Pefiles de elevación

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Perfiles de elevación

Cargar paquetes y funciones

```r
library(raster)
library(tidyverse)
library(sf)
library(RColorBrewer)
library(topoDistance)
library(kableExtra)
options(knitr.kable.NA = '')
my_kable_style <- function(df, caption = '', full_width = T) {
  df %>% kable(format = 'latex', escape = F, booktabs = T,
               digits = 2, caption = caption) %>%
    kable_styling(bootstrap_options = c("hover", "condensed"),
                  latex_options = "HOLD_position",
                  full_width = full_width, position = "center")
}
source('R/funciones.R')
```

Datos

```r
transectos <- st_read('transectos-perfiles-de-elevacion/transectos-perfiles-elevacion.gpkg') %>%
  arrange(nombre, ID)
```

```
## Reading layer `perfiles' from data source
##   `/home/jose/Documentos/git/tesis-ana-carolain/transectos-perfiles-de-elevacion/transectos-perfiles-elevacion.gpkg'
##   using driver `GPKG'
```

```
## Simple feature collection with 72 features and 3 fields
## Geometry type: LINESTRING
## Dimension:      XY
## Bounding box:   xmin: 375950.7 ymin: 2016431 xmax: 376699.3 ymax: 2016798
## Projected CRS: WGS 84 / UTM zone 19N
```

```
dsm <- raster('transectos-perfiles-de-elevacion/dsm_hires.tif')
```

Algunas pruebas:

```
# topoProfile(dsm, transectos %>% as_Spatial() %>% as('SpatialLines'))
# topoProfile(dsm, transectos[1:6,] %>% as_Spatial() %>% as('SpatialLines'), type = 'plotly')
```

```
lista_datos <- miTopoProfile(dsm, transectos %>% as_Spatial() %>% as('SpatialLines')) %>%
  setNames(paste(transectos$nombre, transectos$ID, sep = '-'))
tabla_datos <- plyr::ldply(lista_datos, .id = 'sector_ID') %>%
  mutate(Sector = gsub('(.*)-(.)*', '\\1', sector_ID),
         ID = as.numeric(gsub('(.*)-(.*)', '\\2', sector_ID))) %>%
  mutate(ID = factor(ID, levels = sort(unique(ID)))) %>%
  rename(`Distancia (adimensional)` = Distance, `Elevación (adimensional)` = Elevation)
tabla_datos %>%
  ggplot() +
  aes(x = `Distancia (adimensional)`, y = `Elevación (adimensional)`) +
  geom_line(alpha = 0.5, color = 'grey50') +
  geom_smooth(se = F, color = 'black') +
  scale_x_continuous(breaks = c(0,0.5,1), labels = c(0,0.5,1), limits = c(0, 1)) +
  scale_y_continuous(breaks = c(0,0.5,1), labels = c(0,0.5,1), limits = c(0, 1)) +
  theme(
    legend.position = "none",
    text = element_text(size = 12),
    panel.background = element_rect(fill = 'white', colour = NA),
    panel.grid.major.y = element_line(colour = "grey", linetype = "dashed", size = 0.25),
    strip.background = element_rect(colour = "grey90", fill = "grey90"),
    panel.border = element_rect(color = NA, fill = NA, size = 1),
    strip.text = element_text(colour = "black", size = 10)
    ) +
  facet_wrap( ~ sector_ID, ncol = 9)
```

```
tabla_datos %>%
  ggplot() +
```

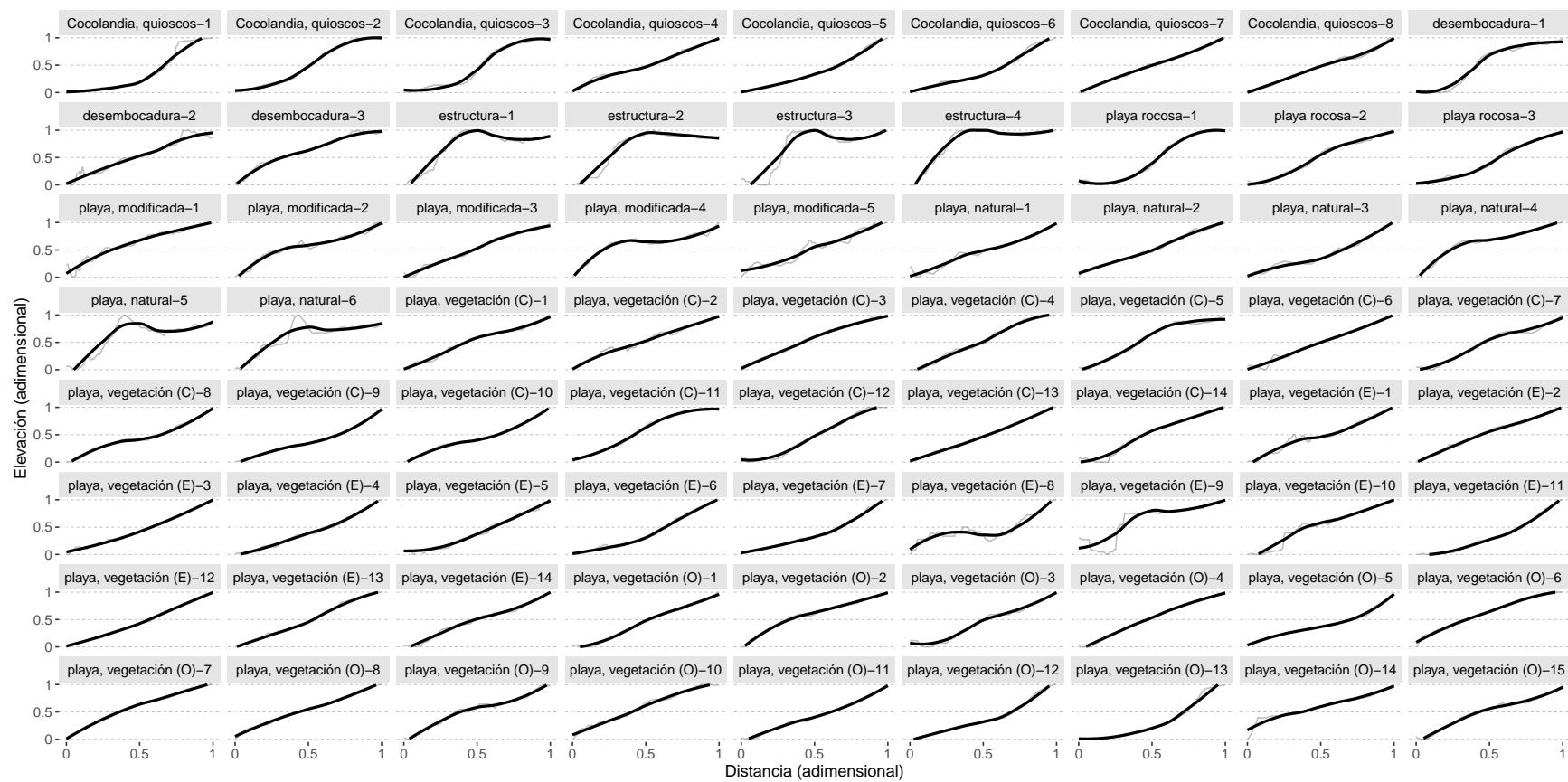Figure 1: Mapa de localización de transectos para perfiles de playa

Figure 2: Perfiles de playa por sectores, desagregados

```r
aes(x = `Distancia (adimensional)`, y = `Elevación (adimensional)`, group = ID, color = ID) +
geom_line(alpha = 0.5, color = 'grey50') +
geom_smooth(se = F) +
scale_x_continuous(breaks = c(0,0.5,1), labels = c(0,0.5,1), limits = c(0, 1)) +
scale_y_continuous(breaks = c(0,0.5,1), labels = c(0,0.5,1), limits = c(0, 1)) +
theme(
  text = element_text(size = 14),
  panel.background = element_rect(fill = 'white', colour = NA),
  panel.grid.major.y = element_line(colour = "grey", linetype = "dashed", size = 0.25),
  strip.background = element_rect(colour = "grey90", fill = "grey90"),
  panel.border = element_rect(color = NA, fill = NA, size = 1),
  strip.text = element_text(colour = "black", size = 12)
  ) +
facet_wrap( ~Sector)
```
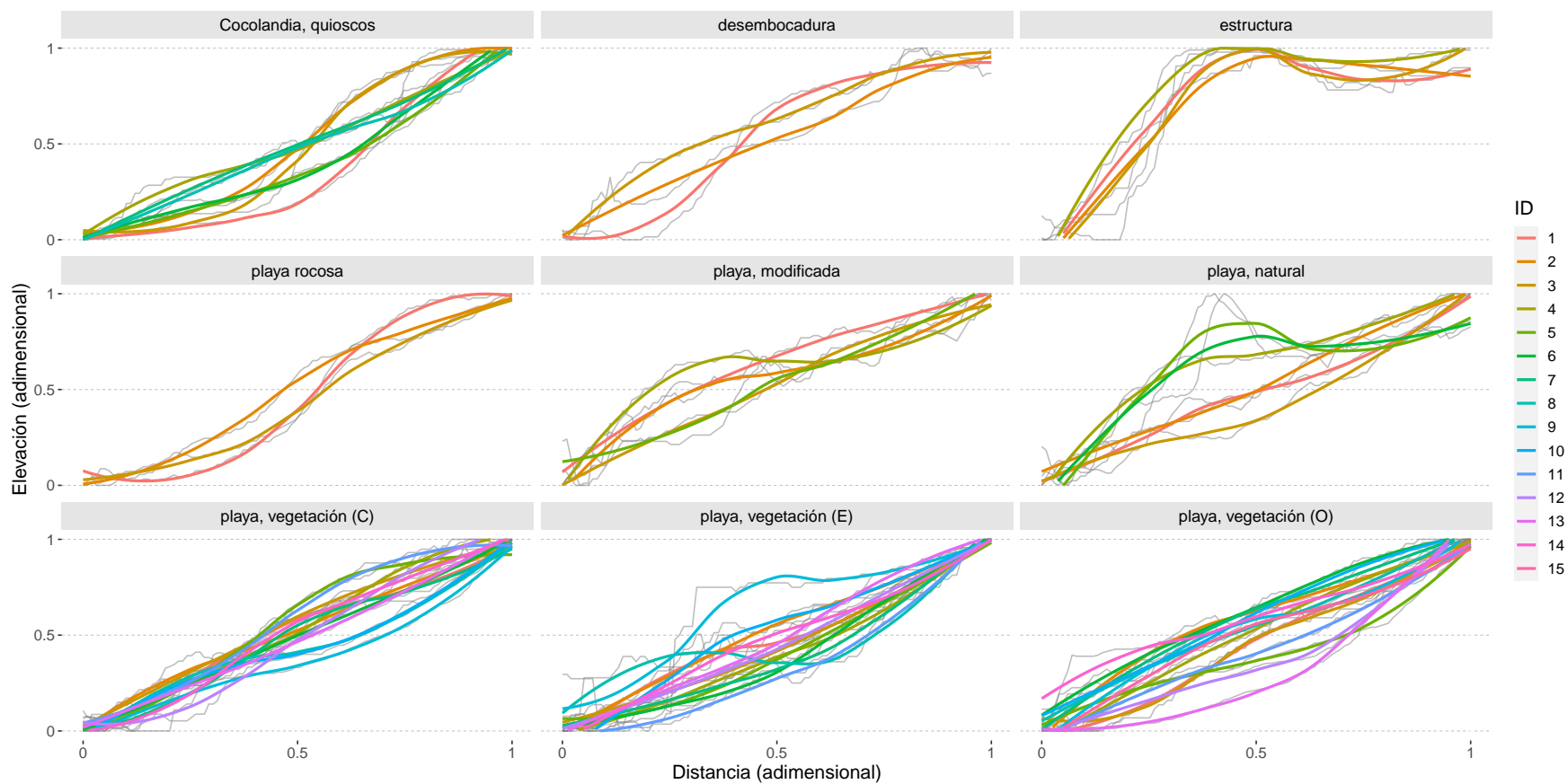
Figure 3: Perfiles de playa por sectores, combinados