CitSci.org:

Cyberinfrastructure support for citizen science data integration

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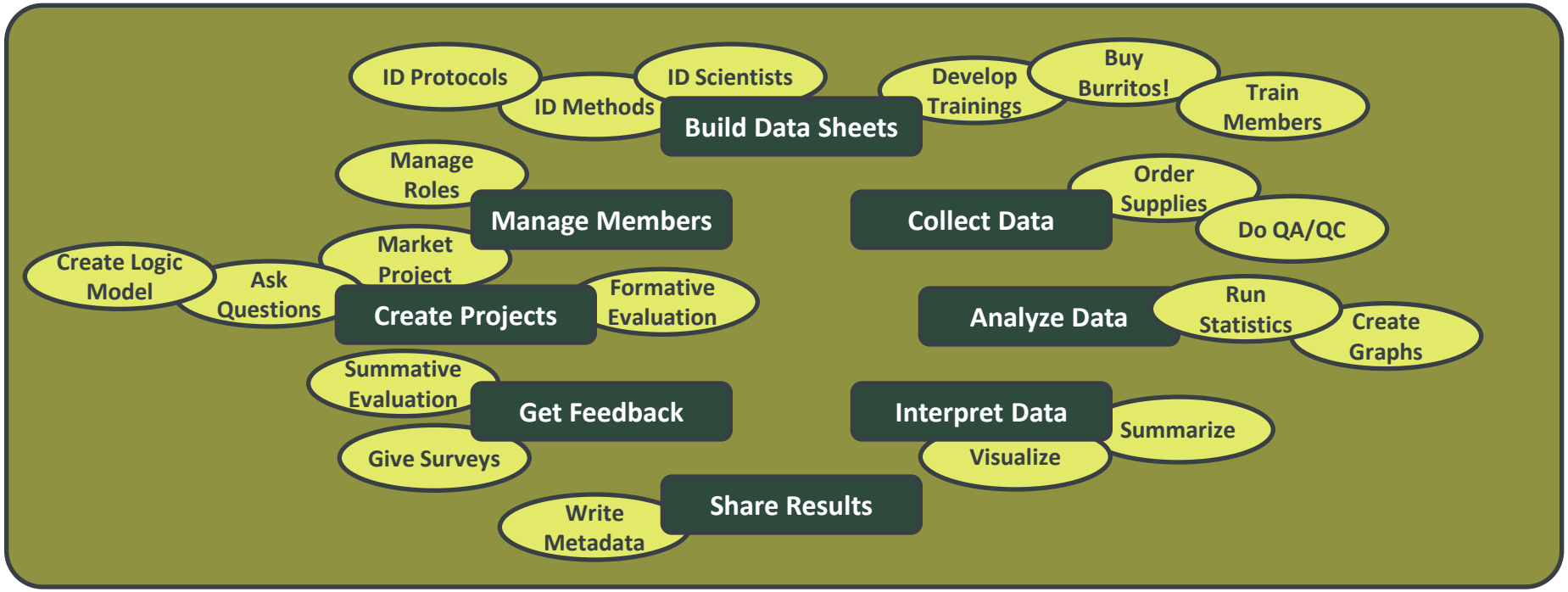
cyber what?

research environments supporting advanced data acquisition, data storage, data management, data integration, data mining, data visualization and other computing and information processing services distributed over the Internet beyond the scope of a single institution

many tasks

- Build Data Sheets
- Manage Members
- Collect Data
- Create Projects
- Analyze Data
- Get Feedback
- Interpret Data
- Share Results

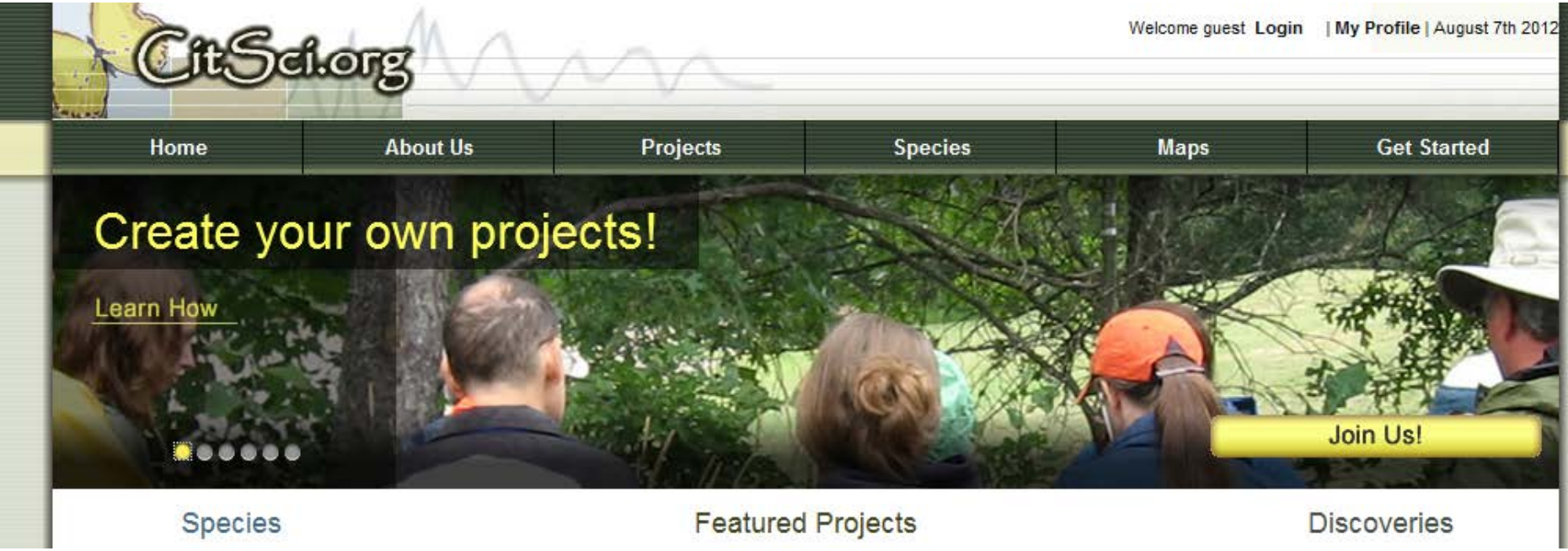
what really needs to be done?



www.citsci.org

a system where anyone, anywhere can create new projects themselves

create projects



examples

New York-New Jersey Trail Conference - Invasives Strike Force
This project aims to collect invasive plant species data along trails in the New York-New Jersey region.

Join

Northeast Wisconsin Alliance Phragmites Project
Participants identify, describe and map stands of non-native phragmites throughout Northeast Wisconsin.

Join

"scratch your own itch"

customize your project

Project R.E.D (Riverine Early Detectors)

Project Profile

Name: Project R.E.D (Riverine Early Detectors)
Project Manager: Laura MacFarland

Website URL: http://www.wisconsinrivers.org/index.php?page=content&mode=view&id=171

Number of Observations: 153 Delete Surveys

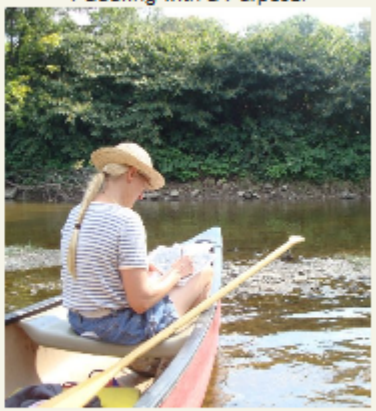
Start Date: March 1st, 2009

End Date: December 30th, 2011

Description: Volunteers monitor by watercraft or on foot for 15 invasive species that threaten Wisconsin's rivers. These include wetland and submersed plants, mussels, and snails.

Purpose: Raise awareness about invasive species within river corridors and engage local citizens in the fight against invasive species. Early detection of invasive species threatening Wisconsin's Rivers to enable containment or eradication.

Paddling with a Purpose!



Statistics | View Map

✓ Join

View Data | Submit Data | Resources | Media | Feedback | Questions | Analyses

customize your project

Questions | Observations | DataSheets | Resources | Media | Feedback | Analyses

Research Questions

How does species richness differ between upland and lowland sites?
Are snake populations increasing or decreasing?

Add Question

Manage Tabs

Manage Tabs

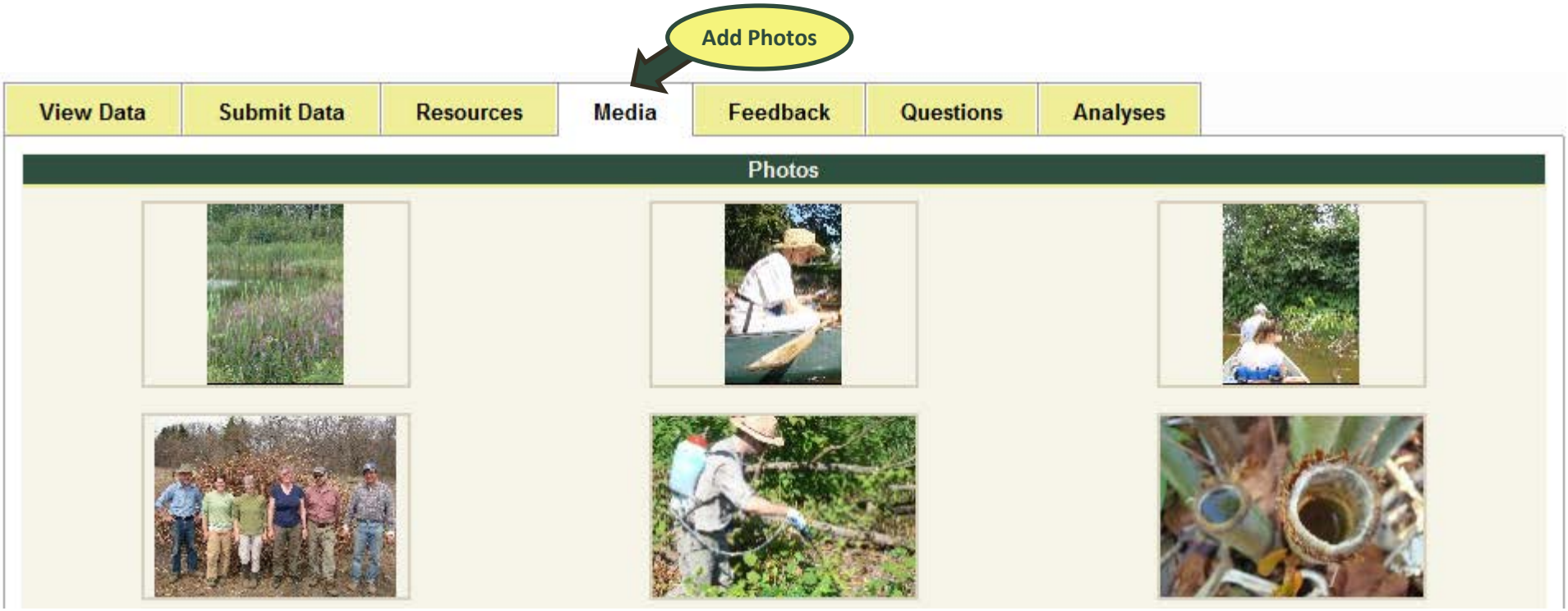
Position	Tabs	Visiblity	Active	Positions
1	Questions	☑	☑	Move Down
2	Observations	☑	☐	Move Up / Move Down
3	DataSheets	☑	☐	Move Up / Move Down
4	Resources	☑	☐	Move Up / Move Down
5	Media	☑	☐	Move Up / Move Down
6	Feedback	☑	☐	Move Up / Move Down
7	Analyses	☑	☐	Move Up

Show/Hide

Make Active

Change Position

customize your project



communicate

Invite Members

Edit Profile | Manage Members | Invite Members | Email Members

Send Email

View Data | Submit Data | Resc | Feedback | Questions | Analyses

Observations | Map

Most Recent Observations

Sunday 11 August 2013	Mount Audubon Trail-CPW	Delete	
Sunday 11 August 2013	Joyce Gellhorn-CPW	Delete	

Share Recent Observations

manage members

Users Requesting To Join CFCNAPAS

User	Email	Requested Role	Options
Rick Bonney	reb5@cornell.edu	Contributor	Approve Deny
Kaleigh Murphy	spicyviolin@gmail.com		Approve Deny
Eric Allen	ericallenpdx@gmail.com		Approve Deny

Approve Members

CFCNAPAS Members

Member	Email	Role(s)	Options
Adrian Aycock	lynn.aycock@gmail.com		Edit Roles Remove
Allen Miller	al.miller@ajmiller.net		Edit Roles Remove
Ann Donoghue	ardonoghue@gmail.com	Contributor	Edit Roles Remove
Anne Bossert	annebossert@yahoo.com	Contributor	Edit Roles Remove
Barbara Kinneer	rbkinneer@yahoo.com	Contributor	Edit Roles Remove

Edit Roles

your own

build data sheets

Datasheet Information

Name: Amphibian Survey Form *

Instructions:
(Limit to 4000 characters)

Locations: Entered By User / Pre-Defined

Projection: Latitude / Longitude / UTM

Volunteer Data: No / Yes *Will data collected using this datasheet be collected by volunteers?*

Survey Type: Point

Metadata: Create Metadata *Please enter metadata for this datasheet (optional)*

Add Organisms | Add Site Characteristics | Add Treatments

Submit

Organisms

Bullfrog (Lithobates catesbeianus) Add Attribute | Change | Delete

Pre-define monitoring locations or have volunteers enter locations

Define Plot Types

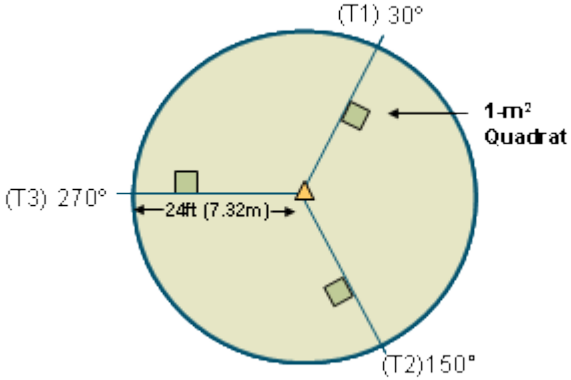
Add Species

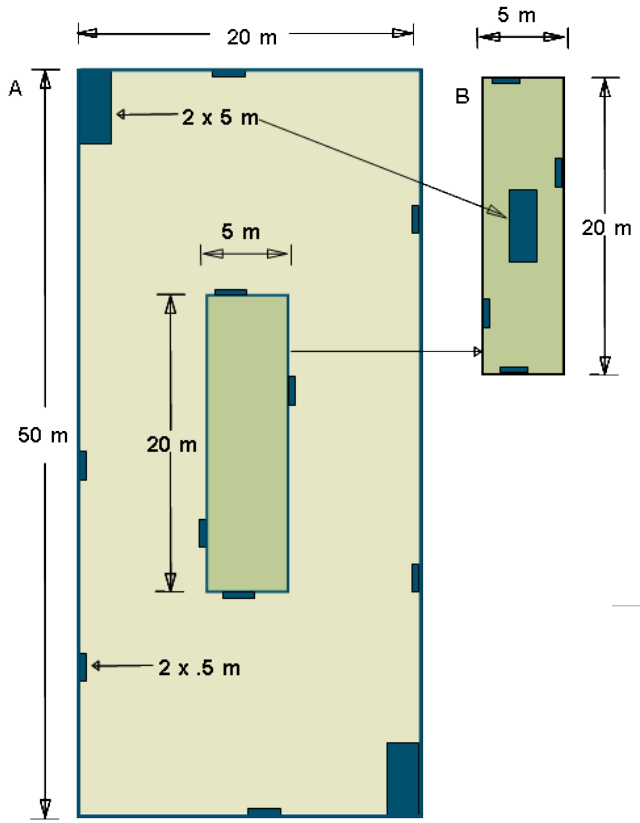
Add Site Characteristics/Trmts.

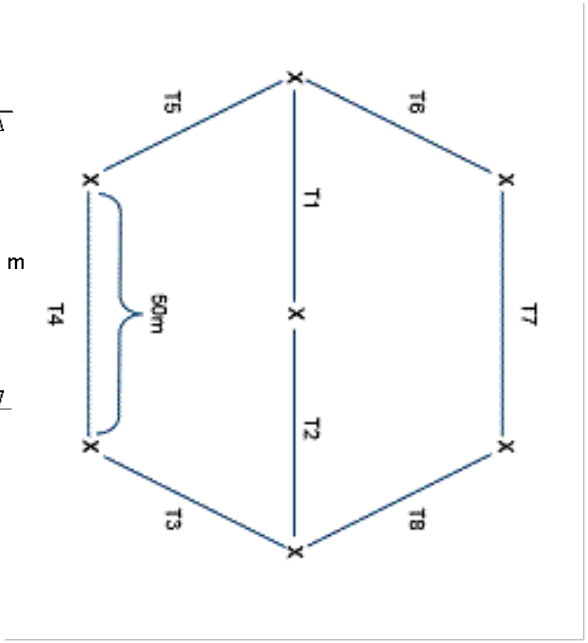
Add Attributes

your own

define plot types / protocols







your own

define monitoring locations

Add Organisms | Add Site Characteristics | Add Treatments

Submit

Pre-Defined Locations		
Plot 1	-104.4, 41	Remove
Plot 2	-101, 42	Remove
plot 3	-103.69, 39.3	Remove

Add Location

Organisms				
American pika (Ochotona princeps)		Add Attribute	Change	Delete
	Presence		Change	Delete
	Length		Change	Delete
cheatgrass (Bromus tectorum)		Add Attribute	Change	Delete
	Presence		Change	Delete

collaboratively define attributes

collaborative measurements

shared vocabularies

"If you want to measure it, you can measure it...
...but be sure someone else is not already measuring it!"

collaboratively define attributes

Species Attributes | **Site Characteristics**

Name	Description	Value Type	Min Value	Max Value
Dominant species	Dominance ranking based on most cover or basal area for all plant species present	View Add		
Height	Height above ground, average height for groups	Decimal	0.0	
Percent Cover	Percent of area covered by this individual or organism	Decimal	0.0	100.0
Vigor		View Add		
Infested Area		Decimal	0.0	
Length		Decimal	0.0	
Sex		View Add		
Life Stage		View Add		
Tag ID		Integer	0.0	
Born Wild		Integer	0.0	1.0
Number of Eggs	El número de huevos presentes en toda la planta.	Integer	0.0	500.0
Percent herbivory on all leaves	Notar el porcentaje de hojas, de todos las hojas de la planta, que tienen evidencia de herbivoria (comida por insectos). Hay cuatro opciones: 0, menos de 50% (<50%), mas de 50% (>50%), y todas (100%).	View Add	0.0	100.0
Percent damage on leaf	De la hoja mas comida, notar el porcentaje de la hoja con dano. Hay dos opciones: menos de la mitad (<50%), y mas de la mitad (>50%).	View Add	0.0	100.0
Percentage of eggs with parasitism	El porcentaje de huevos parasitados por toda la planta	View Add	0.0	100.0

Add Attribute

collaboratively define attributes

Attribute Type Information

Category: Organism Data Attributes

Name: Required

Description:
(Limit to 4000 characters)

Applies To: -- Applied to ---

Value Type: -- Select a Value Type --

Unit Type: -- Select a Unit Type --

MinimumValue:

MaximumValue:

Submit

Define Type (Pick List, Integer, Decimal)

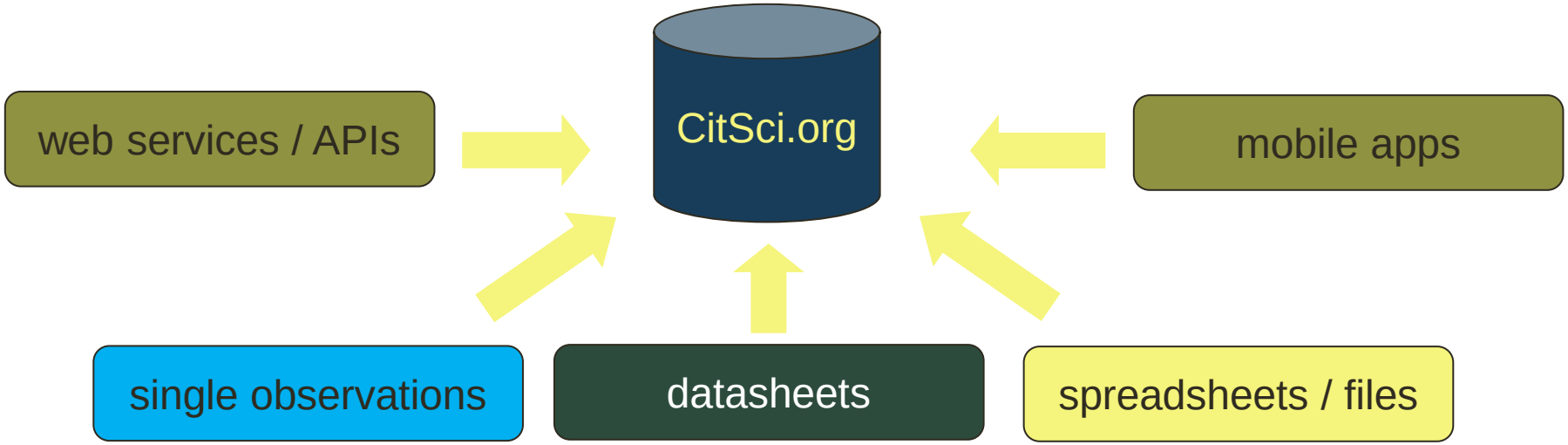
Define Units

Specify Min/Max for QA/QC

submit data

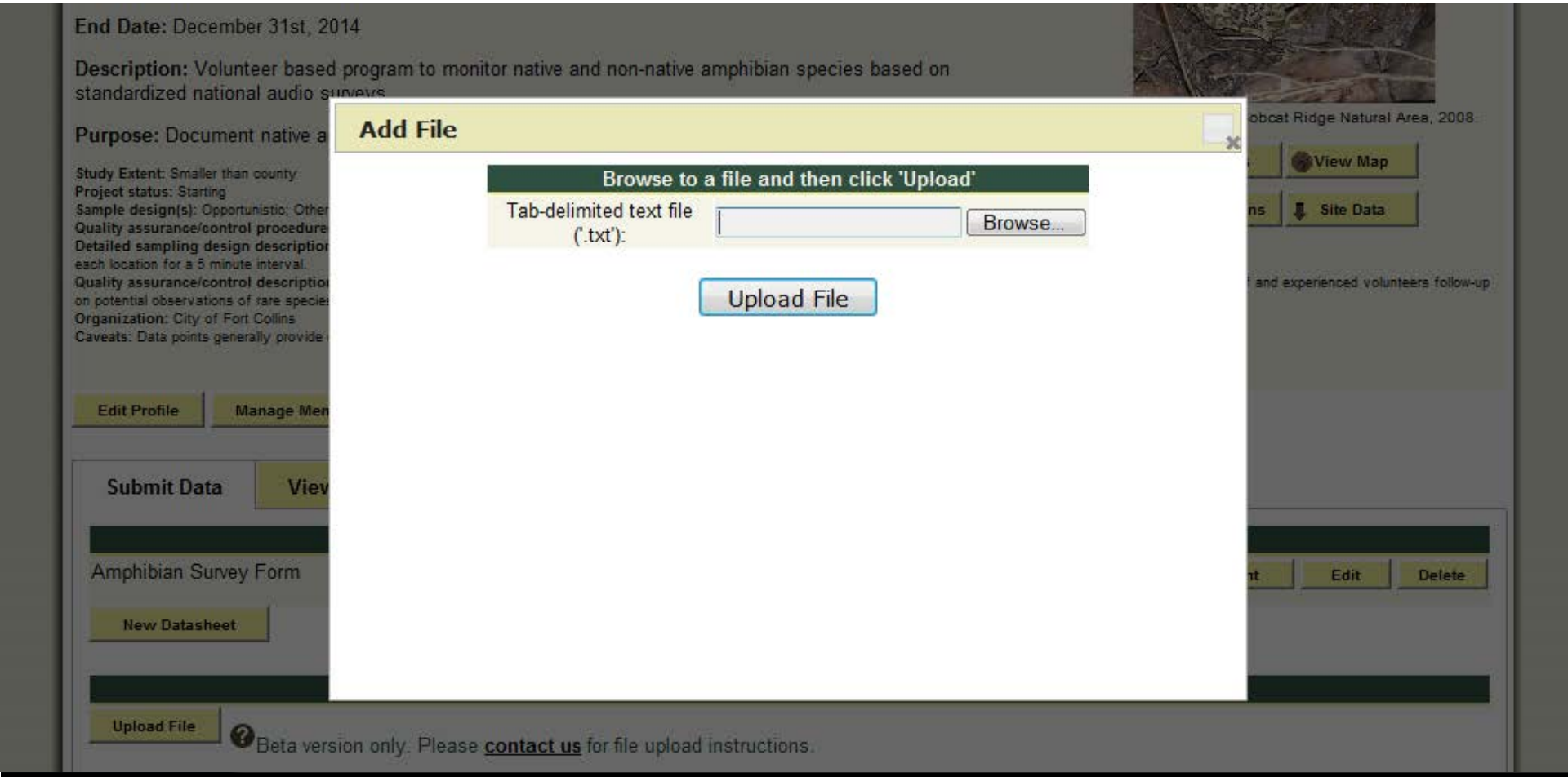
protocols | local ecological knowledge | plot types

photos | species occurrences | species attributes | site characteristics



your own

add data from files



remember these?

Species Attributes | **Site Characteristics**

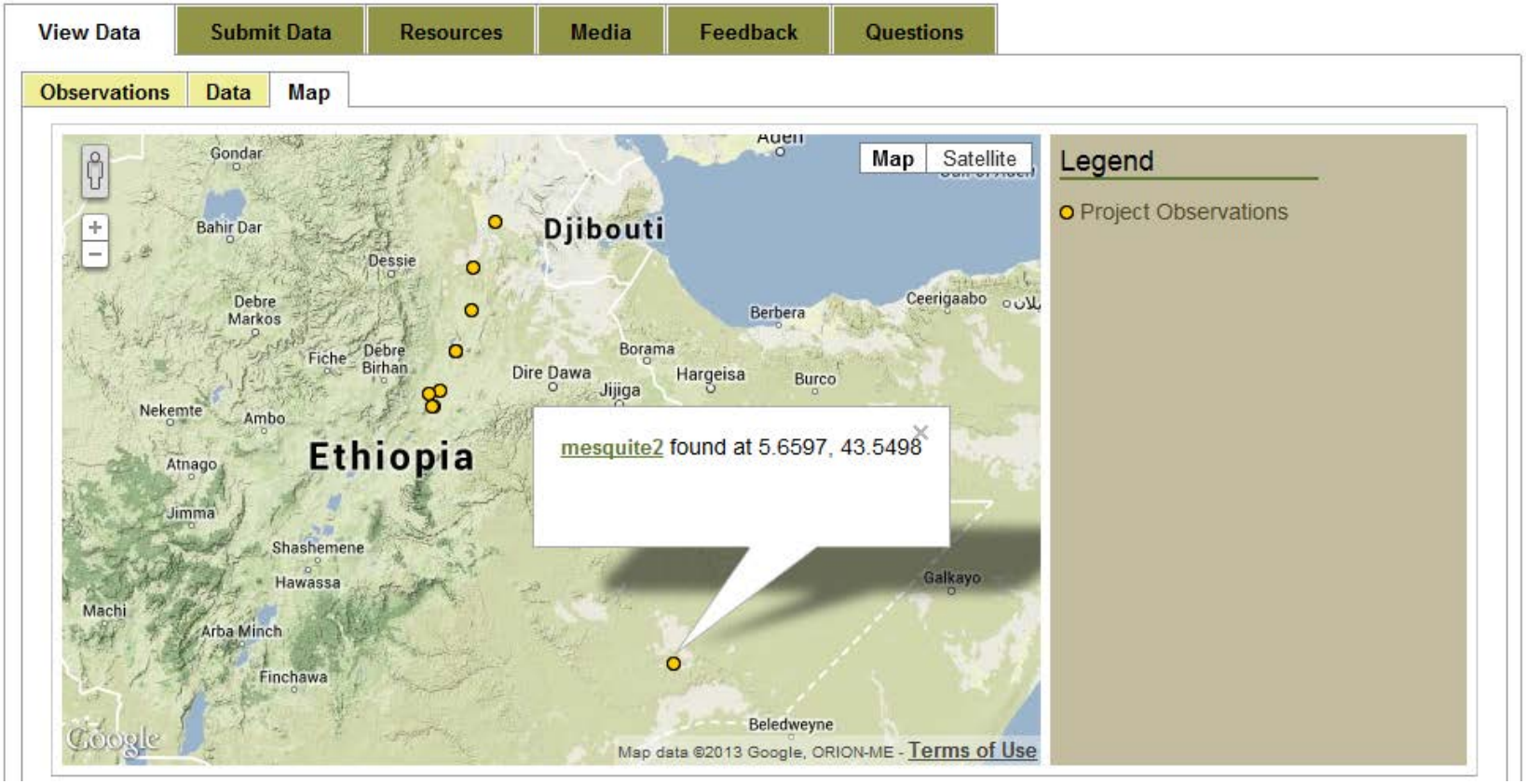
Name	
Dominant species	Dominance rank
Height	Height above gro
Percent Cover	Percent of area
Vigor	
Infested Area	
Length	
Sex	
Life Stage	
Tag ID	
Born Wild	
Weight	Weight
Number of individuals	
Gross Area	Area covered at
Presence	Presence or abs

	A	B	C	D	E	F
1	LocationName	Latitude	Longitude	Date	ScientificName	Number of individuals
2	Site 1	42.5864	-104.5366	8/23/2012	Dermochelys coriacea	1
3	Site 2	43.4656	-103.4655	8/23/2012	Dermochelys	1
4	Site 3	41.5467	-100.4355	8/23/2012	Natator depressus	1
5	Site 4	47.5656	-102.6464	8/25/2012	Chelonia mydas	4
6	Site 5	45.4646	-100.3334	9/18/2012	Caretta caretta	5

	A	B	C	D	E	F
1	LocationName	Latitude	Longitude	Date	Soil	Rock
2	1	41.1213	-73.8672	8/23/2012	12	11
3	2	41.1613	-73.8672	8/23/2012	13	22
4	3	41.1113	-73.8672	8/23/2012	45	33
5	4	41.1613	-73.8672	8/23/2012	56	44
6	5	41.1713	-73.8334	9/18/2012	78	55

	A	B	C	D	E	F	G
1	LocationName	Latitude	Longitude	Comments	Date	ScientificName	Percent Cover
2	Site 1	41.4313	-73.8672	comment1	8/23/2012	Calopterygidae	1
3	Site 2	41.1263	-73.8672	comment2	8/23/2012	Bromus	2
4	Site 3	44.1113	-73.8672	comment3	8/23/2012	Calopterygidae	3
5	Site 4	41.9613	-73.8672	comment4	8/23/2012	Bromus tectorum	4
6	Site 5	41.1783	-73.8334	comment5	9/18/2012	Calopterygidae	5

make your own maps



view/query your data

View Data | Submit Data | Resources | Media | Feedback | Questions

Observations | Data | Map

Record	Date	Location	Latitude	Longitude	Species	Attribute	Value
1	10/15/2011	gaysay13	7.122	39.751	Curry Bush	Presence	Present
2	10/15/2011	gaysay14	7.106	39.756	African juniper	Presence	Present
3	10/15/2011	gaysay14	7.106	39.756	Curry Bush	Presence	Present
4	10/15/2011	gaysay18	7.105	39.748	African juniper	Presence	Present
5	10/15/2011	gaysay19	7.104	39.748	Curry Bush	Presence	Present
6	10/15/2011	gaysay21	7.104	39.751	African juniper	Presence	Present
7	10/15/2011	gaysay22	7.104	39.753	Curry Bush	Presence	Present
8	10/15/2011	gaysay23	7.104	39.755	African juniper	Presence	Present
9	10/15/2011	gaysay23	7.104	39.755	Kosso	Presence	Present
10	10/15/2011	gaysay6	7.136	39.739	African juniper	Presence	Present
11	10/15/2011	gaysay7	7.136	39.741	Curry Bush	Presence	Present
12	10/15/2011	rira14	6.76	39.697	Kosso	Presence	Present
13	10/15/2011	rira26	6.719	39.729	Kosso	Presence	Present
14	10/15/2011	rira32	6.762	39.725	Kosso	Presence	Present
15	10/15/2011	rira33	6.763	39.727	Kosso	Presence	Present

in your own way

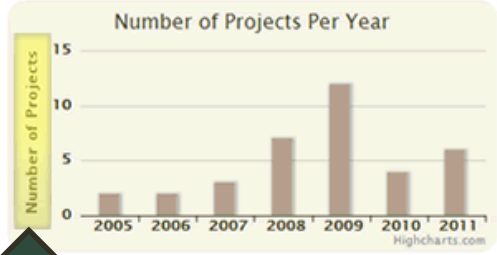
analyze data

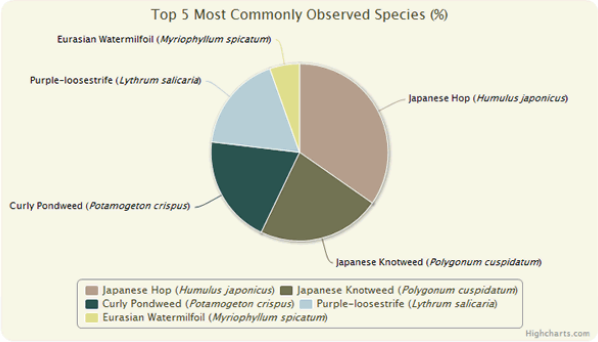
2 Create custom analyses (coming soon)

Pick chart type...

Select dependent variable(s)...

Choose independent variable(s)...

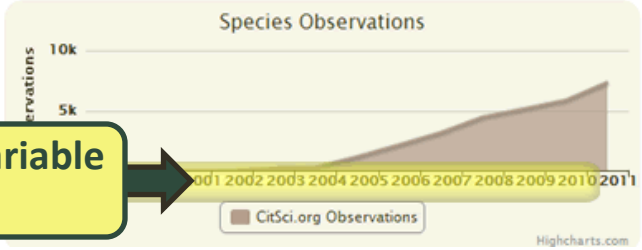




Dependent Variable (y)

Height
Weight

Independent Variable (x)

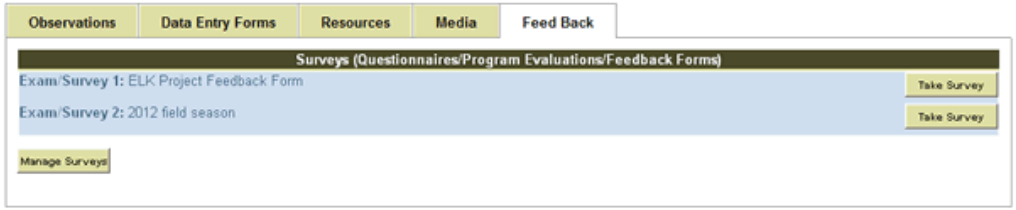


get feedback

1 Create and post feedback forms

Tired of using SurveyMonkey™?

Create your own feedback forms right here on CitSci.org!



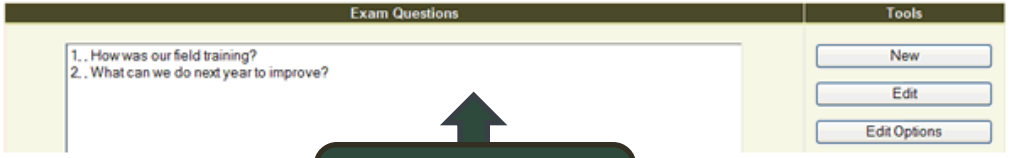
2 Design Questions

Checkboxes

Radio buttons

Pick Lists

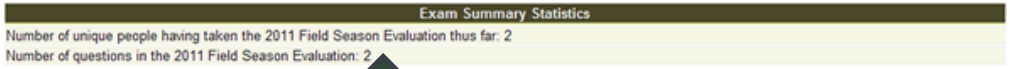
Text entry (open ended)



Design Questions

3 Analyze Results

View instantly updated survey results!



View Real-Time Results

make mobile observations

(coming soon)

Download for Android

Available on the iPhone App Store

our future

pre-defined species lists; bio-blitz mode

mobile apps, more APIs

customizable analyses

protocol database

embeddable datasheets

improved QA/QC algorithms

report creator

thanks!

Russell Scarpino, Nancy Sturtevant, Paul Evangelista, Melinda Laituri, Tom Stohlgren, Nicole Kaplan, Sara Simonson, Jim Graham, Lee Casuto, Pramod Shashidhara, and Brian Fauver and…
…so many more!

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The National Science Foundation
Natural Resource Ecology Laboratory
Colorado State University
DataONE