


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

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SAGELAND
COLLABORATIVE

Utah's
HOGLE
ZOO

UTAH
DNR
WILDLIFE RESOURCES

Amphibian Identification

Eggs

Western Toad

- Clear with black spots in the middle
- Laid in long strings
- 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

- Can be laid individually or in clumps
- When laid in clumps have an extra gelatinous layer around them compared to chorus frogs

Amphibian Identification

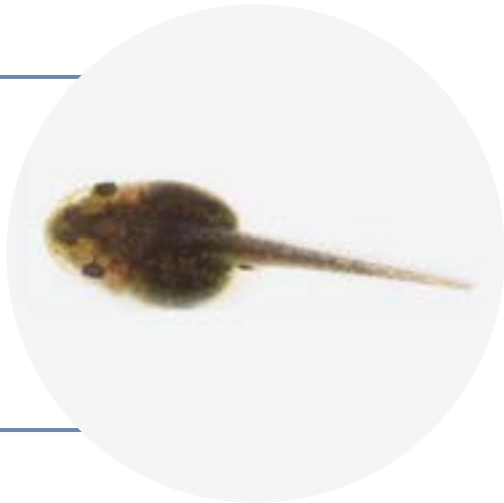
Larva / Tadpoles

Western Toad

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

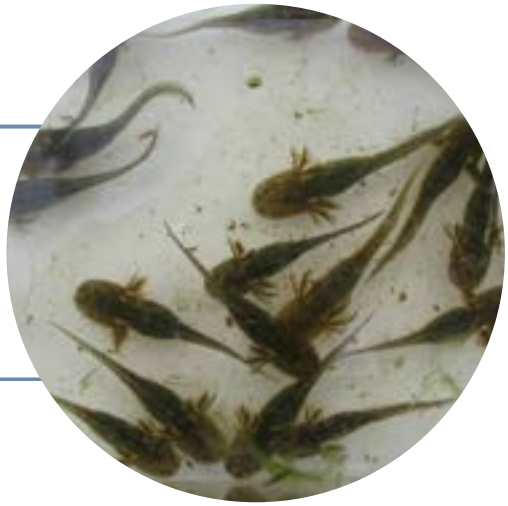
Boreal Chorus Frog

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



Tiger Salamander

- Feathery gills on either side of their head
- More distinctive ‘head’ bode’ 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, only a panicked chirping when handled

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 1/2 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.
- 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 or pebble substrate

Active beaver pond

- 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

Wet meadow

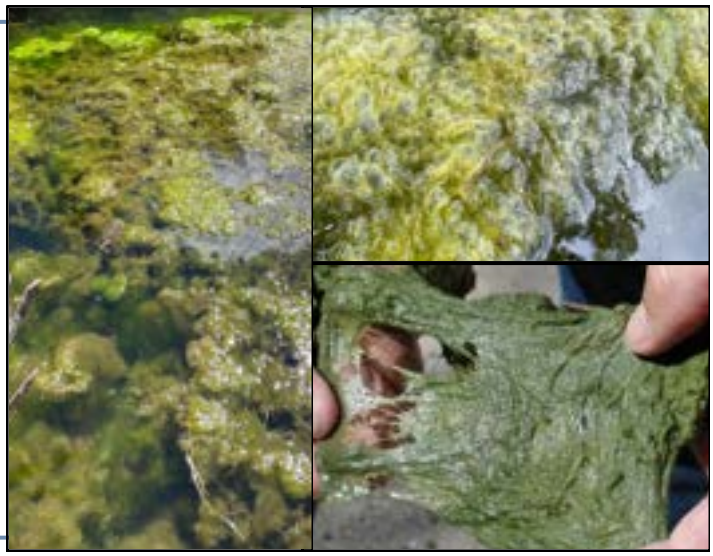
- Expanse of shallow water with emergent vegetation

Wetland Vegetation Guide

part 1

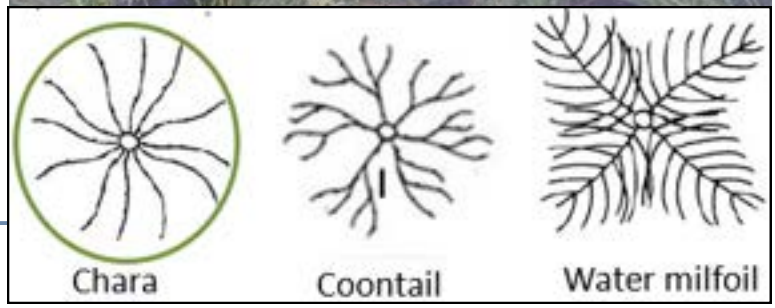
Filamentous Surface Algae (plant-like)

- 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

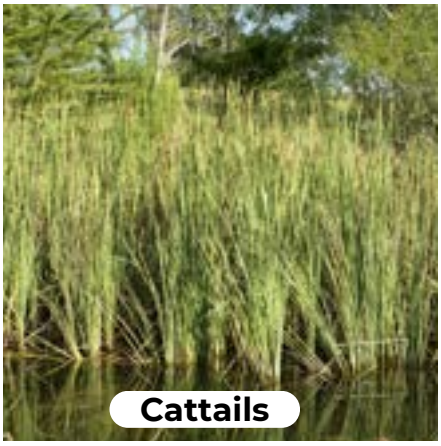
See next page for examples...

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

Wetland Vegetation Guide

part 2

Emergent Examples


Cattails


Sedges


Common mare's tail

Submergent Examples


Shortspike watermilfoil


Coon's tail

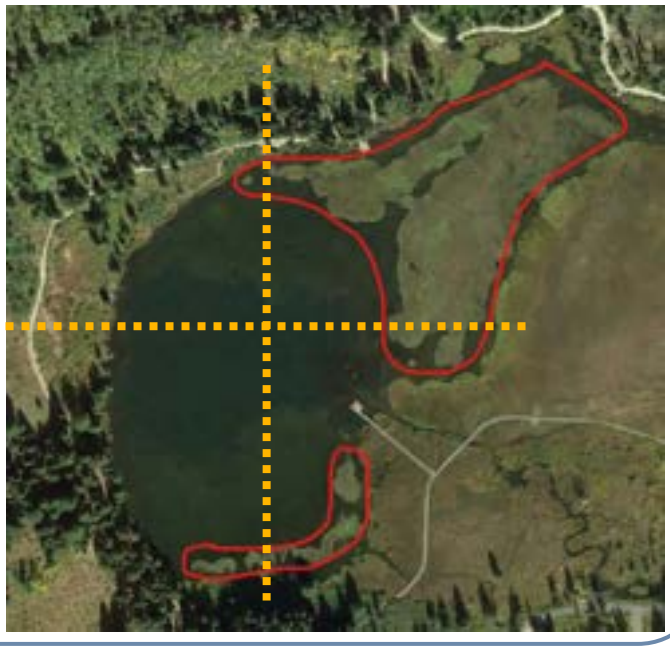

Pondweed

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.

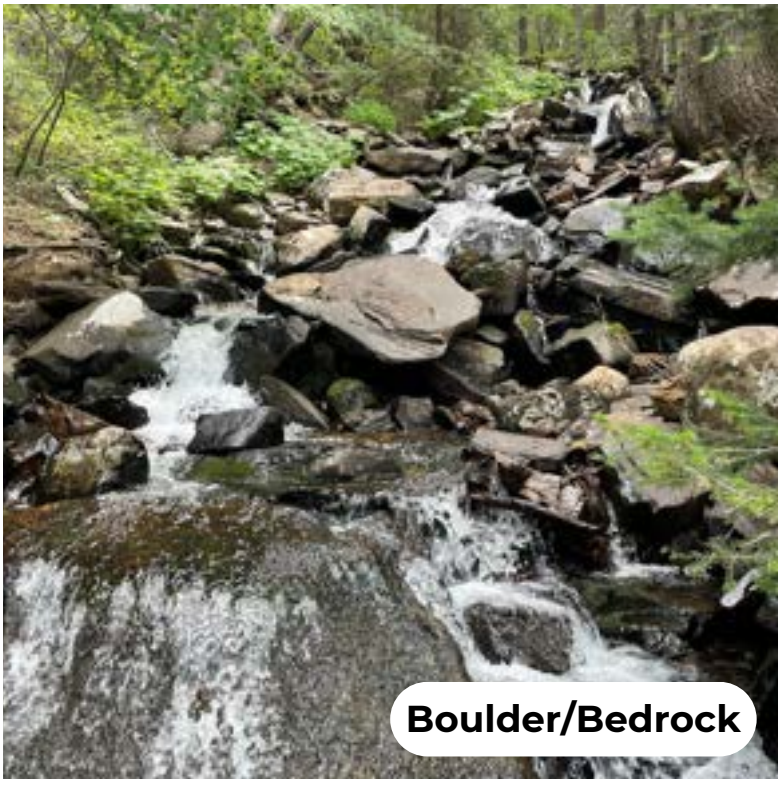
For this example, the lake is >25-50% covered. or "frequent".

