010_PLT, mypts)
plot(NFI2010_PLT)
```



```
mydata <- raster::extract(NFI2010_PLT, mypts)
class(mydata)
```

```
## [1] "numeric"
```

```
NDVI2010_values <- as.data.frame(mydata)
NDVI2010 <- NDVI2010_values %>% rename(NDVI2010=mydata)
```

joining the NDVI value to the Carbon-dataframe

```
Plots_Carbon <- read.csv("Data_Output/Plots_Carbon.csv")
Plots_Carbon$NDVI2010 <- NDVI2010$NDVI2010
C_NDVI2010 <- Plots_Carbon

C_NDVI2010 <- C_NDVI2010 %>% drop_na(NDVI2010)

ggplot(data=C_NDVI2010, aes(x=New_Carbon, y = NDVI2010, color=Year))+ geom_point()+
  labs(title = "Carbon storage & NDVI2010",
       x= "MaxCarbon(t/ha)",
       y= "NDVI 2010")+
```

```
theme(axis.text.x = element_text(size=7, angle = 45, vjust = 0.5),  
      axis.text.y = element_text(size = 7))
```

