CDW Tally Analysis: D07 ORNL

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

##  Define paths and other inputs
domain <- "D07"
site <- "ORNL"

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

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

## 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)
```

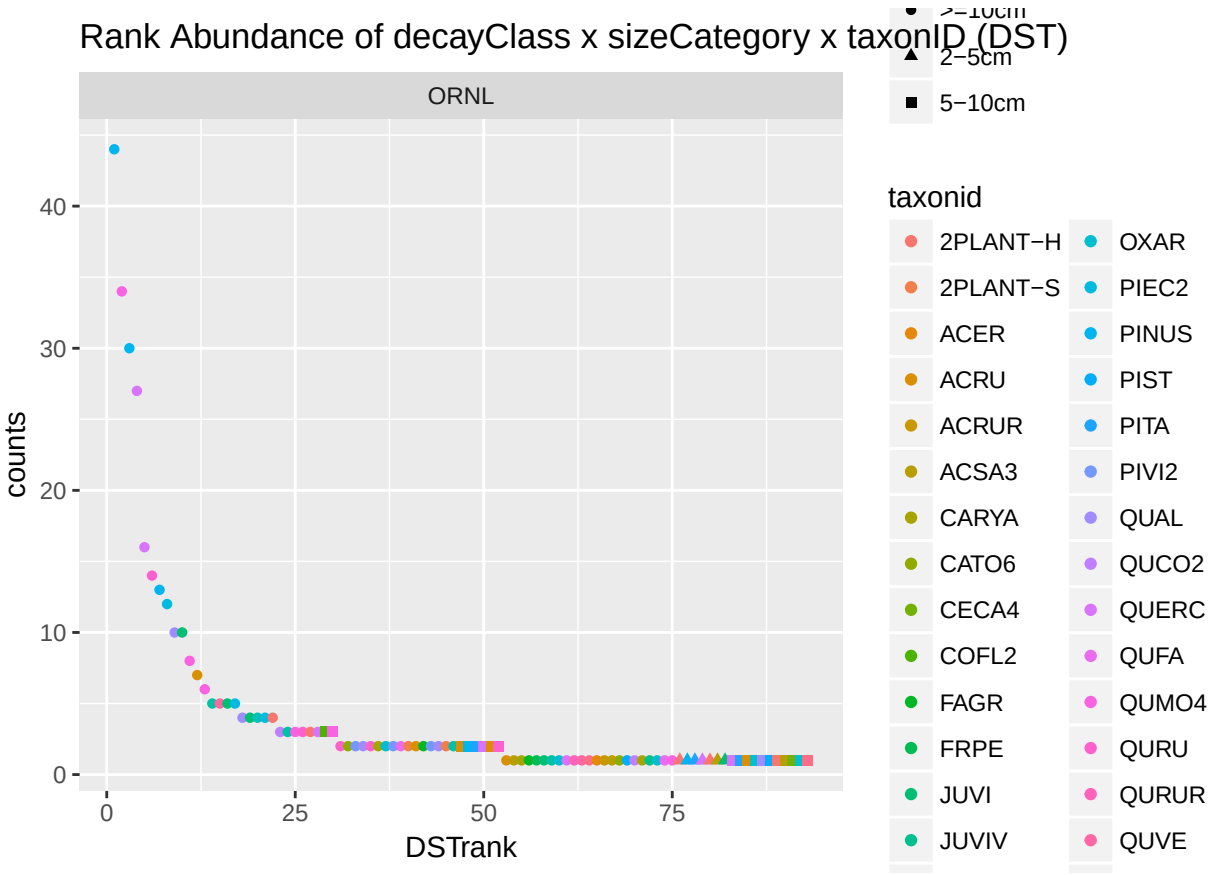
```
##  Select desired fields from 'cdw' data frame, then select data for specified site only
cdw %>%
  dplyr::select(domainid, siteid, plotid_parent, tallydate, volumefactor_ingest, particle_count, lidsaz
                      taxonid, decayclass, logid_ingest, logdistance, loglength, acceptedtaxonid, target
  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 firs
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
ORNL	PINUS	4	>=10cm	44	380	11.58	11.58
ORNL	QUMO4	3	>=10cm	34	380	8.95	20.53
ORNL	PINUS	5	>=10cm	30	380	7.89	28.42
ORNL	QUERC	4	>=10cm	27	380	7.11	35.53
ORNL	QUERC	3	>=10cm	16	380	4.21	39.74
ORNL	QURU	3	>=10cm	14	380	3.68	43.42
ORNL	PINUS	3	>=10cm	13	380	3.42	46.84
ORNL	PIEC2	4	>=10cm	12	380	3.16	50.00
ORNL	QUAL	3	>=10cm	10	380	2.63	52.63
ORNL	JUVI	4	>=10cm	10	380	2.63	55.26
ORNL	QUMO4	1	>=10cm	8	380	2.11	57.37
ORNL	ACRU	3	>=10cm	7	380	1.84	59.21
ORNL	QUMO4	2	>=10cm	6	380	1.58	60.79
ORNL	LITU	3	>=10cm	5	380	1.32	62.11
ORNL	QUVE	3	>=10cm	5	380	1.32	63.43
ORNL	JUVI	5	>=10cm	5	380	1.32	64.75
ORNL	PIEC2	5	>=10cm	5	380	1.32	66.07
ORNL	QUAL	1	>=10cm	4	380	1.05	67.12
ORNL	JUVI	3	>=10cm	4	380	1.05	68.17
ORNL	NYSY	3	>=10cm	4	380	1.05	69.22
ORNL	PIEC2	3	>=10cm	4	380	1.05	70.27
ORNL	2PLANT-H	4	>=10cm	4	380	1.05	71.32
ORNL	QUCO2	2	>=10cm	3	380	0.79	72.11
ORNL	LITU	4	>=10cm	3	380	0.79	72.90
ORNL	QUMO4	4	>=10cm	3	380	0.79	73.69
ORNL	QURU	4	>=10cm	3	380	0.79	74.48
ORNL	2PLANT-H	5	>=10cm	3	380	0.79	75.27
ORNL	QUERC	5	>=10cm	3	380	0.79	76.06
ORNL	COFL2	NA	5-10cm	3	380	0.79	76.85
ORNL	QUMO4	NA	5-10cm	3	380	0.79	77.64
ORNL	QURU	1	>=10cm	2	380	0.53	78.17
ORNL	CATO6	2	>=10cm	2	380	0.53	78.70
ORNL	PIVI2	2	>=10cm	2	380	0.53	79.23
ORNL	QUAL	2	>=10cm	2	380	0.53	79.76
ORNL	QURU	2	>=10cm	2	380	0.53	80.29
ORNL	CARYA	3	>=10cm	2	380	0.53	80.82
ORNL	OXAR	3	>=10cm	2	380	0.53	81.35
ORNL	PIVI2	3	>=10cm	2	380	0.53	81.88
ORNL	QUFA	3	>=10cm	2	380	0.53	82.41
ORNL	2PLANT-S	4	>=10cm	2	380	0.53	82.94

siteid	taxonid	decayClassNum	diameterClass	counts	totalLogs	relativeAbundance	cumulativeAbundance
ORNL	ACRU	4	>=10cm	2	380	0.53	83.47
ORNL	FAGR	4	>=10cm	2	380	0.53	84.00
ORNL	PIVI2	4	>=10cm	2	380	0.53	84.53
ORNL	QUAL	4	>=10cm	2	380	0.53	85.06
ORNL	2PLANT-S	5	>=10cm	2	380	0.53	85.59
ORNL	LITU	5	>=10cm	2	380	0.53	86.12
ORNL	ACRU	2	5-10cm	2	380	0.53	86.65
ORNL	PINUS	3	5-10cm	2	380	0.53	87.18
ORNL	PITA	3	5-10cm	2	380	0.53	87.71
ORNL	QUERC	3	5-10cm	2	380	0.53	88.24
ORNL	ACRU	NA	5-10cm	2	380	0.53	88.77
ORNL	QURU	NA	5-10cm	2	380	0.53	89.30
ORNL	ACRU	2	>=10cm	1	380	0.26	89.56
ORNL	ACSA3	2	>=10cm	1	380	0.26	89.82
ORNL	CARYA	2	>=10cm	1	380	0.26	90.08
ORNL	FAGR	2	>=10cm	1	380	0.26	90.34
ORNL	FRPE	2	>=10cm	1	380	0.26	90.60
ORNL	JUVI	2	>=10cm	1	380	0.26	90.86
ORNL	LITU	2	>=10cm	1	380	0.26	91.12
ORNL	OXAR	2	>=10cm	1	380	0.26	91.38
ORNL	QUERC	2	>=10cm	1	380	0.26	91.64
ORNL	QURUR	2	>=10cm	1	380	0.26	91.90
ORNL	QUVE	2	>=10cm	1	380	0.26	92.16
ORNL	SAAL5	2	>=10cm	1	380	0.26	92.42
ORNL	ACER	3	>=10cm	1	380	0.26	92.68
ORNL	ACRUR	3	>=10cm	1	380	0.26	92.94
ORNL	ACSA3	3	>=10cm	1	380	0.26	93.20
ORNL	CATO6	3	>=10cm	1	380	0.26	93.46
ORNL	PIST	3	>=10cm	1	380	0.26	93.72
ORNL	QUCO2	3	>=10cm	1	380	0.26	93.98
ORNL	CARYA	4	>=10cm	1	380	0.26	94.24
ORNL	JUVIV	4	>=10cm	1	380	0.26	94.50
ORNL	OXAR	4	>=10cm	1	380	0.26	94.76
ORNL	QUFA	4	>=10cm	1	380	0.26	95.02
ORNL	QUMO4	5	>=10cm	1	380	0.26	95.28
ORNL	2PLANT-H	2	2-5cm	1	380	0.26	95.54
ORNL	PINUS	2	2-5cm	1	380	0.26	95.80
ORNL	PITA	2	2-5cm	1	380	0.26	96.06
ORNL	QUERC	3	2-5cm	1	380	0.26	96.32
ORNL	2PLANT-H	NA	2-5cm	1	380	0.26	96.58
ORNL	ACSA3	NA	2-5cm	1	380	0.26	96.84
ORNL	JUVI	NA	2-5cm	1	380	0.26	97.10
ORNL	QUERC	1	5-10cm	1	380	0.26	97.36
ORNL	PITA	2	5-10cm	1	380	0.26	97.62
ORNL	ACRU	3	5-10cm	1	380	0.26	97.88
ORNL	OXAR	3	5-10cm	1	380	0.26	98.14
ORNL	QUAL	3	5-10cm	1	380	0.26	98.40
ORNL	PIST	4	5-10cm	1	380	0.26	98.66
ORNL	2PLANT-H	5	5-10cm	1	380	0.26	98.92
ORNL	ACSA3	NA	5-10cm	1	380	0.26	99.18
ORNL	CECA4	NA	5-10cm	1	380	0.26	99.44
ORNL	OXAR	NA	5-10cm	1	380	0.26	99.70

siteid	taxonid	decayClassNum	diameterClass	counts	totalLogs	relativeAbundance	cumulativeAbundance
ORNL	SAAL5	NA	5-10cm	1	380	0.26	99.96



Code