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:

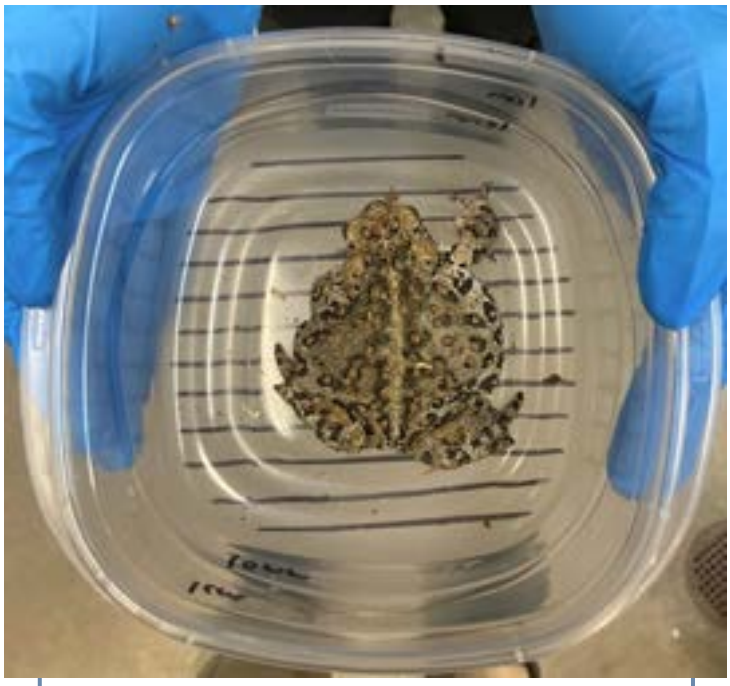
- Scored Tupperware
- Gloves

Why do we measure toads?

This helps us estimate how old the toad is!

Instructions:

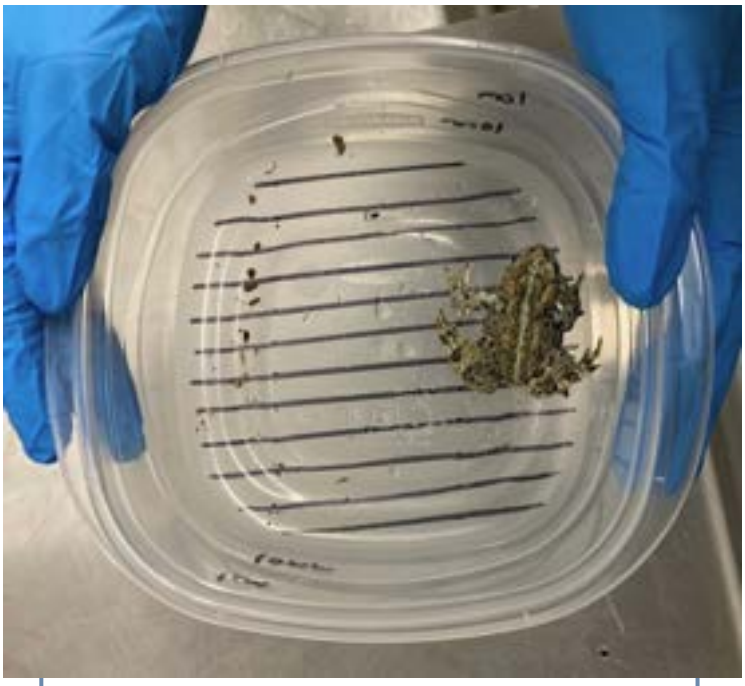
1. Put on a clean pair of gloves.
2. Capture toad! (handle with care)
3. Gently place toad in Tupperware
4. Measure the toad from snout to bottom of the spine (follow their cream stripe)
    a. Each black line in the Tupperware denotes 10 millimeters.
    b. Make sure the toad is in a neutral position. 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. Dispose of gloves.



<u>Example 1:</u>

This toad is around

80mm



<u>Example 2:</u>

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 contagious & 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 a waypoint:

1. Under pages, select “Where to?”
2. Scroll to “coordinates”
3. Input desired coordinates, use the arrows along the sides to edit if needed.
4. Follow the line from you (blue arrow) to desired waypoint.

To record current location:

1. Under pages, select “mark way point”
2. If necessary, select a a field to make edits
3. Pres “map” when done

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

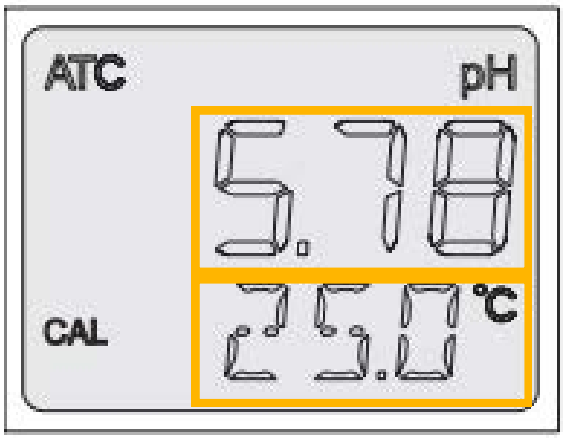
①	Zoom keys. Press to zoom in and out.
②	Back key. Press to return to the previous menu.
③	Thumb Stick™ controller. Move directionally to scroll or highlight an item. Press to select an item.
④	Menu key. Press to open the menu for a page. Press twice to return to the main menu.
⑤	⏻ Press to adjust the 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 bottom of the waterbody.
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 options. It can be slow, so be patient.
5. Use “SET/HOLD” button to cycle through different measurement options. Record in data form.
   a. **pH and temperature(c)**
   b. **Conductivity (uS)**
   c. **Total dissolved solids (ppm)**
6. Use alcohol wipe after recording measurement and turn off the meter.



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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

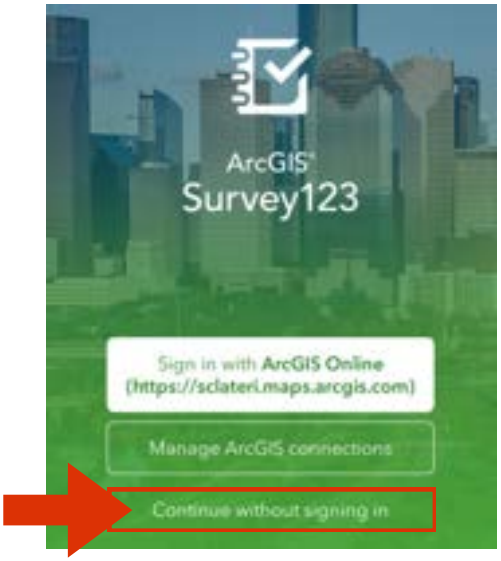
Survey 123

How do I record and submit data?

Step 1:
Download

ArcGIS Survey123

Step 2:
Continue without signing in



Step 3:
Scan or search

Independent Amphibian Habitat Assessment

Step 4:

- If in service, send now!
- If out of service, save in outbox and send when you are back in service

Useful/Emergency Contacts

Project Contacts:

- Mary Pendergast, Sageland Collaborative: mary@sagelandcollaborative.org
  - Email photos of toads or photos/scanned copies of physical data forms to borealtoad@sagelandcollaborative.org
- Keilani Fang, Utah's Hogle Zoo: 801-584-1787 or kfang@hoglezoo.org
- Lynne Baker, Utah's Hogle Zoo: 801-584-1736 or lbaker@hoglezoo.org

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

Join us in the Field

- Led by Hogle Zoo Biologists or technicians
- Late May-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.

Scan to sign up!

Independent Site Visits

Build your Own Adventure!

As we continue to monitor toad populations across the state, we're looking for experienced outdoor enthusiasts to independently monitor areas to document amphibian presence & habitat conditions.

We have our areas of interest, but these independent surveys can be done anywhere in Utah where you're hiking above 7,200ft!

We recommend that volunteers monitor a site multiple times during the field season (May-September).

Volunteers can check-out **Toad Backpacks** from the Hogle Zoo main entrance or the Sageland Collaborative office in downtown SLC - these are equipped with all the materials you'll need to complete your surveys!

Areas of Interest:
Strawberry Reservoir
Strawberry River
Big Cottonwood Canyon
American Fork Canyon
Uintas
Joes Valley

Scan to find sites!

Scan for Survey123 data sheet!

Notes: