

Assignment 7, Part I

Ellen Bledsoe

2024-02-27

2. When Did You Knit This Document? (5 pts)

```
## [1] "2024-02-27"
```

```
## [1] "2024-02-27 08:47:37 MST"
```

3. Plant Vouchers (20 pts)

```
## Rows: 165 Columns: 17
## -- Column specification -----
## Delimiter: ","
## chr (11): season, sp_code, sci_name_fieldID, sci_name_profID, voucher, DNA, ...
## dbl (6): year, month, day, easting, northing, elevation (m)
##
## i Use 'spec()' to retrieve the full column specification for this data.
## i Specify the column types or set 'show_col_types = FALSE' to quiet this message.

## # A tibble: 165 x 18
##   year month   day collection_date season sp_code  sci_name_fieldID
##   <dbl> <dbl> <dbl> <date>          <chr>  <chr>    <chr>
## 1  2017     1    26 2017-01-26      <NA>  <NA>    Panicum miliaceum
## 2  2016     3    20 2016-03-20    winter cass bauh Cassia bauhinioides
## 3  2016     3    20 2016-03-20    winter spha hast Sphaeralcea coccinea
## 4  2016     3    20 2016-03-20    winter amsi tess Amsinckia tessellata
## 5  2016     3    20 2016-03-20    winter micr lene Uropappus lindleyi
## 6  2016     3    20 2016-03-20    winter erig conc Erigeron concinnus
## 7  2016     3    20 2016-03-20    winter atri cane Atriplex canescens
## 8  2016     3    20 2016-03-20    winter euro lana Eurotia lanata
## 9  2016     3    20 2016-03-20    winter pros glan Prosopis glandulosa
## 10 2016     3    20 2016-03-20    winter phac ariz Phacelia arizonica
## # i 155 more rows
## # i 11 more variables: sci_name_profID <chr>, voucher <chr>, DNA <chr>,
## #   label_number <chr>, collector <chr>, location <chr>, easting <dbl>,
## #   northing <dbl>, 'elevation (m)' <dbl>, vial_barcode <chr>, notes <chr>

## [1] "2016-03-20"

## [1] "2019-04-01"

## [1] "95644800s (~3.03 years)"
```

```
## # A tibble: 165 x 19
##   year month   day collection_date DOY season sp_code sci_name_fieldID
##   <dbl> <dbl> <dbl> <date>         <dbl> <chr> <chr>    <chr>
## 1 2017     1    26 2017-01-26         26 <NA>  <NA>    Panicum miliaceum
## 2 2016     3    20 2016-03-20         80 winter cass  bauh  Cassia bauhinoides
## 3 2016     3    20 2016-03-20         80 winter spha  hast  Sphaeralcea coccinea
## 4 2016     3    20 2016-03-20         80 winter amsi  tess  Amsinckia tessellata
## 5 2016     3    20 2016-03-20         80 winter micr  lene  Uropappus lindleyi
## 6 2016     3    20 2016-03-20         80 winter erig  conc  Erigeron concinnus
## 7 2016     3    20 2016-03-20         80 winter atri  cane  Atriplex canescens
## 8 2016     3    20 2016-03-20         80 winter euro  lana  Eurotia lanata
## 9 2016     3    20 2016-03-20         80 winter pros  glan  Prosopis glandulosa
## 10 2016     3    20 2016-03-20         80 winter phac  ariz  Phacelia arizonica
## # i 155 more rows
## # i 11 more variables: sci_name_profID <chr>, voucher <chr>, DNA <chr>,
## #   label_number <chr>, collector <chr>, location <chr>, easting <dbl>,
## #   northing <dbl>, 'elevation (m)' <dbl>, vial_barcode <chr>, notes <chr>
```

4. NDVI from the Santa Rita Experimental Range (20 pts)

```
## # A tibble: 110,270 x 6
##   datetime          r_mean g_mean b_mean ir_mean NDVI_c
##   <chr>          <dbl> <dbl> <dbl> <dbl> <dbl>
## 1 2017-02-24 17:15:05      66     57     33     93 -0.0136
## 2 2017-02-24 17:30:05      67     56     31     92  0.0244
## 3 2017-02-24 17:45:06      72     58     30     91  0.0893
## 4 2017-02-24 18:00:05      77     58     28     87  0.179
## 5 2017-02-24 18:15:06      66     67     42     85  0.0668
## 6 2017-02-24 18:30:06      70     63     44     73 -0.792
## 7 2017-02-24 18:45:06      38     24     30     66 -0.0219
## 8 2017-02-24 19:00:06      21     12     15     19 -0.694
## 9 2017-02-25 06:15:05      24     14     19     19 -0.909
## 10 2017-02-25 06:30:05      48     37     43    104  0.127
## # i 110,260 more rows
```

```
## # A tibble: 110,270 x 6
##   datetime          r_mean g_mean b_mean ir_mean NDVI_c
##   <dtm>          <dbl> <dbl> <dbl> <dbl> <dbl>
## 1 2017-02-24 17:15:05      66     57     33     93 -0.0136
## 2 2017-02-24 17:30:05      67     56     31     92  0.0244
## 3 2017-02-24 17:45:06      72     58     30     91  0.0893
## 4 2017-02-24 18:00:05      77     58     28     87  0.179
## 5 2017-02-24 18:15:06      66     67     42     85  0.0668
## 6 2017-02-24 18:30:06      70     63     44     73 -0.792
## 7 2017-02-24 18:45:06      38     24     30     66 -0.0219
## 8 2017-02-24 19:00:06      21     12     15     19 -0.694
## 9 2017-02-25 06:15:05      24     14     19     19 -0.909
## 10 2017-02-25 06:30:05      48     37     43    104  0.127
## # i 110,260 more rows
```

```
## [1] "220585501s (~6.99 years)"
```

```
## # A tibble: 110,270 x 9
```

```
##      datetime      r_mean g_mean b_mean ir_mean  NDVI_c  year month  DOY
##      <dtm>      <dbl>  <dbl>  <dbl>  <dbl>   <dbl> <dbl> <dbl> <dbl>
##  1 2017-02-24 17:15:05      66     57     33      93 -0.0136 2017     2    55
##  2 2017-02-24 17:30:05      67     56     31      92  0.0244 2017     2    55
##  3 2017-02-24 17:45:06      72     58     30      91  0.0893 2017     2    55
##  4 2017-02-24 18:00:05      77     58     28      87  0.179 2017     2    55
##  5 2017-02-24 18:15:06      66     67     42      85  0.0668 2017     2    55
##  6 2017-02-24 18:30:06      70     63     44      73 -0.792 2017     2    55
##  7 2017-02-24 18:45:06      38     24     30      66 -0.0219 2017     2    55
##  8 2017-02-24 19:00:06      21     12     15      19 -0.694 2017     2    55
##  9 2017-02-25 06:15:05      24     14     19      19 -0.909 2017     2    56
## 10 2017-02-25 06:30:05      48     37     43     104  0.127 2017     2    56
## # i 110,260 more rows
```

```
## 'summarise()' has grouped output by 'year'. You can override using the
## '.groups' argument.
```

```
## # A tibble: 85 x 3
## # Groups:   year [8]
##   year month mean_NVDI
##   <dbl> <dbl>   <dbl>
##  1 2017     2 -0.0907
##  2 2017     3 -0.0802
##  3 2017     4 -0.0739
##  4 2017     5 -0.0734
##  5 2017     6 -0.0976
##  6 2017     7 -0.0810
##  7 2017     8  0.00581
##  8 2017     9 -0.0542
##  9 2017    10 -0.105
## 10 2017    11 -0.129
## # i 75 more rows
```