

```
# Workspace for tweets - SQLite database (use dataset lib to imprt schema)
db = dataset.connect("sqlite:///tweets.db") # Create a data database, create one if none exists

### Query Twitter
class Streamer(StreamListener):

    def on_status(self, status):

        try:
            if status.coordinates != None and status.place.country_code == 'US' and status.retweeted == False:
                id_str = status.id_str # ID given to specific tweet
                name = status.user.screen_name # Name of Tweeter
                created = status.created_at # When the tweet was sent
                text = status.text # The tweet

                coords = status.coordinates # Coordinates from where the tweet was sent
                coords = json.dumps(coords) # drops the coords from json to string, so it can be stored in sql
                # Add sentiment analysis
                sid = sia()
                polarity = sid.polarity_scores(text)[compound] # Set sentiment score to "polarity" object
                if polarity != 0.0:
                    #Store Tweet into SQLite db
                    table = db["tweets"]
                    table.insert(dict(
                        tweet_id = id_str,
                        user = name,
                        tweet_datetime = created,
                        text = text,
                        sentement_score = polarity,
                        coords = coords,
                    ))
                    print "Tweet Added", text
        except TypeError:
            print 'e'
            pass

    def on_error(self, status):
        print status

# Set Bounding box to isolate geotagged tweets. Set to Lower 48 of the US.
US_bounds = [-133.0,25.3,-59.7,50.8]

# Call the Streaming service, pass the authorizing credentials
# Call the query using the filter
def start_stream():
    while True:
        try:
            twitter_stream = tweepy.Stream(auth, Streamer())
            twitter_stream.filter(locations=US_bounds, stall_warnings=True)

        except:
            continue
```

Tweets and Politics

Looking at Social Media Sentiment and Voting Behavior

Spenser Kuroda | GEO 242: GIS Programming

Objectives

- ▶ Parse Tweets and use language analysis to determine if people are positive or negative
- ▶ Visualize tweets against the 2016 presidential elections

Methods Summary and Python Packages

- ▶ Use tweepy to import tweets from Twitter API
- ▶ Use the Natural Language Toolkit (NLTK) and VADER assess general sentiment
- ▶ Store tweets in a SQLite database table using SQLite3, pandas, dataset
- ▶ Download and join US counties with election results using urllib2, Beautiful Soup to download and built election result data tables from internet

Twitter Extraction

- ▶ Use Streaming API
- ▶ Pulled about 4 days of tweets over about 6 days. Gathered almost 700,000 tweets.
- ▶ Parsed through json to extract desired attributes
- ▶ Used SQL to filter tweets
- ▶ Pulled out web links from tweets.

