

# CDW Tally Analysis: D01 HARV

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```
## Load libraries
library(plyr)
library(dplyr)
library(ggplot2)
library(httr)

## Define paths and other inputs
domain <- "D01"
site <- "HARV"

# Define path for writing out files
if (file.exists("~/Documents/workDocuments")){
  outpath <- paste("~/Documents/workDocuments/gitRepositories/neonPlantSampling/cdw_tallyAnalysis/", domain, sep="")
}

if (file.exists("~/Documents/neonScienceDocs")){
  outpath <- paste("~/Documents/gitRepositories/neonPlantSampling/cdw_tallyAnalysis/", domain, sep="")
}

## Define function for retrieving Fulcrum data
get_Fulcrum_data <- function(api_token, sql){
  require(httr)
  url = paste0("https://api.fulcrumapp.com/api/v2/query?token=",
               api_token, "&format=json", "&q=", sql, "&headers=true")
  request <- httr::GET(url, add_headers("X-ApiToken" = api_token,
                                       Accept = "application/json"))
  content <- jsonlite::fromJSON(httr::content(request, as = "text"))
  return(content$rows)
}

## Import data from Fulcrum
# Define Fulcrum API token
api_token = "3ab235047ec293b27f06f6819e81b291435f9c61282345ff1de9624f744034b4233a6fcd1b87c3c2"

# Define CDW Fulcrum query for domain
cdwQuery = paste(URLEncode('SELECT * FROM "(TOS) Coarse Downed Wood: Tally [PROD]" AS parent
                        JOIN "(TOS) Coarse Downed Wood: Tally [PROD]/per_plot_azimuth_log" AS child'),
                URLEncode(paste0("ON (parent._record_id = child._parent_id)
                        WHERE domainid LIKE'", domain, "'")), sep = "%20")

# Get CDW data from Fulcrum
cdw <- get_Fulcrum_data(api_token = api_token, sql = cdwQuery)

## Select desired fields from 'cdw' data frame, then select data for specified site only
cdw %>%
  dplyr::select(domainid, siteid, plotid_parent, tallydate, yearboutbegan, eventid, volumefactor, sampledate,
               lidsazimuth, targettaxapresent, logdistance, logmaxdiameter, minorlogdiameter, logid, logdate,
               scientificname, decayclass) %>%
```

```

dplyr::filter(siteid==site) -> cdw

## Create diameter class factor
cdw$diameterClass <- ifelse(cdw$logmaxdiameter >= 10, '>=10cm',
                           ifelse(cdw$logmaxdiameter < 5, "2-5cm", "5-10cm"))

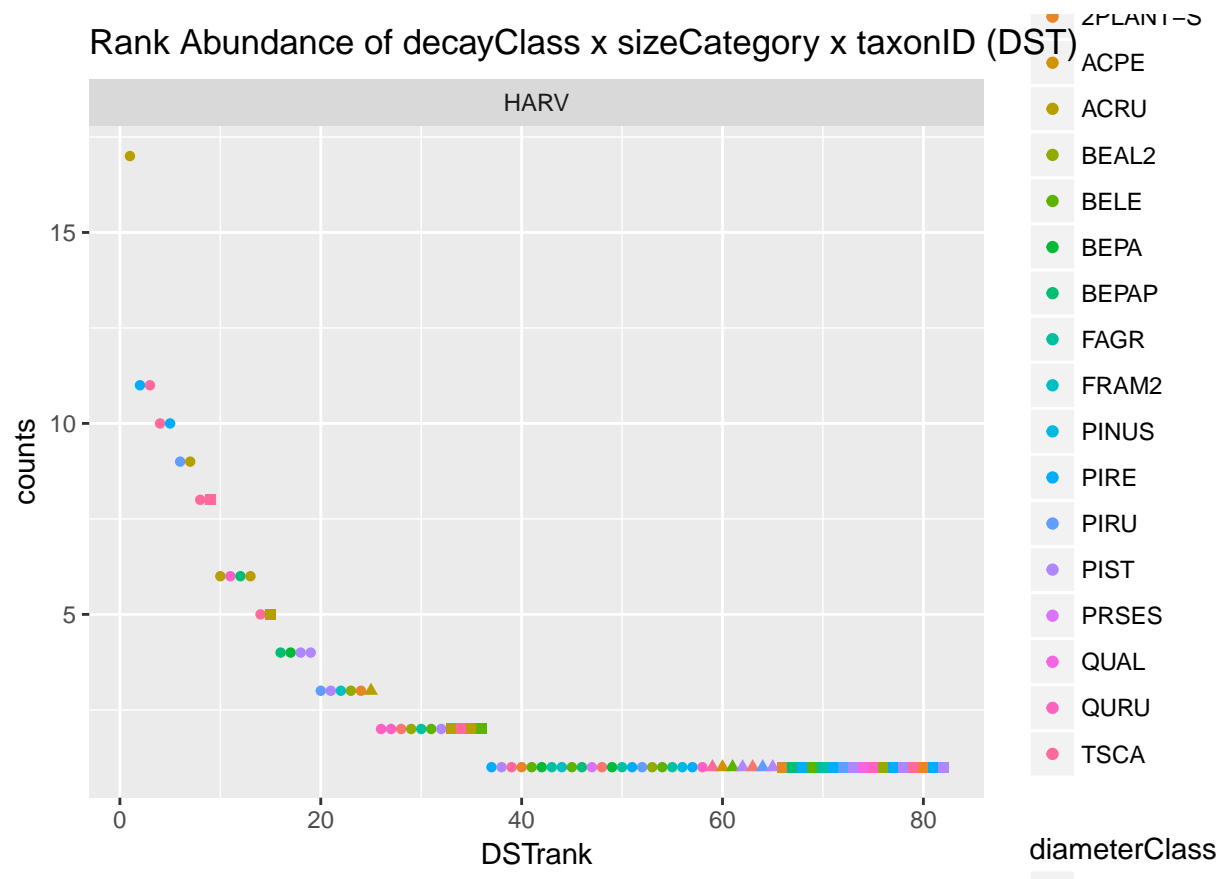
## Simplify decayclass to numeric value wrapped inside sapply(decayClassNum, "[", 1) e.g. 'return first
cdw$decayClassNum <- sapply(stringr::str_split(cdw$decayclass, pattern = " "), "[", 1)

## Write data file
write.csv(cdw, file = paste(outpath, paste(domain, site, "merged", "cdw_rawdata.csv", sep="_"), sep = "/"

```

siteid	taxonid	decayClassNum	diameterClass	counts	totalLogs	relativeAbundance	cumulativeAbundance
HARV	ACRU	3	>=10cm	17	229	7.42	7.42
HARV	PIRE	2	>=10cm	11	229	4.80	12.22
HARV	TSCA	4	>=10cm	11	229	4.80	17.02
HARV	TSCA	2	>=10cm	10	229	4.37	21.39
HARV	PIRE	3	>=10cm	10	229	4.37	25.76
HARV	PIRU	3	>=10cm	9	229	3.93	29.69
HARV	ACRU	4	>=10cm	9	229	3.93	33.62
HARV	TSCA	5	>=10cm	8	229	3.49	37.11
HARV	TSCA	3	5-10cm	8	229	3.49	40.60
HARV	ACRU	2	>=10cm	6	229	2.62	43.22
HARV	QURU	3	>=10cm	6	229	2.62	45.84
HARV	BEPAP	4	>=10cm	6	229	2.62	48.46
HARV	ACRU	5	>=10cm	6	229	2.62	51.08
HARV	TSCA	3	>=10cm	5	229	2.18	53.26
HARV	ACRU	3	5-10cm	5	229	2.18	55.44
HARV	BEPAP	2	>=10cm	4	229	1.75	57.19
HARV	BEPA	3	>=10cm	4	229	1.75	58.94
HARV	PIST	3	>=10cm	4	229	1.75	60.69
HARV	PIST	5	>=10cm	4	229	1.75	62.44
HARV	PIRU	2	>=10cm	3	229	1.31	63.75
HARV	PIST	2	>=10cm	3	229	1.31	65.06
HARV	FRAM2	3	>=10cm	3	229	1.31	66.37
HARV	BEAL2	4	>=10cm	3	229	1.31	67.68
HARV	2PLANT-S	5	>=10cm	3	229	1.31	68.99
HARV	ACRU	3	2-5cm	3	229	1.31	70.30
HARV	QURU	1	>=10cm	2	229	0.87	71.17
HARV	QURU	2	>=10cm	2	229	0.87	72.04
HARV	2PLANT-H	3	>=10cm	2	229	0.87	72.91
HARV	BEAL2	3	>=10cm	2	229	0.87	73.78
HARV	FAGR	3	>=10cm	2	229	0.87	74.65
HARV	BELE	4	>=10cm	2	229	0.87	75.52
HARV	PIST	4	>=10cm	2	229	0.87	76.39
HARV	ACRU	2	5-10cm	2	229	0.87	77.26
HARV	TSCA	2	5-10cm	2	229	0.87	78.13
HARV	ACRU	4	5-10cm	2	229	0.87	79.00
HARV	BELE	4	5-10cm	2	229	0.87	79.87
HARV	PIRE	1	>=10cm	1	229	0.44	80.31
HARV	PIST	1	>=10cm	1	229	0.44	80.75

siteid	taxonid	decayClassNum	diameterClass	counts	totalLogs	relativeAbundance	cumulativeAbundance
HARV	TSCA	1	>=10cm	1	229	0.44	81.19
HARV	2PLANT-S	2	>=10cm	1	229	0.44	81.63
HARV	BELE	2	>=10cm	1	229	0.44	82.07
HARV	BEPA	2	>=10cm	1	229	0.44	82.51
HARV	FAGR	2	>=10cm	1	229	0.44	82.95
HARV	FRAM2	2	>=10cm	1	229	0.44	83.39
HARV	BELE	3	>=10cm	1	229	0.44	83.83
HARV	BEPAP	3	>=10cm	1	229	0.44	84.27
HARV	PRSES	3	>=10cm	1	229	0.44	84.71
HARV	2PLANT-H	4	>=10cm	1	229	0.44	85.15
HARV	BEPA	4	>=10cm	1	229	0.44	85.59
HARV	FAGR	4	>=10cm	1	229	0.44	86.03
HARV	PIRE	4	>=10cm	1	229	0.44	86.47
HARV	PIRU	4	>=10cm	1	229	0.44	86.91
HARV	BEAL2	5	>=10cm	1	229	0.44	87.35
HARV	BELE	5	>=10cm	1	229	0.44	87.79
HARV	FAGR	5	>=10cm	1	229	0.44	88.23
HARV	PINUS	5	>=10cm	1	229	0.44	88.67
HARV	PIRE	5	>=10cm	1	229	0.44	89.11
HARV	QURU	5	>=10cm	1	229	0.44	89.55
HARV	TSCA	1	2-5cm	1	229	0.44	89.99
HARV	ACPE	2	2-5cm	1	229	0.44	90.43
HARV	BELE	2	2-5cm	1	229	0.44	90.87
HARV	PIST	2	2-5cm	1	229	0.44	91.31
HARV	2PLANT-H	3	2-5cm	1	229	0.44	91.75
HARV	PIRU	3	2-5cm	1	229	0.44	92.19
HARV	PIST	3	2-5cm	1	229	0.44	92.63
HARV	2PLANT-S	2	5-10cm	1	229	0.44	93.07
HARV	BEPAP	2	5-10cm	1	229	0.44	93.51
HARV	PIRE	2	5-10cm	1	229	0.44	93.95
HARV	BELE	3	5-10cm	1	229	0.44	94.39
HARV	FAGR	3	5-10cm	1	229	0.44	94.83
HARV	PIRE	3	5-10cm	1	229	0.44	95.27
HARV	PIRU	3	5-10cm	1	229	0.44	95.71
HARV	PIST	3	5-10cm	1	229	0.44	96.15
HARV	QUAL	3	5-10cm	1	229	0.44	96.59
HARV	QURU	3	5-10cm	1	229	0.44	97.03
HARV	BEAL2	4	5-10cm	1	229	0.44	97.47
HARV	PIRE	4	5-10cm	1	229	0.44	97.91
HARV	PIST	4	5-10cm	1	229	0.44	98.35
HARV	TSCA	4	5-10cm	1	229	0.44	98.79
HARV	2PLANT-S	5	5-10cm	1	229	0.44	99.23
HARV	PIRE	5	5-10cm	1	229	0.44	99.67
HARV	PIST	5	5-10cm	1	229	0.44	100.11



Code