MOUNTAIN RESCUE ASSOCIATION
Webinar Series

THE MOUNTAIN RESCUE ASSOCIATION MAPPING PLATFORM

2015 Review, 2016 Preview

PIGEON MOUNTAIN
PMI
INDUSTRIES

sponsored by PMI

Introduction

- Monty Bell,
  Mountain Rescue
  Association

- Paul Doherty,
  NAPSG Foundation
  http://www.napsgfoundation.org/

NAPSG Foundation

Introduction

- Jon Pedder

Sierra Madre Search and Rescue, Esri Disaster Response Program

- Don Ferguson

ASRC, MARG, Allegheny Mountain Rescue

Discussion

- This is being recorded and slides will be made available
- Q&A at the End
- Email mramapping@gmail.com

MRA Mapping Portal

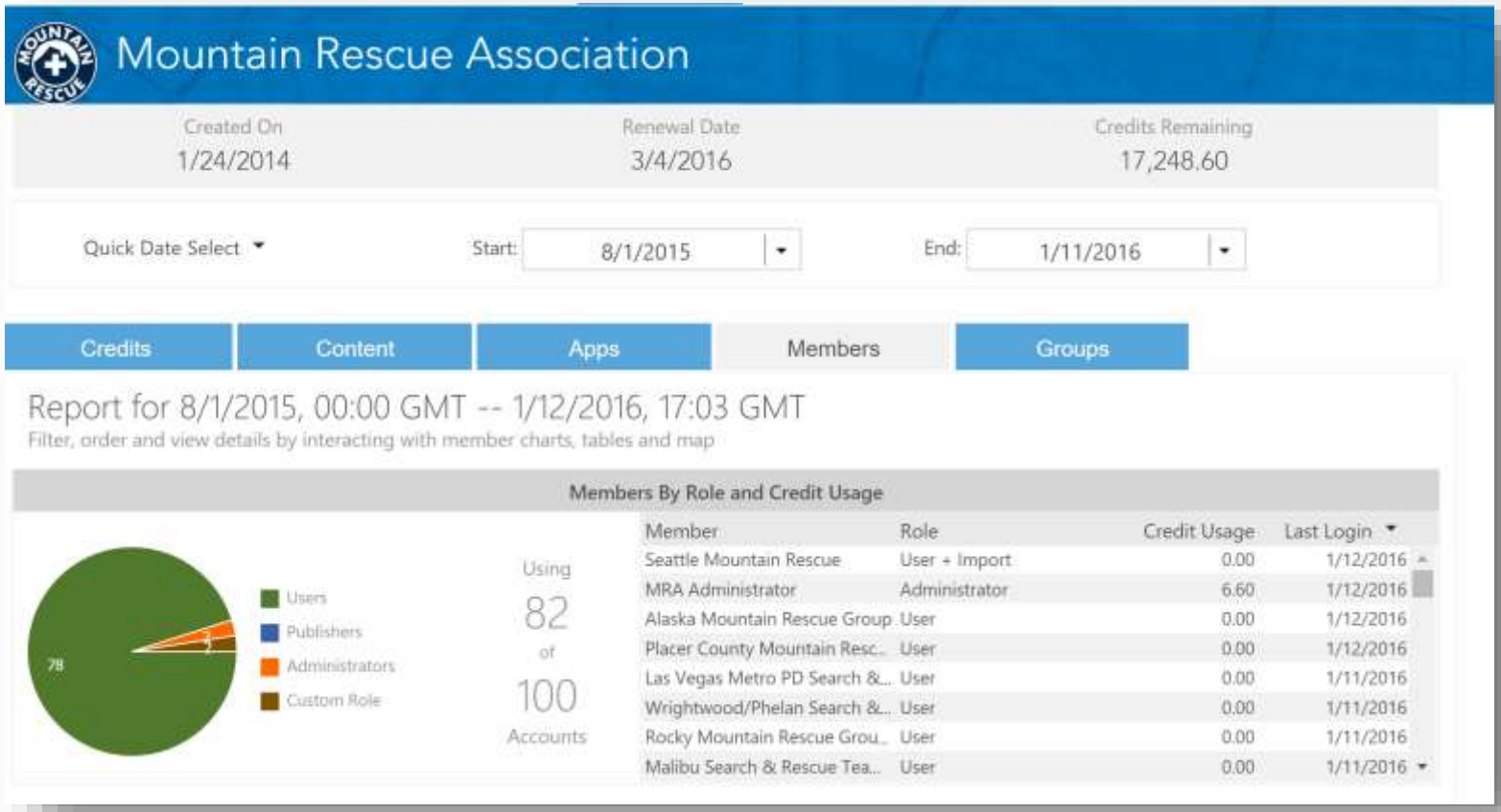
Each team has a log-in – need yours? mramapping@gmail.com

MRA Mapping Portal

- ArcGIS Online is an online, collaborative web GIS that allows you **to use, create, and share maps, scenes, apps, layers, analytics, and data**.

http://doc.arcgis.com/en/arcgis-online/reference/what-is-agol.htm

MRA Mapping Portal



Each team has a log-in – need yours? mramapping@gmail.com

Outline

1. Review 2015 Mission Data
2. 2016 Data Collection
3. What Else Can We Do With Maps?
4. Questions and Answers

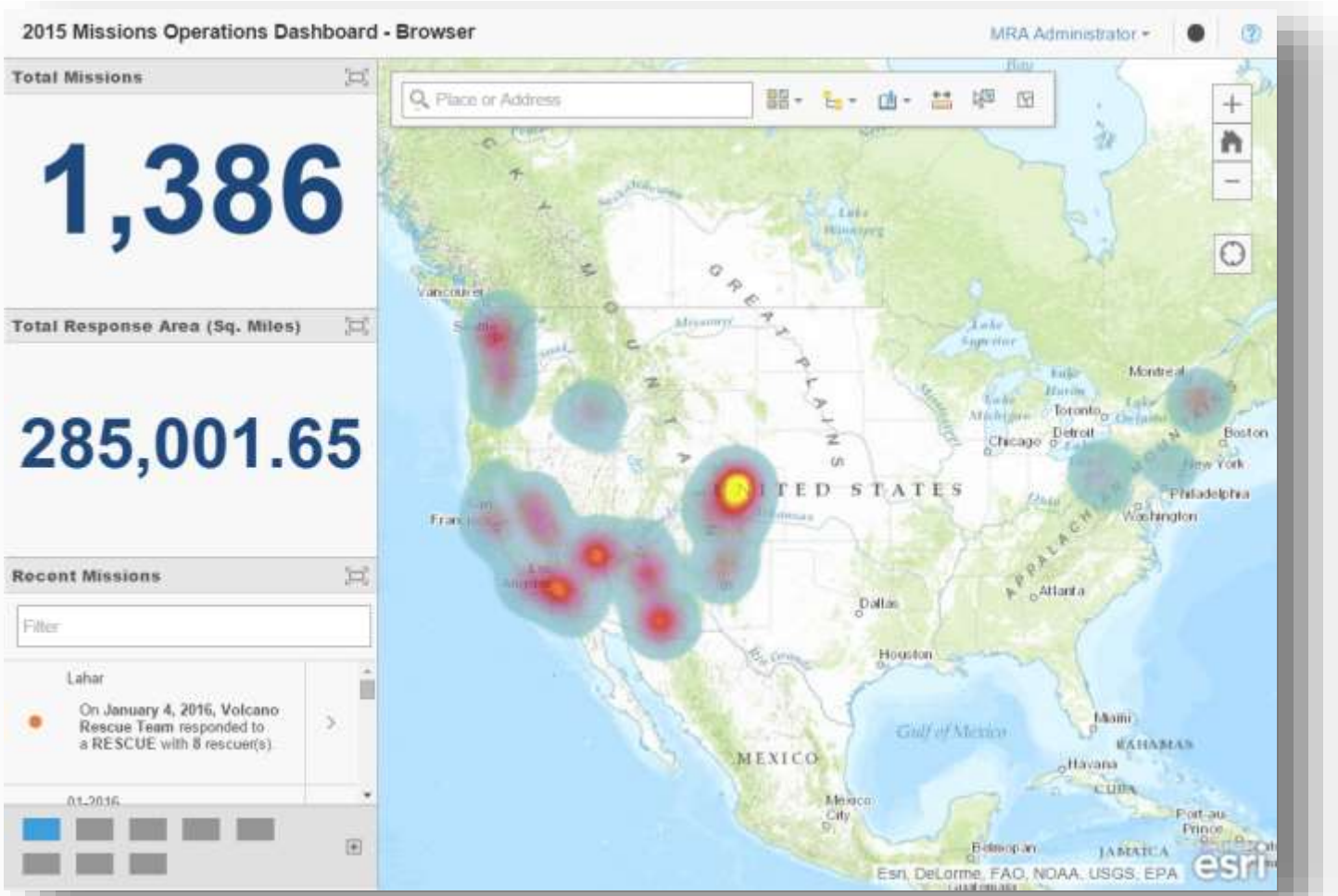
What Did We Learn?

2015 MISSION DATA COLLECTION

2015 Live Data

- Number of Incidents and Where
- Types of Missions, Demographics
- Number of People Rescued
- Number of Missions per Team
- Team Response Area
- Other Mission Queries (# Fatalities, Aircraft Used, etc.)

Missions Dashboard



Screenshots 08 January 2016

Link

2015 Missions Operations Dashboard - Browser

MRA Administrator

Total Missions

1,386

Total Response Area (Sq. Miles)

285,001.65

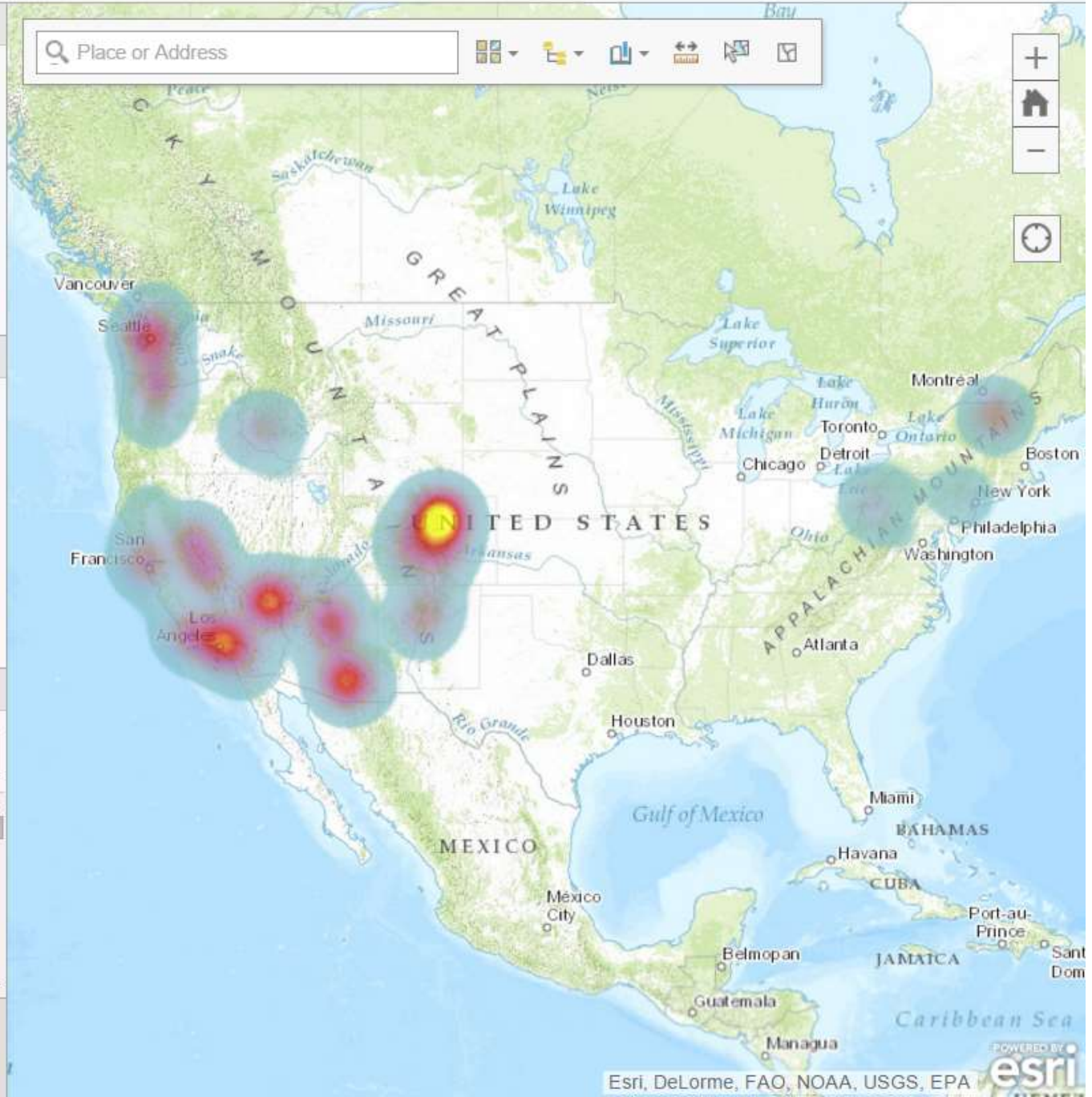
Recent Missions

Filter

Lahar

On **January 4, 2016, Volcano Rescue Team** responded to a **RESCUE** with **8** rescuer(s).

01-2016



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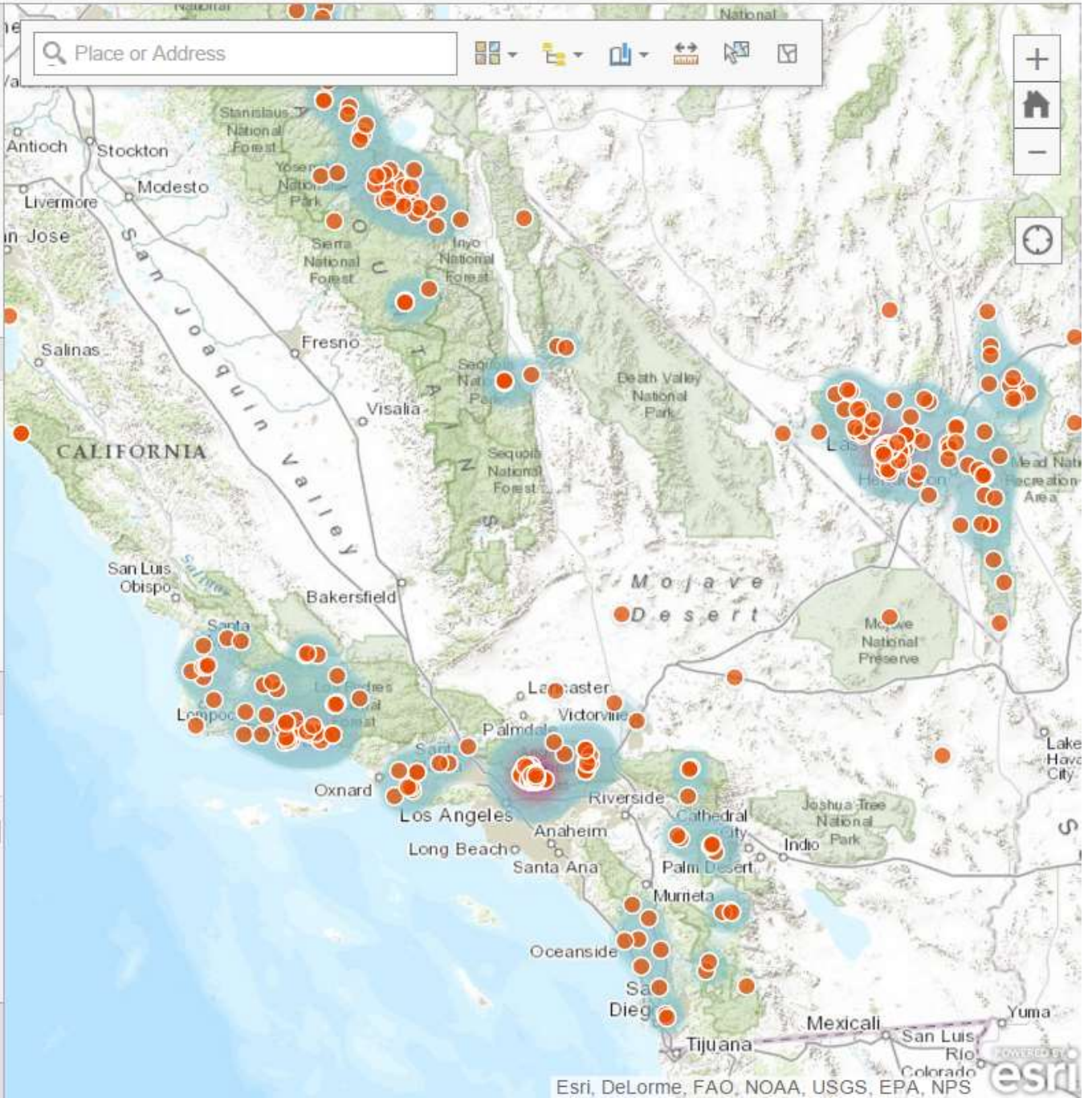


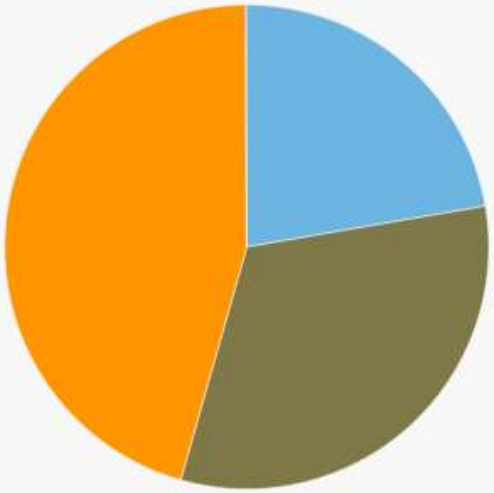
2015 Missions Operations Dashboard - Browser

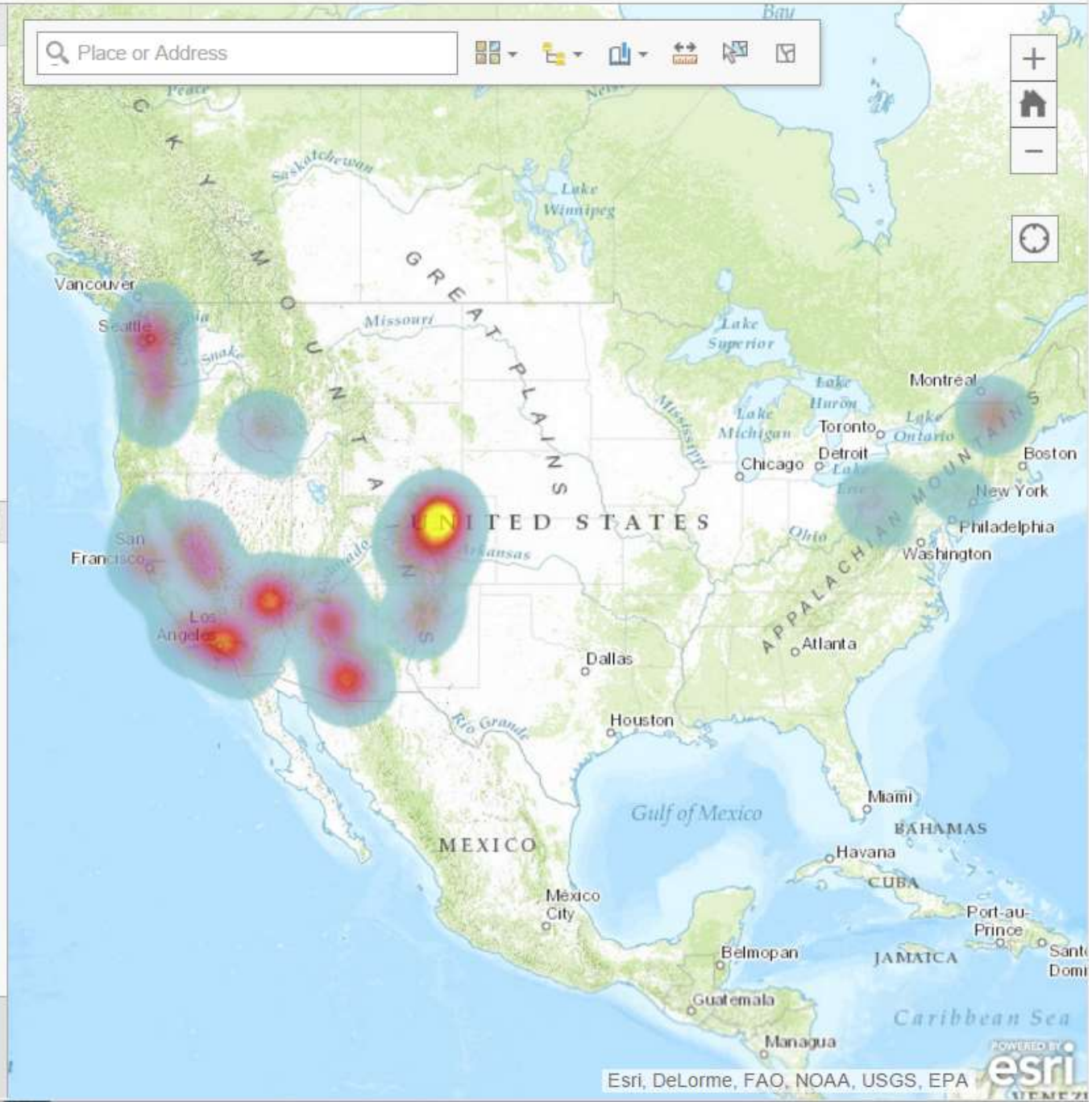
MRA Administrator

Rescued

1,718

Gender of Rescued





2015 Missions Operations Dashboard - Browser

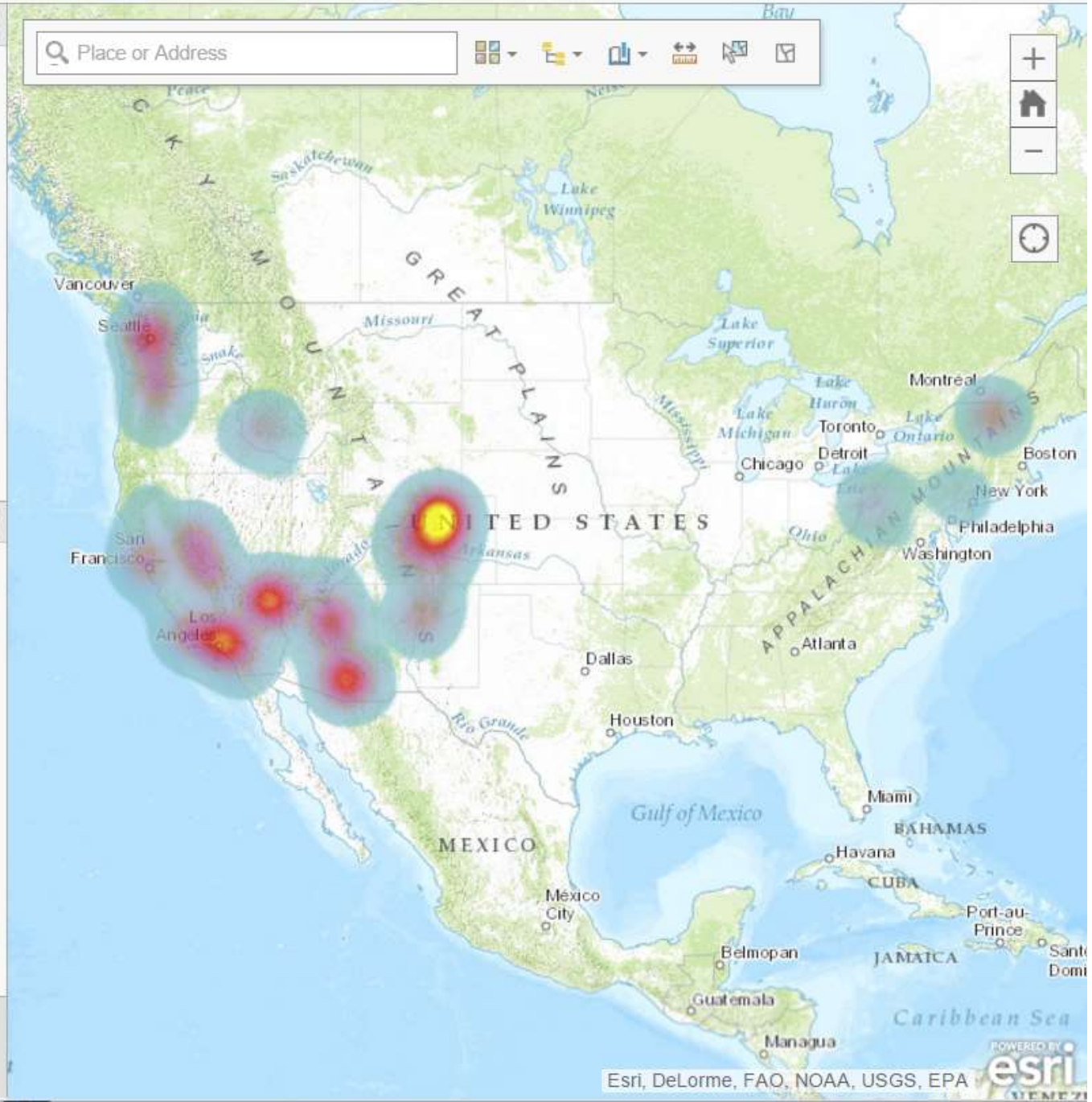
MRA Administrator

Average # of Personnel / Mission

8

Total Hours (Goal 70,000 Hours)

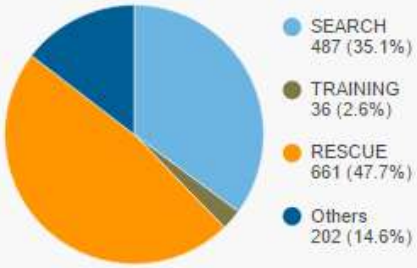
Threshold: 75%



2015 Missions Operations Dashboard - Browser

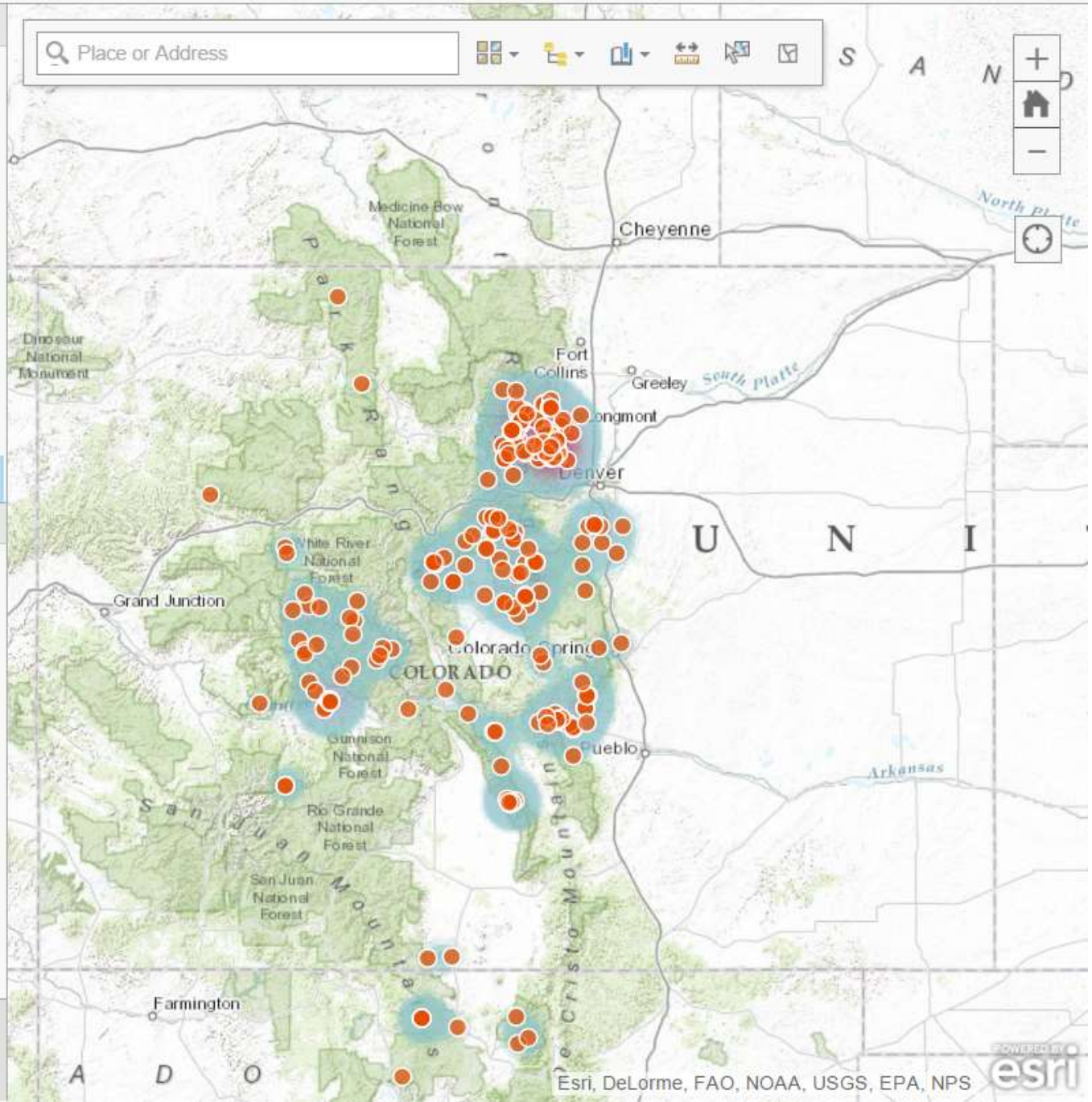
MRA Administrator

Mission Type (Top 3)



Run Reports

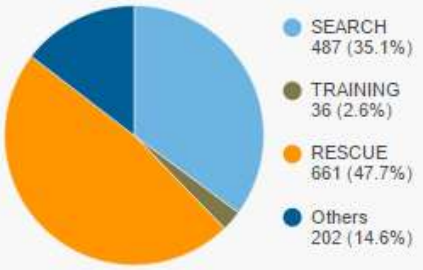
- # Missions with Aircraft
- # Missions Out of County
- # of Missions Subject DOA
- Explore # Missions by Land Ownership
- Explore Fitness of Subject 1
- Explore Experience of Subject 1
- Explore Type of Mission
- Explore # Missions by Team



2015 Missions Operations Dashboard - Browser

Connectivity Issues | MRA Administrator

Mission Type (Top 3)



Run Reports

Results for '# Missions with Aircraft'

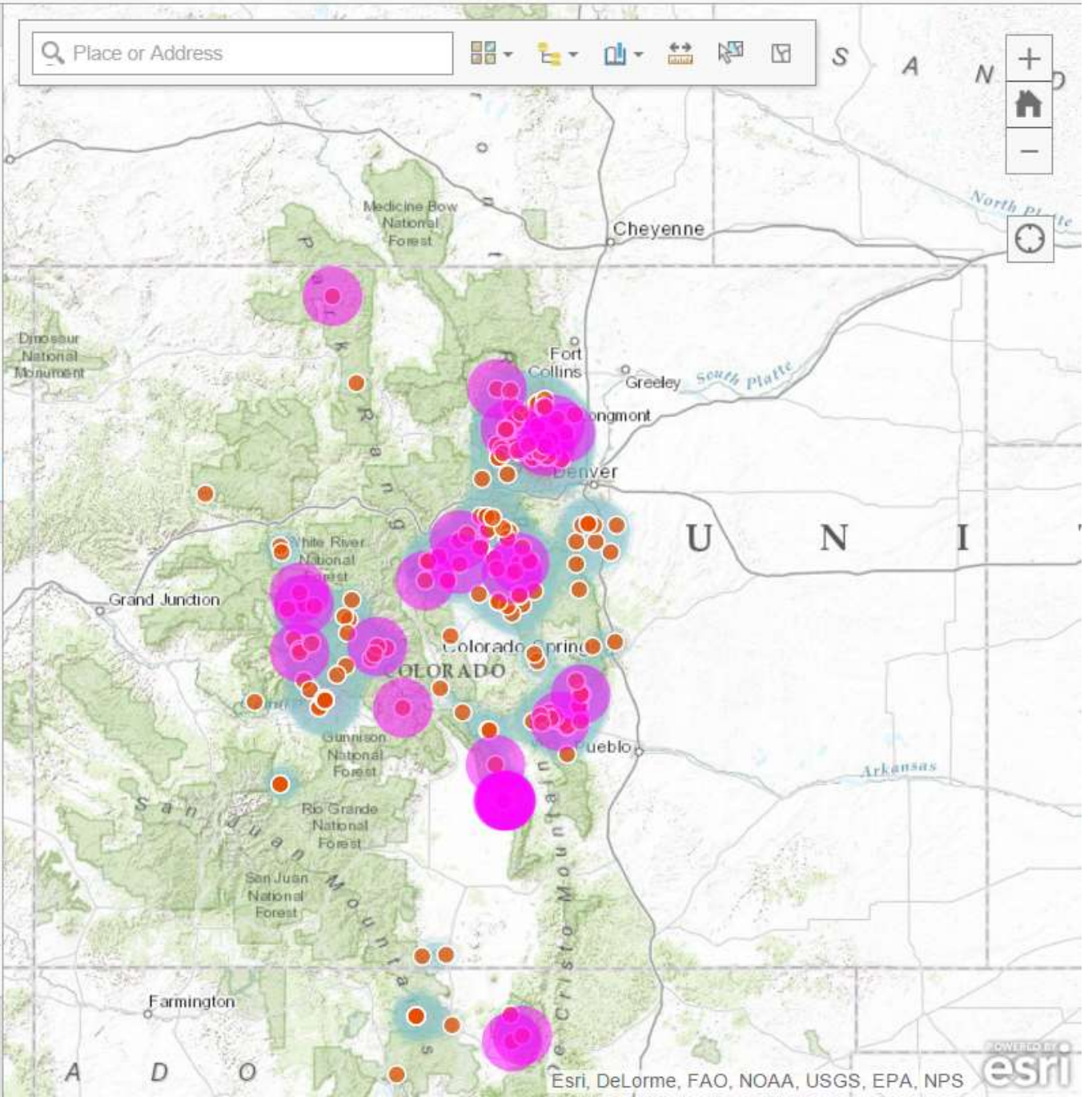
Last executed: **Jan 7, 2016, 5:34:54 PM**

Number of results: **25**

☑ Limit the results to the current map extent

Show | Zoom to | Select

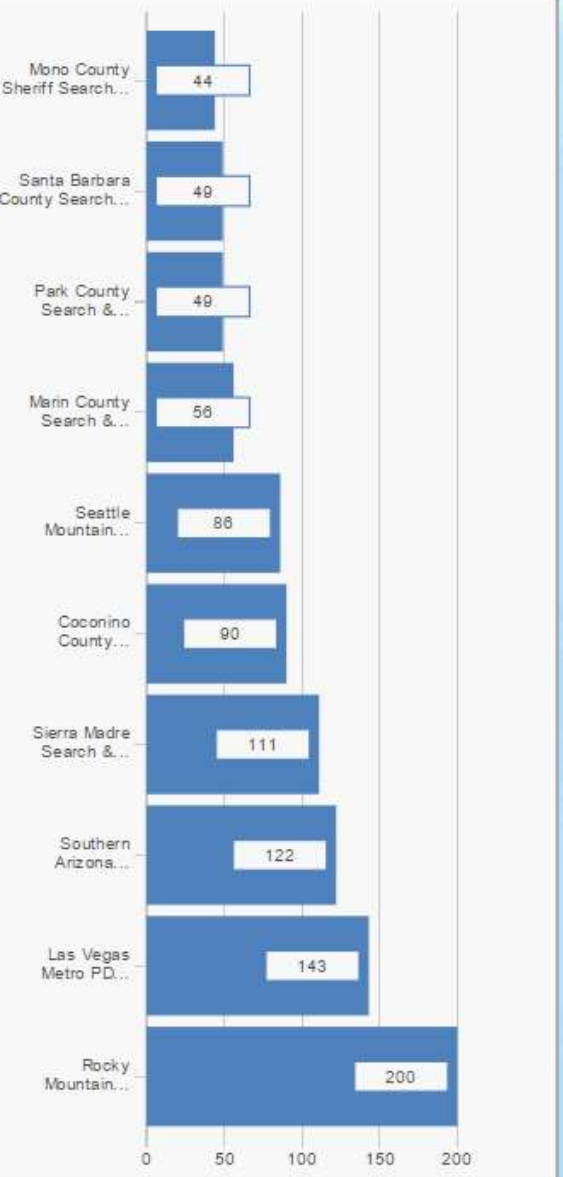
Done | Re-execute

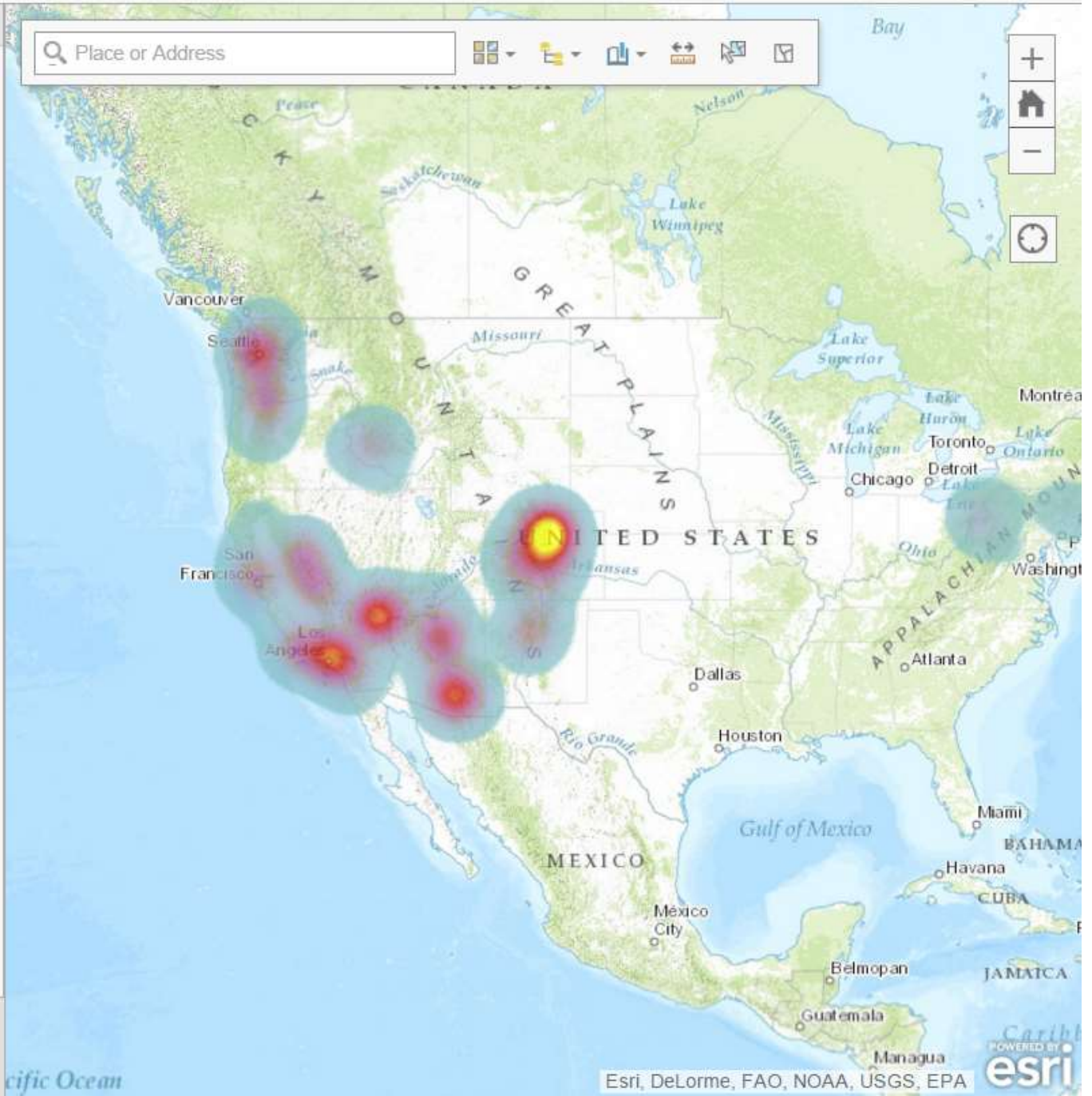


2015 Missions Operations Dashboard - Browser

MRA Administrator

Missions Per Team (Top 10)

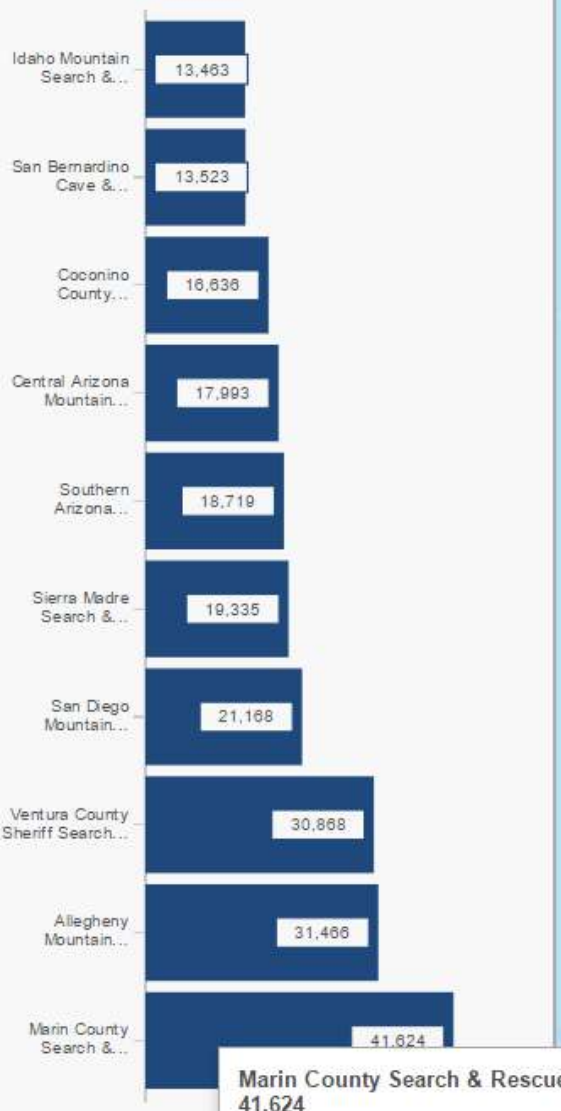




2015 Missions Operations Dashboard - Browser

MRA Administrator

Team Service Areas (Top 10)



Place or Address

Demographics

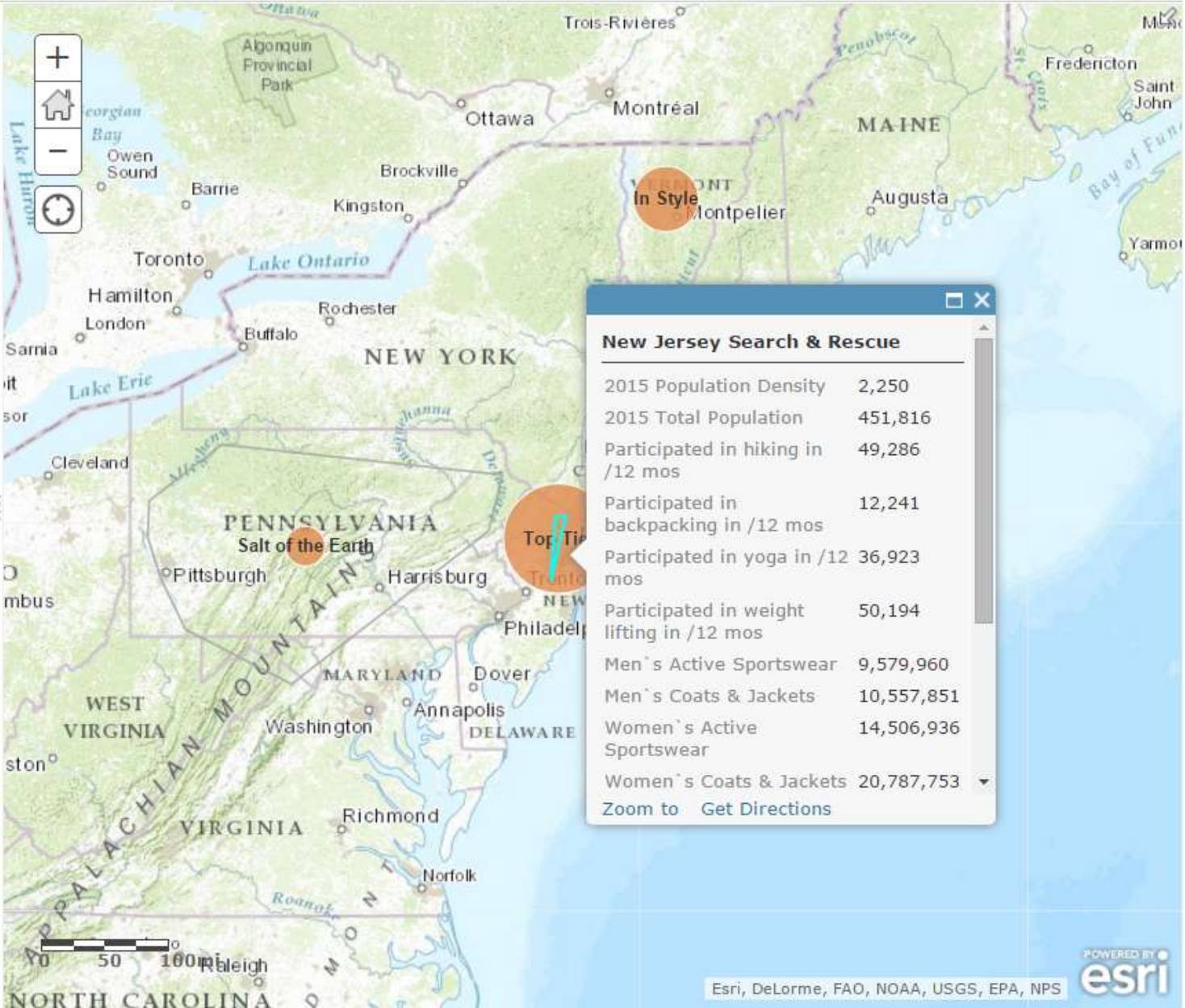
http://www.esri.com/landing-pages/tapestry

Legend

$ on Sportswear / Person

Total Spending divided by 2015 Total Population

- > 146
- 120
- 100
- 80
- < 54



New Jersey Search & Rescue

2015 Population Density	2,250
2015 Total Population	451,816
Participated in hiking in /12 mos	49,286
Participated in backpacking in /12 mos	12,241
Participated in yoga in /12 mos	36,923
Participated in weight lifting in /12 mos	50,194
Men`s Active Sportswear	9,579,960
Men`s Coats & Jackets	10,557,851
Women`s Active Sportswear	14,506,936
Women`s Coats & Jackets	20,787,753

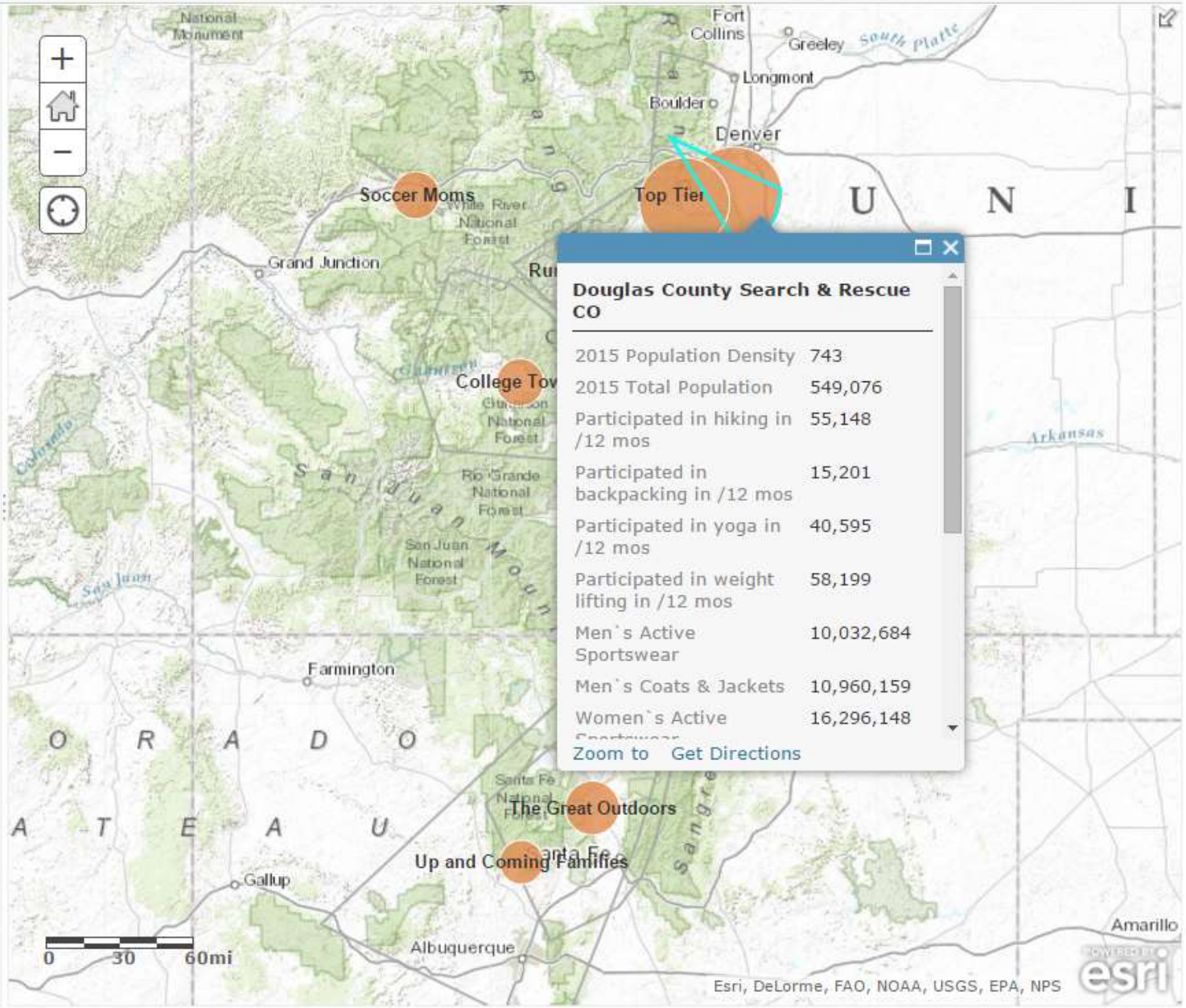
Zoom to Get Directions

Legend

$ on Sportswear / Person

Total Spending divided by 2015 Total Population

- > 146
- 120
- 100
- 80
- < 54



Douglas County Search & Rescue CO

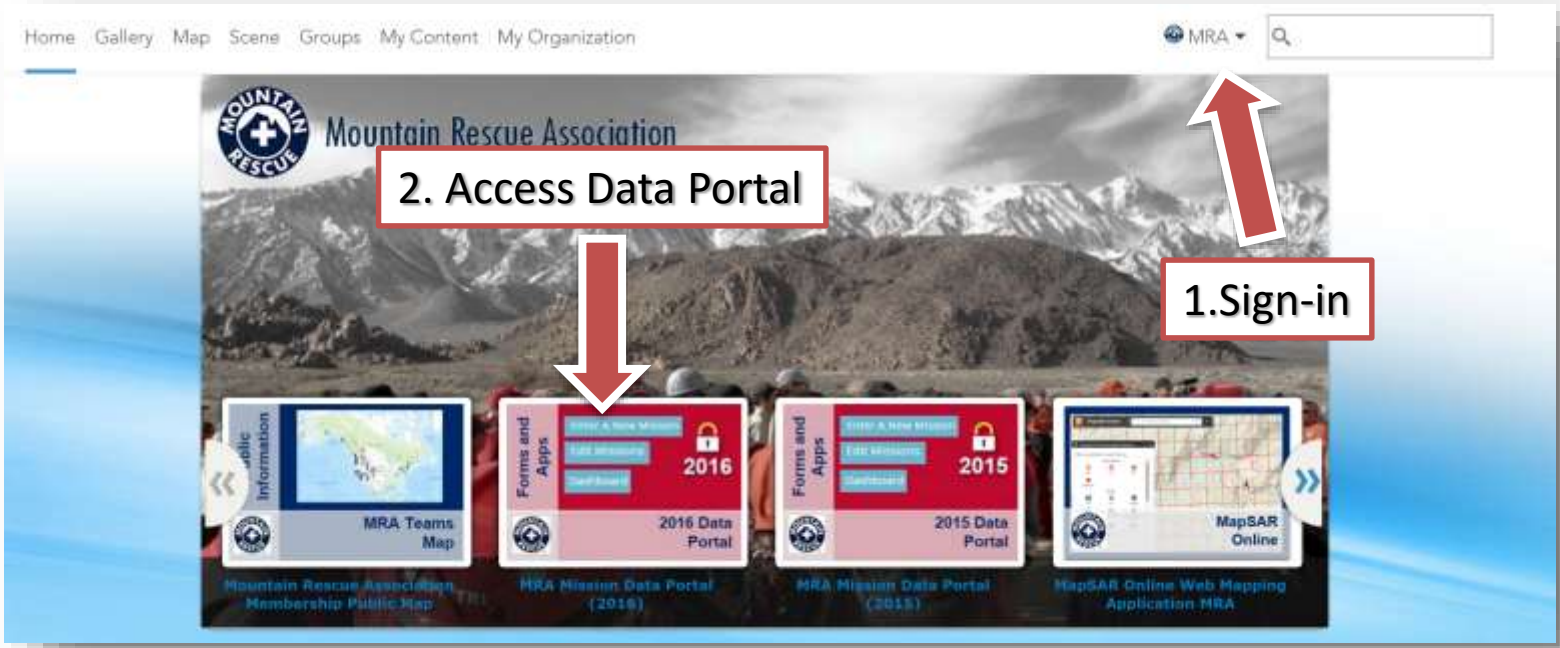
2015 Population Density	743
2015 Total Population	549,076
Participated in hiking in /12 mos	55,148
Participated in backpacking in /12 mos	15,201
Participated in yoga in /12 mos	40,595
Participated in weight lifting in /12 mos	58,199
Men`s Active Sportswear	10,032,684
Men`s Coats & Jackets	10,960,159
Women`s Active	16,296,148

Zoom to Get Directions

What is New? How Do I Get Started?

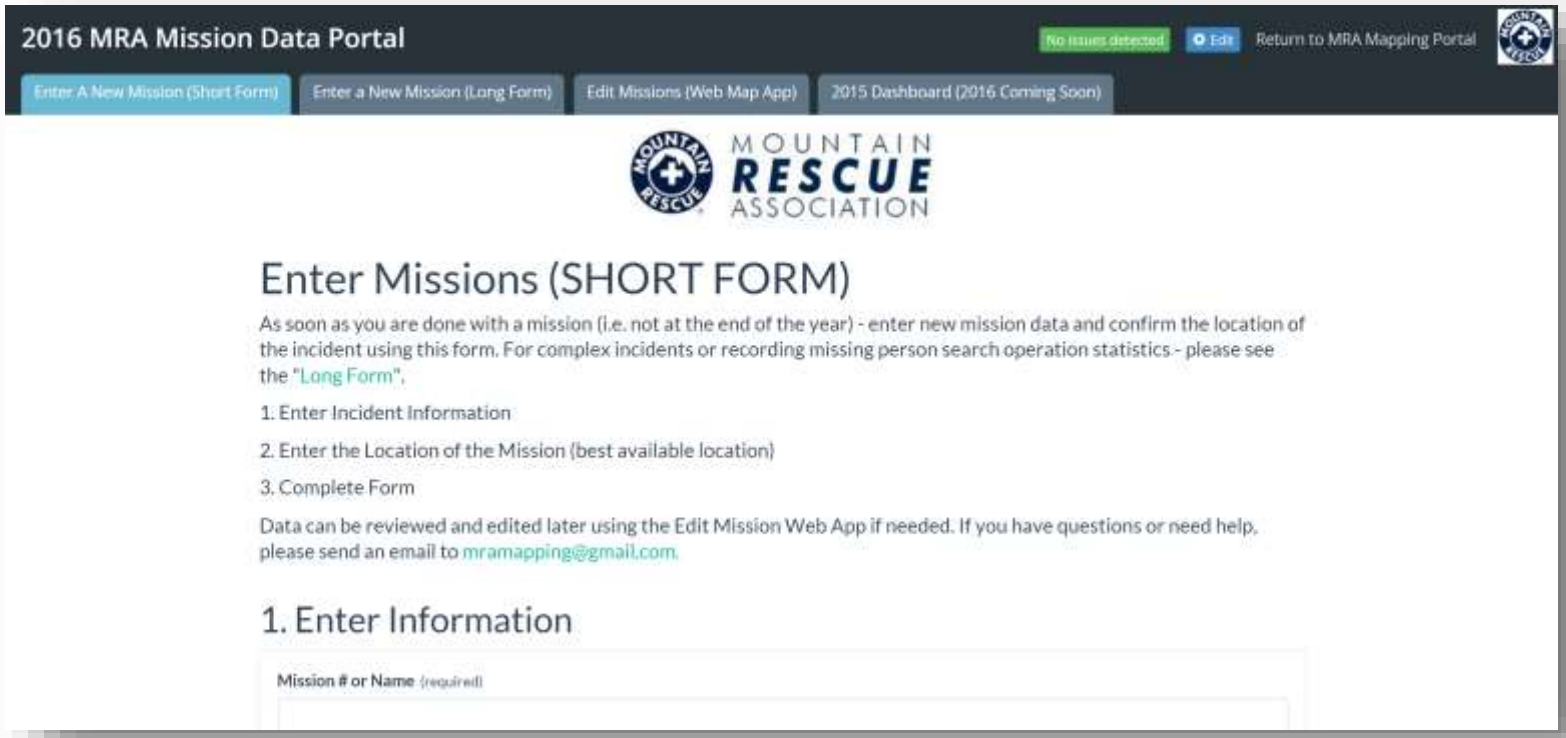
2016 MISSION DATA COLLECTION

MRA Mapping Portal



http://msar.maps.arcgis.com/home/

2016 Mission Data Portal



http://bit.ly/MRA2016Data

Bookmark this link

Missing Subject: Part I

Steve Clark was scheduled to meet his companions at Vogelsang High Sierra Camp in Yosemite National Park last night at 8 pm but never arrived. Today, at 0700h, they reported him missing. His companions said his travel plans were to hike from Sunrise to Merced Lake High Sierra Camp and stay overnight, and to then hike the following day to Vogelsang High Sierra Camp and stay the night.

EXERCISE ONLY

Missing Subject: Part I

- Age: 62
- Height: 6’ 2”
- Weight: 170 lbs
- Hair: Silver
- Clothing: Blue jeans, long sleeved shirt, hiking boots, carrying an overnight pack

EXERCISE ONLY

Missing Subject: Part I

Initial Planning Point (IPP)

Last Seen at Sunrise High Sierra Camp

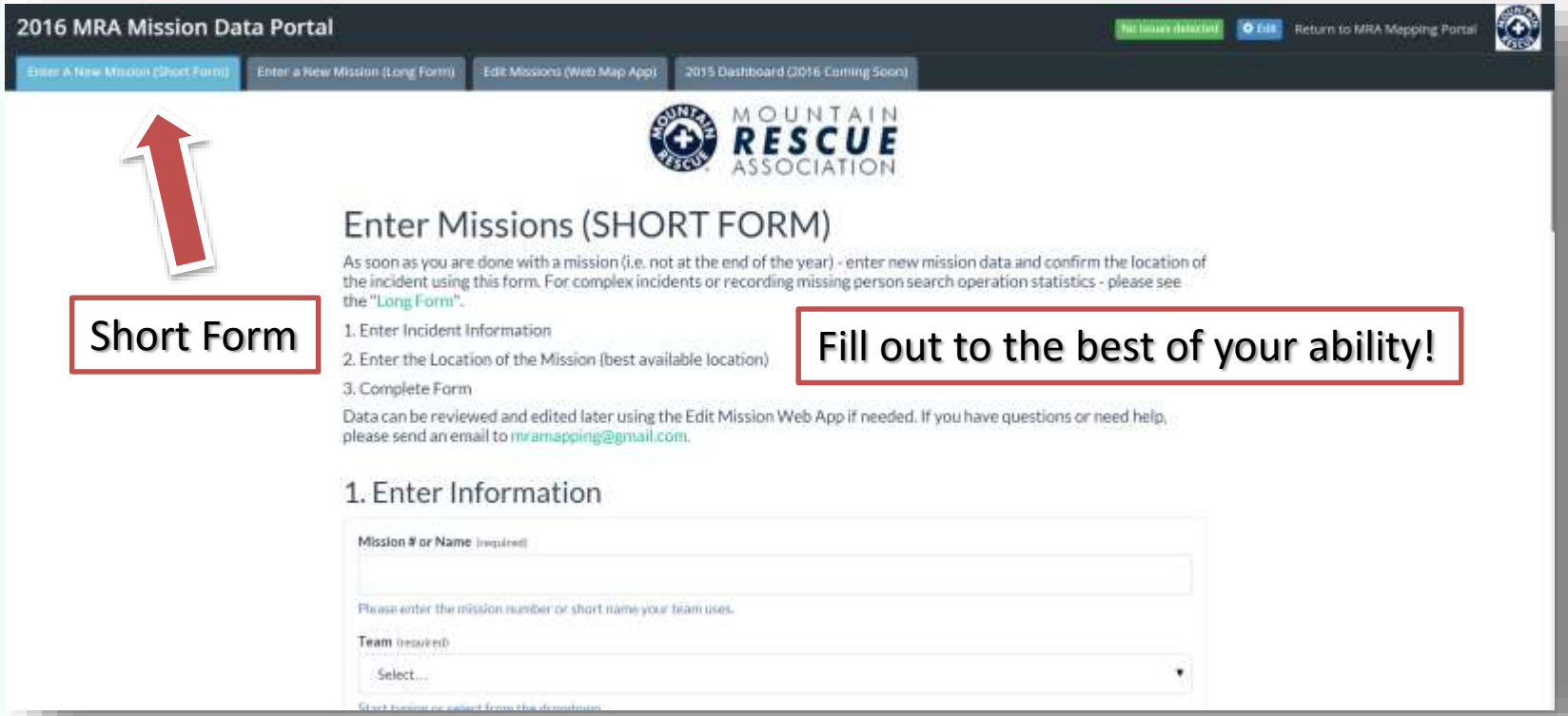
- NAD 1983
- UTM Zone 11
- Easting: 285811
- Northing: 4185893

EXERCISE ONLY

Enter Data

- Use the GeoForm
  - Short Form = simple incident
  - Long Form = complex incident, search operations (both the IPP and Found)

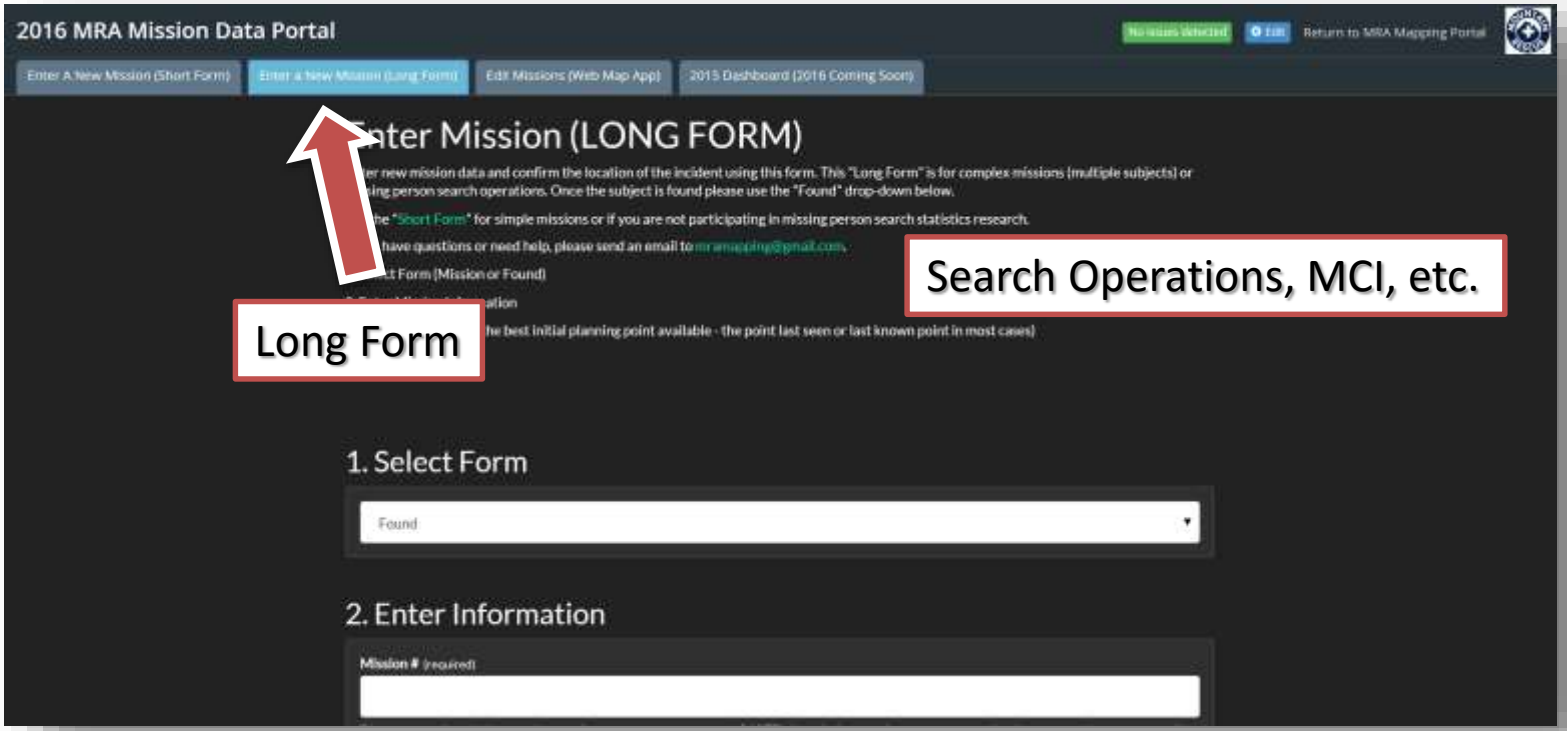
Enter Data



Short Form

Fill out to the best of your ability!

Enter Data


2016 MRA Mission Data Portal
Enter A New Mission (Short Form)
Enter a New Mission (Long Form)
Edit Missions (Web Map App)
2015 Dashboard (2016 Coming Soon)
Return to MRA Mapping Portal
Enter Mission (LONG FORM)
Long Form
Search Operations, MCI, etc.
1. Select Form
Found
2. Enter Information
Mission # (required)

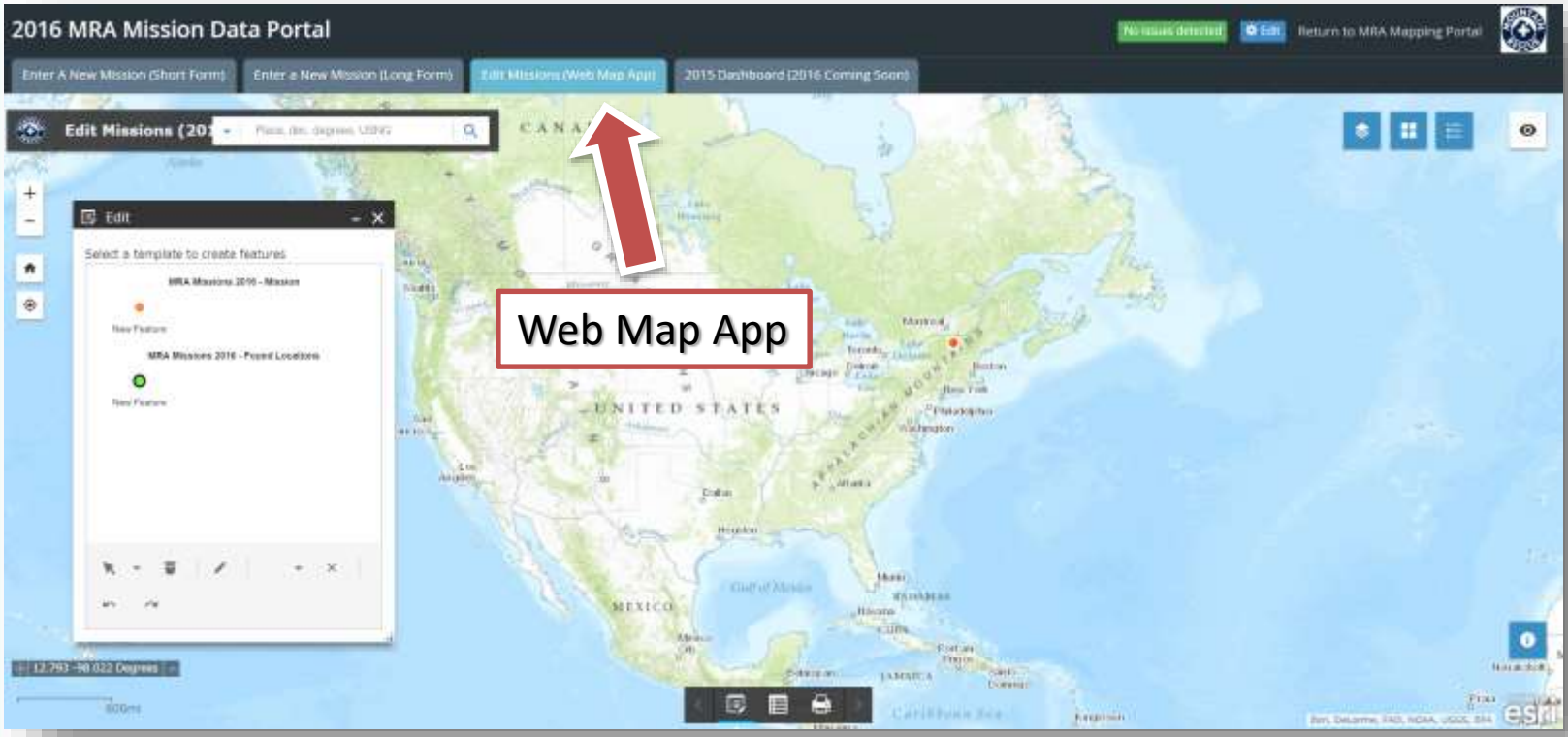
Enter Data

- No special characters (/,#,$,&, etc.)
- Add attachments if needed
- You can always go back and enter more information or edit data…

Edit Data

- Use the WebApp
  - Go back and edit / review data
  - For example:
    - Out of County Response
    - 12 Rescuers
    - 3 Operational Periods (30 hours)
    - 30 X 12 = 360 hours

Edit Data


2016 MRA Mission Data Portal
Enter A New Mission (Short Form)
Enter a New Mission (Long Form)
Edit Missions (Web Map App)
2015 Dashboard (2016 Coming Soon)
Return to MRA Mapping Portal
Edit Missions (202
Edit
Select a template to create features
MRA Missions 2016 - Mission
MRA Missions 2016 - Found Locations
Web Map App
UNITED STATES
MEXICO

Edit Data

Read Me (click the x to close --->)

Below is a brief explanation of tools in the WebApp, click the help links to learn more about each tool. The Edit tool is open by default, so you can 1) click on one of your missions on the map and 2) edit the information or move the location by dragging the point.

Edit mission locations. Help

Open a table to see all missions Help

Print a copy of your screen. Help

Turn **Layers** on / off (download). Help

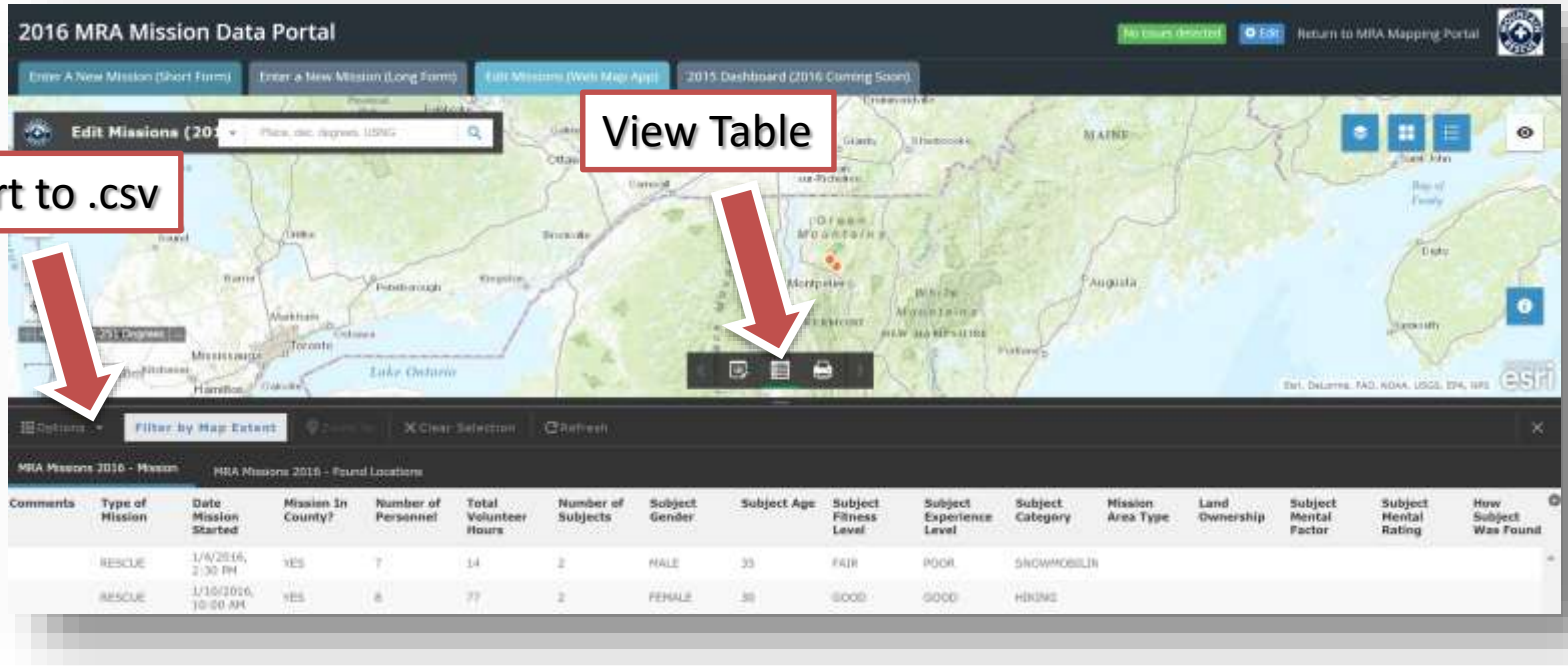
Change the **Basemap** (imagery, USGS Topo, etc). Help

See a **Map Legend**. Help

Read More

This WebApp can be customized for your team. For more information please send an email to mramapping@gmail.com.

Edit Data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Edit Missions (Web Map App)
2015 Dashboard (2016 Coming Soon)
Return to MRA Mapping Portal
Edit Missions (201
View Table
Export to .csv
Filter by Map Extent
Clear Selection
Refresh
MRA Missions 2016 - Mission
MRA Missions 2016 - Found Locations
Comments
Type of Mission
Date Mission Started
Mission In County?
Number of Personnel
Total Volunteer Hours
Number of Subjects
Subject Gender
Subject Age
Subject Fitness Level
Subject Experience Level
Subject Category
Mission Area Type
Land Ownership
Subject Mental Factor
Subject Mental Rating
How Subject Was Found
RESCUE
1/4/2016, 2:30 PM
YES
7
14
2
MALE
35
FAIR
POOR
SNOWMOBILIN
RESCUE
1/10/2016, 10:00 AM
YES
6
77
2
FEMALE
30
GOOD
GOOD
HIKING

What Else Can We Do?

DOING MORE WITH MAPS

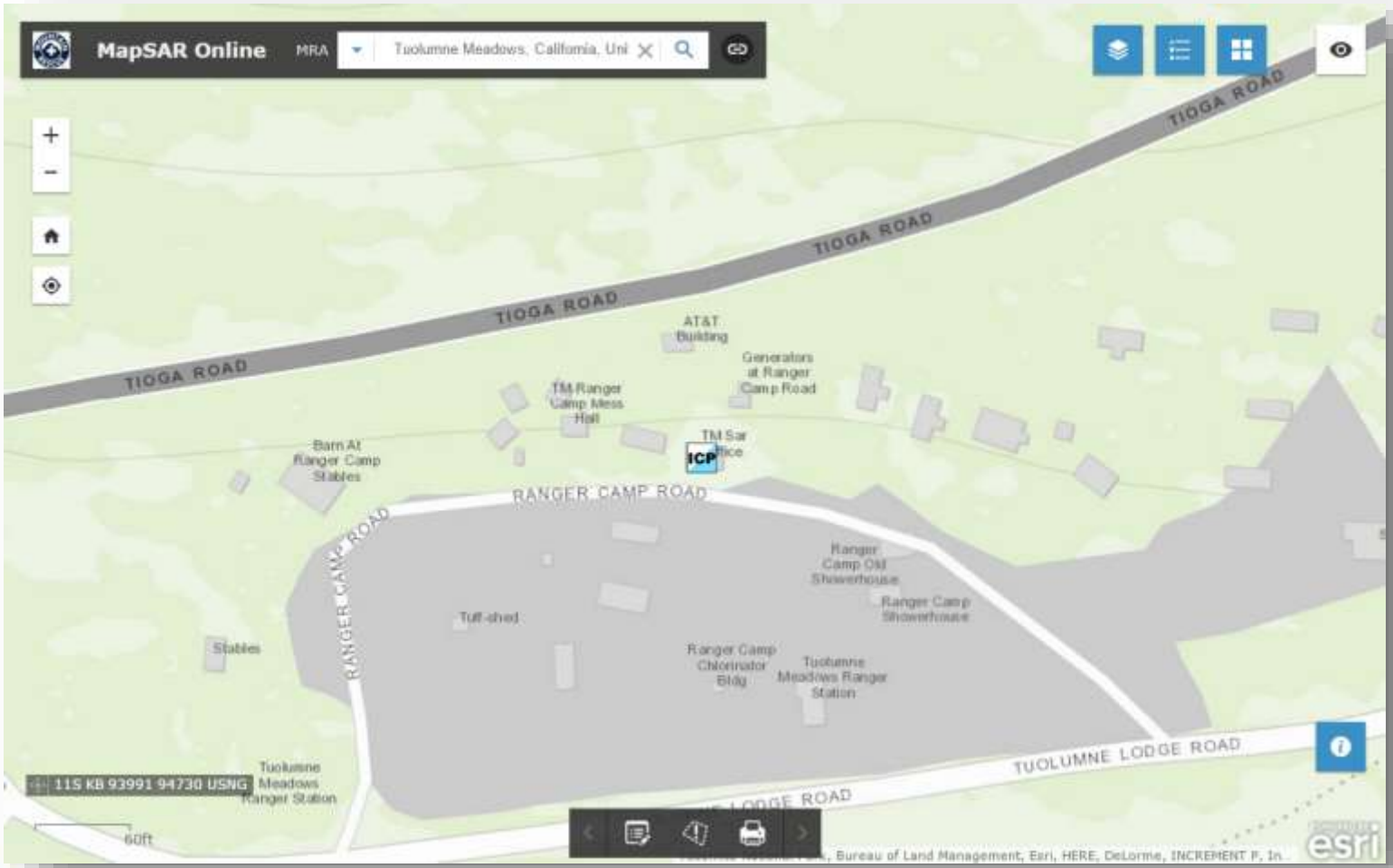
Missing Subject: Part II

- Plot the Incident Command Post at Tuolumne Meadows SAR Cache
- Hasty Assignment from the IPP to Merced Lake High Sierra Camp
- Trail blocks at nearby Trailheads

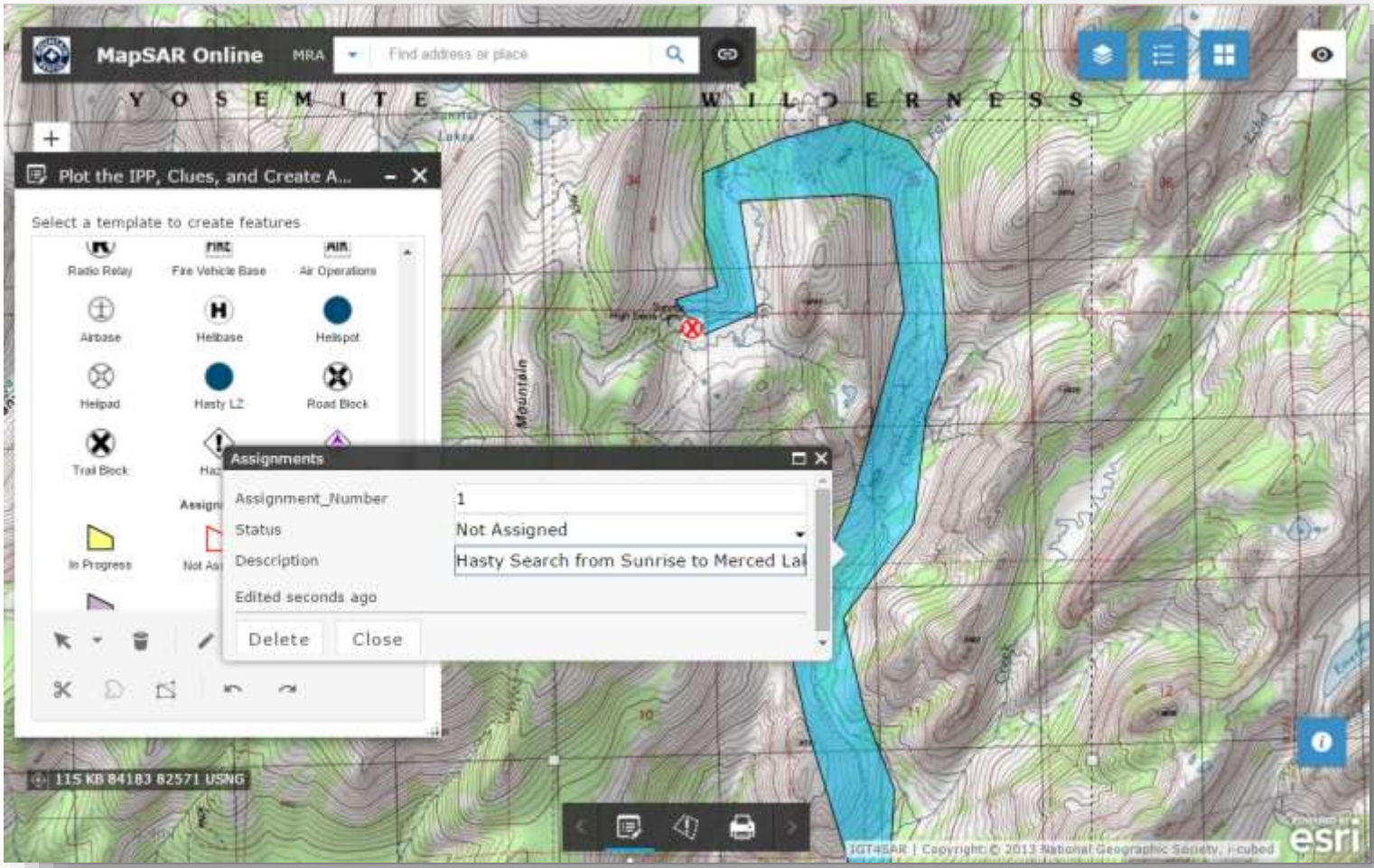
EXERCISE ONLY

MapSAR Online

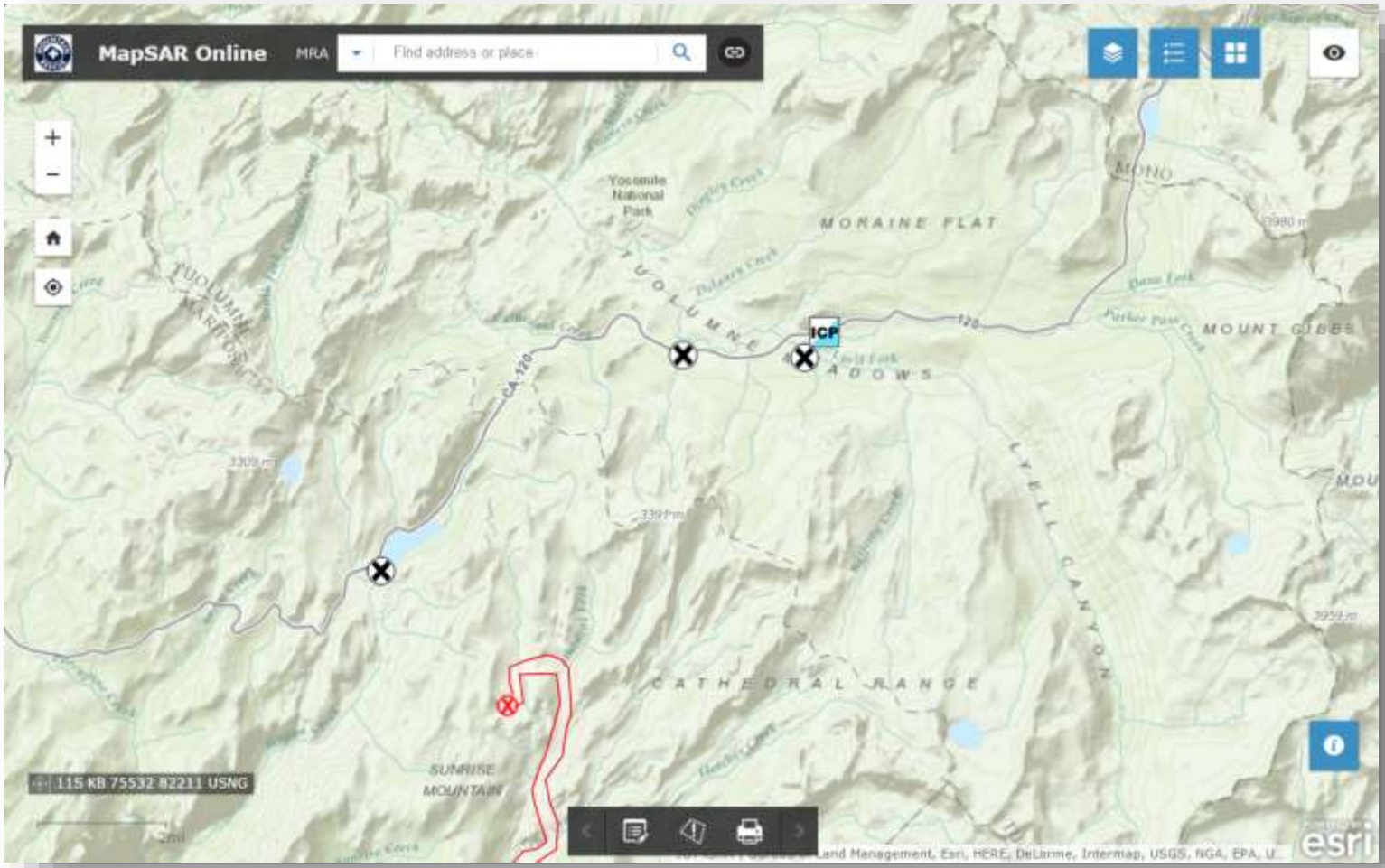
MapSAR Online



MapSAR Online



MapSAR Online



GIS

- Use the Portal to Collaborate
- Connect with Regional GIS Specialists
  - Pre-planning (maps, data, training)
  - Incident support (Assignment maps, GPS processing, etc.)
  - Spatial Analysis (POA, Cell Phone, etc).
  - Regional Leadership Teams
    http://www.napsgfoundation.org/about/regional-leadership-teams/

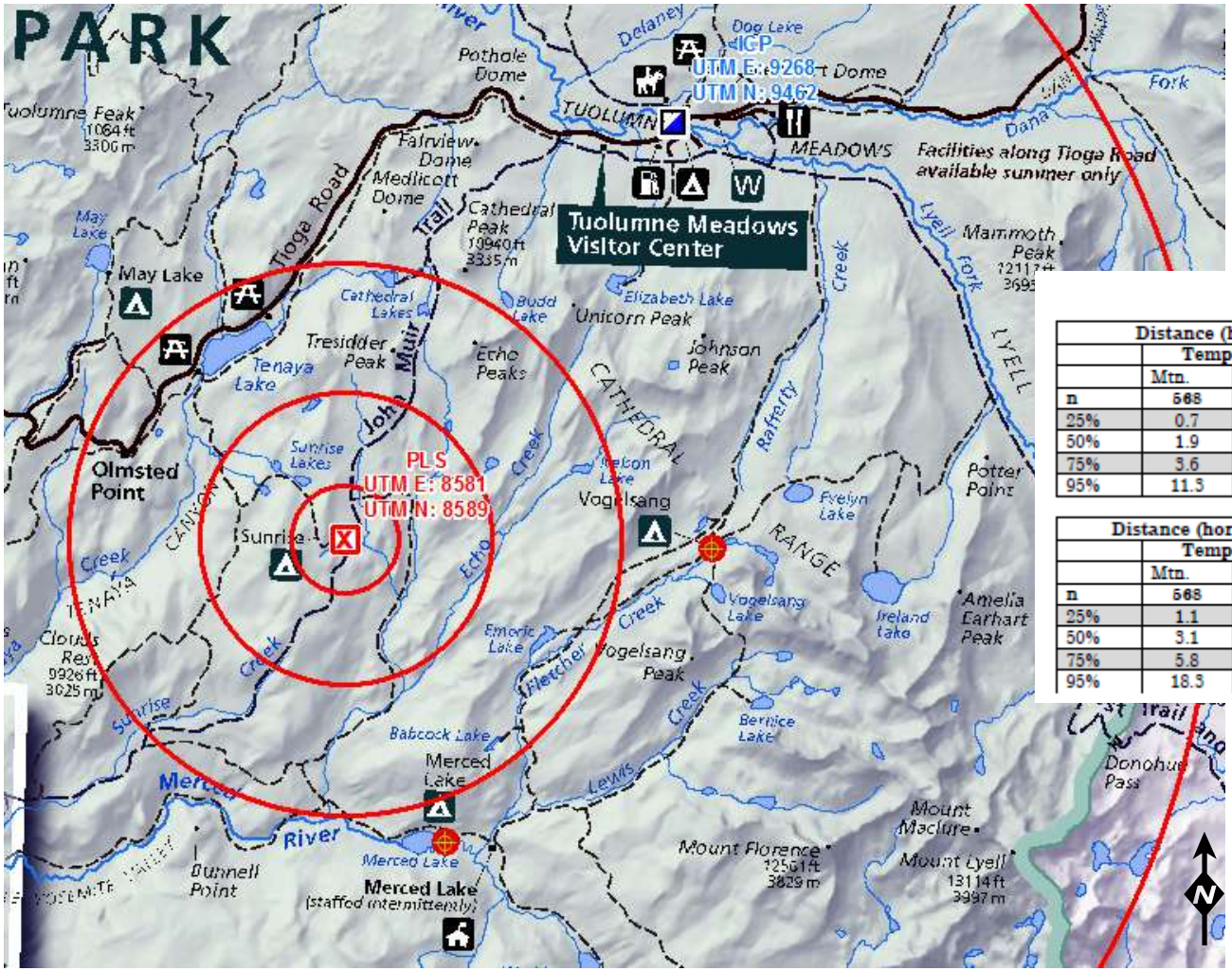
GIS

Planning
Operations
Logistics
Command
Public Information
Knowledge Worker
(Simple/Easy/Anywhere)
GIS Professional
(Geocentric Workflow)
MRA Mapping Platform

GIS

http://bit.ly/SARGISgallery

Lost Person Behavior (IPP Distance)



Hiker

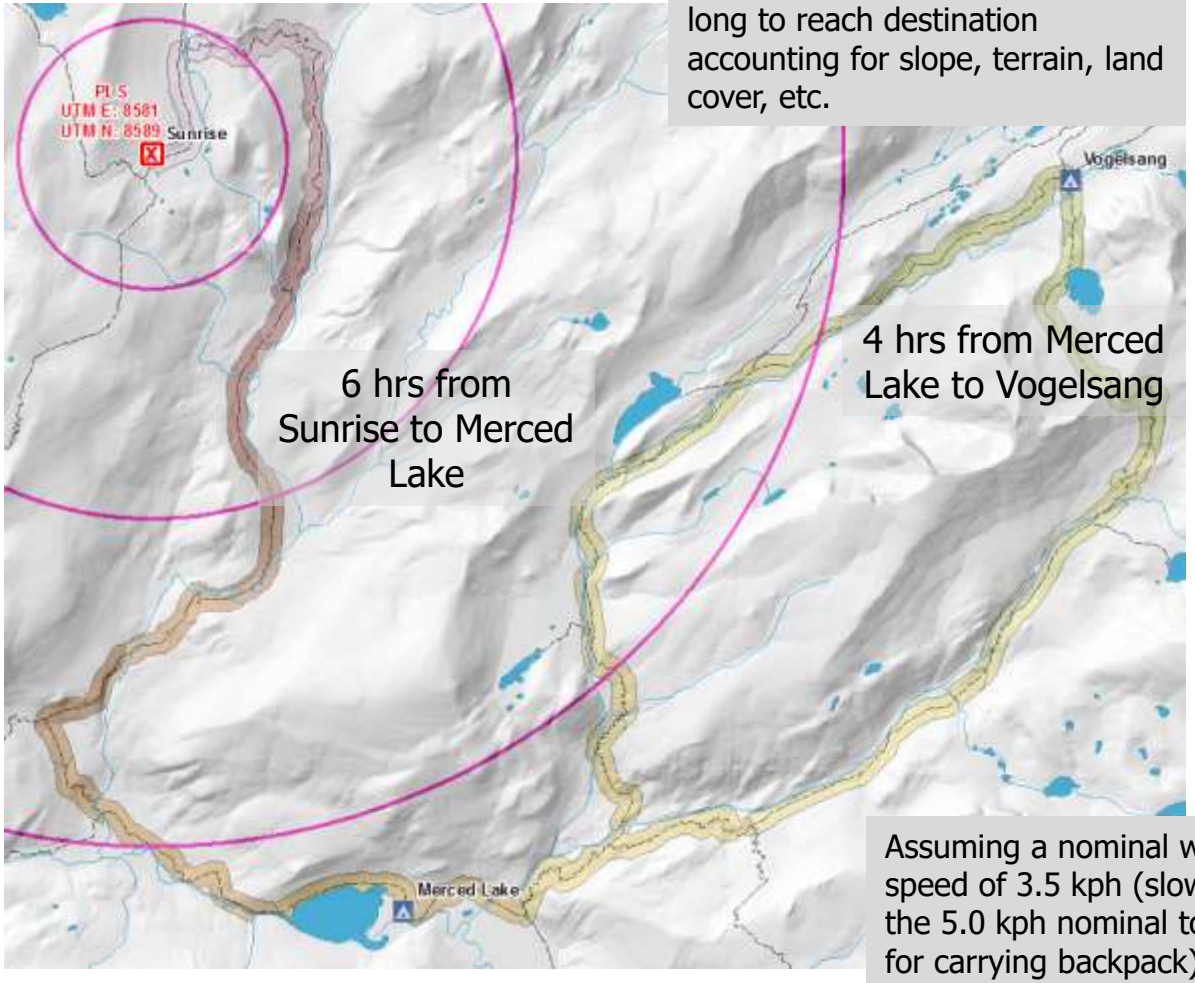
Distance (horizontal) from the IPP (miles)					
	Temperate		Dry		Urban
	Mtn.	Flat	Mtn.	Flat	
n	568	274	221	58	8
25%	0.7	0.4	1.0	0.8	
50%	1.9	1.1	2.0	1.3	1.6
75%	3.6	2.0	4.0	4.1	
95%	11.3	6.1	11.9	8.1	

Distance (horizontal) from the IPP (kilometers)					
	Temperate		Dry		Urban
	Mtn.	Flat	Mtn.	Flat	
n	568	274	221	58	8
25%	1.1	0.6	1.6	1.3	
50%	3.1	1.8	3.2	2.1	2.6
75%	5.8	3.2	6.5	6.6	
95%	18.3	9.9	19.3	13.1	

© 2014 Don Ferguson

Terrain Analysis (Mobility-corridor)

Restrict travel to trail only – how long to reach destination accounting for slope, terrain, land cover, etc.



	Mobility (hours)	
	Temperate	Dry
n	232	112
25%	0	4
50%	3	8
75%	6	12
95%	14	26

Legend

StatisticalArea

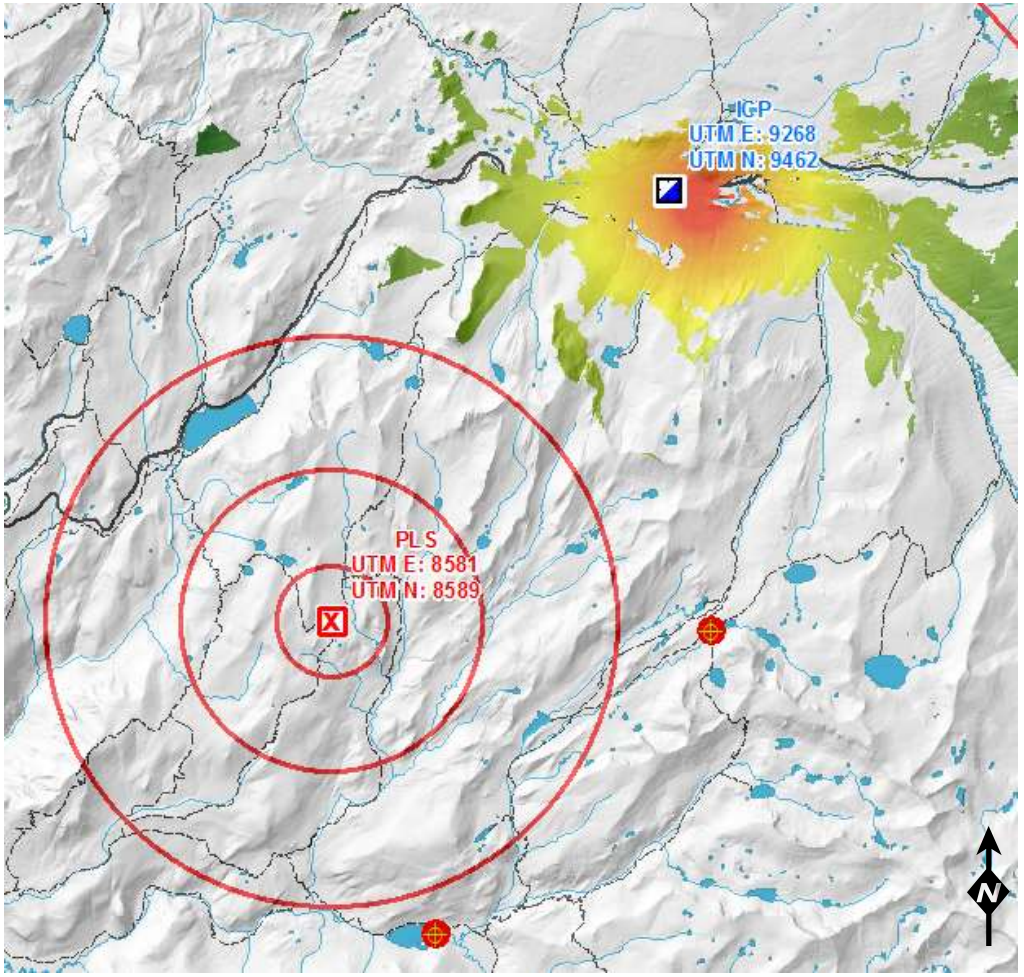
General Mobility (hrs)

0.5
1
1.5
2
2.5
3
4
5
6
7
8
9
10
11
12

Assuming a nominal walking speed of 3.5 kph (slower than the 5.0 kph nominal to account for carrying backpack)

© 2014 Don Ferguson

Could the Subject Have Contacted Friends Using Cellphone?



Does the celltower at Tuolumne Meadows provide coverage within the search area?

Unlikely subject would have cell phone coverage.

Legend

StatisticalArea

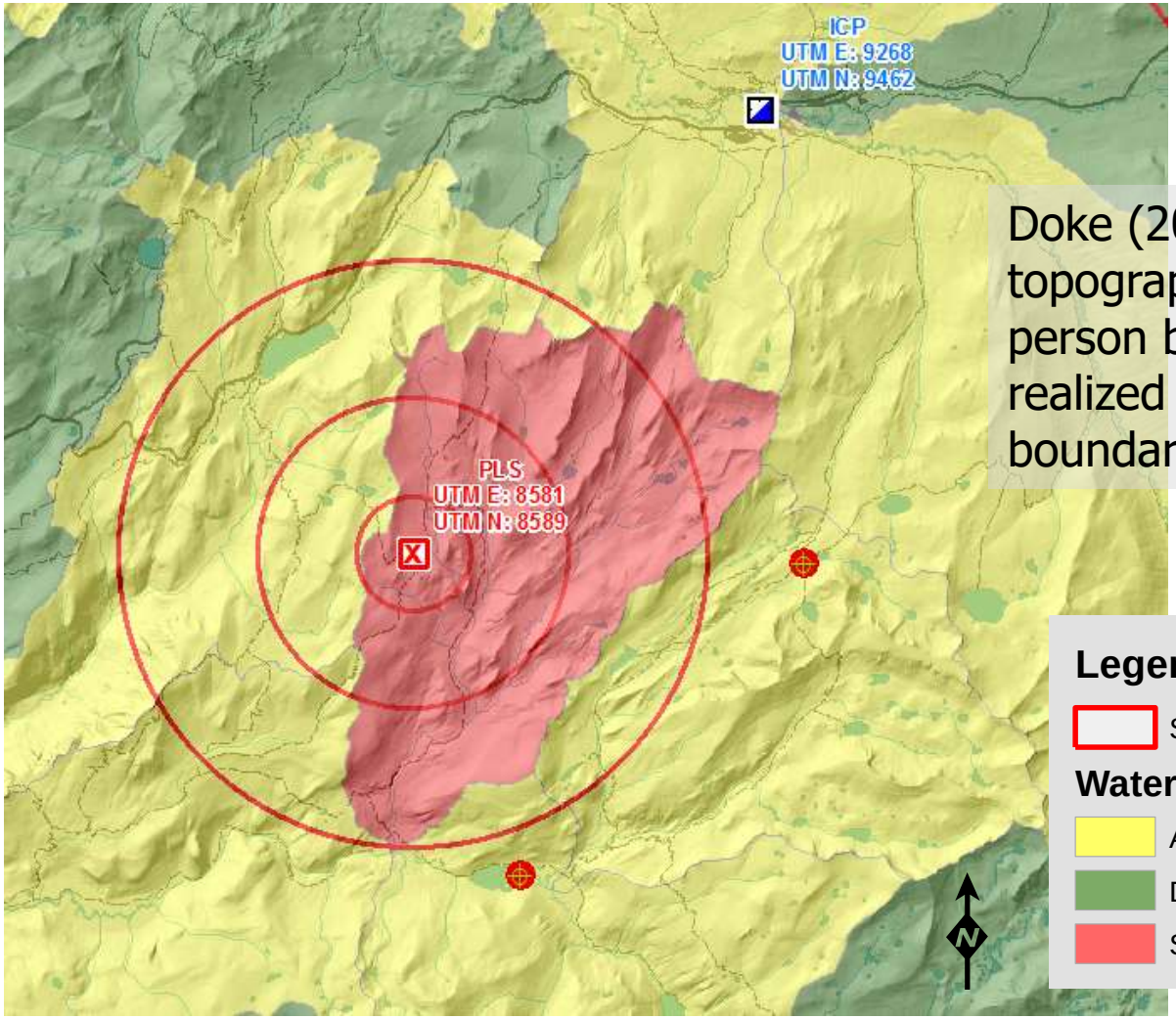
Signal Strength (dBm)

High : -33.7

Low : -94.0

© 2014 Don Ferguson

Lost Person Behavior (Watershed)



Doke (2012) speculated that topographic affects on lost person behavior may be realized through watershed boundaries.

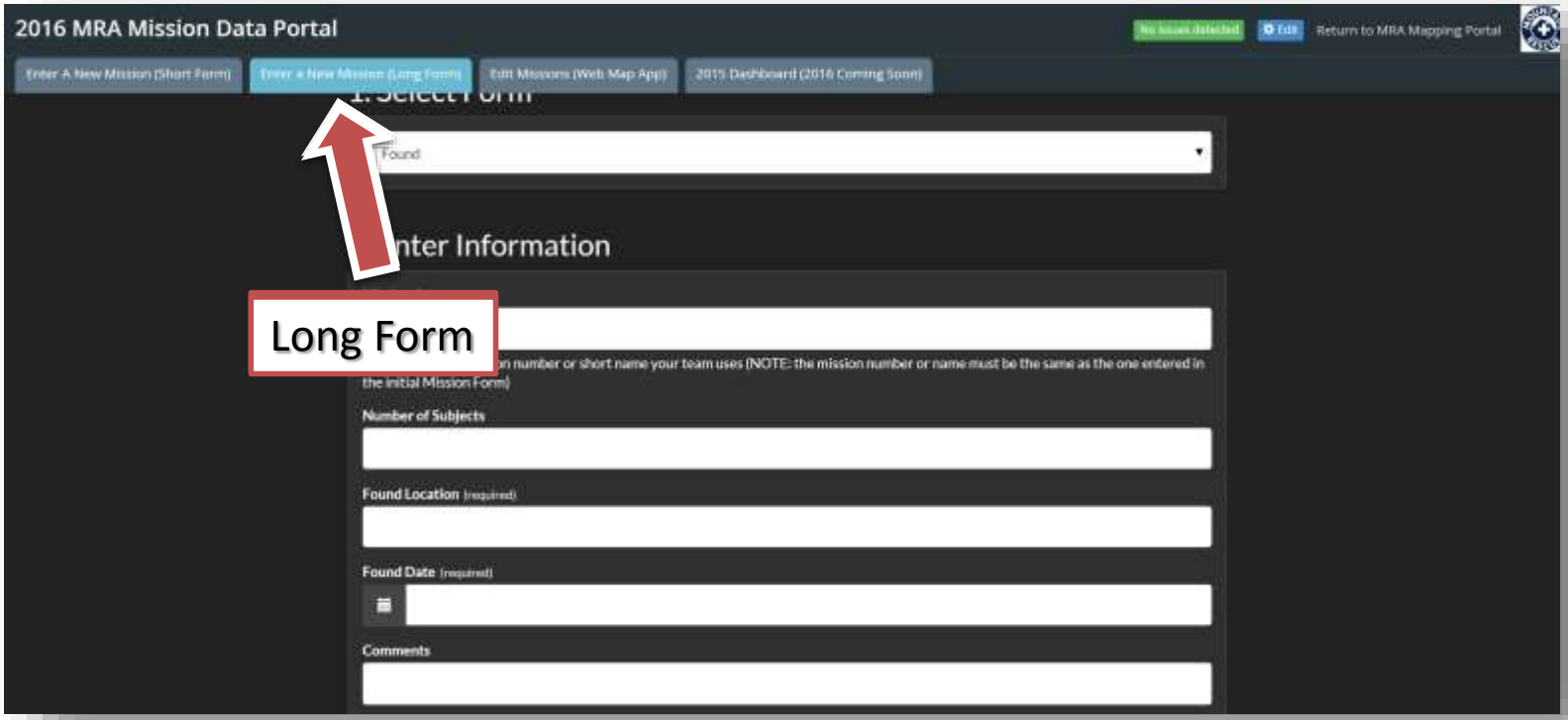
© 2014 Don Ferguson

Missing Subject: Part III

- Subject Found Alive!
- Steve Clark was found cold but healthy below Vogelsang Peak
- Location: 11S KB 91694 81455

EXERCISE ONLY

Enter Data

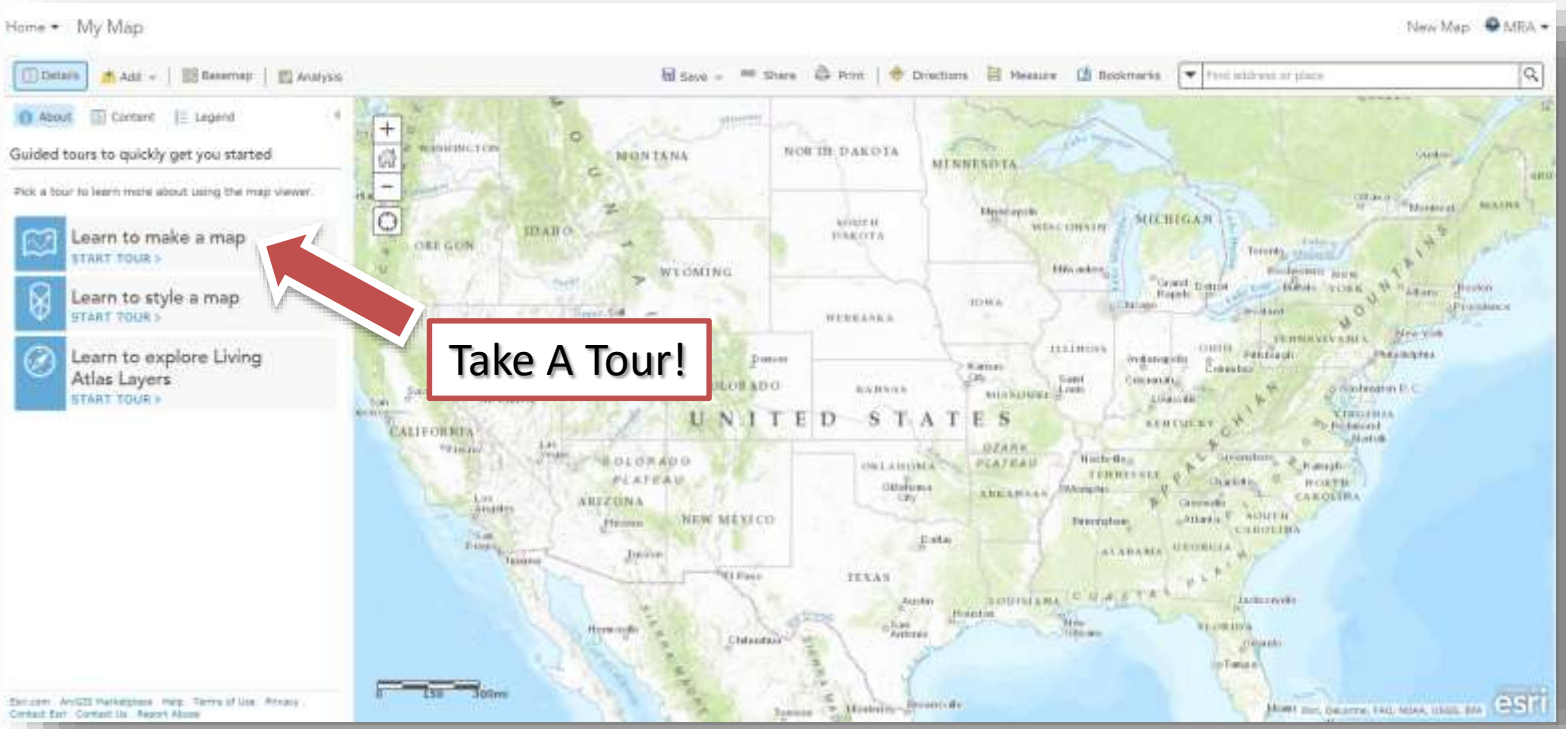

2016 MRA Mission Data Portal
Return to MRA Mapping Portal
Enter A New Mission (Short Form)
Enter a New Mission (Long Form)
Edit Missions (Web Map App)
2015 Dashboard (2016 Coming Soon)
Found
nter Information
Long Form
the initial Mission Form)
Number of Subjects
Found Location (required)
Found Date (required)
Comments

MRA Mapping Portal

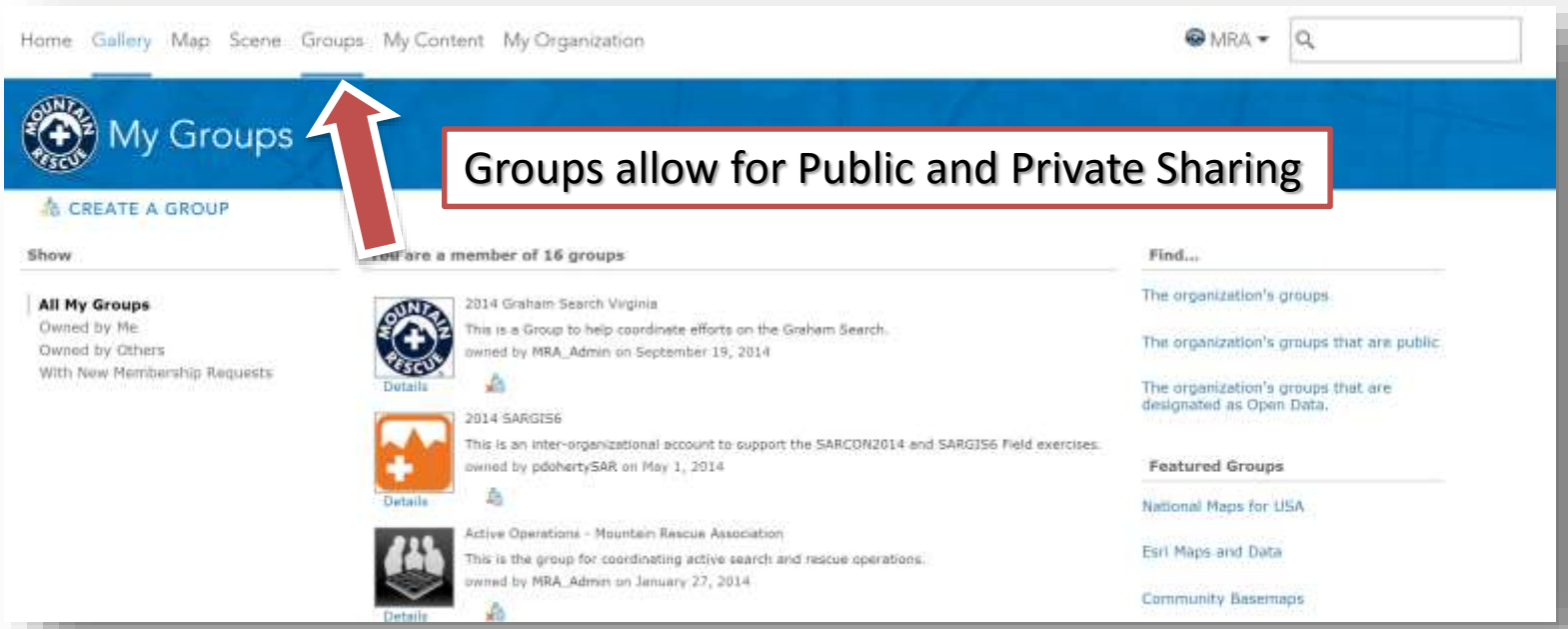
- Build A Custom Web Map App for Data Entry
- Make a Public Information Map to Show Where Your Team was Active in 2015
- Plan a Training Exercise

MRA Mapping Portal

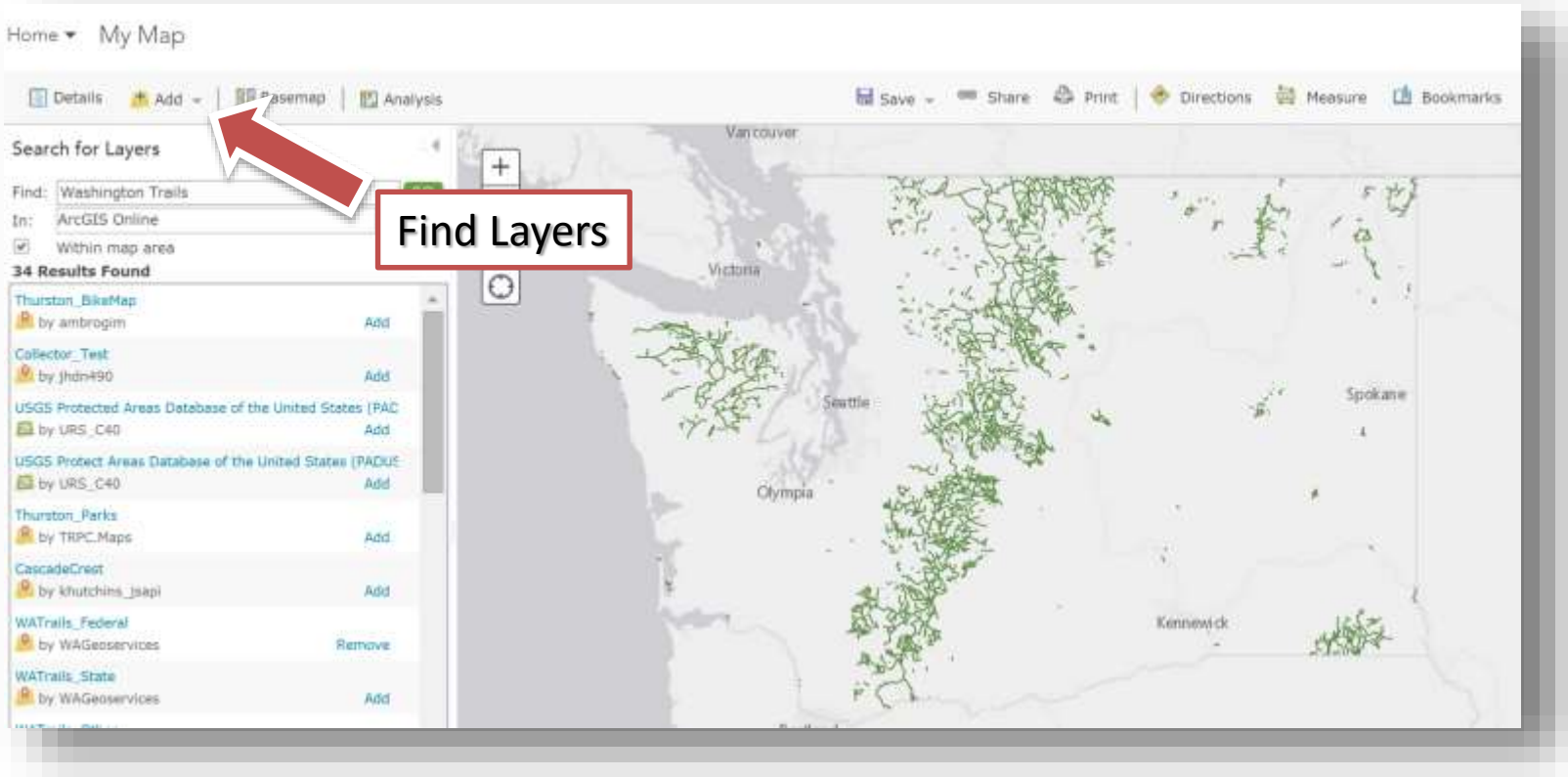
MRA Mapping Portal



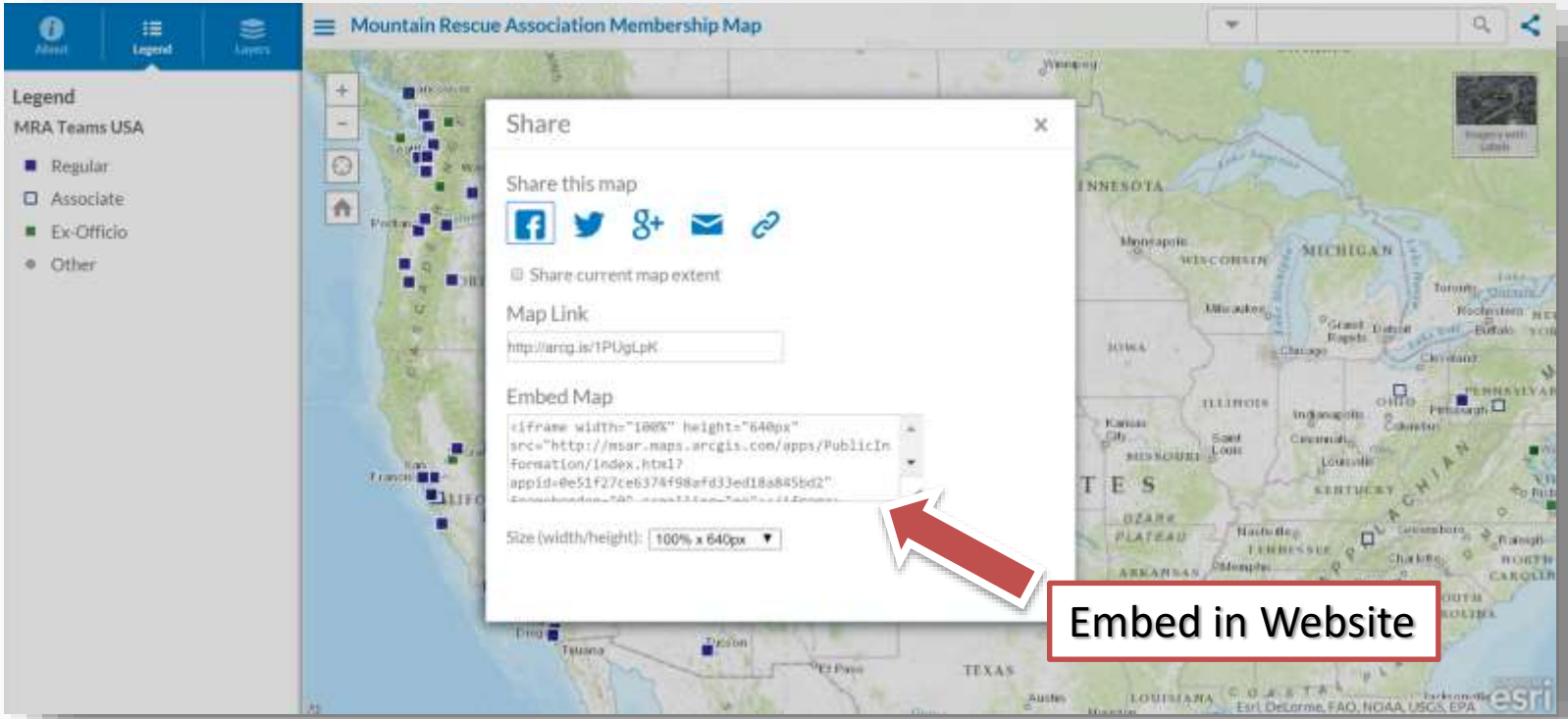
MRA Mapping Portal



MRA Mapping Portal



MRA Mapping Portal



QUESTIONS AND ANSWERS

Common Q&A

1. Do I have to answer all of the questions?
2. What if I already collect data?
3. Can I export the data?
4. When should I fill out the form?
5. How do I estimate mission hours?
6. Where do I get help?
   mramapping@gmail.com

Common Q&A

1. Do I have to answer all of the questions?

Short-Form = Yes

Long-Form = Please

Common Q&A

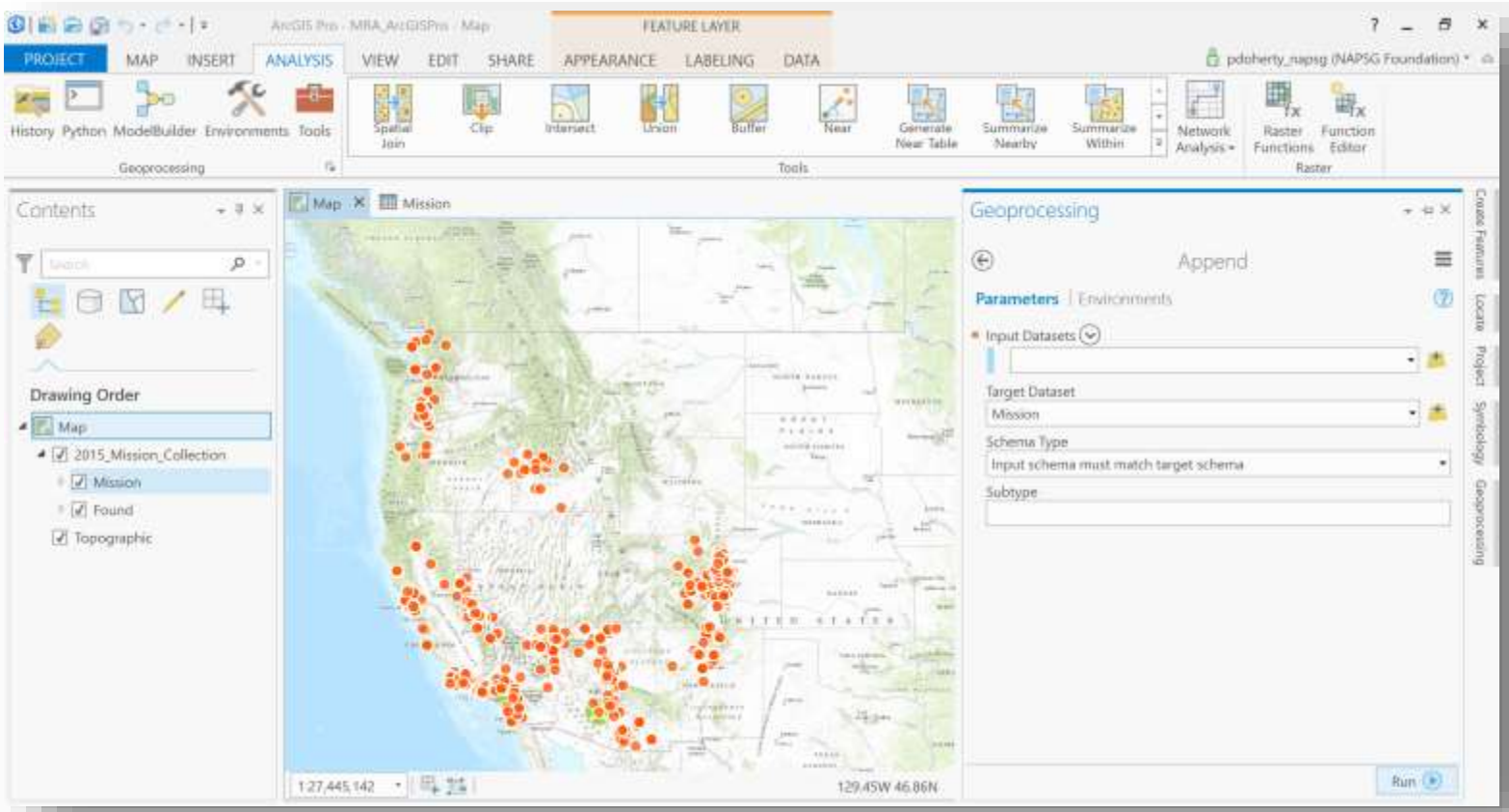
2. What if I already collect data?

We will do our best to develop a data import plan with you

mramappping@gmail.com

Please consider that this is a volunteer run system and you must follow instructions closely.

Common Q&A



ArcGIS Pro

Common Q&A

3. Can I export the data?

Yes

The data is downloadable and has an API for .csv, .kml, .shp, .gdb, and services

Common Q&A

4. When Should I Fill Out the Form?

As soon as possible after an incident is over. You can always go back and edit the data.

Waiting until the end of the year may be counterproductive and inefficient.

Common Q&A

5. How do I estimate mission hours?

# of rescuers x duration of the incident

Complex multi-operational period incident? Do your best.

Common Q&A

6. Where do I get help?

mramapping@gmail.com

Common Q&A

6. Where do I get help?

MRA Mapping Hangouts

2nd Tuesday of each month

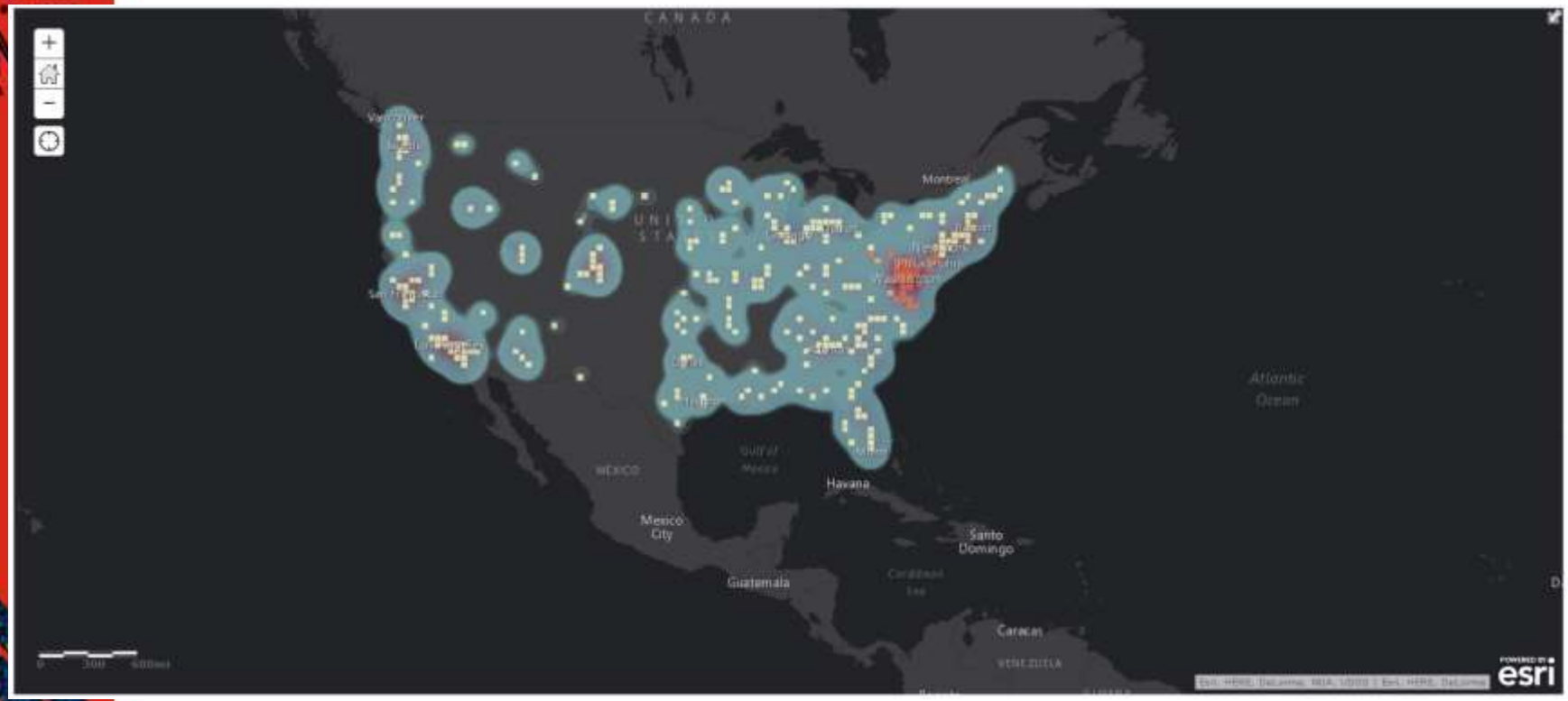
1100h Mountain Time

Details TBA

Resources

- Free Mapping Training
  - ArcGIS Online Help Documentation
    http://bit.ly/AGOLHelp
  - Getting Started With GIS
    http://bit.ly/StartGIS
  - NAPSG Resources
    http://bit.ly/NAPSGresources

Public Safety GIS Community



http://www.napsgfoundation.org/about/regional-leadership-teams/

Thank You

- MRA Member feedback!
- Mark Johnson from USC GIS
- MRA Mapping Volunteers
- Esri Non-Profit Organization Program