

OUR MANTRA

BE CURIOUS





# Art of the Possible with New Data

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SAS Social Innovation

@isahhsieh

# SAS Data for Good



DATA FOR GOOD

Analytics helping humanity.

# SAS supports the Global Goals of the United Nations





# ComputerVision

Live Chat 

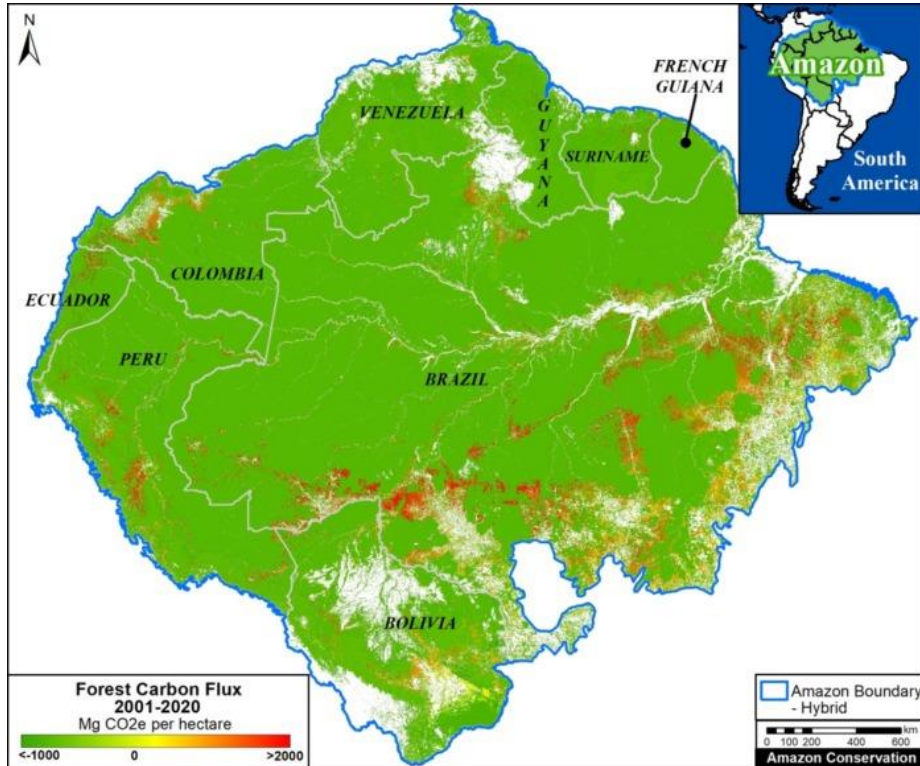
# Take a stand. By taking a closer look.

Seeing means saving when you help us train AI models to detect deforestation.



# Future: Carbon Sinks vs. Carbon Sources

## AI & Rainforests

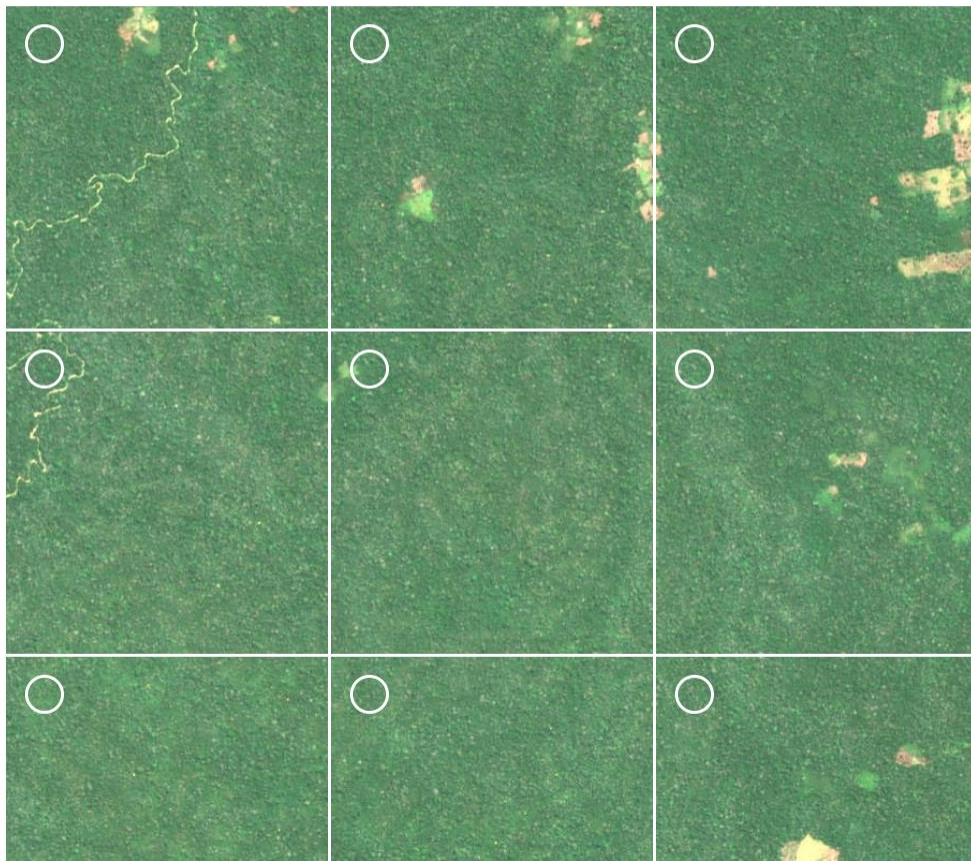


- Quantify carbon loss
- Automate detection
- Predict how quickly it spreads
- Predict where it'll spread

Select each region in this image where you see any signs of human impact.  
If you're not sure, leave the region *unselected*.



Need examples?



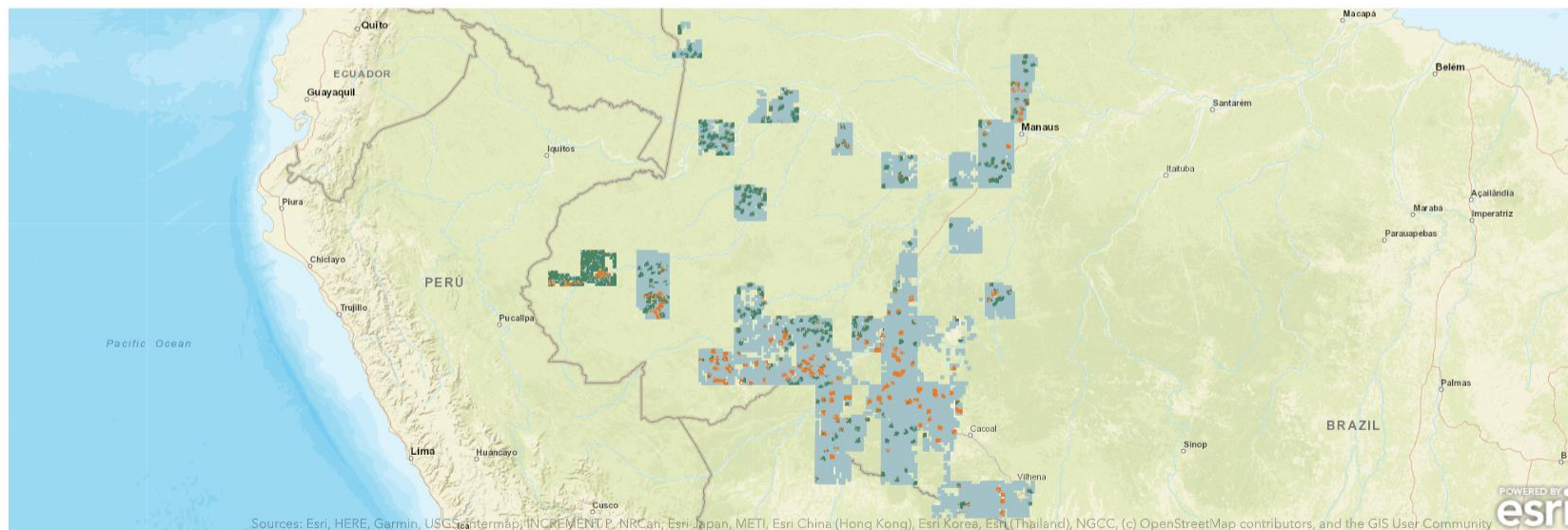
FAST COMPANY



World  
Changing  
Ideas  
2022

## Classification Map

This map shows the small segment of the Amazon we are using to build our AI model. By using image data from this ecologically diverse territory, we are giving our model a wide variety of examples so that it can one day learn to detect human impact *anywhere* in the Amazon. Here's our progress in classifying images.



Human Impact

No Human Impact

Not Yet Classified

# Future: Drivers of Deforestation

## AI & Rainforests



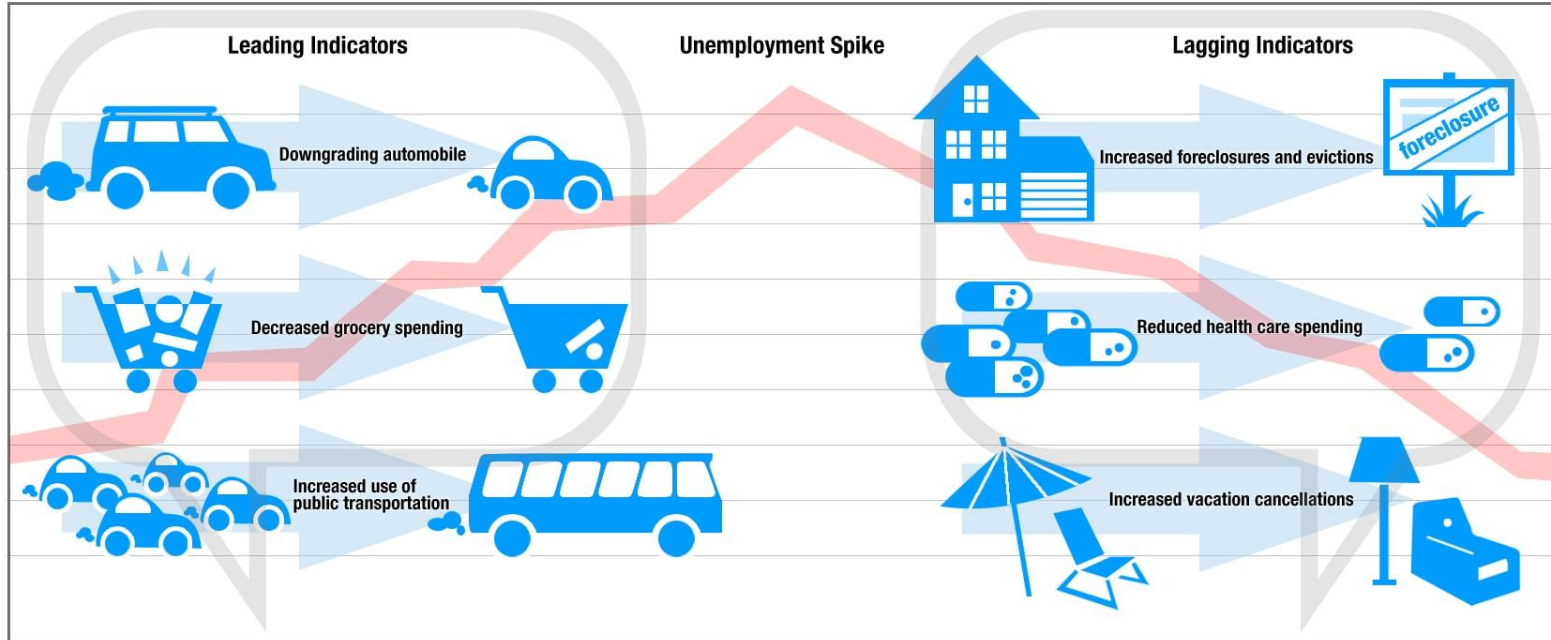


# Unstructured Text

As a new data source

To enrich Data Management

# Predicting Unemployment: UN Global Pulse

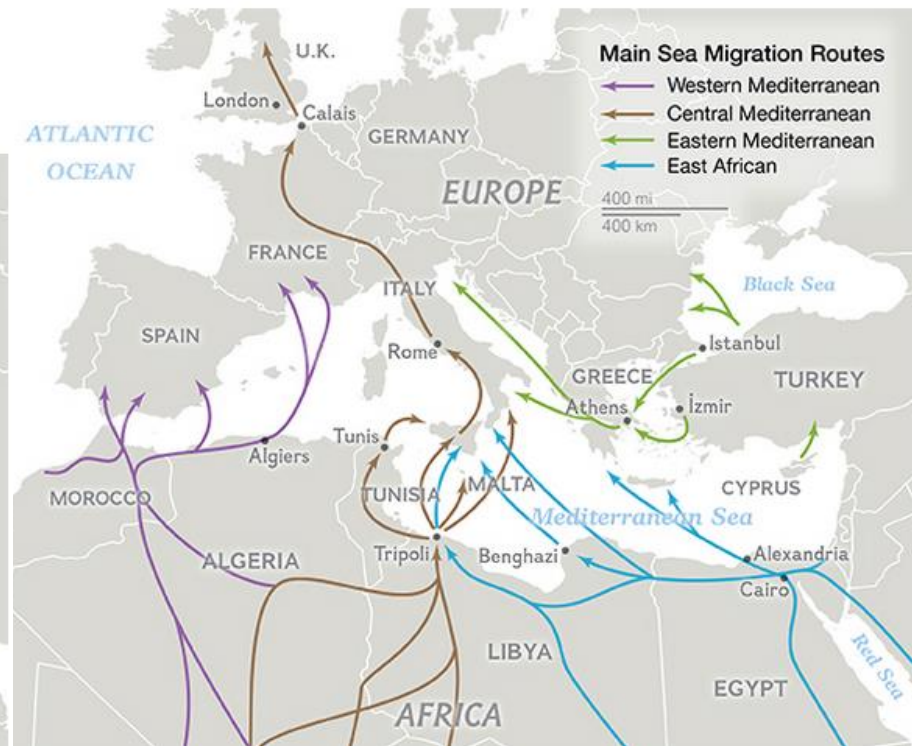
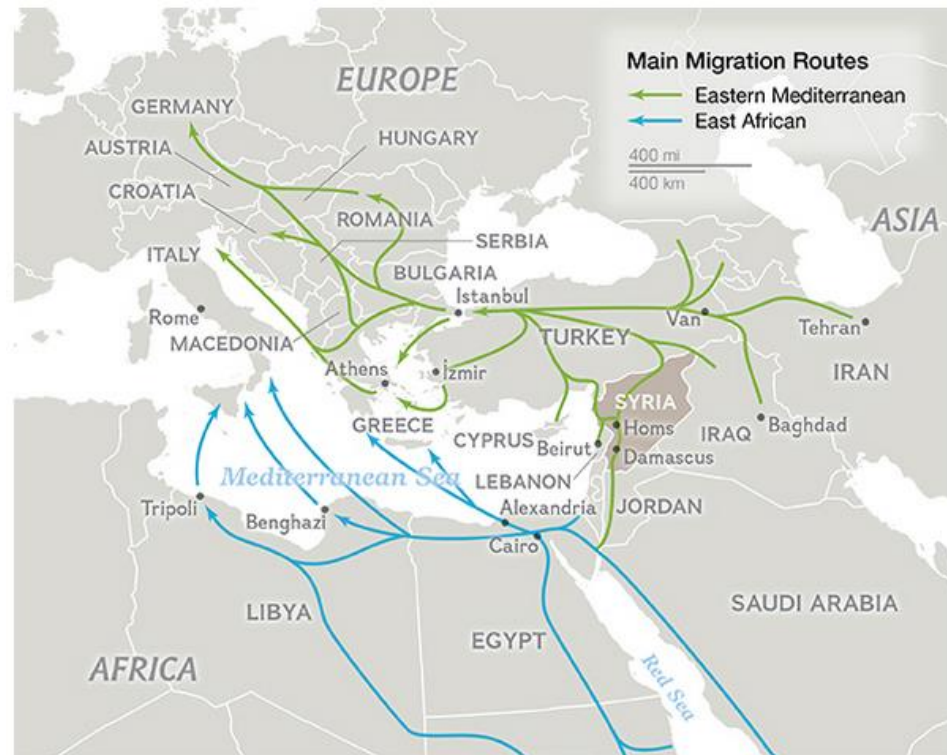


Analysis of social media using SAS shows increases in chatter about certain topics that are leading and lagging indicators of a spike in unemployment.

## Mediterranean Sea Route

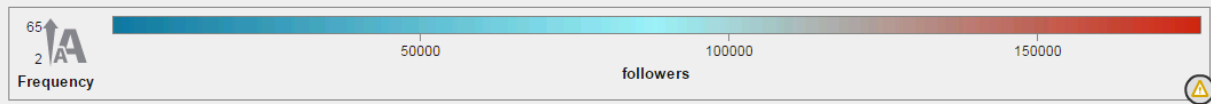
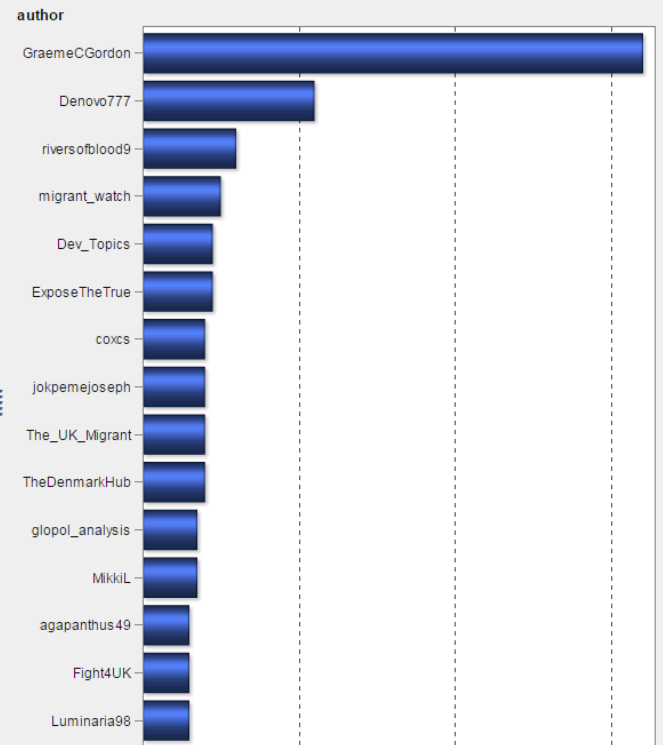
# Mentioned Routes for Syrian Refugees

### Eastern Mediterranean Route



Overview Geo Map Text Search +

(missing values) (3,749) Libya (70) Syria (313)





FILE HOME INSERT PAGE LAYOUT FORMULAS DATA REVIEW VIEW DEVELOPER

Calibri 8 A+ Wrap Text Currency

B I U Font Alignment Number Styles Cells Editing

BY8 cough, colds, fever

Population demographics										Shelter						
Average Family Size	% Female	% Male	% Under 5	% Children	% Adult	% Elderly	Congested	Safe site cooking	Number of households in tents	Number of households in makeshift	# of households in classroom	Safe from natural hazard	Specify Hazard	On site electricity	Food distribution	Pack size
family_size	Female_pct	Male_pct	Under5_pct	Children_pct	Adult_pct	Elderly_pct	Congested	Safe_site	tents_in_t	mishk_in_class	classroom	Safe_site	Specify_Hazard	Onsite_elec	Food_distribution	Pack_size
4	62.84%	45.8%	16.9%	29.0%	47.0%	6.7%	Moderately crowded	Yes				Yes	near the sea	No	No information	
5	4.84%	45.8%	16.9%	29.0%	47.0%	6.7%	Moderately crowded	Yes	14			Yes	near the sea	No	No aspect of schedule	Good for 1 day
6	2.04%	45.8%	16.9%	29.0%	47.0%	6.7%	Moderately crowded	Yes				Yes	near the sea	No	No aspect of schedule	Good for 1 day
7	5.04%	45.8%	16.9%	29.0%	47.0%	6.7%	Moderately crowded	Yes				Yes	near the sea	No	No aspect of schedule	Good for 1 day
8	7.04%	45.8%	16.9%	29.0%	47.0%	6.7%	Moderately crowded	Yes				Yes	near the sea	No	No aspect of schedule	Good for 1 day
9	4.04%	45.8%	16.9%	29.0%	47.0%	6.7%	Moderately crowded	Yes				Yes	near the sea	No	No aspect of schedule	Good for 1 day
10	4.04%	45.8%	16.9%	29.0%	47.0%	6.7%	Moderately crowded	Yes				Yes	near the sea	No	No aspect of schedule	Good for 1 day
11	5.04%	45.8%	16.9%	29.0%	47.0%	6.7%	Moderately crowded	No				Yes	near the sea	No	No aspect of schedule	Good for 1 day
12	4.84%	45.8%	16.9%	29.0%	47.0%	6.7%	Moderately crowded	No			21	Yes	2 of the buildings are lower than the ground	No	No aspect of schedule	Good for 1 day
13	6.34%	45.8%	16.9%	29.0%	47.0%	6.7%	Moderately crowded	No			31	Yes	near the sea	No	No aspect of schedule	Good for 1 day
14	4.1	54.8%	45.8%	16.9%	29.0%	47.0%	6.7%	Very crowded	No		11	Yes	Tree at the back of the school	No	No aspect of schedule	Good for 1 day
15	4.84%	45.8%	16.9%	29.0%	47.0%	6.7%	Very crowded	No			31	Yes	They are sitting at the table	No	No aspect of schedule	Good for 1 day
16	5.84%	45.8%	16.9%	29.0%	47.0%	6.7%	Moderately crowded	No			3	Yes	near the sea	No	No aspect of schedule	Good for 1 day
17	5.04%	45.8%	16.9%	29.0%	47.0%	6.7%	Moderately crowded	No		76		Yes	near the sea	No	No aspect of schedule	Good for 1 day
18	2.74%	45.8%	16.9%	29.0%	47.0%	6.7%	Moderately crowded	No			3	Yes	Tents are pitched in a school	No	No aspect of schedule	Good for 1 day
19	3.24%	45.8%	16.9%	29.0%	47.0%	6.7%	Moderately crowded	No				No information		No	No aspect of schedule	Good for 2 days
20	7.04%	45.8%	16.9%	29.0%	47.0%	6.7%	Moderately crowded	No				No information		No	No information	Good for 1 day
21	4.52%	44.7%	45.8%	16.9%	29.0%	47.0%	6.7%	Moderately crowded	No			Yes	near the river	No	No information	
22	4.84%	45.8%	16.9%	29.0%	47.0%	6.7%	Moderately crowded	No				Yes	near the river	No	No information	
23	3.84%	45.8%	16.9%	29.0%	47.0%	6.7%	Moderately crowded	No			2	Yes	near the river	No	No aspect of schedule	Good for 1 day
24	6.04%	45.8%	16.9%	29.0%	47.0%	6.7%	Moderately crowded	No				Yes	near the river	No	No information	
25	3.04%	45.8%	16.9%	29.0%	47.0%	6.7%	Moderately crowded	Yes				Yes	near from the sea	No	No aspect of schedule	Good for 1 day
26	7.04%	45.8%	16.9%	29.0%	47.0%	6.7%	Moderately crowded	Yes				Yes	near from the sea	No	No aspect of schedule	Good for 1 day
27	4.8	54.8%	45.8%	16.9%	29.0%	47.0%	6.7%	Moderately crowded	No			Yes	near from the sea	No	No aspect of schedule	Good for 1 day
28	5.04%	45.8%	16.9%	29.0%	47.0%	6.7%	Moderately crowded	No			77	Yes	School by the Pacific harbor	No	No information	Good for 2 days
29	5.0	54.8%	45.8%	16.9%	29.0%	47.0%	6.7%	Moderately crowded	No		27	Yes	School by the Pacific harbor	No	No aspect of schedule	Good for 2 days
30	3.04%	45.8%	16.9%	29.0%	47.0%	6.7%	Moderately crowded	No			8	Yes	near from the sea	Yes	Never	
31	6.04%	45.8%	16.9%	29.0%	47.0%	6.7%	Moderately crowded	No			3	Yes	near from the sea	Yes	Never	
32	2.44%	45.8%	16.9%	29.0%	47.0%	6.7%	Moderately crowded	Yes			0	Yes	near from the sea	No	Never	
33	10.84%	45.8%	16.9%	29.0%	47.0%	6.7%	Moderately crowded	Yes				Yes	near from the sea	No	Never	
34	3.84%	45.8%	16.9%	29.0%	47.0%	6.7%	Moderately crowded	Yes			80	Yes	near from the sea	No	Never	
35	4.0	54.8%	45.8%	16.9%	29.0%	47.0%	6.7%	Moderately crowded	No			Yes	near from the sea	No	Never	
36	3.54%	45.8%	16.9%	29.0%	47.0%	6.7%	Moderately crowded	Yes				Yes	near from the sea	No	No aspect of schedule	Good for 1 day
37	5.84%	45.8%	16.9%	29.0%	47.0%	6.7%	Moderately crowded	Yes				Yes	near from the sea	No	No aspect of schedule	Good for 1 day
38	3.84%	45.8%	16.9%	29.0%	47.0%	6.7%	Moderately crowded	Yes			2	Yes	near from the sea	No	No aspect of schedule	Good for 1 day
39	5.4	54.8%	45.8%	16.9%	29.0%	47.0%	6.7%	Moderately crowded	No			Yes	near from the sea	No	No aspect of schedule	Good for 1 day
40	5.24%	45.8%	16.9%	29.0%	47.0%	6.7%	Moderately crowded	No				Yes	near from the sea	No	No information	
41	6.84%	45.8%	16.9%	29.0%	47.0%	6.7%	Moderately crowded	No			13	Yes	near from the sea	Yes	Weekly	Good for 1 day
42	6.04%	45.8%	16.9%	29.0%	47.0%	6.7%	Moderately crowded	No			12	Yes	near from the sea	No	No aspect of schedule	Good for 1 day
43	4.84%	45.8%	16.9%	29.0%	47.0%	6.7%	Moderately crowded	Yes			9	Yes	near from the sea	No	Weekly	Good for 1 day
44	6.0	54.8%	45.8%	16.9%	29.0%	47.0%	6.7%	Moderately crowded	No			Yes	near from the sea	No	No aspect of schedule	Good for 1 day
45	4.04%	45.8%	16.9%	29.0%	47.0%	6.7%	Moderately crowded	Yes			2	Yes	near from the sea	No	No information	
46	5.84%	45.8%	16.9%	29.0%	47.0%	6.7%	Moderately crowded	Yes				Yes	near from the sea	No	No information	
47	6.04%	45.8%	16.9%	29.0%	47.0%	6.7%	Moderately crowded	Yes				Yes	near from the sea	No	No information	
48	4.04%	45.8%	16.9%	29.0%	47.0%	6.7%	Moderately crowded	Yes				Yes	near from the sea	No	No information	
49	4.84%	45.8%	16.9%	29.0%	47.0%	6.7%	Moderately crowded	Yes				Yes	near from the sea	No	No information	
50	4.14%	45.8%	16.9%	29.0%	47.0%	6.7%	Moderately crowded	Yes				Yes	near from the sea	No	No information	
51	3.8	54.8%	45.8%	16.9%	29.0%	47.0%	6.7%	Moderately crowded	Yes			Yes	near from the sea	No	No information	
52	4.4	54.8%	45.8%	16.9%	29.0%	47.0%	6.7%	Moderately crowded	Yes			Yes	near from the sea	No	No information	
53	3.84%	45.8%	16.9%	29.0%	47.0%	6.7%	Moderately crowded	Yes				Yes	near from the sea	No	No information	
54	6.9	54.8%	45.8%	16.9%	29.0%	47.0%	6.7%	Moderately crowded	Yes			Yes	near from the sea	No	No information	
55	3.4	54.8%	45.8%	16.9%	29.0%	47.0%	6.7%	Moderately crowded	Yes			Yes	near from the sea	No	No information	
56	4.04%	45.8%	16.9%	29.0%	47.0%	6.7%	Moderately crowded	Yes				Yes	near from the sea	No	No information	
57	4.04%	45.8%	16.9%	29.0%	47.0%	6.7%	Moderately crowded	Yes				Yes	near from the sea	No	No information	
58	5.1	54.8%	45.8%	16.9%	29.0%	47.0%	6.7%	Moderately crowded	Yes			Yes	near from the sea	No	No information	
59	5.74%	45.8%	16.9%	29.0%	47.0%	6.7%	Moderately crowded	Yes				Yes	near from the sea	No	No information	
60	4.24%	45.8%	16.9%	29.0%	47.0%	6.7%	Moderately crowded	Yes				Yes	near from the sea	No	No information	
61	2.14%	45.8%	16.9%	29.0%	47.0%	6.7%	Moderately crowded	Yes				Yes	near from the sea	No	No information	

Data

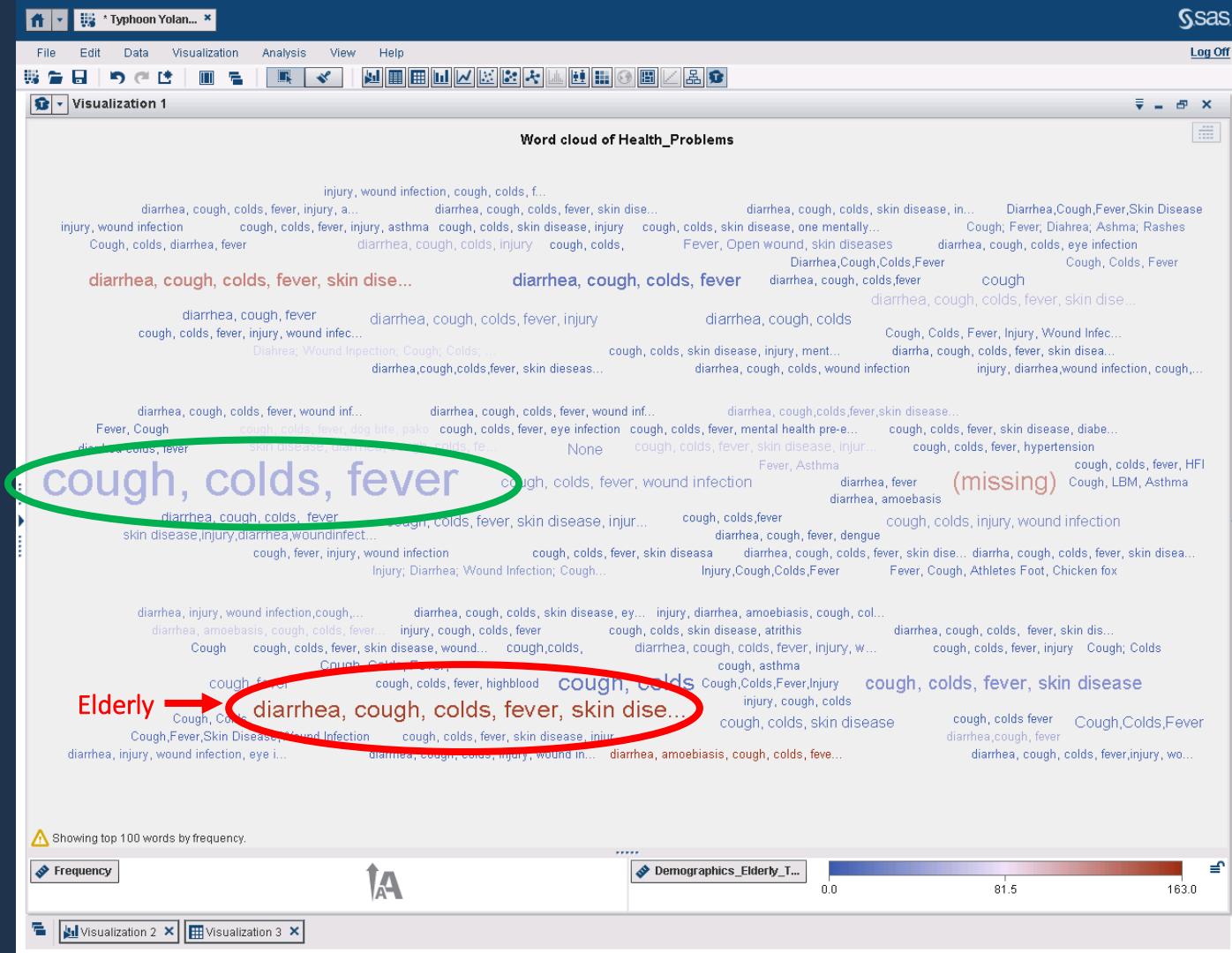
READY

Row Labels Count of SiteCode Row Labels Sum of no\_families2 Sum of Individuals2

Eastern Samar	26	Eastern Samar	400	1,858
Balangiga	5	Balangiga	24	118
Guiuan	9	Guiuan	232	1,041
Lawaan	8	Lawaan	29	124
Quinapondan	2	Quinapondan	11	55
Salcedo	2	Salcedo	104	520
Leyte	181	Leyte	6,247	30,008
Southern Leyte	1	Southern Leyte	1	5
Samar (Western)	17	Samar (Western)	633	2,651
Grand Total	225	Grand Total	7,281	34,522

Row Data DTM\_Open Sites Load\_VA Sheet1 GPSConversion

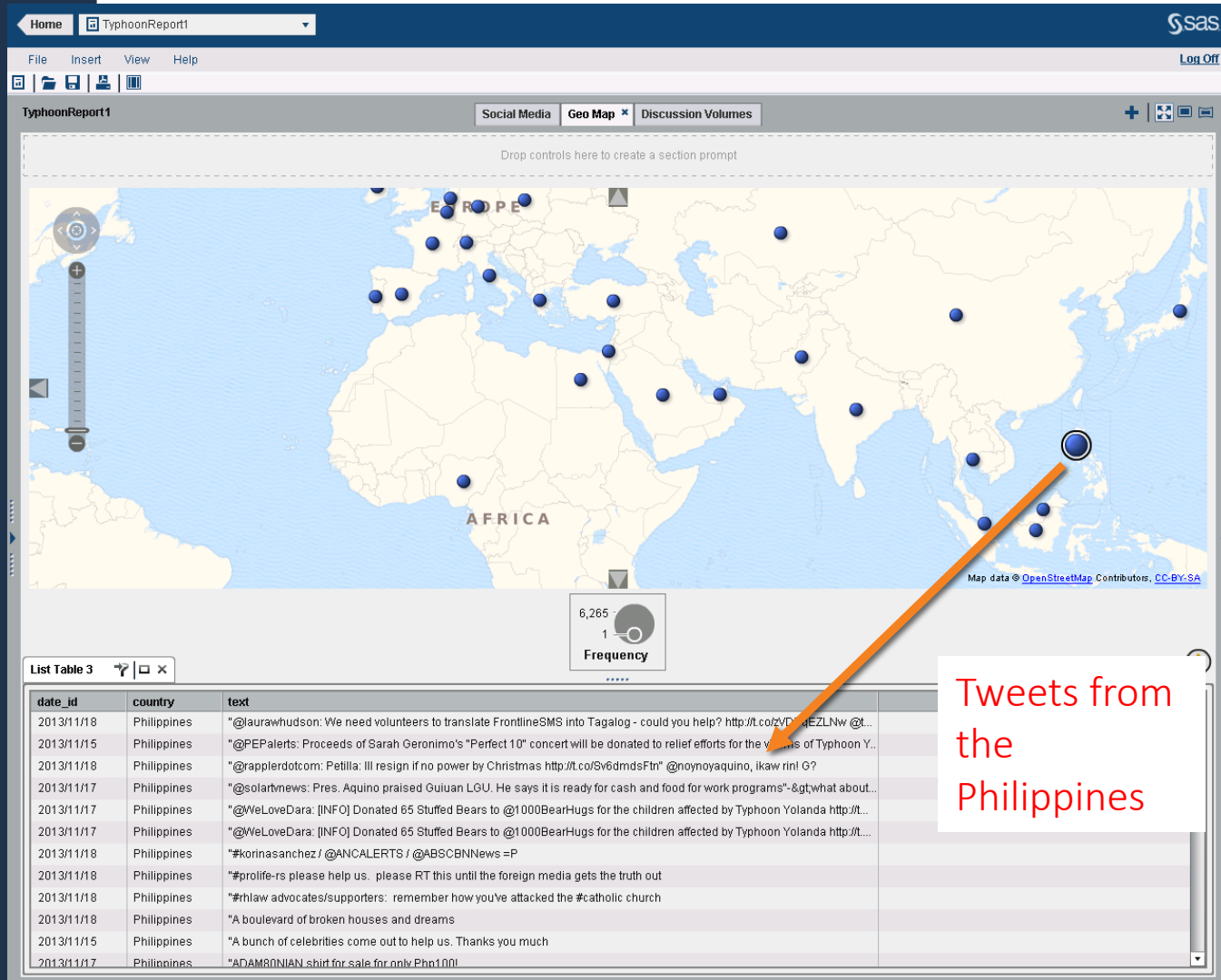
# Most common Health Problems



# 10,000 Tweets from Haiyan

Terms searched:  
Donors/Donate  
Guiuan  
#YolandaPH

Mapped / sorted by  
geo locations





Restoration Status

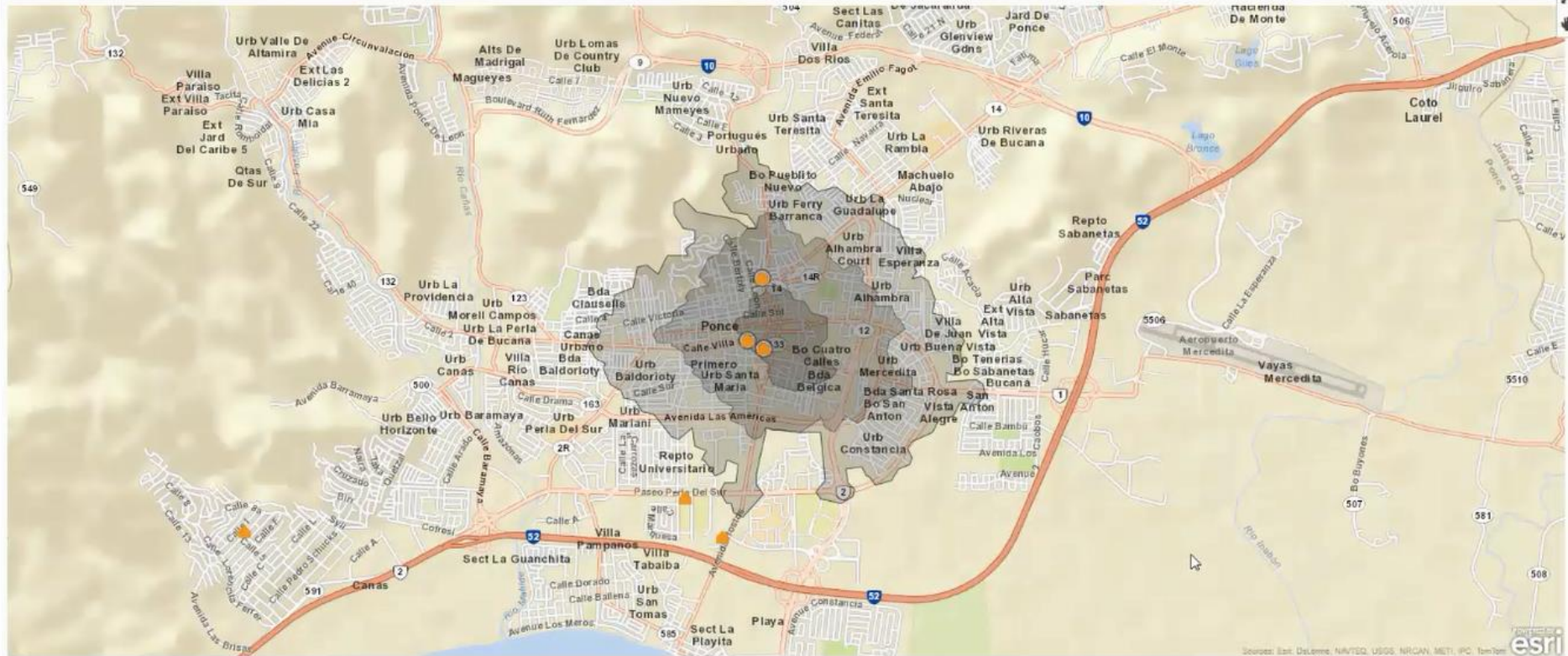


Status

- Completed
- Identified
- Planned

Filters: Geography (3) ▼

### Restoration Status

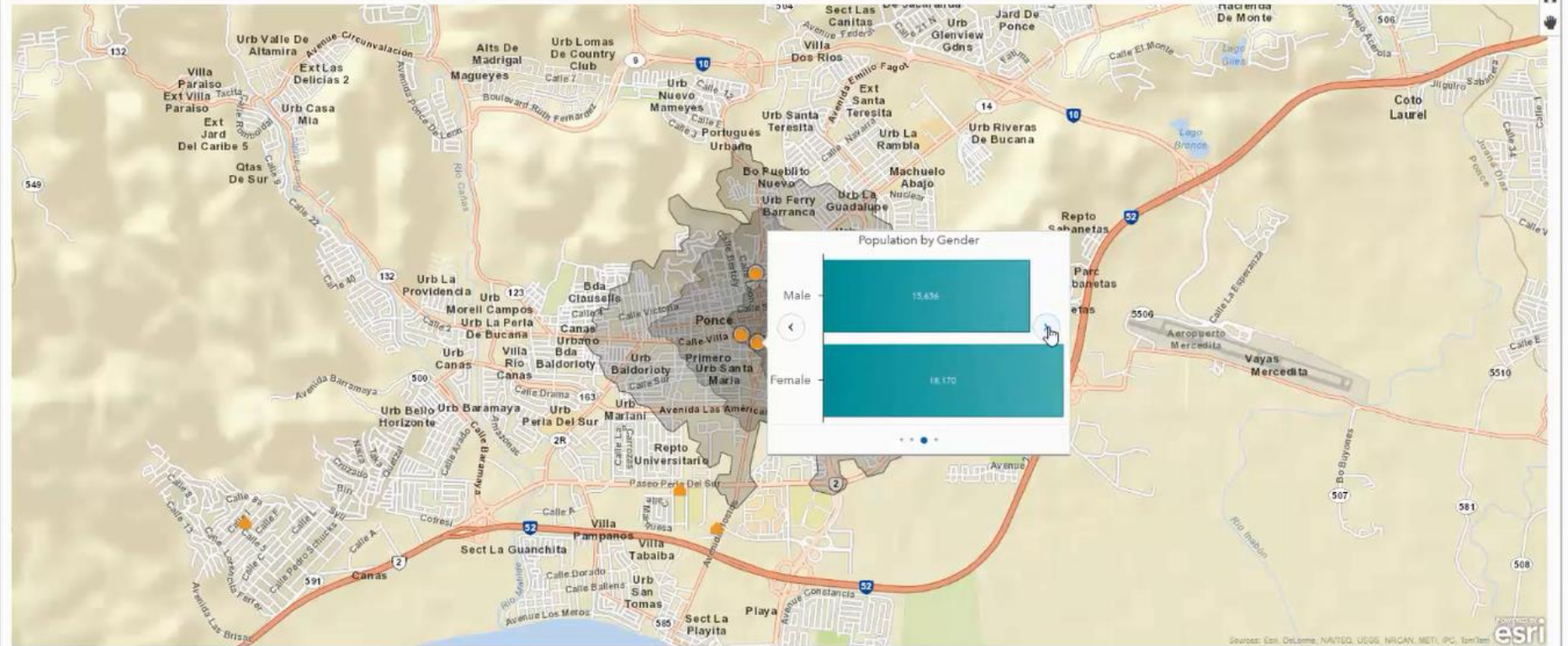


Status  
Completed   Identified   Planned



Filters: Geography (3) ▾

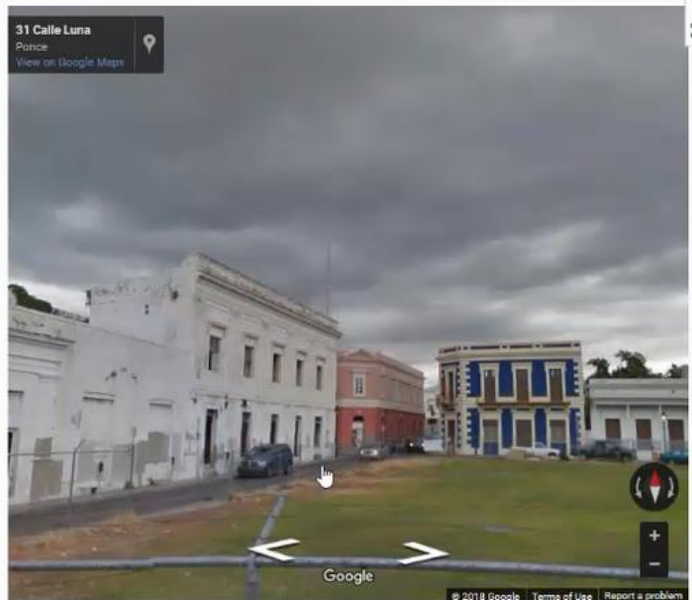
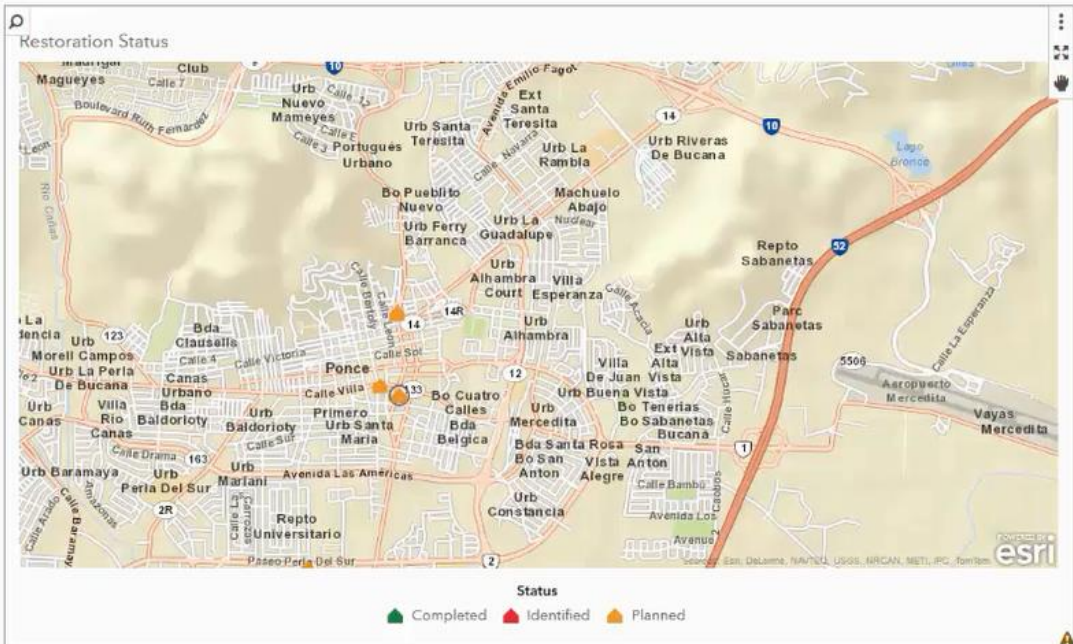
### Restoration Status



Status  
Completed Identified Planned



Filters: Ponce - MED CENTRO - Centro Satélite La Cantera



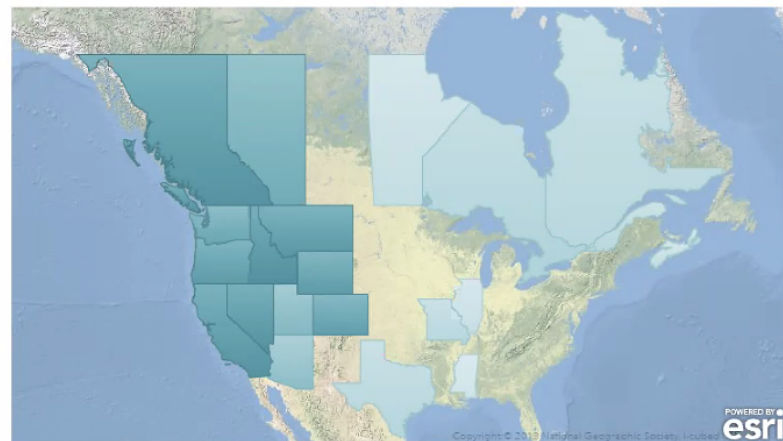
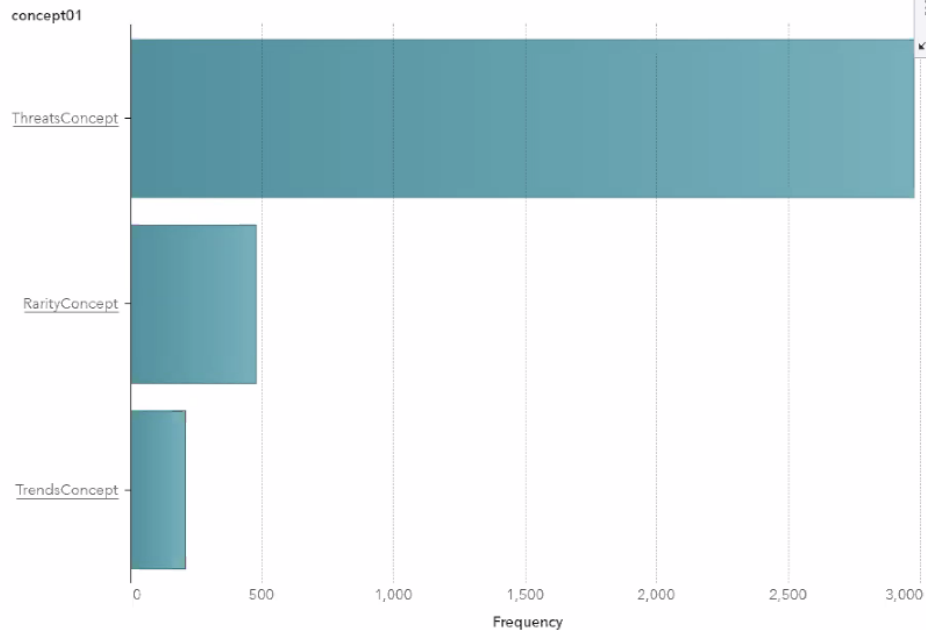
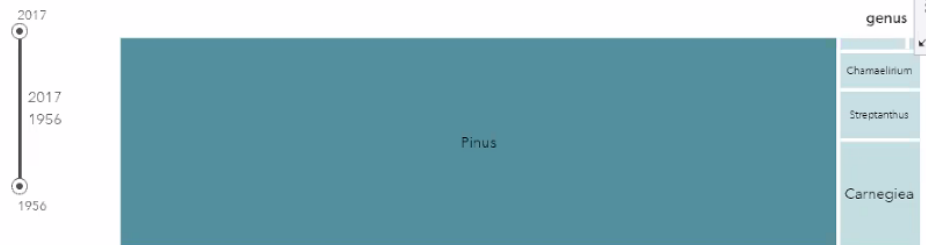
Geography	Host Organization	Description	Lat	Long	Status	Voice Service Provided	Source	Connection Type
Ponce - MED CENTRO - Centro Satélite La Cantera	Clinic	Federally funded clinic	18.01011	-66.61249	Planned	No	IMC	P2P

# NatureServe

Connecting Science With Conservation



Filters: No selections

Observations  
6.3K

20.87%

78.76%

country

(missing)

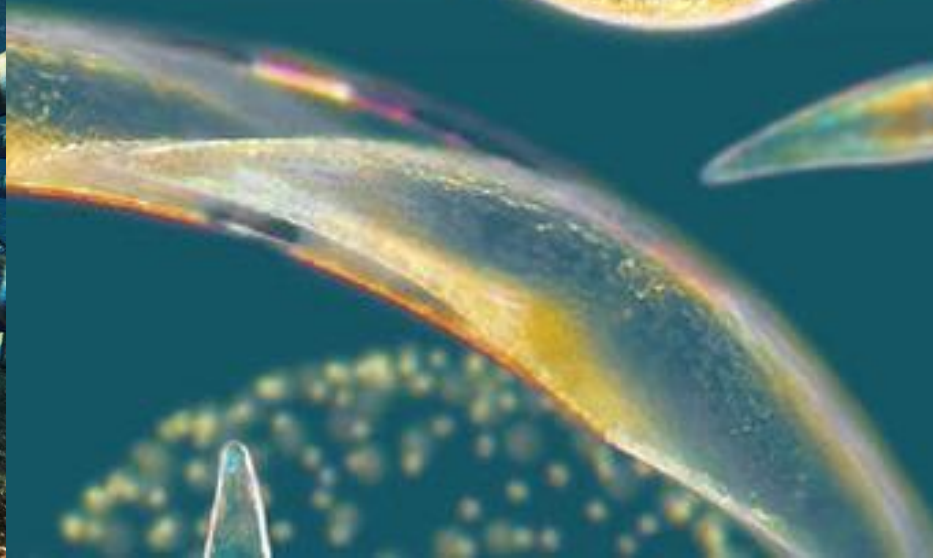
Canada

United State

## Document Title

- 12 - Blister rust and western forest biodiversity: ecology, values and outlook for white pines (2010)
- 19 - Modeling Contemporary Climate Profiles of Whitebark Pine (*Pinus albicaulis*) and Predicting Responses to Global Warming (2007)
- 22 - Mating system and inbreeding depression in whitebark pine (*Pinus albicaulis* Engelm.) (2006)
- 31 - INSECTS OF WHITEBARK PINE WITH EMPHASIS ON MOUNTAIN PINE BEETLE (1989)
- 33 - Silvics of Whitebark Pine (*Pinus albicaulis*) (1989)
- 42 - Options for the Management of White Pine Blister Rust in the Rocky Mountain Region (2008)
- 64 - Distribution of Bark Beetle Attacks After Whitebark Pine Restoration Treatments: A Case Study (2005)
- 75 - Parentage analysis in *Chamaelirium luteum* (L.) Gray (Liliaceae): why do some males have higher reproductive contributions? (19...
- 86 - White pines, Ribes, and blister rust: a review and synthesis (2010)
- 107 - A synopsis of the genus *Chamaelirium* (Melanthiaceae) with a new infrageneric classification including *Chionographis* (2017)
- 112 - Forest response to cumulative disturbance and stress: Two decades of change in whitebark pine ecosystems (2014)
- 116 - A review of genetic approaches to the management of blister rust in white pines (2010)
- 118 - Ecological characterization and data base construction for the bracted twistflower (*Streptanthus bracteatus*) (2014)
- 125 - Characteristics of Mountain Pine Beetles Reared in Four Pine Hosts (1981)
- 130 - Succulent plant diversity of the Sonoran islands, Gulf of California, Mexico (2008)
- 137 - Rare Plants of Louisiana *Chamaelirium luteum* - fairy wand (2006)
- 147 - A preliminary assessment of the genetic status of the forest-dwelling *Streptanthus bracteatus* (*Streptanthus*) as far as the

# In flight: The Galapagos





# Big Data Sources

Nepal Earthquake 2015

[www.sas.com/nepal](http://www.sas.com/nepal)



# Nepal 2015

Used Big Data source (300M rows of UN Trade data) to bring insights to where to procure critical items like CGI (corrugated iron roofing), hammers, nails, etc.

# Where to source critically needed items?

The screenshot shows the SAS UN Comtrade Insights2 interface. The top navigation bar includes 'File', 'Help', and 'Sign Out'. The main menu has tabs for 'Reporters', 'Top Exporters', 'Trade Balance', 'Trade Composition-Import', 'Trade Composition-Export', 'Mirror Statistics-Import', 'Mirror Statistics-Export', 'Trade History Plot', 'Data', 'Historical Analysis', 'Commodity Analysis - Import', and 'Commodity Analysis - Export'. The 'Commodity Analysis - Export' tab is active.

The interface includes a 'Select Reporter:' dropdown set to 'All Reporters' and a 'Select Year(s):' slider set to 2008. A 'More Info' link is visible on the right.

Three dropdown menus are used to select commodity codes:

- Select 2 Digit Code/s:** 71-Pearls, precious stones, metals, coins, et; 72-Iron and steel; 73-Articles of iron or steel; 74-Copper and articles thereof; 75-Nickel and articles thereof; 76-Aluminium and articles thereof.
- Select 4 Digit Code/s:** 7206-Iron and non-alloy steel in primary form; 7207-Semi-finished products of iron or non-al; 7208-Hot-rolled products, iron/steel, width<6; 7209-Flat-rolled iron/steel, >600mm, not clad; 7210-Flat-rolled iron/steel, >600mm, clad, pl; 7211-Flat-rolled iron/steel, <600mm, not clad.
- Select 6 Digit Code/s:** 721011-Flat rolled iron or non-alloy steel, c; 721012-Flat rolled iron or non-alloy steel, c; 721020-Flat rolled iron or non-alloy steel, c; 721030-Flat rd prod electr zinc; 721041-Flat rolled iron or non-alloy steel, c; 721049-Flat rolled iron or non-alloy steel, c.

The 'Top 10 Exporters' chart shows the following data:

Country	Export (millions)
India	~650
China	~350
South Africa	~100
Costa Rica	~80
Uganda	~70
Colombia	~60
Nepal	~50
Thailand	~40
Viet Nam	~30
Turkey	~20

The 'Partners' table shows the following data:

Partners	Export
Total	\$1,622,974,309
Zimbabwe	\$1,471,025
Zambia	\$9,901,179
Yemen	\$1,225,056
Wallis and Futuna	\$85,540
Virgin Islands, British	\$236,720
Viet Nam	\$4,853,537
Venezuela, Bolivarian Republic of	\$28,591,343
Vanuatu	\$7,298
Uzbekistan	\$54,878
Uruguay	\$3,345,212
United States	\$2,834,086
United Kingdom	\$2,932,351
United Arab Emirates	\$182,632,001