


Western Toad Project

Surveyor Packet

Contains:

- Amphibian ID Cheatsheet
- Waterbodies Cheatsheet
- Aquatic Vegetation Guide
- Substrate Photo Guide
- Toad Measurement Guide
- Equipment Guide
- Water Quality Cheatsheet
- Survey 123 Guide
- Emergency Contacts
- Sign-up Pages

Photos by Sierra Hastings

Amphibian Identification

Eggs

Western Toad

- Clear with black dots in the middle
- Laid in long strings/strands
- Can be hundreds or thousands
- Usually wrapped around and through submerged vegetation

Boreal Chorus Frog

- Laid in clumps on strands of vegetation below the water
- Usually 50 - 200 in one clump

Tiger Salamander

- Usually laid as individual spheres
- When laid in clumps have an extra gelatinous layer around them compared to chorus frogs

Amphibian Identification

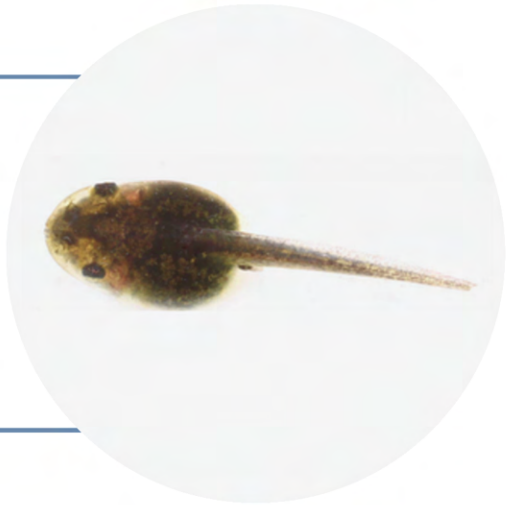
Larva/Tadpoles

Western Toad

- Jet black all over
- Eyes inset on top of their head
- Smooth outline when viewed from above
- Tear drop shaped

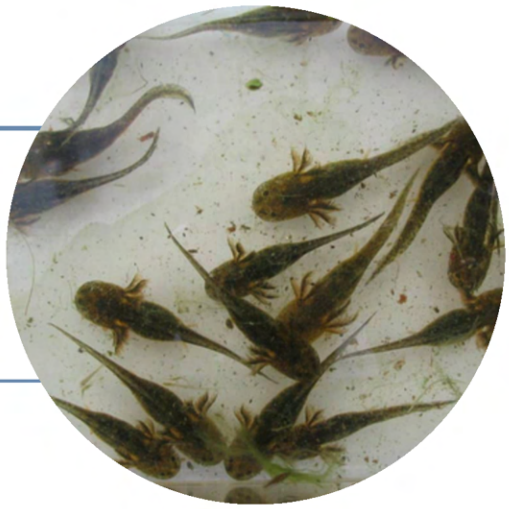
Boreal Chorus Frog

- Dark in colour, but not solid black
- Can have flecks of olive or gold
- Eyes protrude from the side of their head
- Oval in shape



Tiger Salamander

- Feathery gills on either side of their head
- More distinctive ‘head’ body’ and ‘tail’
- Long bodies



Western Toad

Boreal Chorus Frog

Tiger Salamander

Amphibian Identification

Adult

Western Toad

- Olive green to brown in color.
- “Warts” across back.
- Creamy dorsal (back) stripe.
- Inky dark spots on underside.
- Usually 2-4in long.
- Do not call, males occasionally “chirp” when handled or during breeding

Boreal Chorus Frog

- Green/ brown in color.
- Dark eye stripe from snout to shoulder on each side of their head.
- Three parallel broken stripes on their back.
- Small in size: 3/4-1.5 in long.
- Call resembles running your thumb nail across a comb

Tiger Salamander

- Only salamander species in Utah.
- Brown, black, grayish, sometimes with spots or stripes and yellowish bellies.
- Bulging eyes with round snouts. Sometimes retain gills into adulthood.
- Usually 6-12 in long.

Waterbodies

and their characteristics

Permanent lake/pond/ reservoir

- Larger, deeper bodies of water
- Have aquatic vegetation in shallows
- Connected to other bodies of water
- Have fish inhabitants

Temporary pond/pool (vernal/ephemeral)

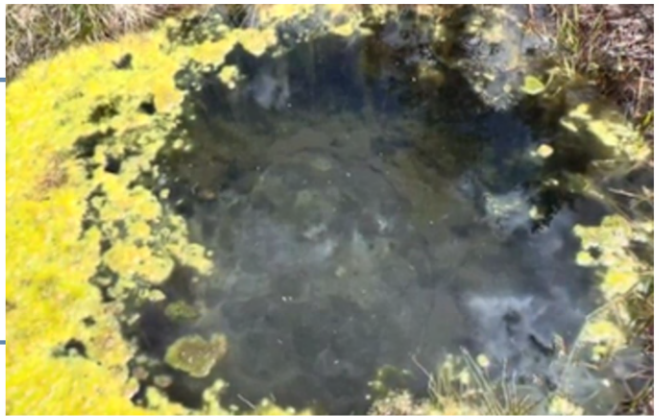
- Smaller, shallower pond
- No fish inhabitants
- May see cracking on pond bed
- May see terrestrial plants underwater
- No connections to other ponds or streams

Marsh/bog

- Waterlogged mud with scattered open water
- Mud, decaying matter, grass or moss
- Emergent vegetation throughout
- No defined banks

Spring

- Very deep, usually surface outflow
- Moving sediment at the bottom
- Very cold water



Waterbodies

and their characteristics, continued

Stream

- Flowing water
- Defined channel
- Can be silt/mud or sand/gravel substrate

Active beaver pond

- Well maintained dams
- Lots of open water
- Ponds at different levels/ heights
- Complexes of streams and ponds
- Vegetation with fresh, diagonal cuts on branches from beaver teeth

Inactive beaver pond

- Unkept dams with water flowing over
- Dried out areas where water once was
- Abundant willow trees, no fresh cuttings

Wet meadow

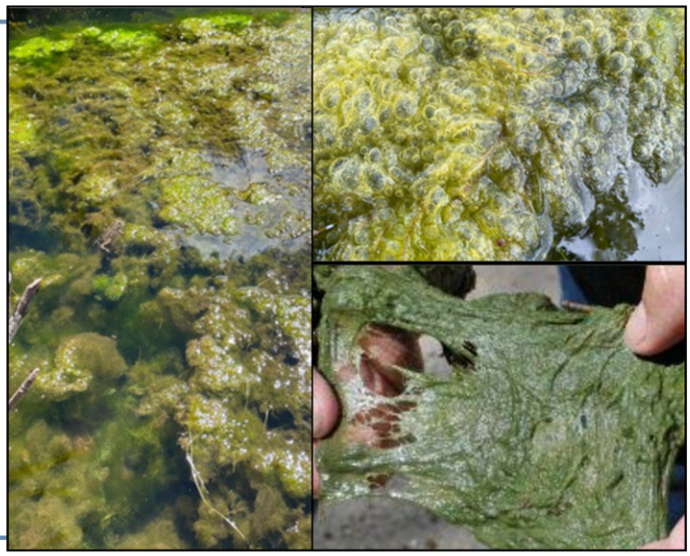
- Expanse of shallow water with emergent vegetation

Wetland Vegetation Guide

part 1

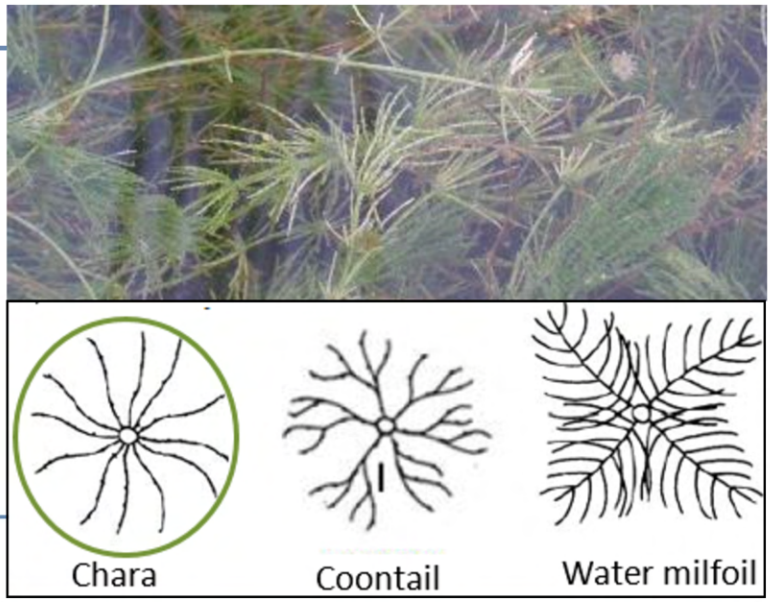
Filamentous Surface Algae (plant-like)

- Gooey, mostly green, some yellow or brown
- Grows in long threads, or filaments that combine to form mats on or near the water surface
- Not attached to rocks
- Produce oxygen and are a food source for tadpoles



Chara/Muskgrass

- Type of algae
- Entirely submerged
- Musky order, gritty texture
- Distinct leaf cross section compared to submerged aquatic vegetation



Emergent or Submergent?

Emergent

- Rooted to substrate
- Often along shorelines
- Stiff or firm stems
- Most of the plant protrudes above the surface

Submergent

- *Usually* rooted to substrate
- Flaccid stems
- Most of the stems and leaves are below the surface

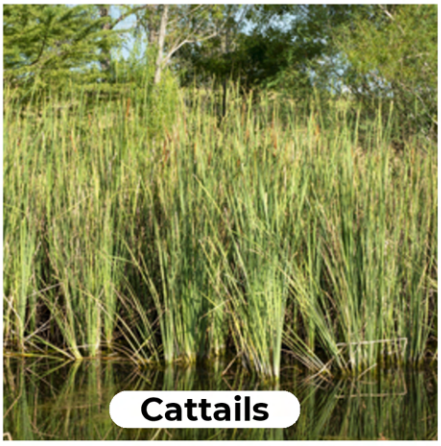
See next page for examples...

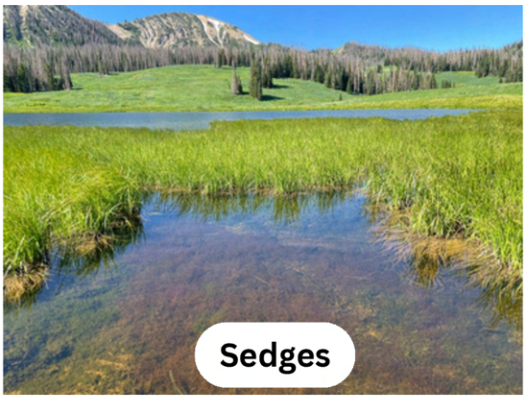
Photos from http://aquaplant.tamu.edu & https://www.michigan.gov.

Wetland Vegetation Guide

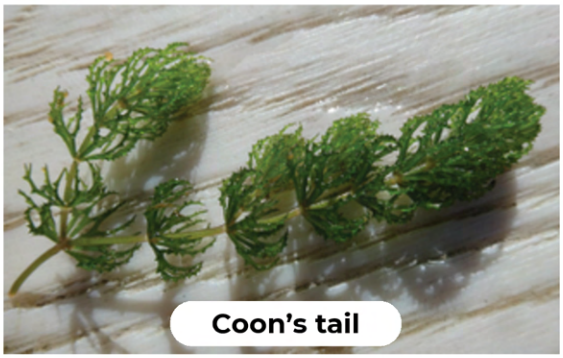
part 2

Emergent Examples





Submergent Examples

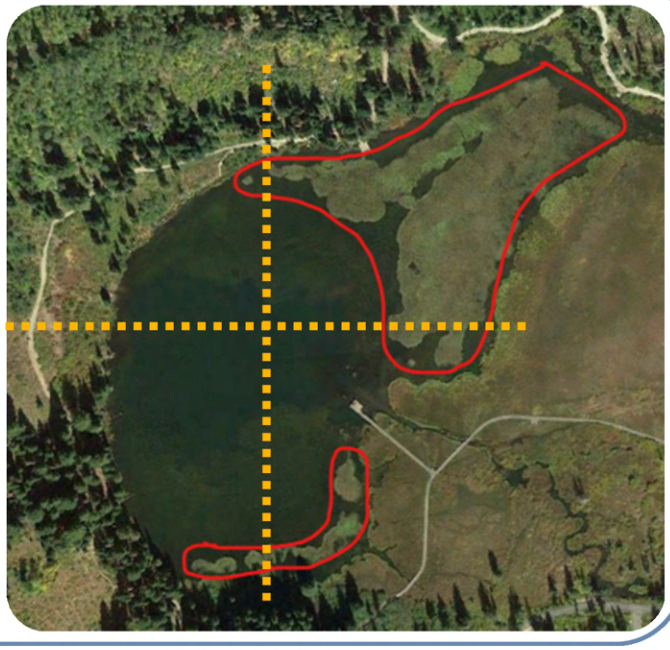


How to determine % cover?

For dense vegetation assume the entire area inside each red polygon is vegetated. It can be useful to visually divide the waterbody into quarters to estimate coverage.

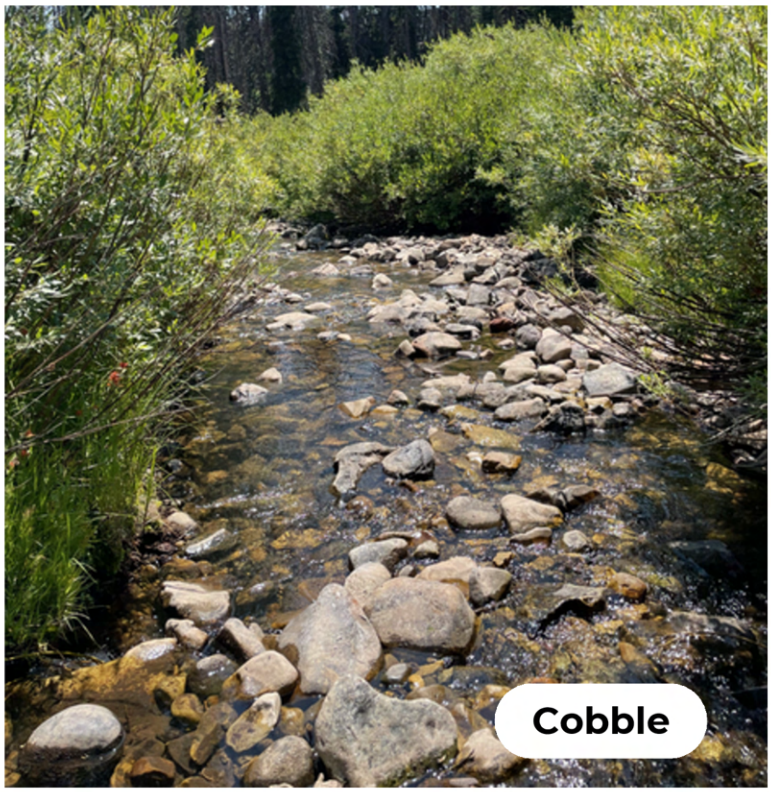
For this example, the lake is >25-50% covered. or "frequent".

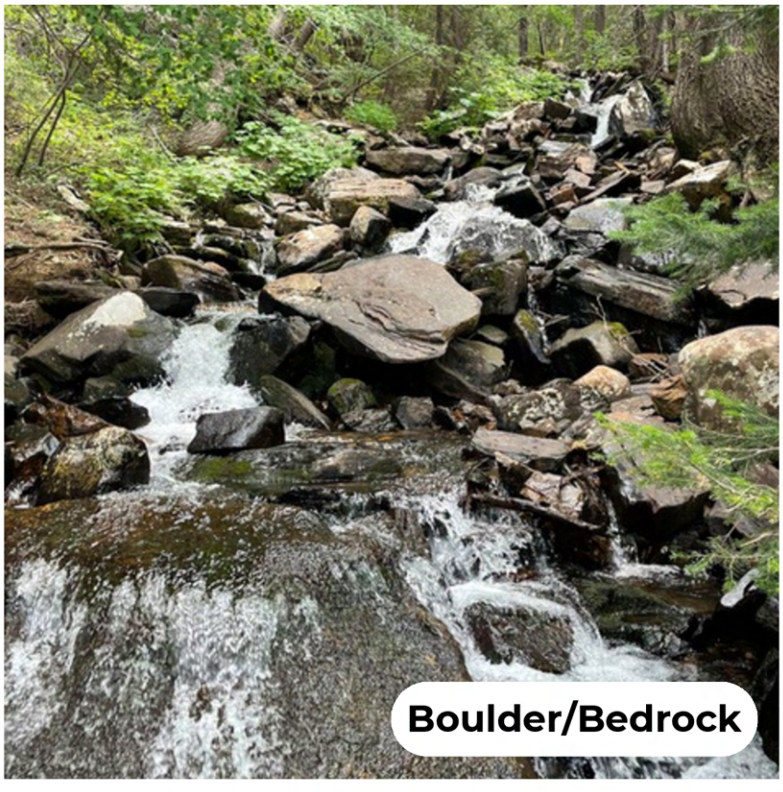
Make an estimation for emergent and submergent vegetation, algae, and chara separatley in the data form.



Photos from iNaturalist CCO & McCoy-Sulentic et al., 2024, Common wetland plants of Utah's Central Basin and range Ecoregion: UGS Miscellaneous Publication & Larese-Casanova, Mark. "Utah Master Naturalist Watershed Plant Field Book." (2014).

Substrate Photo Guide





Toad Measurement Guide

Tools needed:

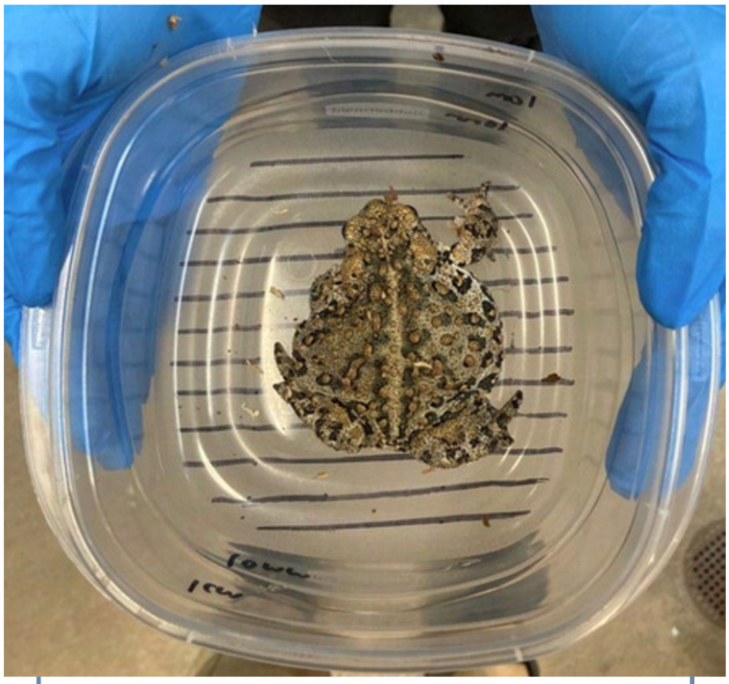
- Scored Tupperware
- Gloves

Why do we measure toads?

This helps us estimate how old the toad is!

Instructions:

1. Put on a clean pair of gloves.
2. Capture toad! (handle with care)
3. Gently place toad in Tupperware
4. Measure the toad from snout to bottom of the spine (follow their cream stripe)
    a. Each black line in the Tupperware denotes 10 millimeters.
    b. Make sure the toad is in a neutral position. Not scrunched and not stretched.
    c. Do not include limbs in the final measurement
    d. Record the measurement in the data form
5. Release toad where you found it. Wipe container with alcohol wipe or disinfectant spray and allow to dry. Rinse with clean water. Dispose of gloves.



Example 1:

This toad is around

80mm

Example 2:

This toad is just over

40mm

Equipment Guide

part 1

Each backpack should contain:

- 1x Water quality meter
- 1x Spray bottle with disinfectant
- 1x GPS unit
- 1x Measuring Tupperware
- 1x Measuring tape
- 1x net
- Alcohol wipes + gloves

Remember! Chytrid is very harmful for amphibians. To prevent the spread, spray your shoes and any equipment that touches the water after leaving the site with the provided disinfectant. Change gloves in between handling amphibians.

Garmin GPS Unit

To find specific site coordinates:

1. Use the thumb stick controller to press down on “Where to?” within the main menu.
2. Scroll to “coordinates”
3. Input desired coordinates, use the arrows along the sides to move L/R, Up/down between numbers
4. Follow the pink line from you (blue arrow) to desired waypoint. This gives you the straight line distance, use best judgement when navigating the terrain in front of you

To record start & end Coordinates:

1. Under main menu, select “Map”
2. Wait for the “?” symbol to disappear, if present (satellite is finding your location)
3. Find the find the blue triangle (this is your current location & will move when you move)
4. Press down on the thumb stick
5. No need to press “Go”, just record the coordinates and elevation in Survey123

*Record your elevation, start, and end coordinates in Survey123. Turn GPS off when finished to preserve battery life for the next user.

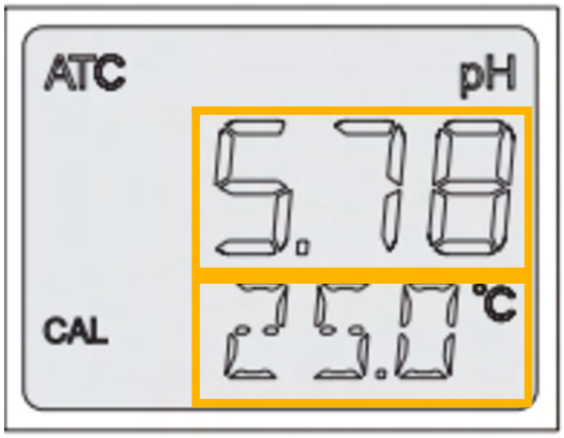
①	Zoom keys. Press to zoom in and out.
②	Back key. Press to return to the previous menu.
③	Thumb Stick™ controller. Move directionally to scroll or highlight an item. Press to select an item.
④	Menu key. Press to open the menu for a page. Press twice to return to the main menu.
⑤	⏻ Press to adjust the backlight. Hold to turn the device on or off.

Equipment Guide

part 2

Water Quality Meter

1. Press “power/MODE” to turn on.
2. Remove cap from bottom of meter
3. Place meter in water about 1/3 of the way up the instrument. But not touching the ground.
4. Wait for the clock symbol in the top left corner to disappear. Once gone, you can record the measurement. This needs to be done each time you change measurement functions. It can be slow, so be patient.
5. Use “SET/HOLD” button to cycle through different measurement functions. Record in Survey123.
   a. **pH and temperature (c)**
   b. **Conductivity (uS)**
   c. Total dissolved solids (ppm) (optional in notes section)
6. Use alcohol wipe on probe after recording measurement, rinse wit clean water, and turn off the meter.



Remember! Chytrid fungus is very harmful for amphibians. To prevent the spread, spray your shoes and any equipment that touches the water after leaving the site with the provided disinfectant. Change gloves in between handling amphibians.

Understanding Water Quality

Temperature (c)

Affects egg/tadpole growth and development

Electrical Conductivity (uS)

Measures the ability of water to conduct an electrical current. Significant increases can indicate a pollutant has entered the system.

pH

- A measure of how basic or acidic a solution is on a scale from 0-14.
  0=acidic, 14=basic
- Most aquatic organisms live between 6.5-9.
- Wide fluctuations in pH can cause physiological stress or damage amphibian skin making them more susceptible to chytrid fungus

Stained but clear water

Turbid water

Independent Site Visits

Interested in conducting a survey on your own?

Step 1- Complete in-person training or watch online training videos
Step 2- Participate in a biologist-led field survey
Step 3- Check your email for a post-trip follow up message with intructions on how to independently survey
Step 4- Survey at a recommended site or anywhere in Utah you are hiking on your own or with friends!
Step 5- Submit your data using the Survey123 App. Instructions on next page.

Volunteers can check out **Toad Backpacks** before heading out on your own. These include all the gear necessary to complete a survey.

Safety is key!

- Bring a hiking buddy and let others know where you are going & when you plan to be back
- Be aware of hazards that cause slips, trips, and falls
- Prepare for various unexpected weather events
- Pack extra food, water, first-aid supplies, headlamps, clothes, etc.
- Know how to interact with wildlife (search “Wild Aware Utah” for tips)
- Follow all rules & regulations, respect private property boundaries, and pay any recreation or parking fees necessary

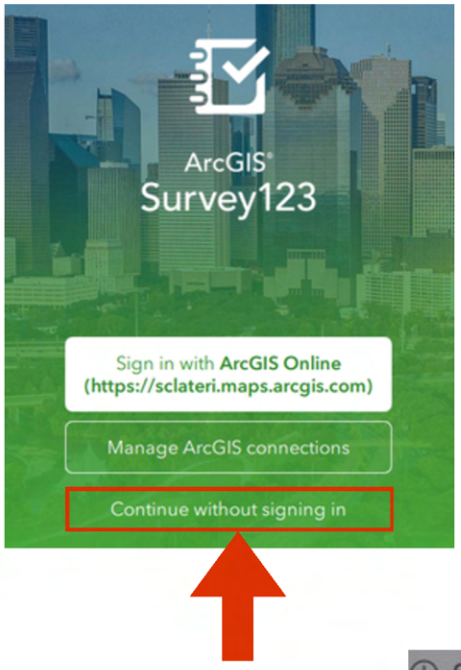
Survey 123

How do I record and submit data?

Step 1:
Download

ArcGIS Survey123

Step 2:
Continue without signing in

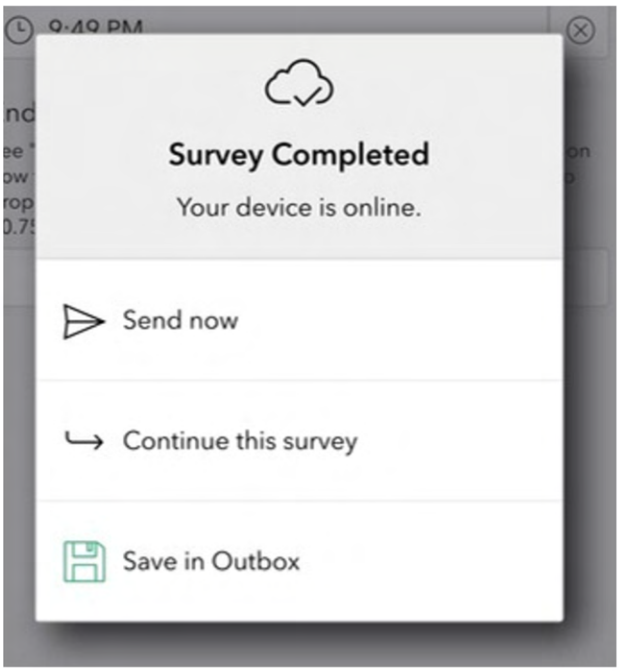


Step 3:
In the search bar, press the scan symbol and hold your camera up to the below QR code:

Amphibian Habitat Assessment

Step 4:

- Complete the survey form at your site.
- Once finished...if in service, send now!
- If out of service, save in outbox and send when you are back in service (don't forget!!!)



Join us in the Field!

Biologist Led Surveys

- Led by Hogle Zoo biologists
- June-August
- Pre-determined dates and locations
- Multi-day camping trips or single-day surveys
- Ride with us in the Zoo truck or drive your own vehicle and meet up at the survey site.

Field Trip Sign-up!

Join the newsletter!
(scroll to bottom of page)

Useful/Emergency Contacts

Program Contacts:

- Utah's Hogle Zoo
  - Conservationaction@hoglezoo.org
  - (801) 584-4505

USFS Ranger Districts (Uinta-Wastach-Cache National Forest)

Heber: (435) 654-0470
Kamas:(435) 783-4338
Spanish Fork: (801) 798-3571
Salt Lake: (801) 733-2660
Ogden: (385) 405-7100
Logan: (435) 755-3620

Division of Wildlife Resources

Salt Lake Main Office: 801-538-4700
Northern Office: 801-476-2740
Northeastern Office: 435-781-9453
Central Office: 801-491-5678
Southeastern Office: 435-613-3700
Southern Office: 435-865-6100

Emergency Services:

911 is the primary medical/fire/emergency number

- Utah highway patrol: 801-965-4518
- Poison Control Utah: (800) 222-1222
- Salt Lake County Search and Rescue non-emergency: (801) 840-4000
- Summit Country Search and Rescue non-emergency office: (435) 615-3600

Notes: