



Revealing Room for Improvement in Accessibility within a Social Media Data Visualization Learning Community

Silvia Canelón, PhD
@spcanelon 

Liz Hare, PhD
@DogGeneticsLLC 

Who are we?



Silvia Canelón

Postdoctoral Research Scientist
University of Pennsylvania



Liz Hare

Canine Genetics and Genomics Consultant
Dog Genetics, LLC

Takeaways

- Growth in online learning communities for data science
- TidyTuesday: Weekly social project for data visualization in R
- 3% of the data visualizations shared on Twitter had alternative text
- 84% were described by default as "Image"

Can blind people participate in data viz learning communities?

- Why do blind people need data visualization?
 - Scientific communication
 - Election maps
 - COVID-19 incidence maps & dashboards
 - Quorum or SAS can produce readable charts, but R/RStudio cannot
- Screen readers provide voice or braille access to computer text, **not images**
- AI image descriptions **cannot adequately describe data viz**
- Can blind people participate in #TidyTuesday?

What is TidyTuesday?

- Social project providing a new tidy dataset every week
- Online data viz R learning community
- Opportunity to practice summarizing and visualizing data with modern tooling



Tom Mock @thomas_mock



The [@R4DScommunity](#) welcomes you to week 19 of [#TidyTuesday](#)! We're exploring water access points!

bit.ly/tidyreadme
 waterpointdata.org

#r4ds #tidyverse #rstats #dataviz

The collage includes:

- A graphic for "TidyTuesday" showing a data frame structure with columns labeled "variables", "observations", and "values".
- The logo for "pdx water point data exchange" featuring the letters "pdx" in large black font and "water point data exchange" in smaller blue font.
- A map titled "mWater" showing water point locations in Kenya, categorized by type (e.g., Protected dug well, Unprotected dug well, Borehole or tubewell, etc.) and status (e.g., Functional, Non-functional).

10:06 PM · May 3, 2021



68



2



Copy link to Tweet



Hao Ye
@Hao_and_Y

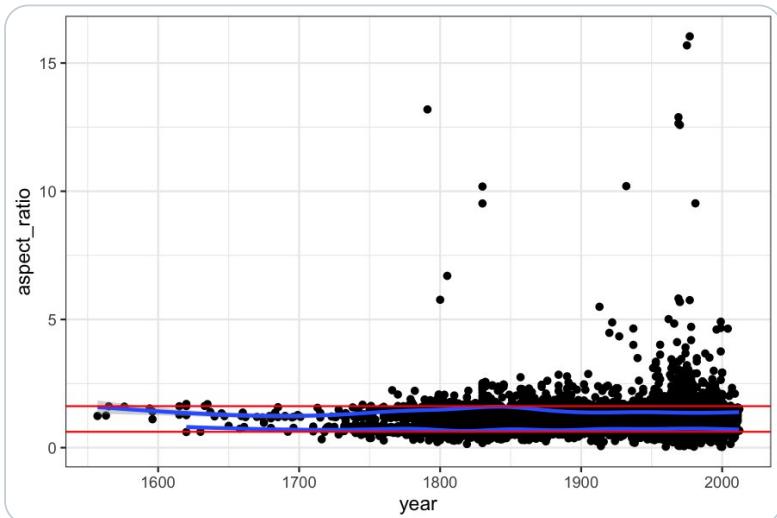


Today's #TidyTuesday:

data on artwork from the @Tate collection,
and specifically aspect ratios over time

Blue = stat_smooth GAMs (grouped by
aspect ratio > 1)

Red = golden ratio $(\pm 1 + \sqrt{5})/2$



1:06 PM · Jan 12, 2021



19



2



Copy link to Tweet

bit.ly/TidyTuesday • Silvia Canelón & Liz Hare • csv,conf,v6

What do #TidyTuesday visualization tweets include?

- Verbal description
 - author's interest
 - learning process
 - interpretation of the data
- Link to the author's source code
- Data visualization attached as an image
- Alt-text for the image (rarely)

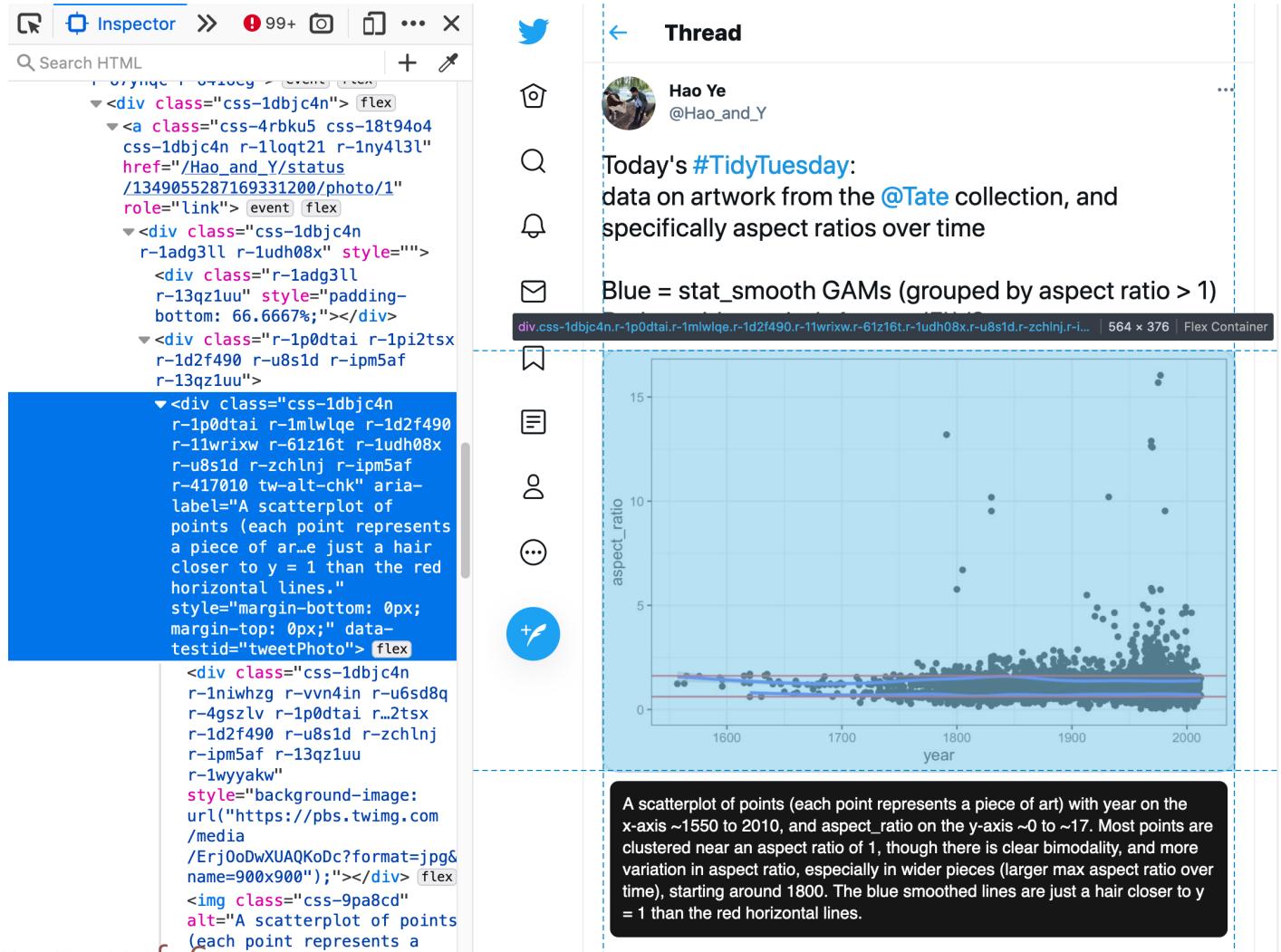
How were the data collected?

Tweets collected
& made available
by Tom Mock
using {rtweet}

Alt text scraped
by Silvia Canelón
using {RSelenium}
& available in the
TidyTuesdayAltText



bit.ly/TidyTuesday • Silvia Canelón & Liz Hare • csv,conf,v6



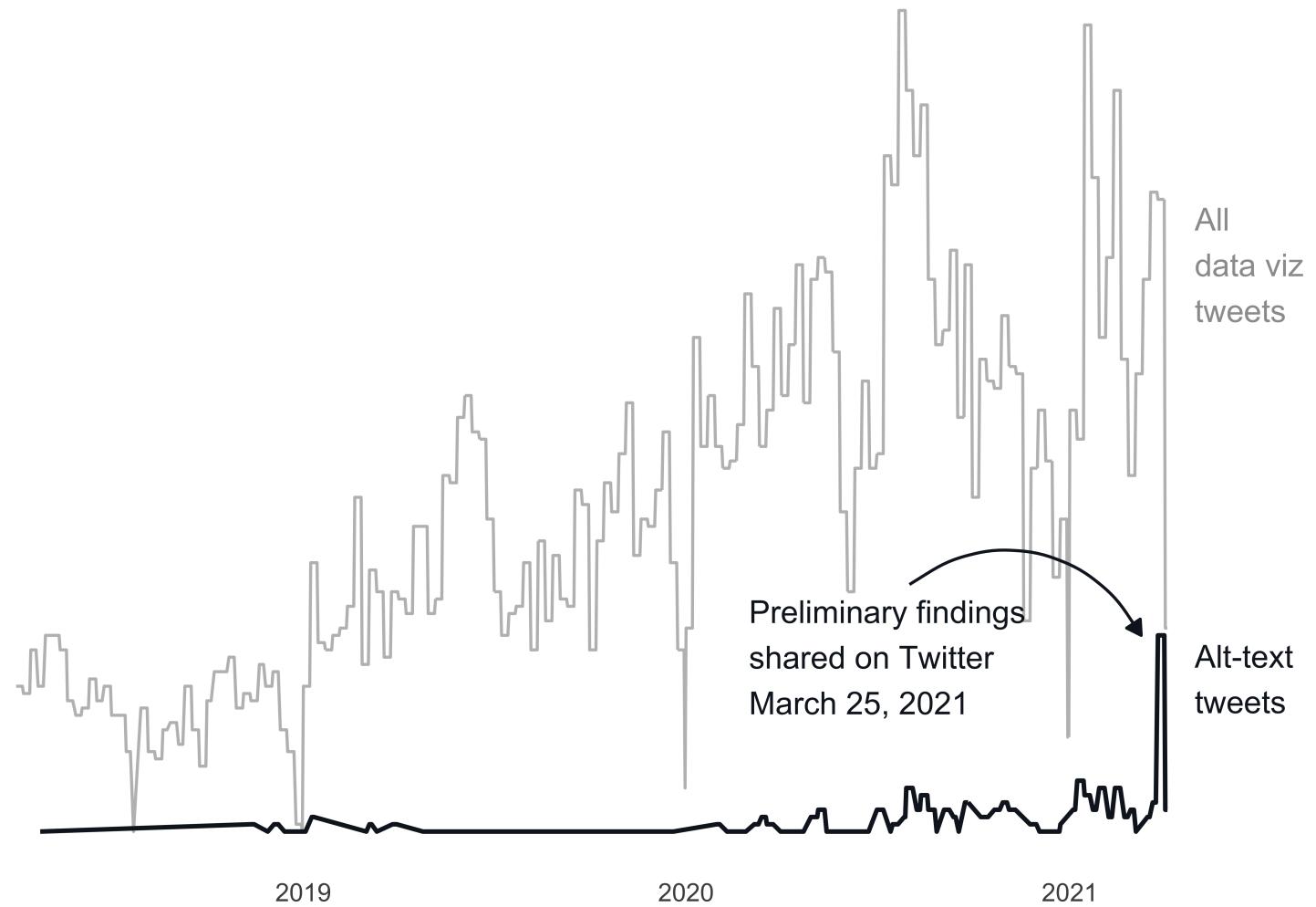
What did we find?

Over the 3 years of TidyTuesday, there were 7,136 data viz tweets and **only 215 (3%) of them had alt-text**

[Summary of these findings](#)

Participation in TidyTuesday has increased over time but **use of alt-text is recent and remains low**

The conversation on Twitter



Where else is alt-text missing?

- R books made available freely online
 - R books made available digitally to people with print disabilities by [Bookshare](#)
 - R package documentation
 - R blogs
-

This shows up at the individual-level and at the corporate-level (e.g. RStudio R Markdown documentation)

What makes good alt-text?

There were 196 data visualization tweets with relevant alt-text

Alt-text Feature

- 1 Description conveys meaning in the data 34%
 - 2 Variables included on the axes 28%
 - 3 Scale described within the description 12%
 - 4 Type of plot is described 56%
-

Has the tide started shifting?

- Conversations are happening
 - Within R: [useR!2021](#), [MiR](#), [TidyTuesday](#)
 - More broadly: [Data Visualization Society](#), [a11y](#) conferences/meetups
- Tooling is slowly receiving updates
 - [New alt text code chunk option](#) for R Markdown
- Changes are just starting and slow

What can you do?

- **Make your data visualizations accessible everywhere you can**
- **Add alt-text** to websites, journalism, scientific publishing, social media
- **Find ways to describe your visualizations** in words when alt-text isn't available in your documents or platforms

Data visualization alt-text resources

- [Writing alt-text for data visualization](#)
- [Chartability Data Viz Audit Workbook](#)
- [a11y Data Viz Accessibility Resources](#)

Tools for Twitter

- [How to make images accessible for people](#)
- Show alt-text for tweets: [Firefox](#)
- Twitter reminder to add alt-text: [Firefox](#)

Thanks!

[Analysis repo](#) &
resources 

This presentation was made using
the [xaringan](#), and [xaringanExtra](#) R packages.



Silvia Canelón, PhD

 silvia.rbind.io
 [@spcanelon](https://twitter.com/@spcanelon)
 [@spcanelon](https://github.com/@spcanelon)



Liz Hare, PhD

 doggenetics.com
 [@DogGeneticsLLC](https://twitter.com/@DogGeneticsLLC)
 [@LizHareDogs](https://github.com/@LizHareDogs)
 LizHare@DogGenetics.com