

# Interactive Reporting Examples for NPS Terrestrial Vegetation Monitoring

[github.com/ecoquants/nps-veg](https://github.com/ecoquants/nps-veg)

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*2018-48-25*


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# Background

## Protocol Report

National Park Service  
U.S. Department of the Interior



Natural Resource Stewardship and Science

**Terrestrial Vegetation Monitoring Protocol for the Mediterranean Coast Network—Cabrillo National Monument, Channel Islands National Park, and Santa Monica Mountains National Recreation Area**  
*Narrative, Version 1.0*  
 Natural Resource Report NPS/MEDN/NRR—2016/1296



Table 15. Data and summary statistics for annual report

Timeframe	Format	Metric	Species aggregation	Site aggregation <sup>1</sup>	Descriptors
For current year only	Table	Species Richness (# species)	All species combined Growth form <sup>2</sup> Nativity Nativity × growth form	All sites Major veg. types <sup>3</sup>	Mean SD <sup>4</sup> Range
	Table	Absolute Cover (%)	All species combined, Growth form Nativity Growth form × nativity Soil surface features Each target species	All sites Major veg. types	Mean SD Range
	Table	Shrub & Tree Density (# / ha)	All species combined Life stage <sup>5</sup> Nativity Each target species	All sites Major veg. types	Mean SD Range
	Bar chart	Absolute Cover (%)	All species combined, Growth form Nativity Growth form × nativity	All sites Major veg. types	Mean SD
	Stacked bar chart	Relative Cover (%)	Growth form Nativity Growth form × nativity	All sites Major veg. types	Relative Cover of each group
For current year and previous 5 years	X-Y plot	Absolute Cover (%)	All species combined Growth form Nativity Growth form × nativity	All sites Major veg. types	Mean SD
	X-Y plot	Shrub & Tree Density (# / ha)	Growth form Nativity	All sites Major veg. types	Mean SD

## Appendix E: Template for Annual Terrestrial Vegetation Monitoring Report

### Figures

- Figure E1. Map showing locations of sites monitored in 20XX at [PARK].
- Figure E2. Absolute foliar cover (%) of various plant groups observed during 20XX monitoring at [PARK].
- Figure E3. Relative plant cover by nativity in plant communities at [PARK] observed during 20XX monitoring.
- Figure E4. Relative plant cover by nativity and lifeform in plant communities at [PARK] observed during 20XX monitoring.
- Figure E5. Absolute foliar cover of all species and of all native species for each of the last 6 years of monitoring at [PARK].
- Figure E6. Density of native and non-native shrubs for each of the last 6 years of monitoring at [PARK].

### Tables

- Table E1. Potential [PARK] monitoring sites that were visited and rejected in 20XX. Table E.2. [PARK] monitoring sites installed in 20XX.
- Table E3. [PARK] sites monitored in 20XX.
- Table E4. [PARK] sites scheduled for monitoring, but not monitored in 20XX. Table E.5. Burned sites monitored at [PARK] in 20XX.
- Table E6. Species richness (per transect) observed during 20XX monitoring of [PARK] vegetation.

## Examples

Figure E1. Map of locations

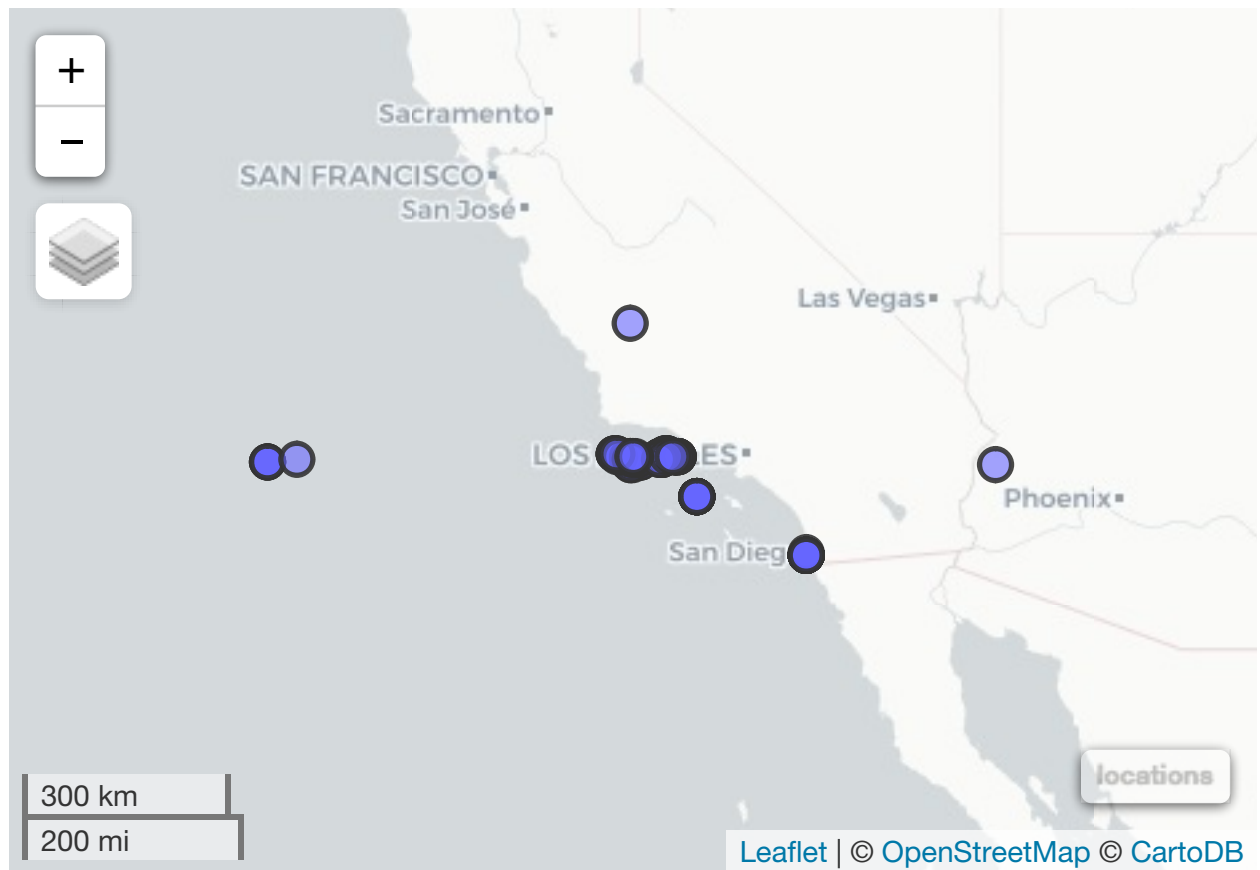


Figure E1. Map of locations - clustered

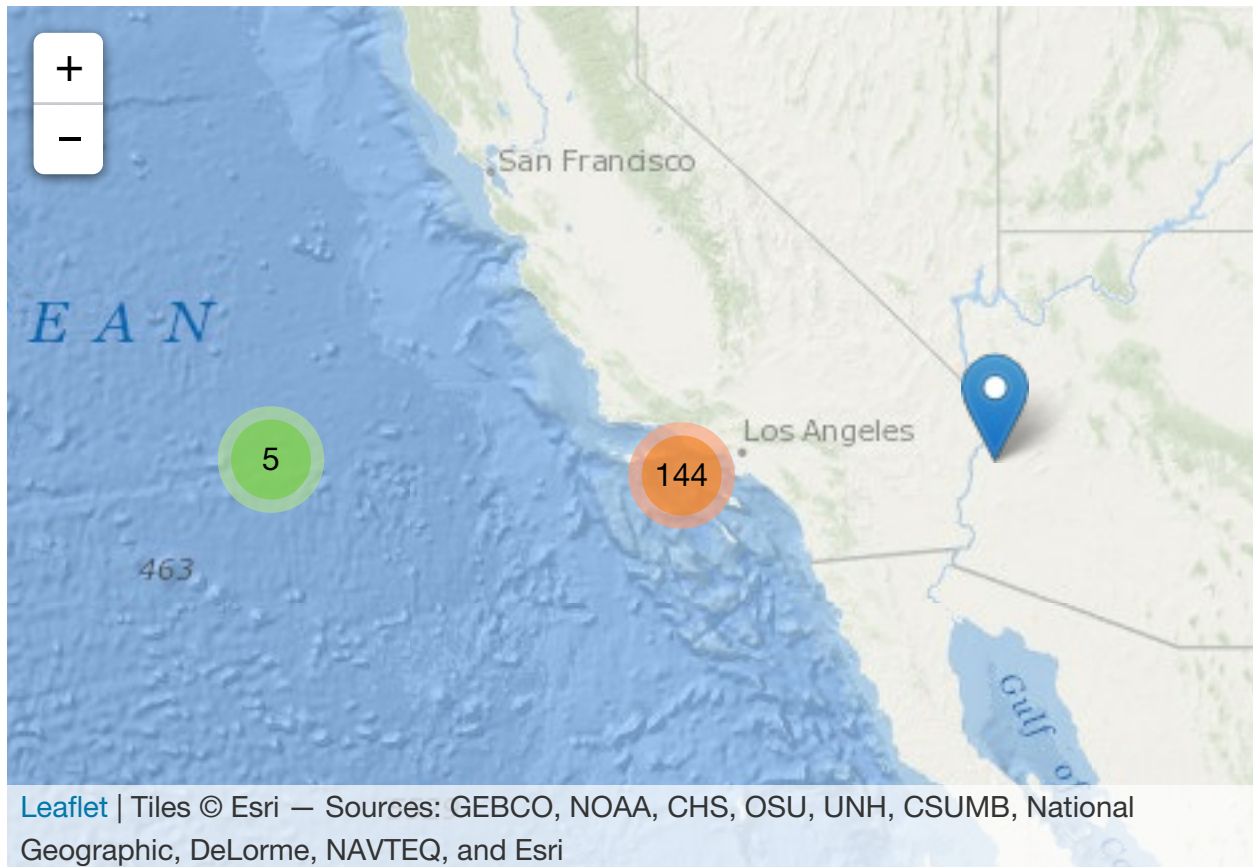


Figure E2. Absolute foliar cover (%) - Static

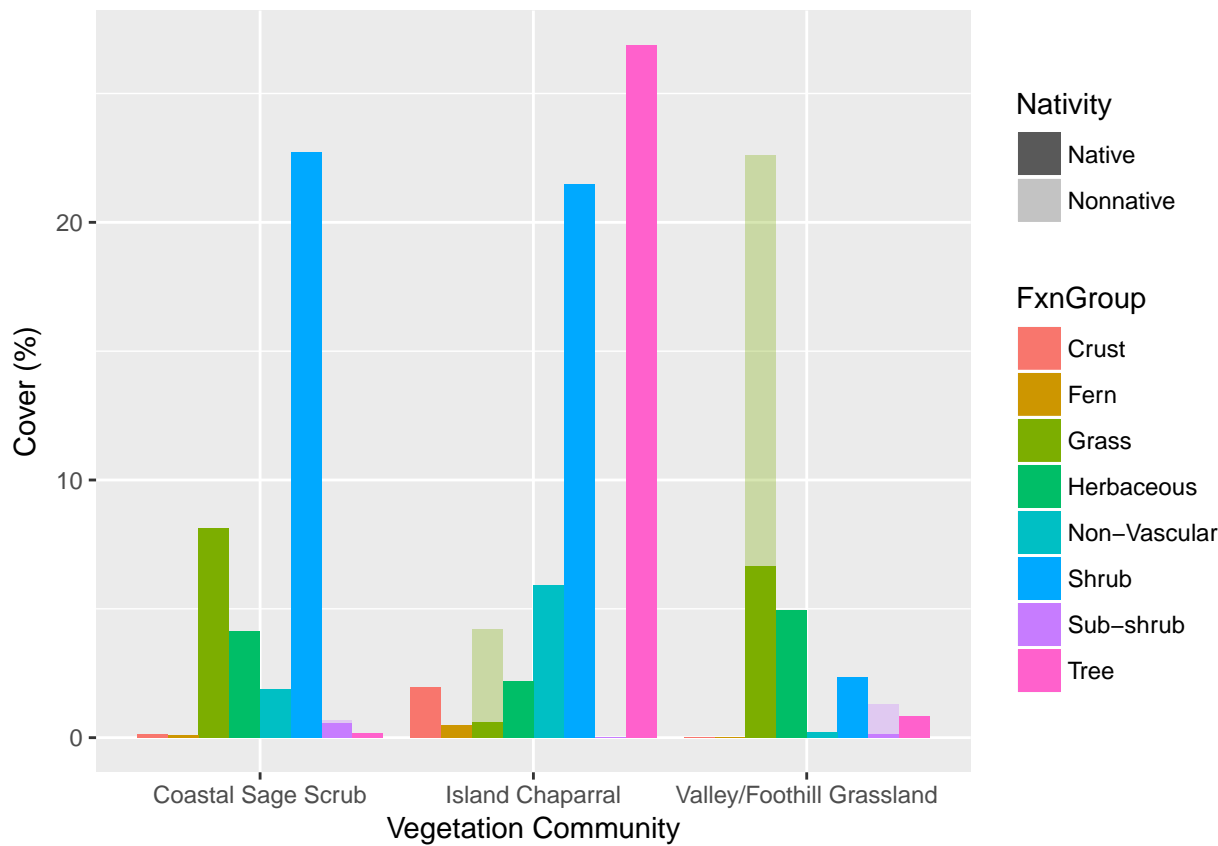
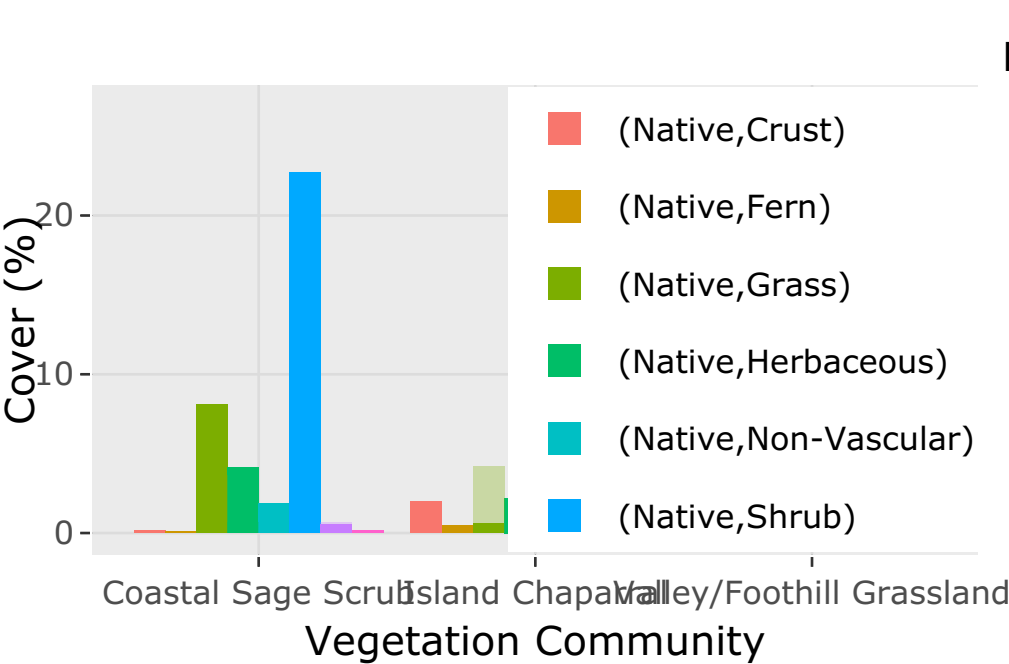


Figure E2. Absolute foliar cover (%) - Dynamic



**Table E6. Species by site**

Show  entries Search:

	Site_Desc	Species_Code	n
1	Anacapa Island	ARCA	39
2	Anacapa Island	ATSE	4
3	Anacapa Island	AVBF	4
4	Anacapa Island	BRDI	11
5	Anacapa Island	BRMD	3
6	Anacapa Island	CACI	1
7	Anacapa Island	CHMU	1
8	Anacapa Island	COGI	10
9	Anacapa Island	CRLI	1
10	Anacapa Island	DICA	4

Showing 1 to 10 of 343 entries Previous  2 3 4 5 ... 35 Next

**Table E6. Species richness by site - static**

Site_Desc	n_species
Anacapa Island	28
San Miguel Island	42
Santa Barbara Island	30
Santa Cruz Island	77
Santa Rosa Island	166

## Database & Apps

### MS Access DB on Windows

- Fixed VBA errors with 32-bit `Declare Function` to 64-bit `Private Declare PtrSafe Function` using MS Access 2013

Windows only connection option:

```
library(RODBC)

acddb <- "Z:/bbest On My Mac/Google Drive/projects/nps-ecoquants/data/CHISLandVegetationMonitoringDatabase/MSAccess2013/MSAccess2013.accdb"

odbcDataSources()
db <- odbcConnectAccess2007(acddb)

sqlTables(db)
sqlQuery("SELECT * FROM tbl_Locations")
```

## MS Access DB & Postgres

Connect Access Front-End to Postgres Backend:

- Connect Microsoft Access to PostgreSQL - iShare Help - Confluence
- Using MS Access with PostgreSQL - Postgres OnLine Journal

Assistant applications to handle conversion / synchronization:

- Access To PostgreSQL \$49
- Access To PostgreSQL: DBConvert \$149, DBSync \$149

## Create New Front-End App

For example, with Shiny:

- Creating Interactive Web Applications with R & Shiny

Working with databases & Shiny:

- Databases using R
- Shiny - Database basics - dplyr and DBI
- Shiny - Persistent data storage in Shiny apps
- Enterprise-ready dashboards with Shiny and databases · R Views
- Create an R Shiny Database CRUD app

## Rmarkdown

### Rmarkdown formats

From the same Rmarkdown document:

- index.Rmd

You can generate these (and more):

- ioslides\_presentation
- html\_document
- pdf\_document
- word\_document