alm tutorial

What are article level metrics?

Glad you asked. The canonical URL for this is perhaps altmetrics.org. Basically it is a metric that measures something about an article. This is in stark contrast to journal level metrics, like the Journal Impact Factor.

Are there other altmetrics data providers?

Yes indeedy.

- ImpactStory
- Altmetric.com
- PlumAnalytics

Authentication

You aren't currently not required to use an API key to access the PLoS ALM API, but soon will need to.

Get your PLoS API key here

Put your API key in your .Rprofile file using exactly this: options(PlosApiKey = "YOUalmAPIKEY"), and the functions within this package will be able to use your API key without you having to enter it every time you run a search.

Install and load

You can get this package by installing via `install_github()` within Hadley Wickham's devtools package.

```
install.packages("devtools")
require(devtools)
install_github("alm", "rOpenSci")

library(alm)
```

The default call with either doi, pmid, pmcid, or mdid without specifying an argument for info

(We'll not print a few columns so the table prints nicely)

```
alm(doi = "10.1371/journal.pone.0029797")[, -c(6:8)]
```

```
NULL
```

Details for a single DOI

```
out <- alm(doi = "10.1371/journal.pone.0029797", info = "detail")
## totals
out[["totals"]][, -c(6:8)]
```

```
NULL
```

```
## history
head(out[["history"]])
```

```
NULL
```

Search using various identifiers, including pubmed id, pmc id, and mendeley id

```
# A single PubMed ID (pmid)
alm(pmid = 22590526)[, -c(6:8)]
```

```
NULL
```

```
# A single PubMed Central ID (pmcid)
alm(pmcid = 212692)[, -c(6:8)]
```

```
NULL
```

```
# A single Mendeley UUID (mdid)
alm(mdid = "35791700-6d00-11df-a2b2-0026b95e3eb7")[, -c(6:8)]
```

```
NULL
```

Search on many identifiers

```
dois <- c("10.1371/journal.pone.0001543", "10.1371/journal.pone.0040117", "10.1371/journal.pone.0029797
    "10.1371/journal.pone.0039395")
out <- alm(doi = dois)
lapply(out, head)
```

```
list()
```

Get altmetrics by year

You can also get metrics by day (`sum_metrics='day'`) or month (`sum_metrics='month'`)

```
alm(doi = "10.1371/journal.pone.0036240", sum_metrics = "year")[, -c(6:8)]
```

```
NULL
```

Output an-easy-to-combine-with-other-results data.frame

```
alm(doi = "10.1371/journal.pone.0035869", total_details = TRUE)[, 3:10]
```

```
NULL
```

Get altmetrics data for a single paper, and visualize the total data across dates

```
out <- alm(doi = "10.1371/journal.pone.0001543", info = "detail")
almplot(out, type = "totalmetrics")
```

```
Error: 'names' attribute [1] must be the same length as the vector [0]
```

Get detailed data for altmetrics using `almevents`

```
out <- almevents(doi = "10.1371/journal.pone.0029797")
names(out)  # names of sources
```

```
NULL
```

```
out <- out[!out %in% c("sorry, no events content yet", "parser not written yet")]  # remove those with
out[["pmc"]]  # get the results for PubMed Central
```

```
NULL
```

```
out[["twitter"]]  # get the results for twitter (boo, there aren't any)
```

```
NULL
```

```
out[c("twitter", "crossref")]  # get the results for two sources
```

```
NULL
```

Retrieve and plot PLOS article-level metrics signposts.

```
dat <- signposts(doi = "10.1371/journal.pone.0029797")
plot_signposts(input = dat)
```

```
Error: object passed to input must be a data.frame
```

Or plot many identifiers gives a line chart

```
dois <- c("10.1371/journal.pone.0001543", "10.1371/journal.pone.0040117", "10.1371/journal.pone.0029797
    "10.1371/journal.pone.0039395")
dat <- signposts(doi = dois)
plot_signposts(input = dat)
```

```
Error: object passed to input must be a data.frame
```

Or make an interactive chart by doing `plot_signposts(input=dat, type="multiBarChart")`. Try it out! It should open in your browser and you can interact with it.

Density and histogram plots from PLOS Article Level Metrics data

Note: Do you the key below in the `searchplos` call in this example, but if you plan to use rplos more, get your own API key here.

```
library(rplos)
library(plyr)
dois <- searchplos(terms = "*:*", fields = "id", toquery = list("cross_published_journal_key:PLoSONE",
    "doc_type:full", "publication_date:[2010-01-01T00:00:00Z TO 2010-12-31T23:59:59Z]"),
    limit = 100, key = "WQcDSXml2VSWx3P")
alm <- alm(doi = do.call(c, dois$id), total_details = TRUE)
alm <- ldply(alm)
```

The default plot

```
plot_density(alm)
```

You can change the color of the density plot

```
plot_density(alm, color = "#EFA5A5")
```

Pass in a title or description subtending the title

```
plot_density(alm, title = "Scopus citations from 2010")
```

Plot a particular source

```
names(alm)[1:35]
```

```
 [1] ".id"                 "doi"                 "title"
 [4] "publication_date"    "bloglines_pdf"       "bloglines_html"
 [7] "bloglines_shares"    "bloglines_groups"    "bloglines_comments"
[10] "bloglines_likes"     "bloglines_citations" "bloglines_total"
[13] "citeulike_pdf"       "citeulike_html"      "citeulike_shares"
[16] "citeulike_groups"    "citeulike_comments"  "citeulike_likes"
[19] "citeulike_citations" "citeulike_total"     "connotea_pdf"
[22] "connotea_html"       "connotea_shares"     "connotea_groups"
[25] "connotea_comments"   "connotea_likes"      "connotea_citations"
[28] "connotea_total"      "crossref_pdf"        "crossref_html"
[31] "crossref_shares"     "crossref_groups"     "crossref_comments"
[34] "crossref_likes"      "crossref_citations"
```

```
plot_density(input = alm, source = "crossref_citations")
```

Plot many sources in different panels in the same plot, and pass in colors just for fun

```
plot_density(input = alm, source = c("counter_total", "crossref_citations",
    "twitter_total", "wos_citations"), color = c("#83DFB4", "#EFA5A5", "#CFD470",
    "#B2C9E4"))
```

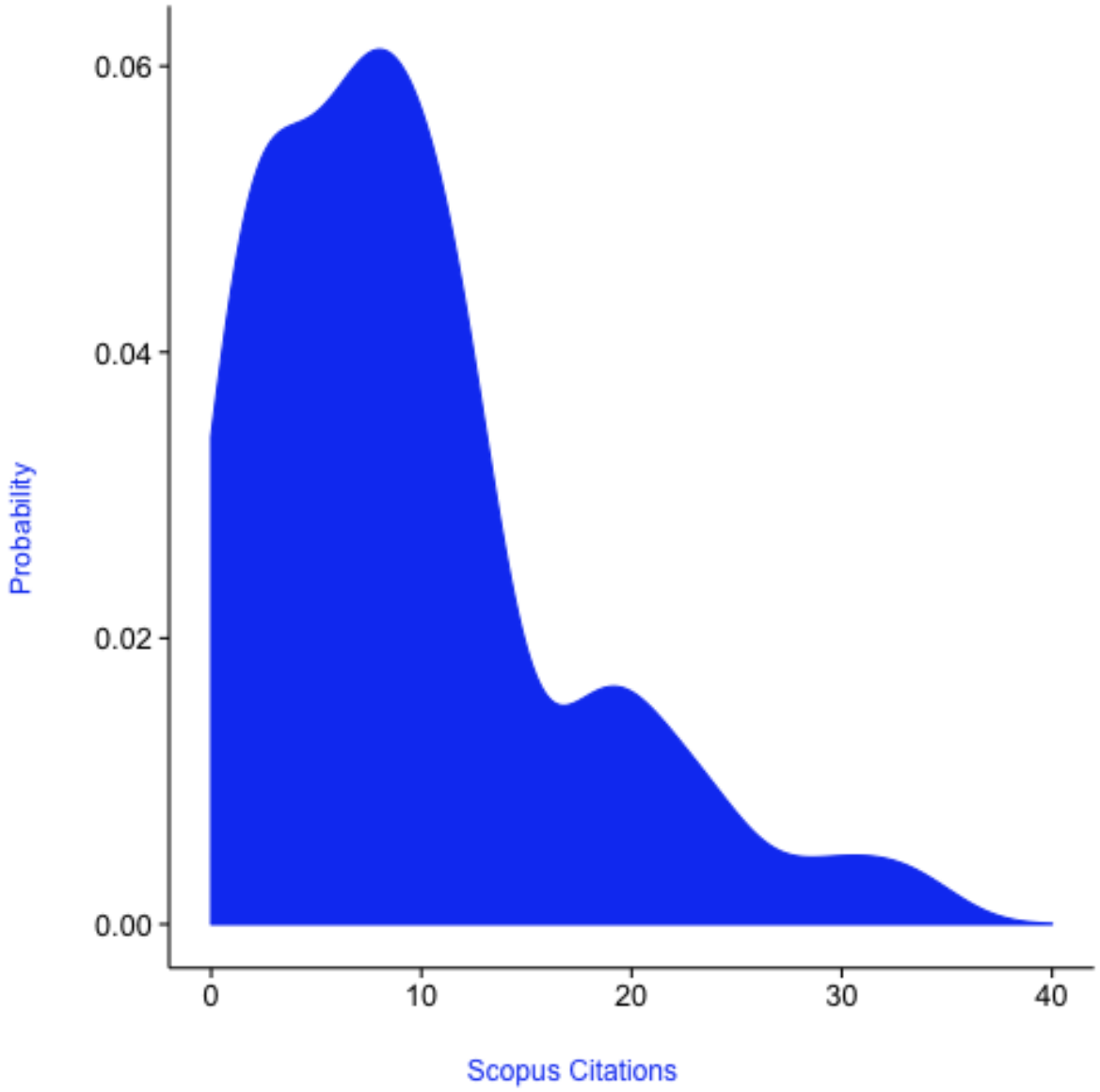

Figure 1: plot of chunk plot_densityplot1

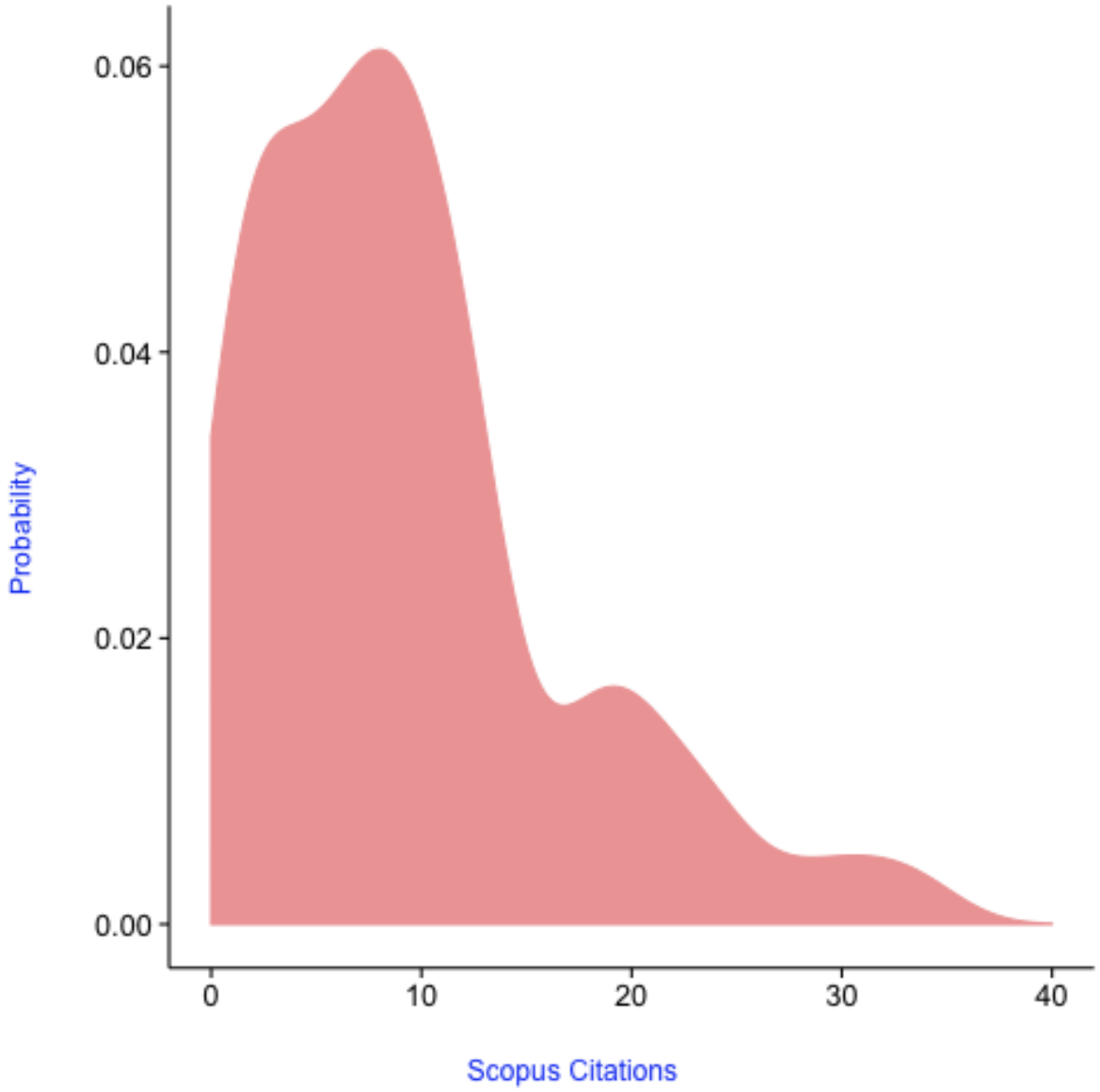

Figure 2: plot of chunk plot_densityplot2

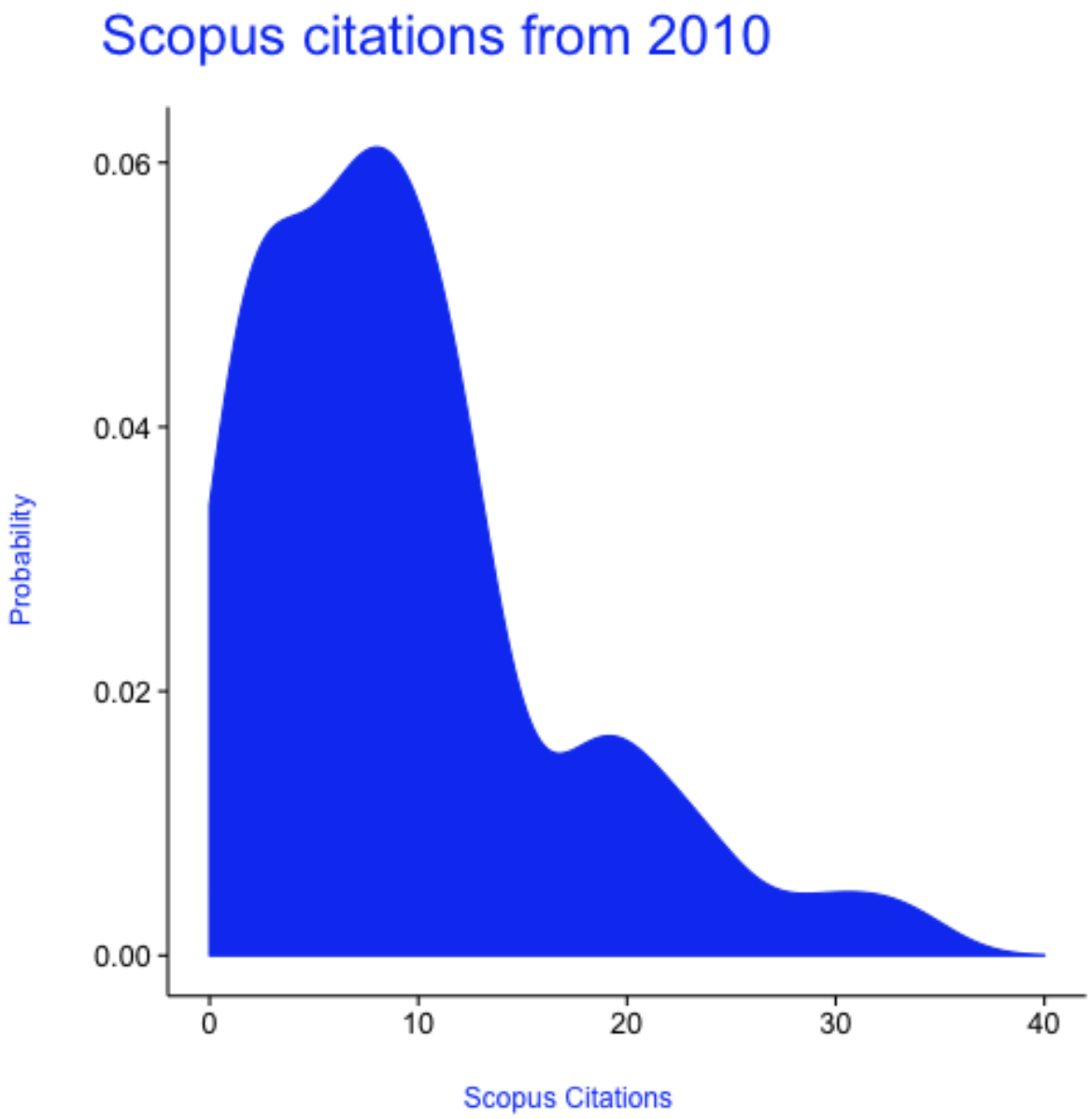

Figure 3: plot of chunk plot_densityplot3

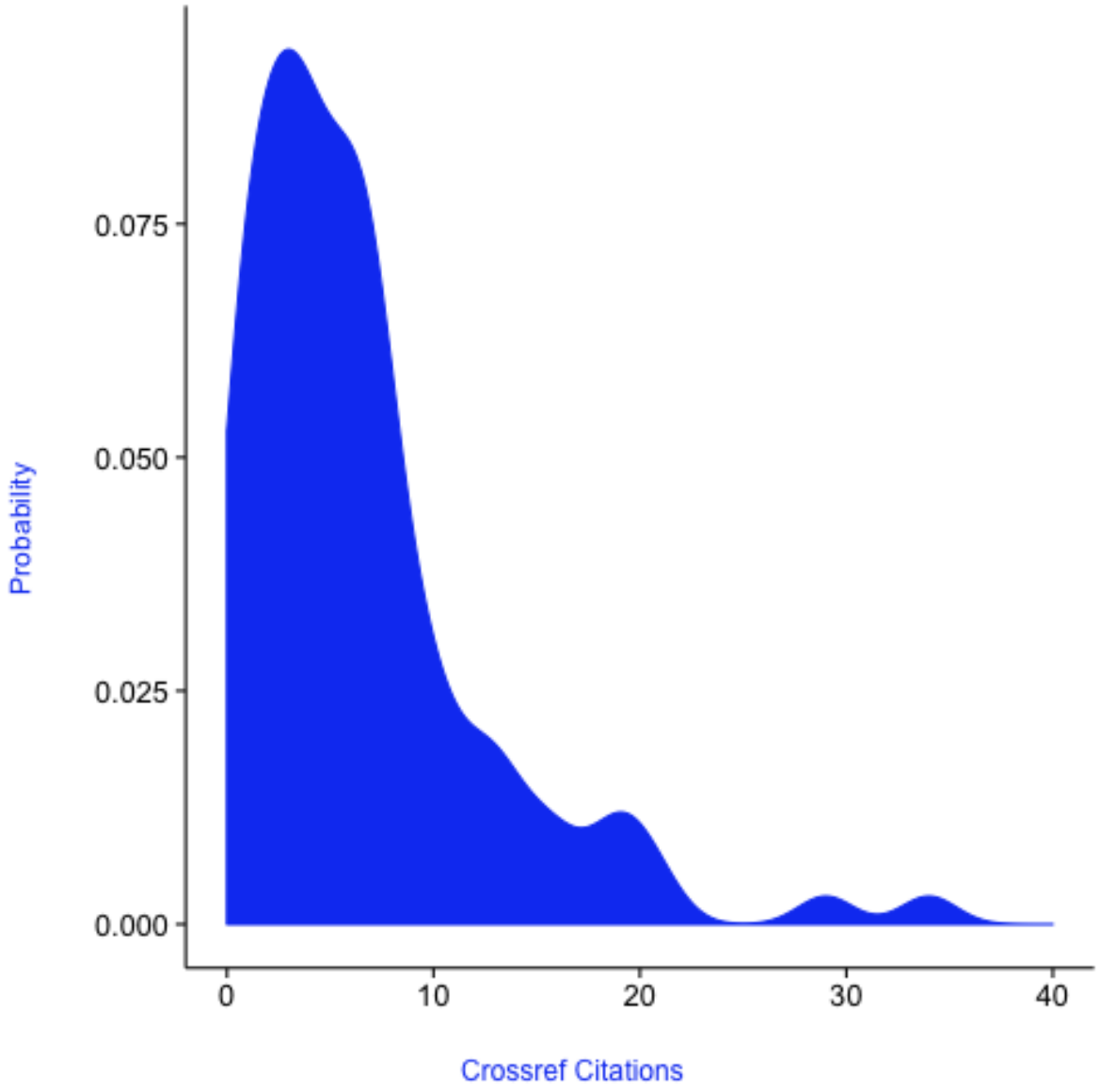

Figure 4: plot of chunk plot_densityplot4

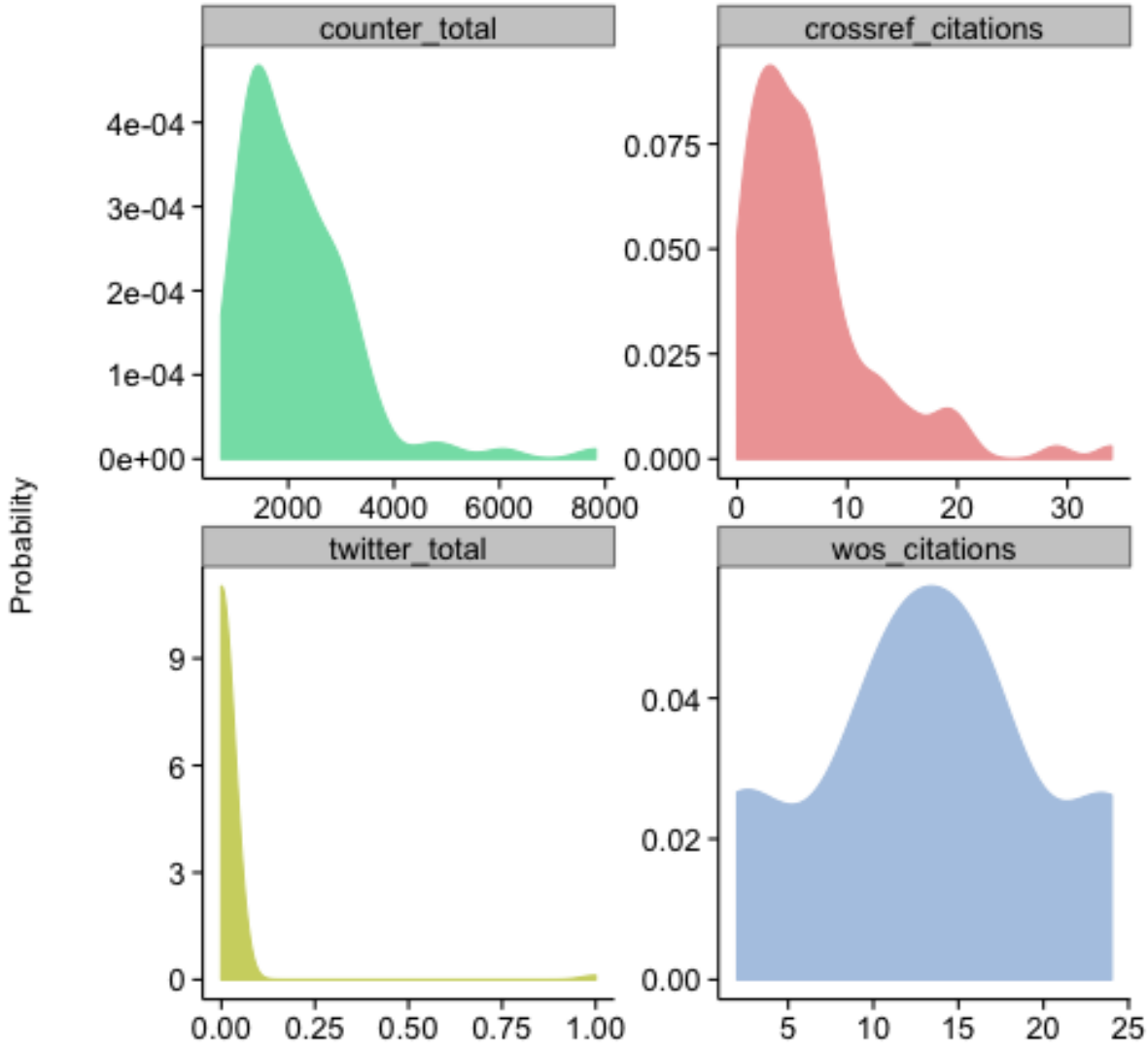

Figure 5: plot of chunk plot_densityplot5

Alt-metrics total citations from all sources.

```
almtotals(doi = "10.1371/journal.pbio.0000012")
```

```
  views shares bookmarks citations
1 29519      0        79       144
```

Get title of article by inputting the doi for the article.

```
almtitle(doi = "10.1371/journal.pbio.0000012")
```

```
[1] "Genome-Wide RNAi of C. elegans Using the Hypersensitive rrf-3 Strain Reveals Novel Gene Functions"
```