Database Structure Browse Data Edit Pragmas Execute SQL

Table: tweets_rev New Record Delete Record

		id	tweet	tweet_id
1	1	1	Gotta play with a big crane today. #WorkViews @ Chicago, Illinois	86820798569...
2	2	2	#HappyFriday. You don't see it but I'm smiling on the inside because I got this awesome ja...	86820798629...
3	3	3	Don't miss lennyfuson reppin Cavi here @221inc 4-7 All Cavi's on Sale!	86820798963...
4	4	4	Can you recommend anyone for this #job? Assistant Manager - #SONIC #Hospitality #We...	86820799140...
5	5	5	Want to work in #Houston, TX? View our latest opening: #Retail #Job #Jobs #Hiring #Car...	86820799301...
6	6	6	Interested in a #job in #Norristown, PA? This could be a great fit: #Nursing #Hiring #Care...	86820799408...
7	7	7	♪ 7" Bordeaux on Pink Footbed with Marquise Diamond Glitter Heels™	86820799679...
8	8	8	Happy Friday! #longweekend #memorialdayweekend @ NoHo Arts District	86820800163...
9	9	9	Can you recommend anyone for this #job in #Sandy, OR? #Banking #Hiring #CareerArc...	86820800251...
10	10	10	Microblading so natural you cannot tell she just had it done! Started with absolutely NO bro...	86820800264...
11	11	11	Want to work in #Madison, WI? View our latest opening: #truckr #Job #Jobs #Hiring #C...	86820800288...
12	12	12	"...cause down the shore everything's alright..." Well I'm not #downtheshore (♥#ny&) a...	86820800450...
13	13	13	See our latest #Addison, TX #job and click to apply: Senior Storm Damage Assessor - #E...	86820800699...
14	14	14	Can you recommend anyone for this #job? Assistant Manager - Flemington - #Hospitality ...	86820800703...
15	15	15	See our latest #Washington, DC #job and click to apply: Integrated Air and Missile Defens...	86820800909...
16	16	16	See our latest #Coppell, TX #job and click to apply: Mail Room Quality Control - #KellyJob...	86820801057...
17	17	17	This #job might be a great fit for you: CDL Class A Owner Operator, Drop & Hook, Te...	86820801124...
18	18	18	Can you recommend anyone for this #job? Customer Service Representative- Entry Level -...	86820801154...
19	19	19	Here's an opportunity that you won't want to pass up: Bartender - #Bartender #Houston, T...	86820801226...
20	20	20	We're #hiring! Click to apply: CDL Class A OTR Team Owner Operator, Drop & Hook, ...	86820801282...
21	21	21	Brooklyn Bridge Madness	86820801253...
22	22	22	Interested in a #job in #Taylorsville, UT? This could be a great fit: #dialysis #Nursing #Hir...	86820801250...
23	23	23	Interested in a #job in #Pittsburgh, PA? This could be a great fit: #FastCasual #Hiring	86820801310...
24	24	24	Join the Kelly Services team! See our latest #job opening here: #KellyJobs #KellyServices ...	86820801340...
25	25	25	Can you recommend anyone for this #job in #Atlanta, GA? #PrepCook #Hiring	86820801361...
26	26	26	See our latest #Nashville, TN #job and click to apply: Program Support Assistant (OA) - #...	86820801530...

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State Election Data Aggregation

The screenshot shows a web browser window with developer tools open. On the left, there is a table of state election results. In the center, the raw HTML code for that table is displayed in the 'Elements' tab of the developer tools. On the right, the 'Styles' tab shows the CSS styles applied to the table elements, with a specific style for the 'td' element highlighted.

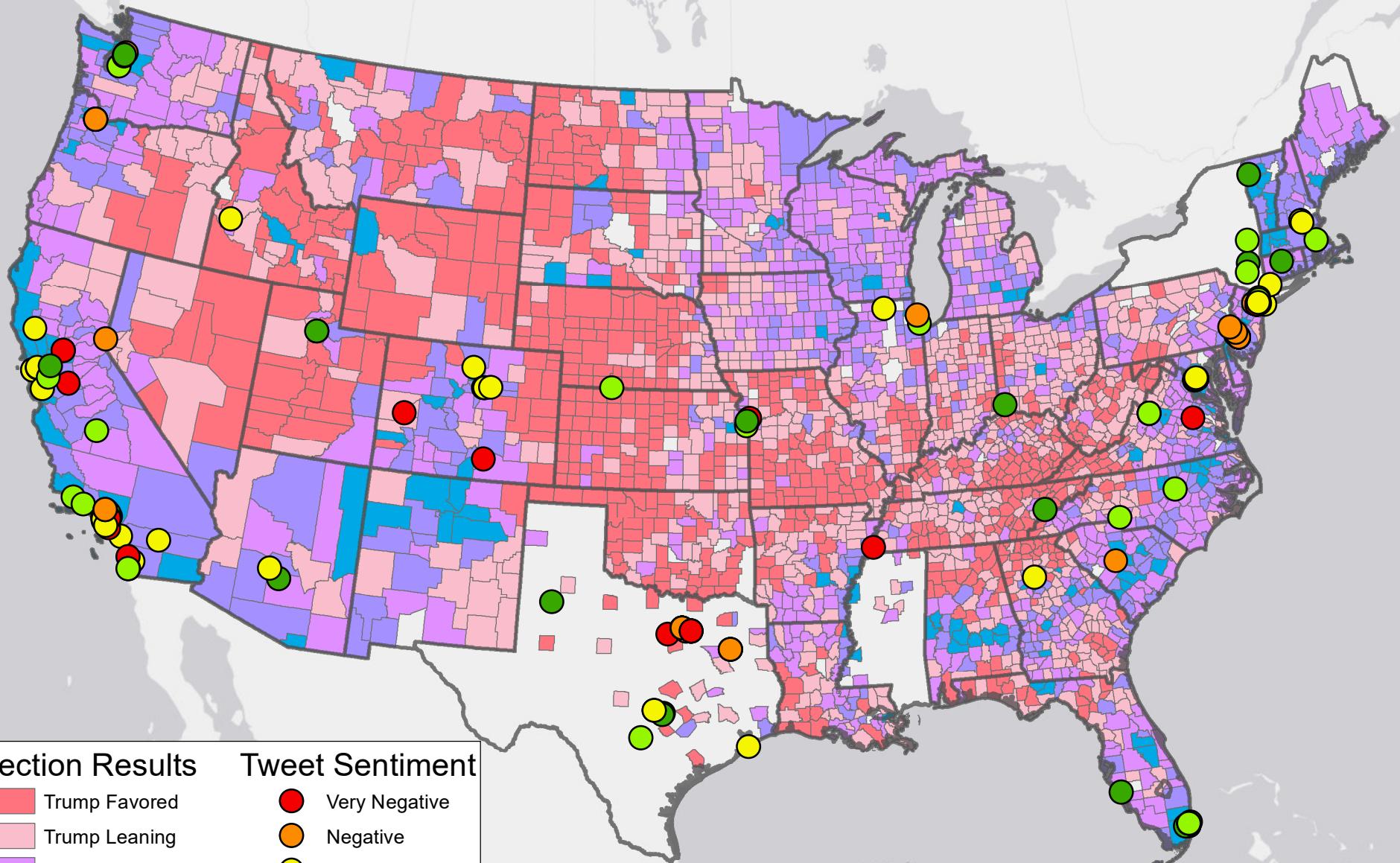
Party	Candidate	Total Votes	Percentage
Republican	Donald Trump	1,318,255	62.08%
Democratic	Hillary Clinton	729,547	34.36%
Libertarian	Gary Johnson	44,467	2.09%
Independent	Write-ins	21,712	1.02%
Green	Jill Stein	9,391	0.44%
Total votes		2,123,372	100.00%

Results by county [edit]

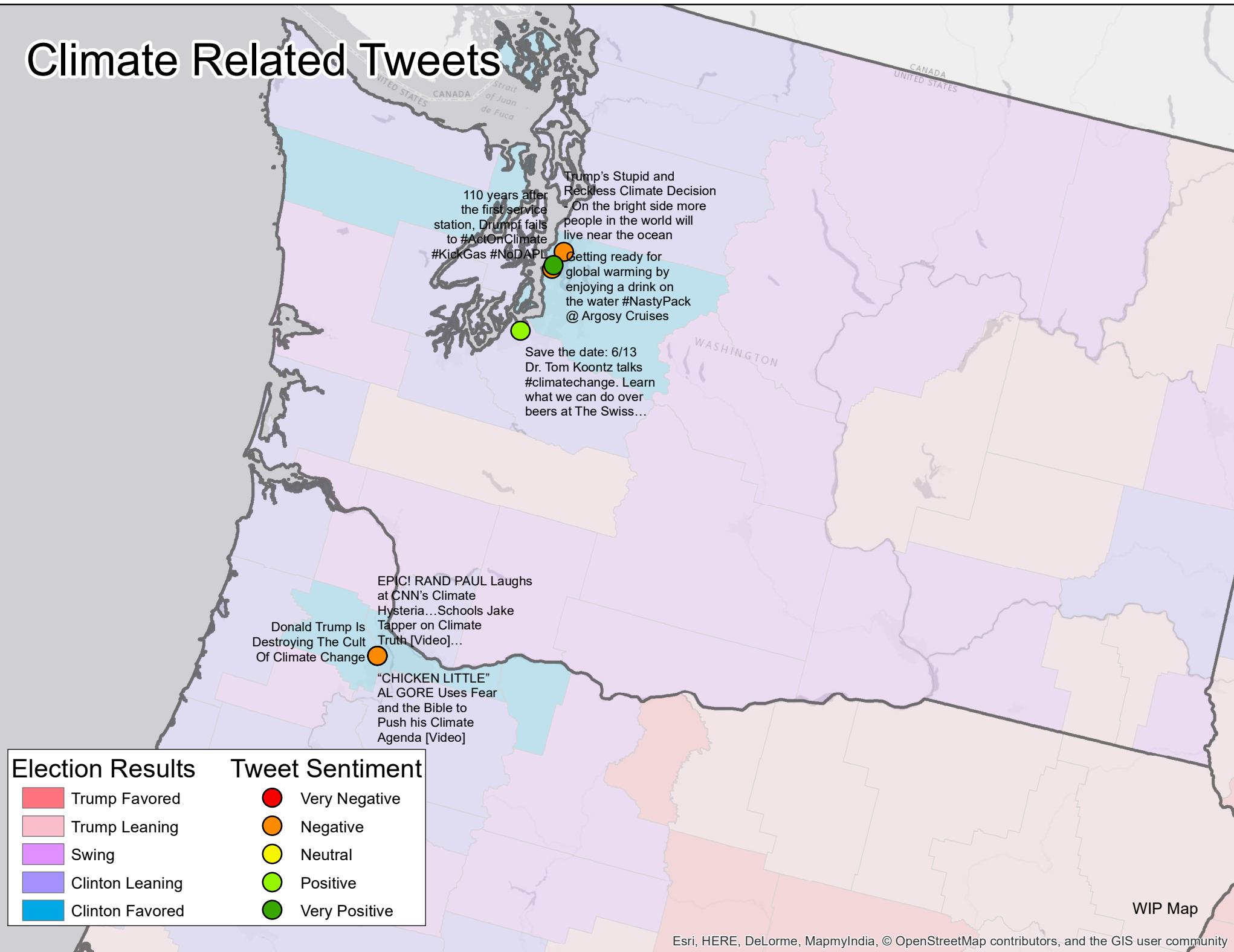
County	Trump#	Trump%	Clinton#	Clinton%	John
Autauga	18,110	72.82%	5,908	23.75%	538
Baldwin	72,780	76.58%	18,409	19.37%	2,44
Barbour	5,431	52.11%	4,848	46.51%	93
Bibb	6,733	76.39%	1,874	21.26%	124
Blount	22,808	89.34%	2,150	8.42%	337
Bullock	1,139	24.19%	3,530	74.96%	22
Butler	4,891	56.14%	3,716	42.65%	65
Calhoun	32,803	68.69%	13,197	27.64%	1,11
Chambers	7,803	56.38%	5,763	41.64%	168
Cherokee	8,937	83.41%	1,545	14.42%	147
Chilton	15,068	82.11%	2,909	15.85%	226
Choctaw	4,102	56.29%	3,109	42.67%	51
Clarke	7,109	54.84%	5,712	44.07%	98
Clay	5,230	79.18%	1,234	18.68%	92
Cleburne	5,738	87.38%	684	10.42%	90
Coffee	15,825	76.51%	4,194	20.28%	392
Colbert	16,718	67.24%	7,296	29.34%	506
Conecuh	3,413	51.97%	3,069	46.73%	51
Coosa	3,376	64.37%	1,780	33.94%	53
Covington	13,222	83.24%	2,379	14.98%	181
Crenshaw	4,511	72.03%	1,663	26.55%	64

- ▶ Federal Election Commission has not come out with the 2016, so I gathered it myself instead of paying for it from private sites.
- ▶ Issues with parsing html code and most tables had unique issues so it was difficult to code a dynamic script to pull from all tables.
- ▶ Tried to focus on pulling information from the Secretary of State or sources that are based on information from SOS's

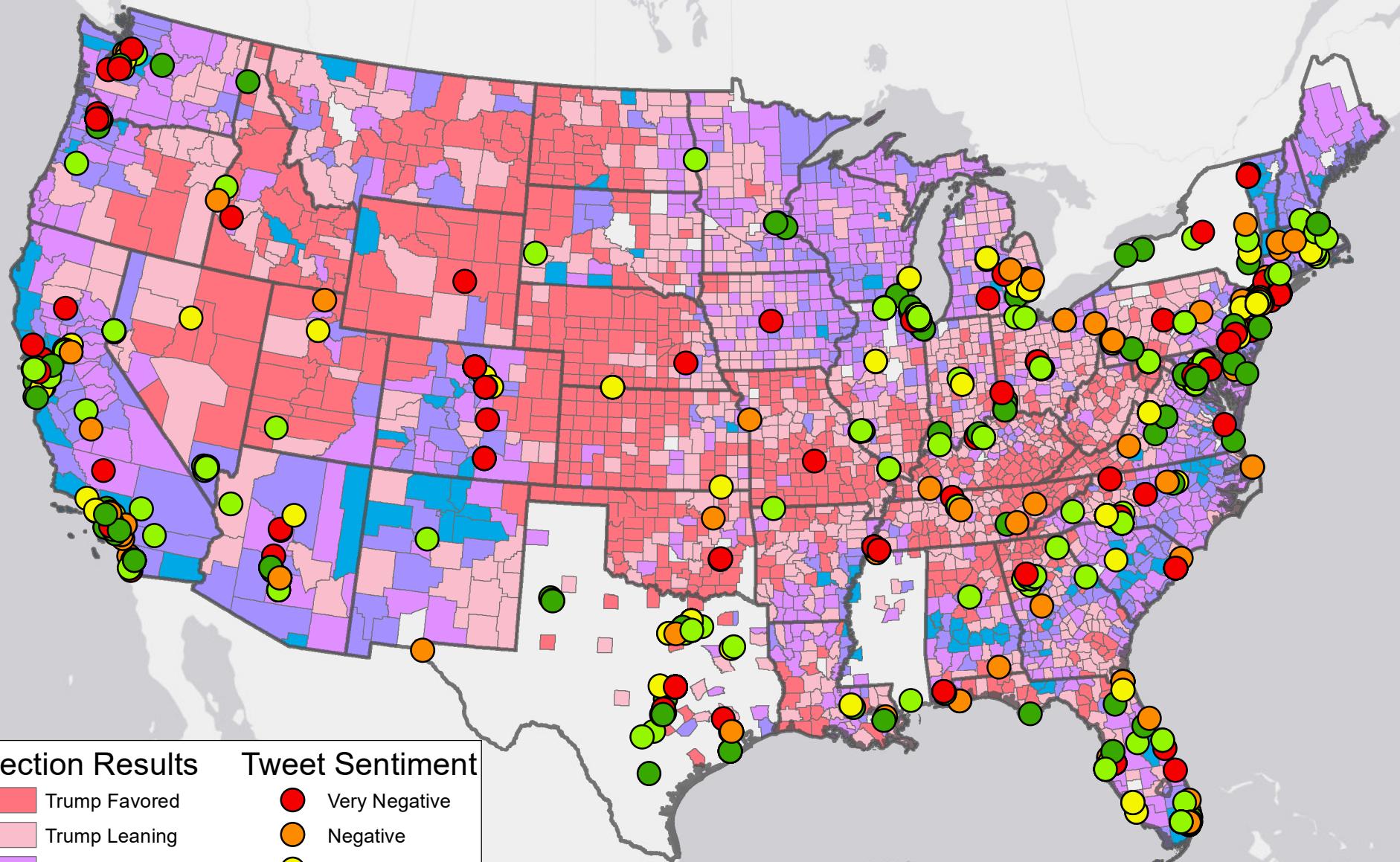
Climate Related Tweets



Climate Related Tweets



Trump Related Tweets



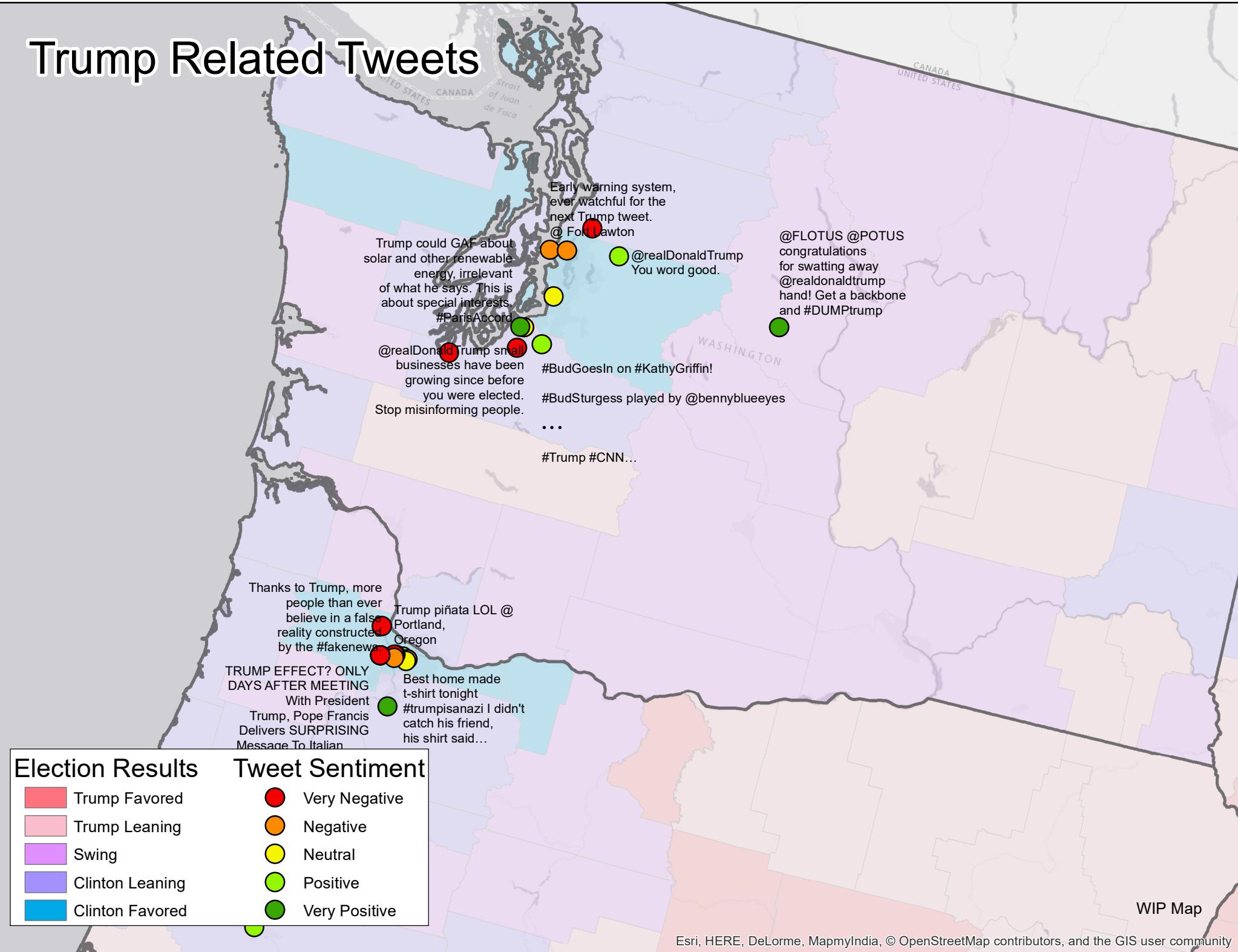
Election Results

Trump Favored
Trump Leaning
Swing
Clinton Leaning
Clinton Favored

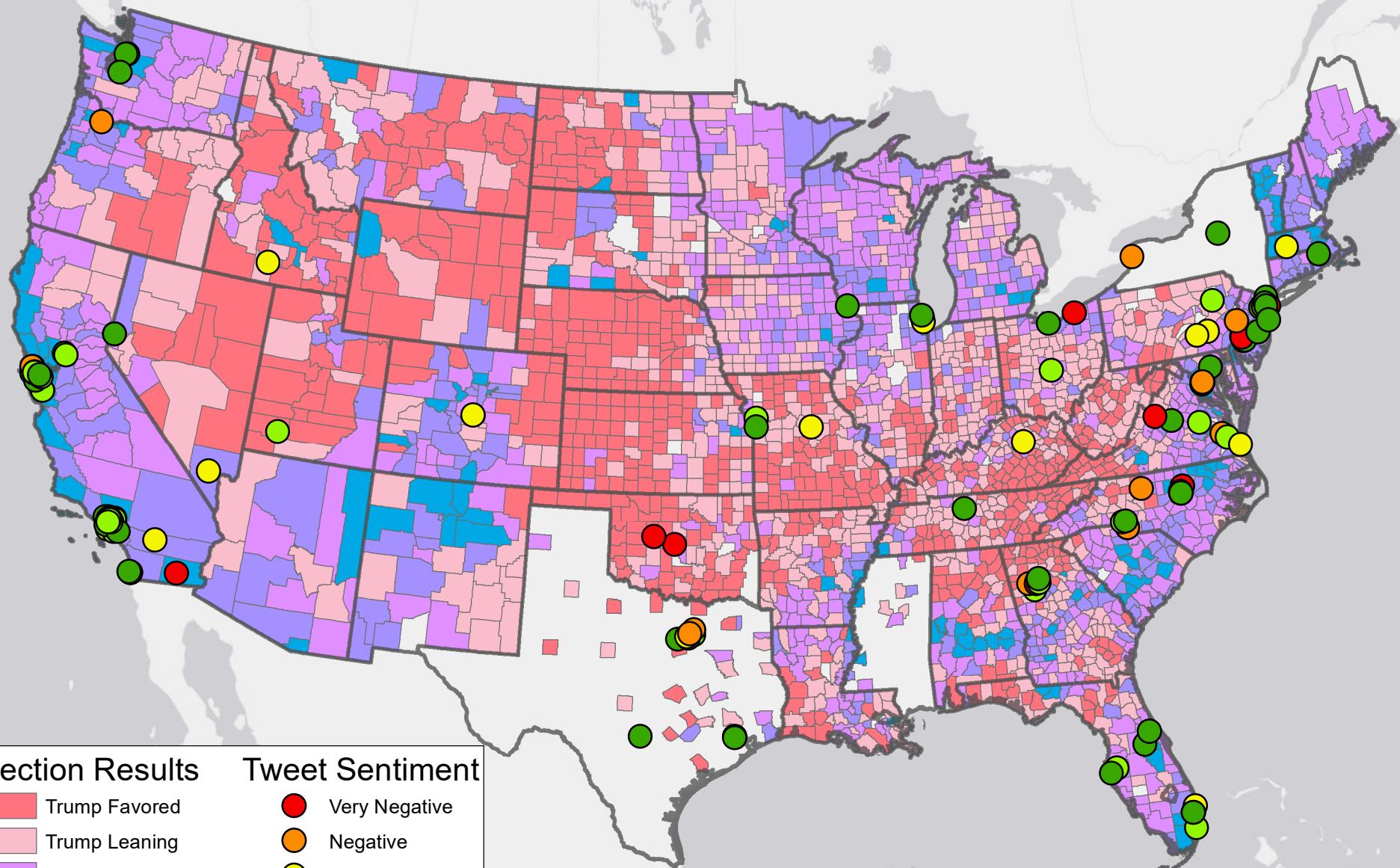
Tweet Sentiment

- Very Negative
- Negative
- Neutral
- Positive
- Very Positive

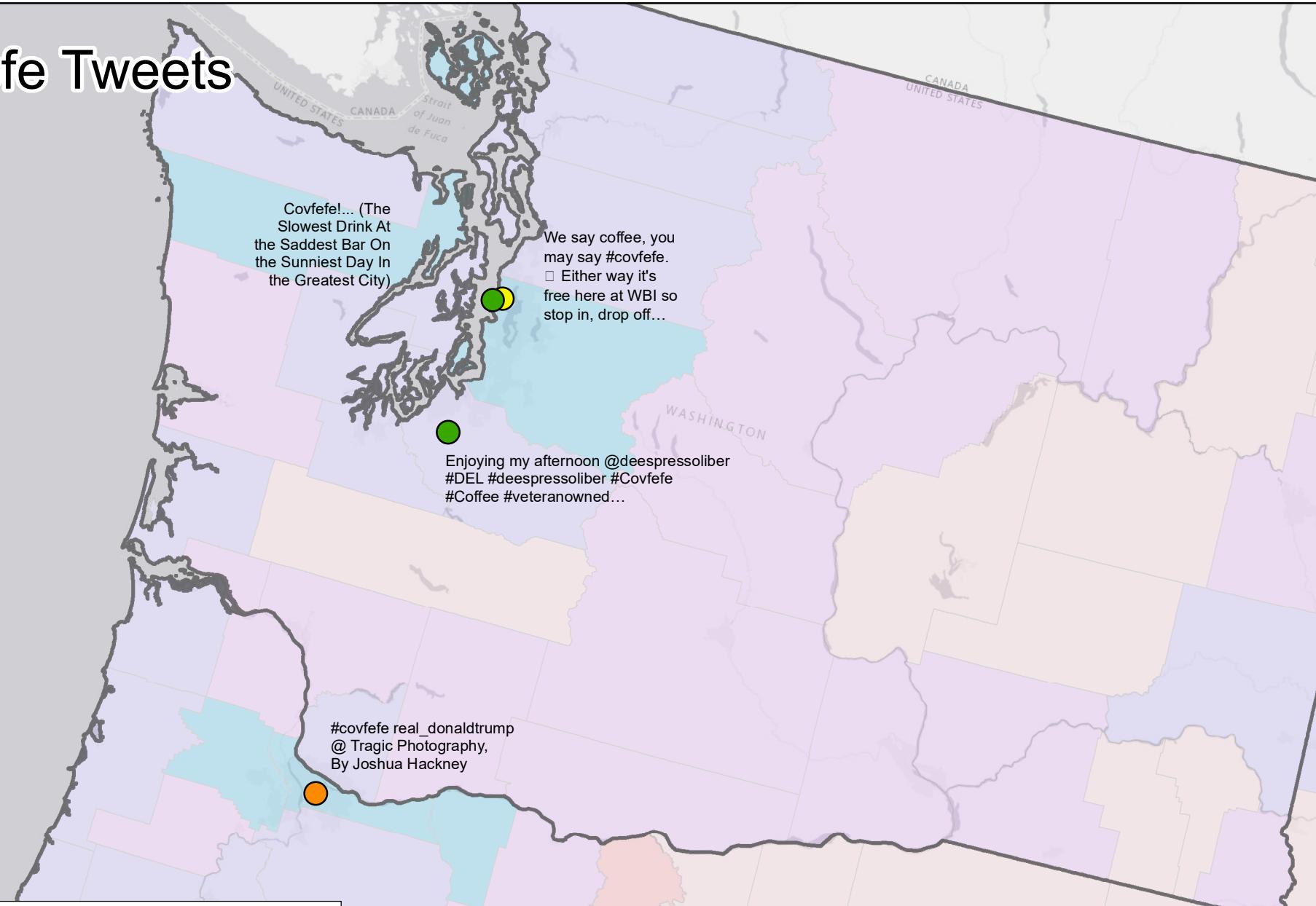
Trump Related Tweets



Covfefe Tweets



Covfefe Tweets



Election Results

■	Trump Favored
■	Trump Leaning
■	Swing
■	Clinton Leaning
■	Clinton Favored

Tweet Sentiment

- Very Negative
- Negative
- Neutral
- Positive
- Very Positive

WIP Map