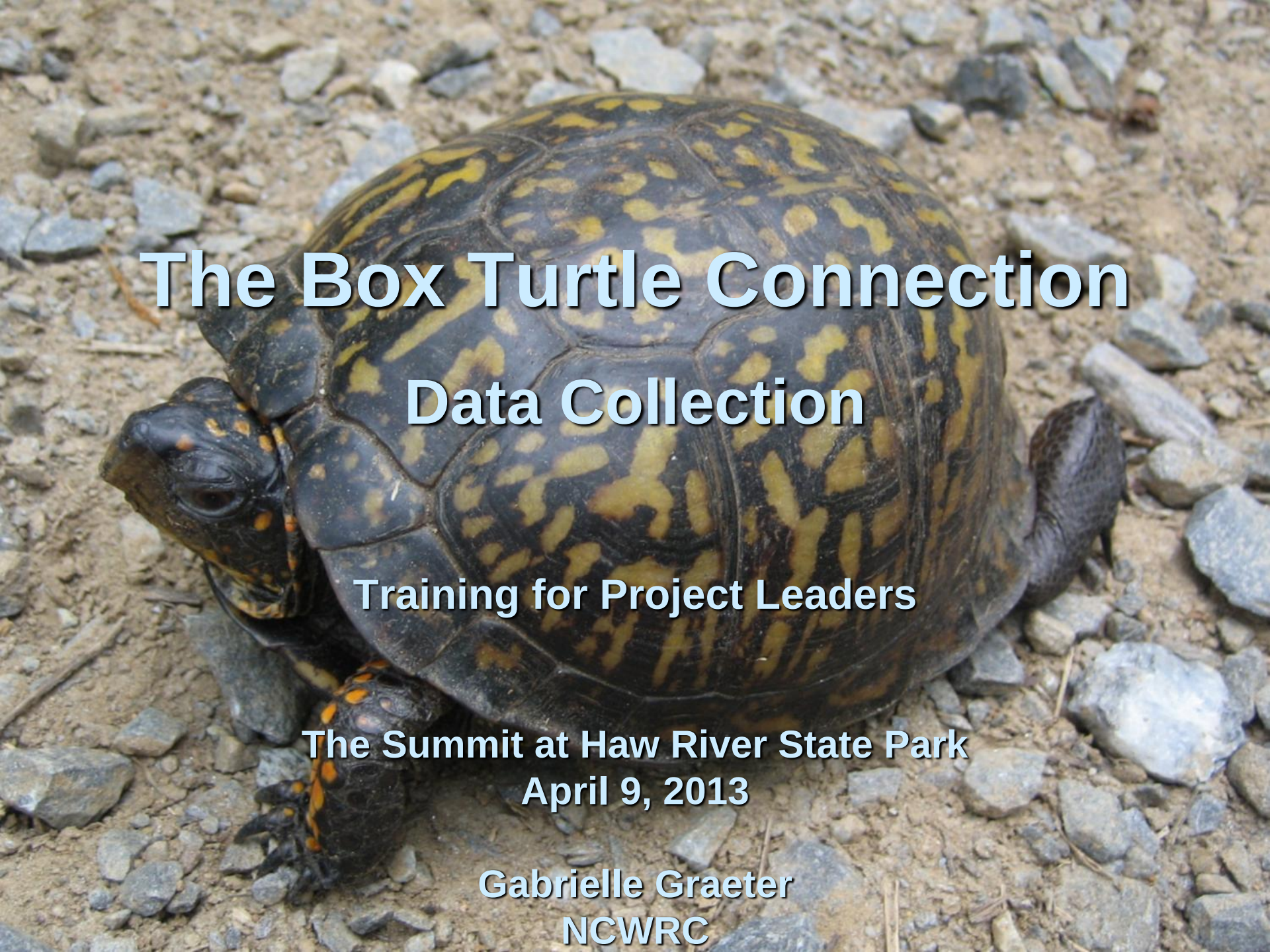




The Box Turtle Connection

Data Collection

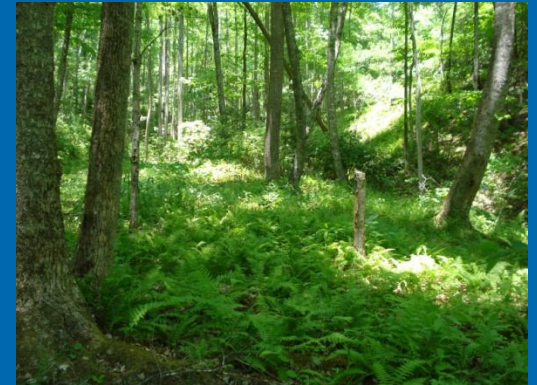
Training for Project Leaders

**The Summit at Haw River State Park
April 9, 2013**

**Gabrielle Graeter
NCWRC**

3 Steps of Data Collection

- Set-up of study
- Recording your data in the field
- Entering and submitting your data online



Set-up of study: When and where to collect data

➤ When to survey:

- When are already out in your study area
- No extra effort needed unless you want to



➤ Where to survey:

- We will help you delineate where within your study area to focus your efforts
- We'll talk about this more later



The Capture Datasheet

- Use this datasheet whenever you capture a turtle
- Carry paper copies of the datasheet with you
 - We will email the files to you
- Newly revised version of datasheet for this year
 - A few small changes to improve quality of data collected
 - Should match the online data entry website soon (PAWS)
 - It is 2 pages now (front and back), with more room for notes

Box Turtle Connection: Capture Data Sheet

Updated March 30, 2013

CAPTURE INFORMATION

Site Name: _____ Recap? _____ Status: _____ Turtle ID: _____
Y or N or Unknown Alive Dead

Date (mm/dd/yyyy): _____ Day: _____ Time: _____ AM PM *Capture Method (1-7): _____

Inside Defined Study Site (DSS)? Y N If yes, which DSS? _____

Capture comments: _____

Observer(s): _____

LOCATION DETAILS

Coordinates (UTM): E _____, N _____ Zone: _____ Datum: WGS 84

Location Description: _____

Air Temp: _____ F or C Sky Index* (0-4): _____ Weather *(1-3): _____ Days since last rain: _____

TURTLE DESCRIPTION

Eye Color: ☐ brown ☐ pale red ☐ bright red ☐ other _____

Life Stage: Hatchling Juvenile Adult CL min. measured from venter: _____

Sex: M F Unknown Max CW (mm): _____

of Annuli: _____ PL Anterior to hinge (mm): _____

Mass (g): _____ PL Hinge to posterior (mm): _____

Photos taken? Y N Shell height at hinge (mm): _____
(measured on turtle's right side)

Habitat (1-9): _____

Capture Method: 1=road capture; 2=while mowing; 3=active search; 4=incidental; 5=radio signal; 6=dog; 7=other

Sky Index: 0= 0% clouds; 1= 25% clouds; 2=50% clouds; 3=75% clouds; 4=100% clouds

Weather: 1= no precipitation; 2=light drizzle/mist; 3=rain

Habitat: 1=field/forest edge (within 6m of boundary); 2=field; 3=pine forest; 4=hardwood forest; 5=stream/river; 6=open wetland; 7=forested wetland; 8=other; 9=mixed pine/hardwood forest

SBF Box Turtle Connection: Capture Data Sheet

Page 2

TURTLE CONDITION & NOTES

Injuries/Defects: ☐ None seen ☐ Crushed or damaged carapace ☐ Crushed or damaged plastron
☐ Damaged eye or eyes ☐ Missing digits, and/or limbs ☐ Skin/soft tissue scars or injuries
☐ Tooth marks on shell ☐ Other

Injuries/Defects Notes: _____

Illness/Health Issues: ☐ None detected ☐ Discharge from eyes, mouth, and/or nose. If yes, what color is discharge? _____
☐ Discharge from vent. If yes, what color is discharge? _____
☐ Swollen right ear ☐ Swollen left ear ☐ Swollen or closed right eye
☐ Swollen or closed left eye ☐ Other

Illness/Health Issues Notes: _____

Parasites: ☐ None detected ☐ Leech(es) ☐ Tick(s) ☐ Other

Parasites Notes: _____

Indicate ID file markings in Figure 1. Show any Injuries, Unusual Scute Patterns, or Defects in Figures 2 and 3:

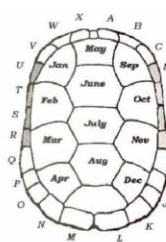


Figure 1

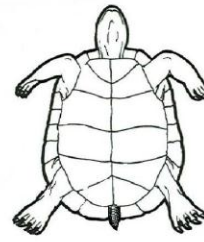


Figure 2

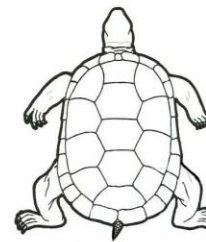


Figure 3

Comments: _____

CAPTURE INFORMATION



Site Name



- Your site has one name. Will default to this when you enter data online

- Examples:

- Haw River State Park
- Falls Lake
- Earthshine Mountain Lodge



- Do not record description of location here

Recap, Status, Date, Time, etc.

- Recap? – Check to see if it has been marked.
 - If so, write down its Turtle ID and circle Y for yes.
 - Make sure to check for an ID on dead turtles!
 - Possible to have “unknown” for Recap
- Status – Dead or Alive
- Date – include the year
- Time – circle AM or PM
- Observers – put name of primary observer 1st, followed by others
 - If is large group, just put name of group (class, club, etc)
- Comments – for notes specific to capture info

Turtle ID

- Will assign each turtle an individual ID
 - Corresponds to the mark you have given the turtle
- ID consists of a series of letters unique to that turtle



ABX

BJK

HQW

IWX

MPQ

OPV

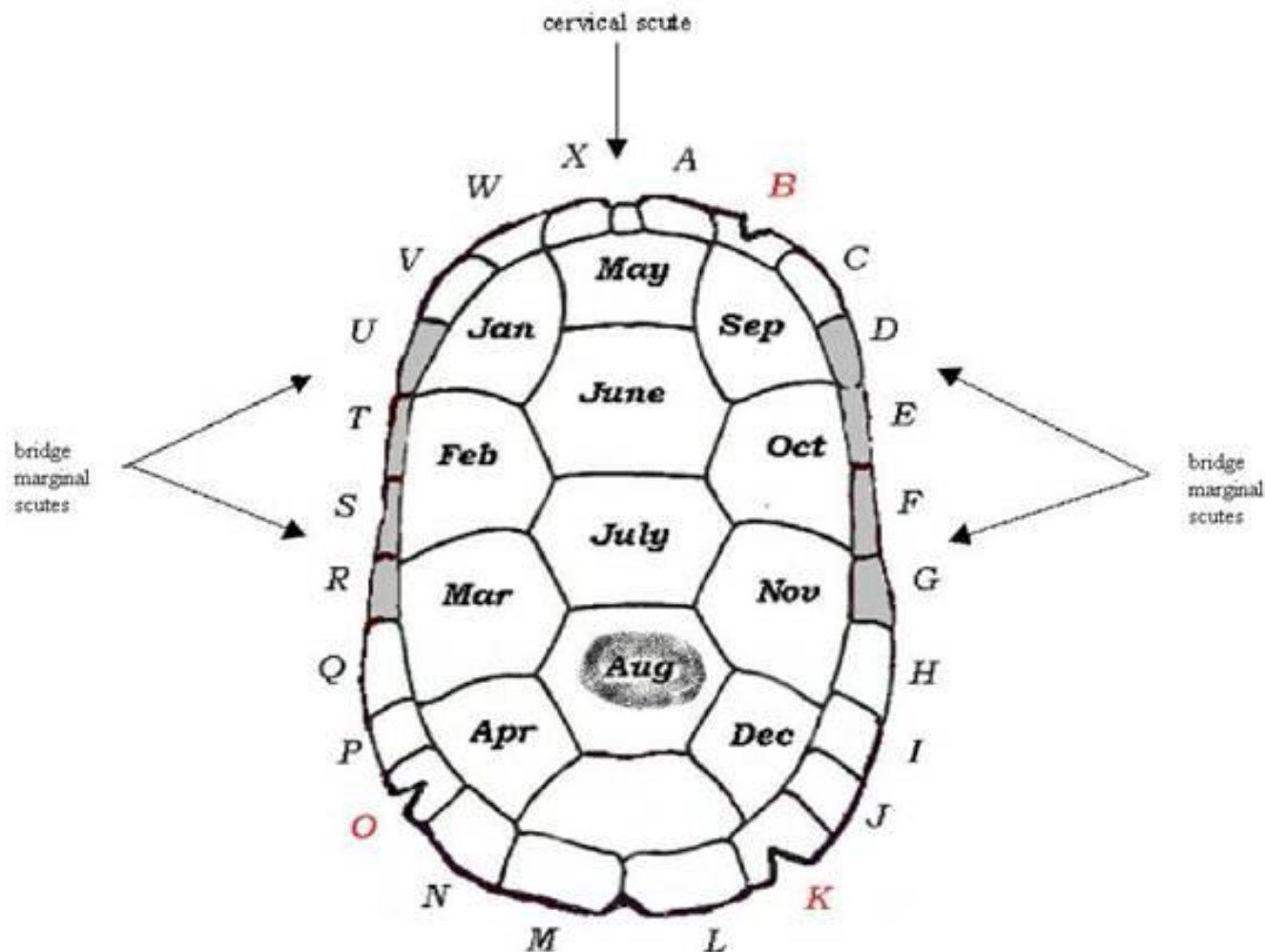
PWX

How to mark:

- Marks are made by filing a small v-shaped notch in the marginal scutes on the turtle's carapace (top shell)



Marking Scheme:



Carapace marked as “BKO,” last processed in August.

Note that Bridge marginal scutes (D, E, F, G and R, S, T, U) are not marked.

Keeping track of marks

- Use list of marks in Box Turtle Connection book
- Cross a mark off as you use it and write date next to it

Turtle Identification Codes*

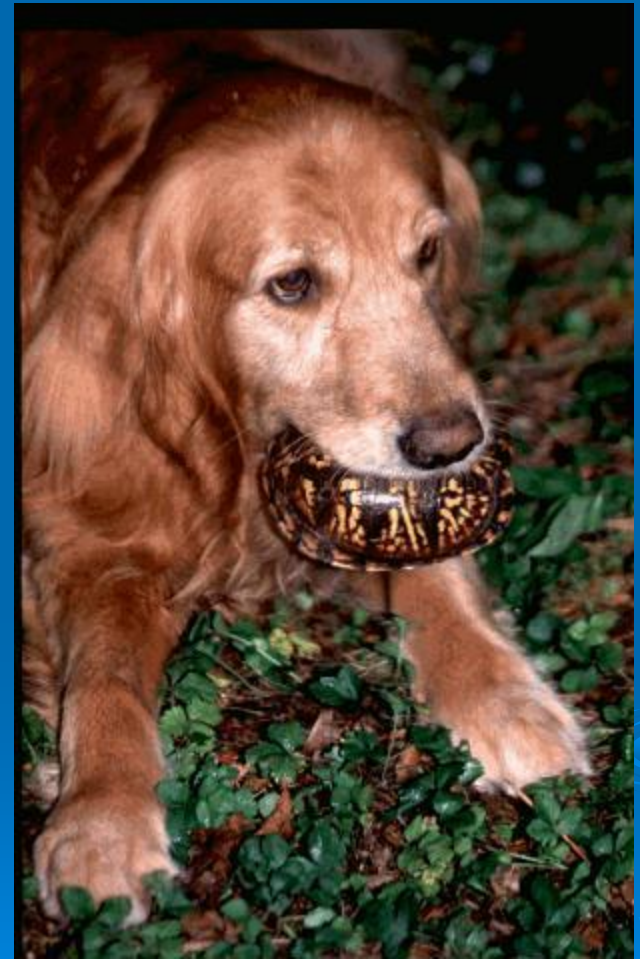
Compiled by Davidson College Herpetology Students

ABC	AHN	AKO	AOW	BHL
ABH	AHO	AKP	AOX	BHM
ABI	AHP	AKQ		BHN
ABJ	AHQ	AKV	APQ	BHO
ABR	AHV	AKW	APV	BHP
ABL	AHW	AKX	APW	BHQ
ABM	AHX		APX	BHV
ABN		ALM		BHW
ABO	AIJ	ALN	AQV	BHX
ABP	AIK	ALO	AQW	
ABQ	AIL	ALP	AQX	BIJ
ABV	AIM	ALQ		BIK
ABW	AIN	ALV	AVW	BIL
ABX	AIO	ALW	AVX	BIM
	AIP	ALX		BIN
ACH	AIQ		AWX	BIO
ACI	AIV	AMN		BIP
ACJ	AIW	AMO	BCH	BIQ
ACK	AIX	AMP	BCI	BIV
ACL		AMQ	BCJ	BIW
ACM	AJK	AMV	BCK	BIX
ACN	AJL	AMW	BCL	
ACO	AJM	AMX	BCM	BJK
ACP	AJN		BCN	BJL
ACQ	AJO	ANO	BCO	BJM
ACV	AJP	ANP	BCP	BJN
ACW	AJQ	ANQ	BCQ	BJO
ACX	AJV	ANV	BCV	BJP
	AJW	ANW	BCW	BJQ
AHI	AJX	ANX	BCX	BJV
AHJ				BJW
AHK	AKL	AOP	BHI	BJX
AHL	AKM	AOQ	BHJ	
AHM	AKN	AOV	BHK	

* Cross off codes once they are used to avoid duplications. Put date used in space beside code.

Capture Method

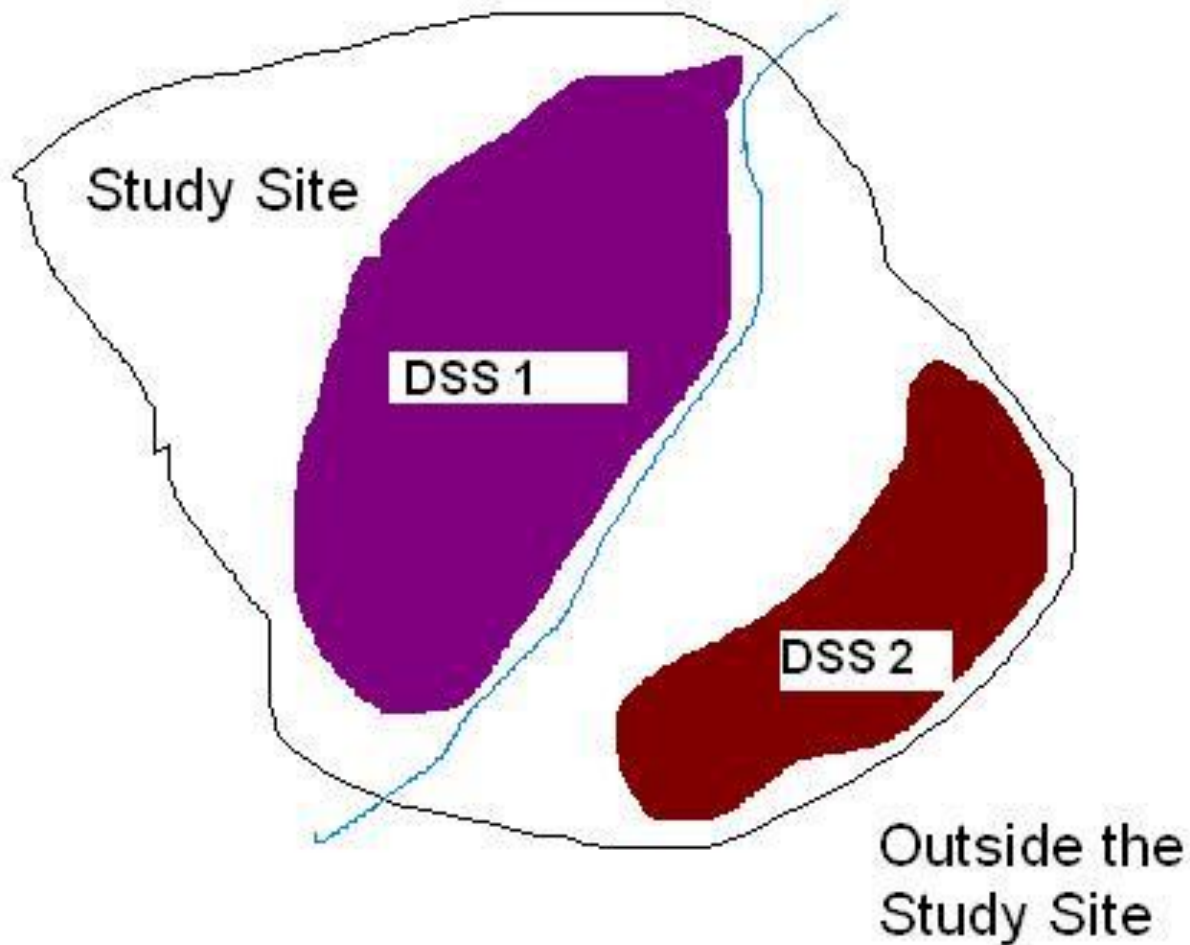
- 1=road capture
- 2=while mowing
- 3=active search
- 4=incidental find
- 5=radio signal
- 6=dog
- 7=other



Defined Study Site (DSS)

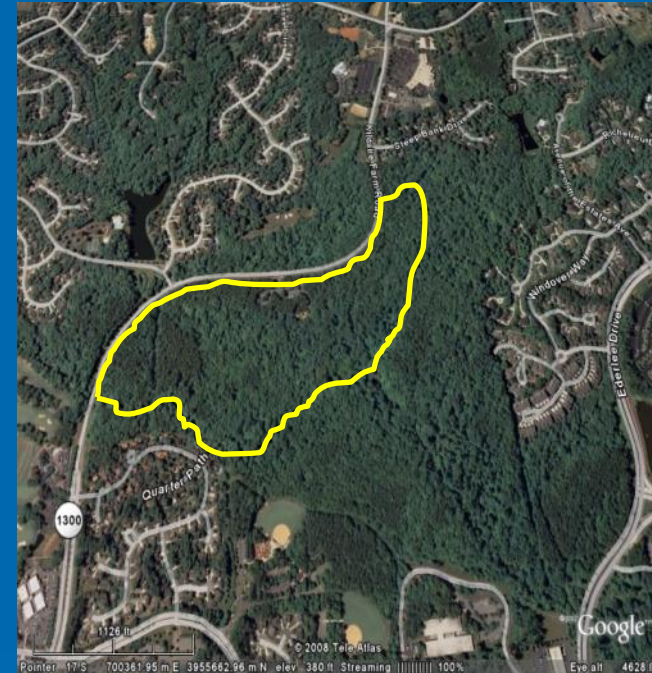
- DSS = Defined Study Site
- DSS Definition: The DSS is an area within your study site that is more heavily surveyed
- Purpose of DSS:
 - To be able to estimate population density at your site
 - To help Project Leaders focus effort on a specific portion of their study site
- Can have one or more DSS within your study site
 - Should be based on where you (& your staff) spend most of your time
 - We will help you figure this out

Study Site vs. DSS



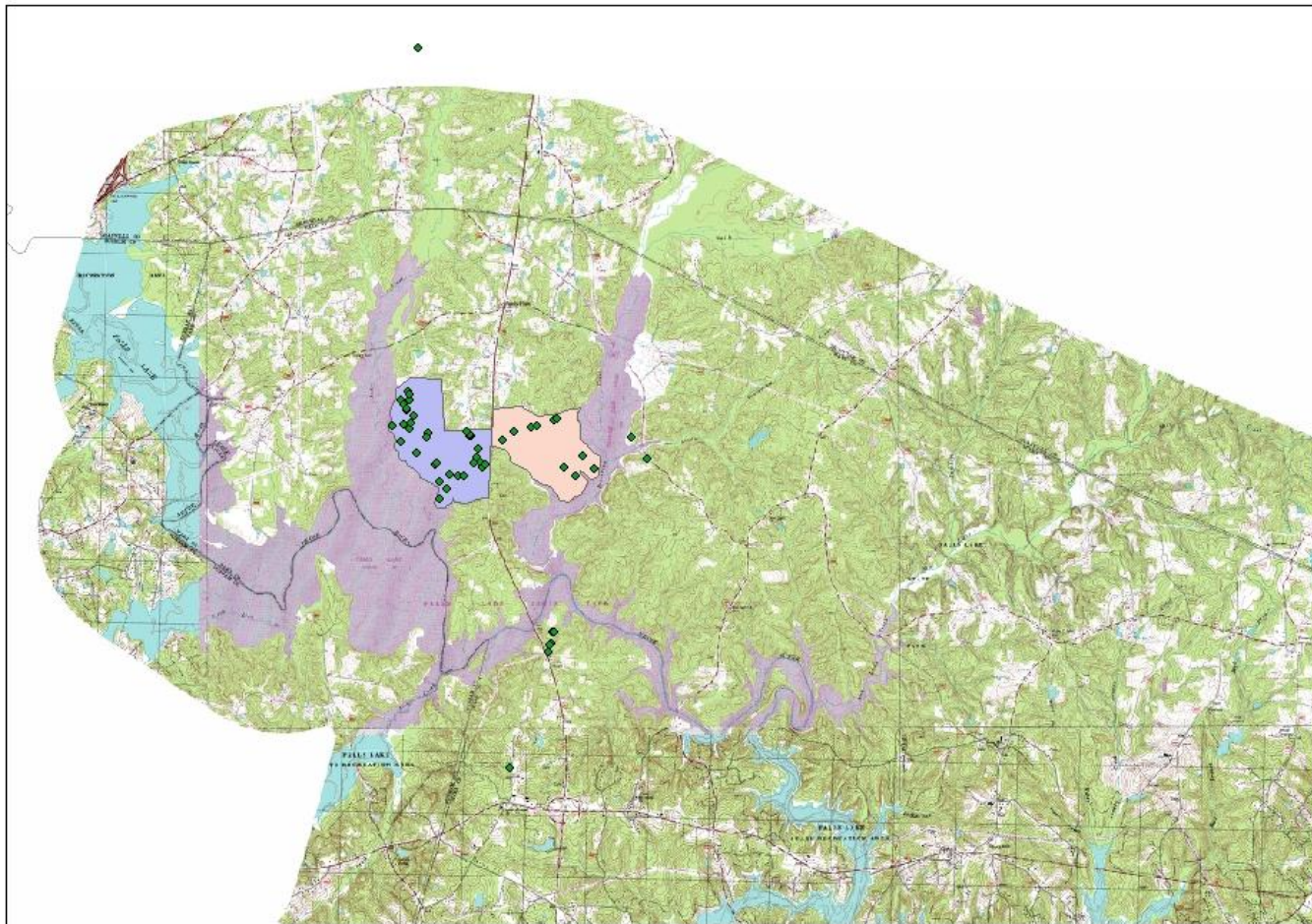
Criteria for DSS

- Is an area you are in frequently
- Easily defined boundaries (roads, trails, rivers, creeks, obvious property boundaries, obvious habitat changes, ridgelines, etc.)
- Small enough that you are in all areas of the DSS at some point during the year
 - Size will vary for each of you
 - Size will depend on how much time you spend in this area and how much you hike/drive around in it
- Bring a copy of your map to the DSS station



Example 1: Falls Lake: has 2 DSS' within their property

BTC_Falls Lake with 2008 Turtle Data



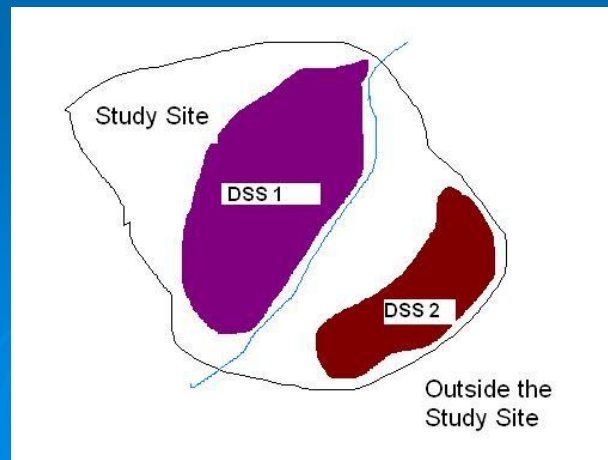
Example 2: Lake Raleigh Woods

Where the DSS is small & encompasses entire study site



Inside Defined Study Site (DSS)?

- Circle Yes or No on datasheet and specify which DSS
- Possible Scenarios when you find a box turtle:
 - If turtle is outside your Study Site: report on Carolina Herp Atlas
 - If turtle is at your Study Site, report for Box Turtle Connection
 - Report whether or not the turtle is within one of your DSS



LOCATION DETAILS



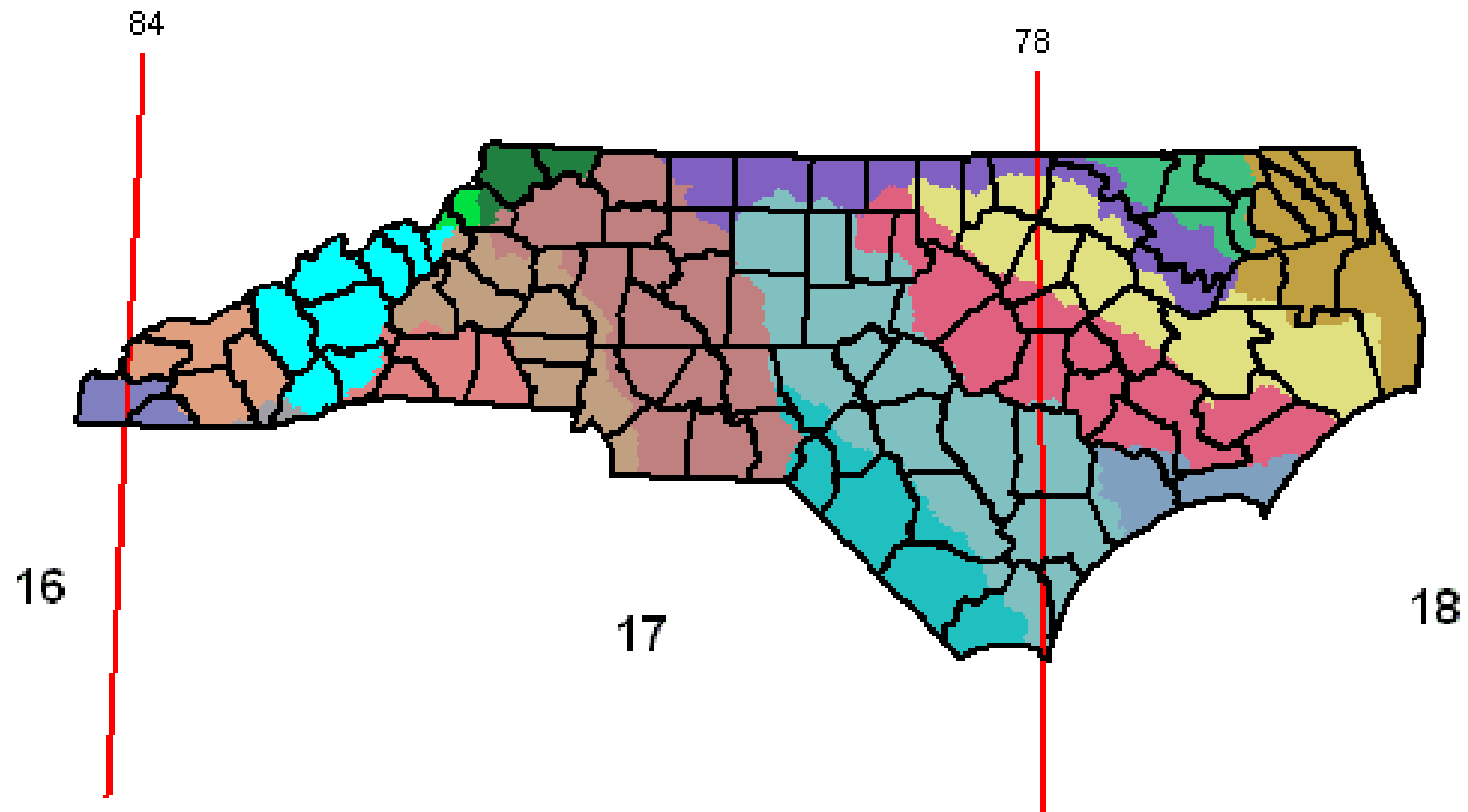
Getting Coordinates with your GPS unit

- Get coordinates exactly where the turtle was found
- Settings:
 - Datum: WGS 84
 - Coordinate System: UTM's
 - Zone: 16, 17, or 18
- **Example:**
17 S 0577623 E 4026717 N



UTM Zone

- Must put Zone 16, 17, or 18



UTM zones in
North Carolina

Explanation
of symbols

84

longitude of UTM zone boundary

16

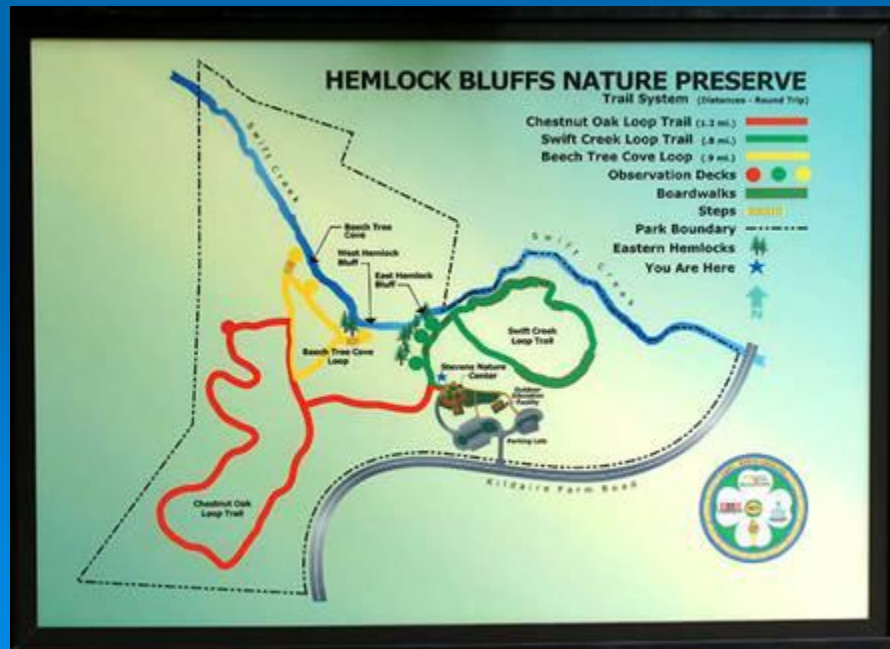
UTM zone number

Location Description

- Where is the turtle on your property?
 - Include approximate distances
 - Include direction
 - Use relatively permanent landmarks
 - **Good:** Visitor Center building, Lake, trails, huge boulders/rock outcroppings
 - **Bad:** trees, other plants, animal burrows, picnic tables, other temporary landmarks
- Not a habitat description
- Acts as a backup to the GPS point

Examples of Location Description

- Approx 50 m Northwest of intersection of Pine Knoll trail and Betty Jane trail
- ¼ mile directly south from lake outflow area
- On nature trail about 200 m East from the cabin



Temperature, Sky, Weather, Rain

- Air Temp – circle F or C
- Sky Index: 0= 0% clouds; 1= 25% clouds; 2=50% clouds; 3=75% clouds; 4=100% clouds
- Weather: 1= no precipitation; 2=light drizzle/mist; 3=rain
- Days since last rain – 0 if rained anytime that day, 1 for rain on previous day, etc.
 - Recommendation: write on your calendar when it rains so that you can refer to it when you catch a turtle (esp. important when have long periods without rain!)

TURTLE DESCRIPTION



Life Stage

- Hatchling – has spots, less than 1yr old
- Juvenile
- Adult – if can determine sex



Eye Color

- New addition to datasheet
- Options: brown, pale red, bright red, other
- Is one piece of information that helps w/ determining sex



Determination of sex

➤ **Sex:** M F Unknown

➤ **Adult males**

- Concave plastron - main feature to look for (not obvious until about 60mm SCL)
- Often have bright red eyes (but are exceptions)
- More posterior placed anus and longer tail (not obvious until about 60mm SCL)
- More colorful head and legs
- Older males have flanged posterior marginal

➤ **Adult females**

- Flat or slightly concaved plastron
- Eye color brown, but also can be yellow or dull red
- Have deeper, domed shells

➤ **Hatchlings/Young turtles**

- Do not show characteristics, so record “Unknown”

Male, Female



Plastrons of males are concave (left); females normally have flatter plastrons.

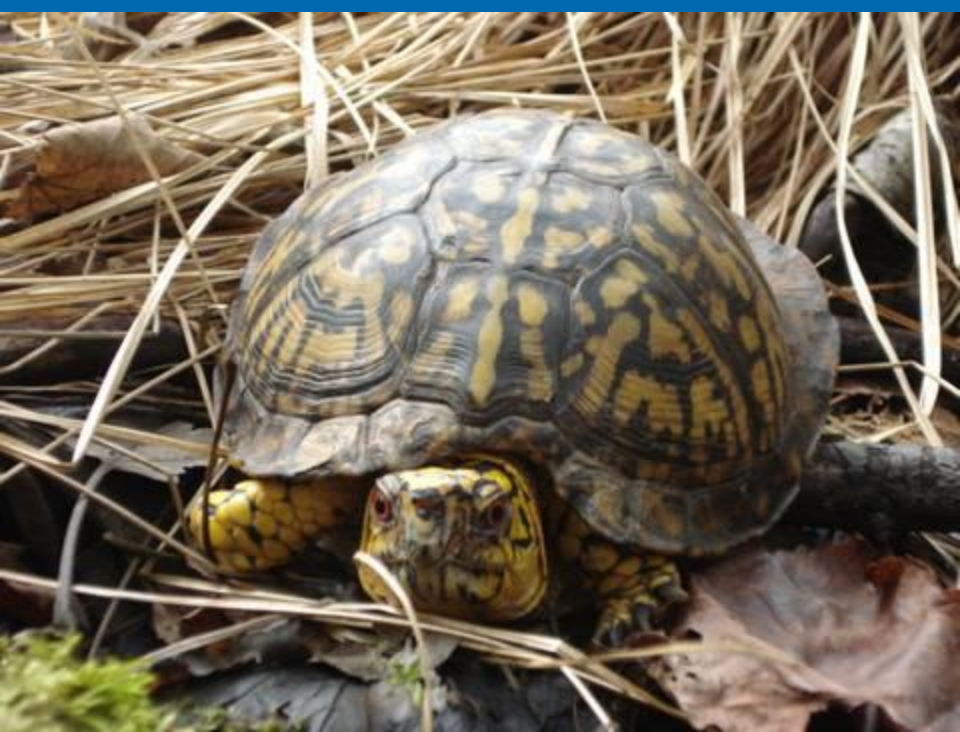
Determination of sex



FEMALE



MALE



If you're not sure if it is a male or female, circle "Unknown" and describe the characteristics in the Comments section

of Annuli

➤ What they are

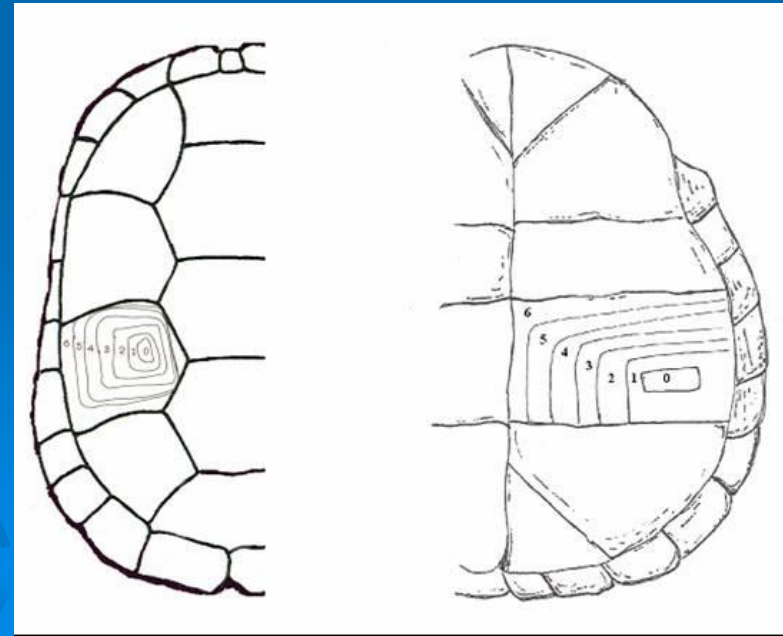
- Rings represent arrested growth on the scutes of the carapace & plastron
- Roughly measure 1 yr

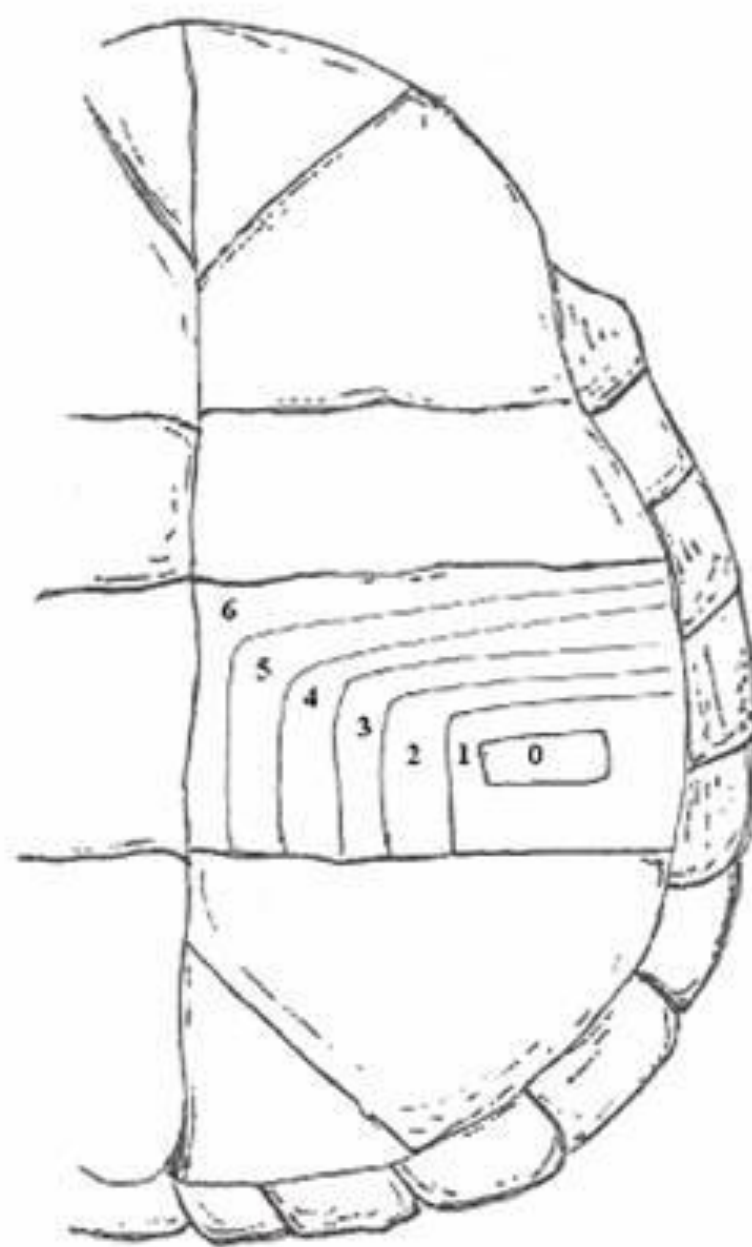
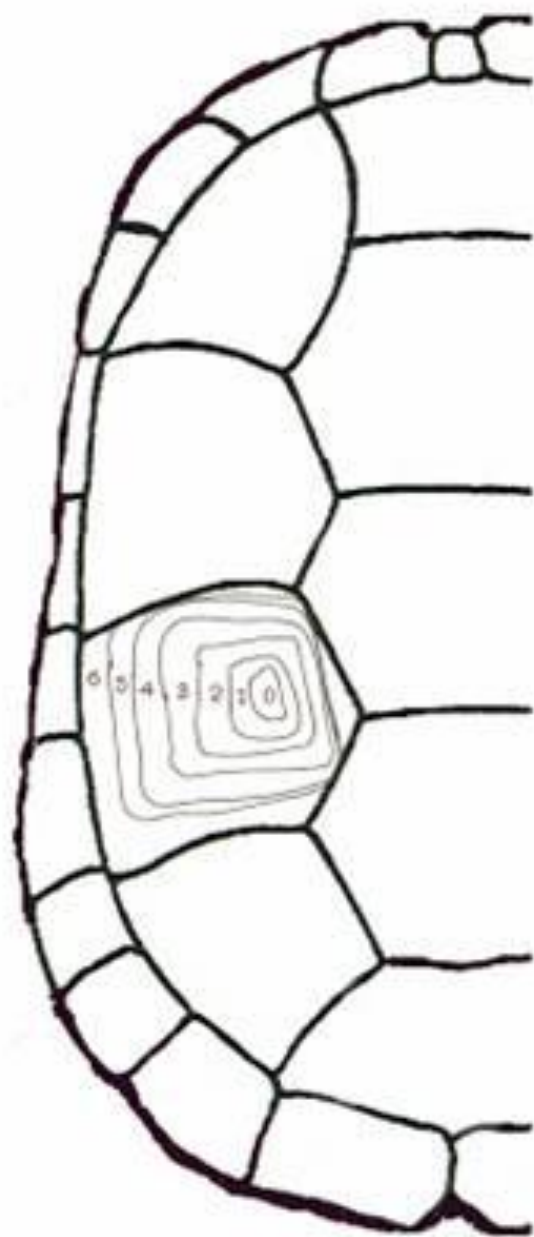
➤ How to count them

- “0” is the natal scute (formed prior to hatching) – do not count it

➤ Note:

- Not very useful method when turtle is >20 years (put 20+)
- If shell is smooth or annuli are crowded at edges of scute, record 20+





Annuli on
carapace



Mass (g)

- Use your pesola scale or other scale
- Record in grams
- Put turtle in cloth or plastic bag to weigh
- Subtract weight of bag to get weight of turtle
- We'll practice this today



Photo documentation

- **Photo taken?** Y N
 - Is a reminder to take the photo

Guidelines for taking the photo

- Take from directly above
- 2 photos: Carapace and Plastron
- Make sure the following are visible
 - Injuries, deformities, etc.
 - Notches
- Put label in photo (or place on datasheet)
 - Species
 - Turtle ID
 - Date
- Note: will need to compress photos before uploading online
 - Microsoft PowerToy Image Resizer

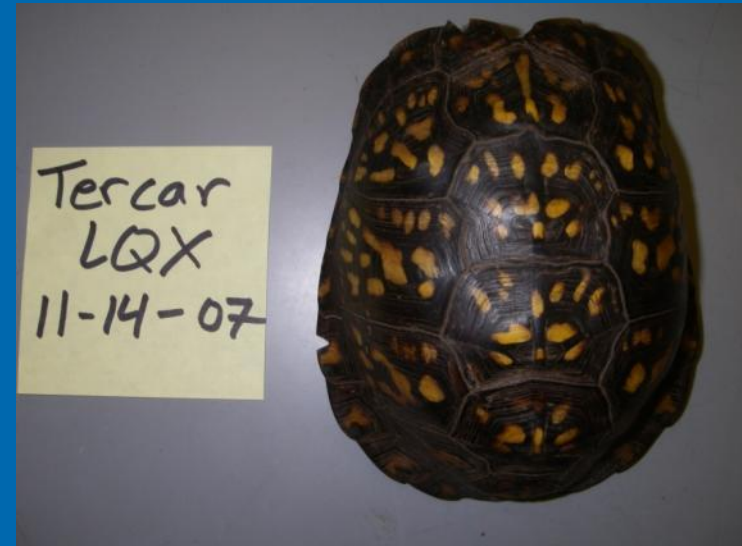


Photo Documentation

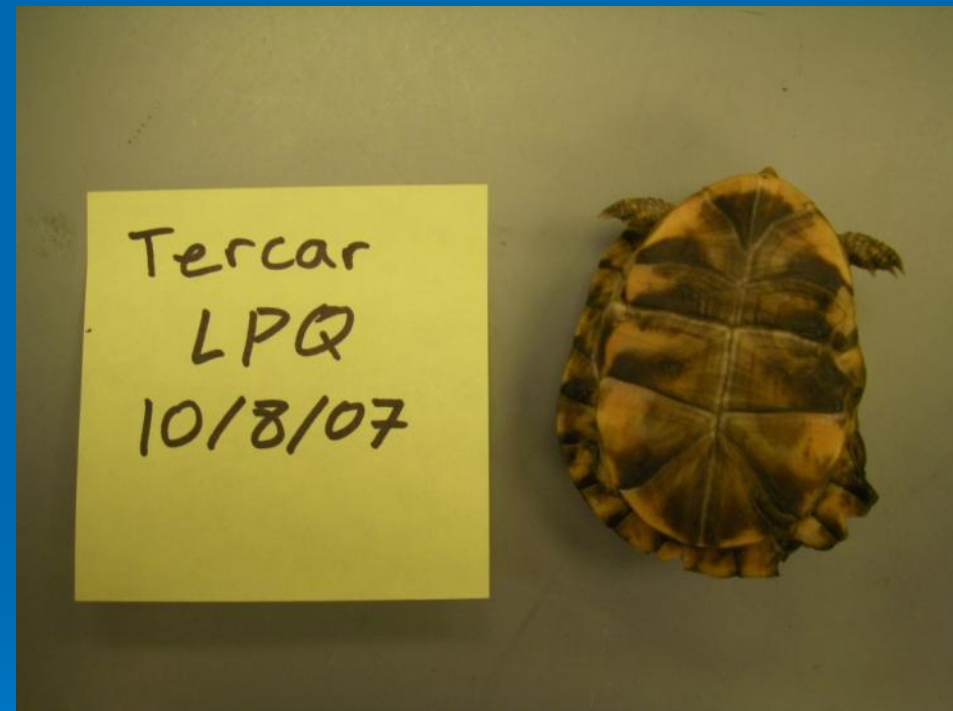
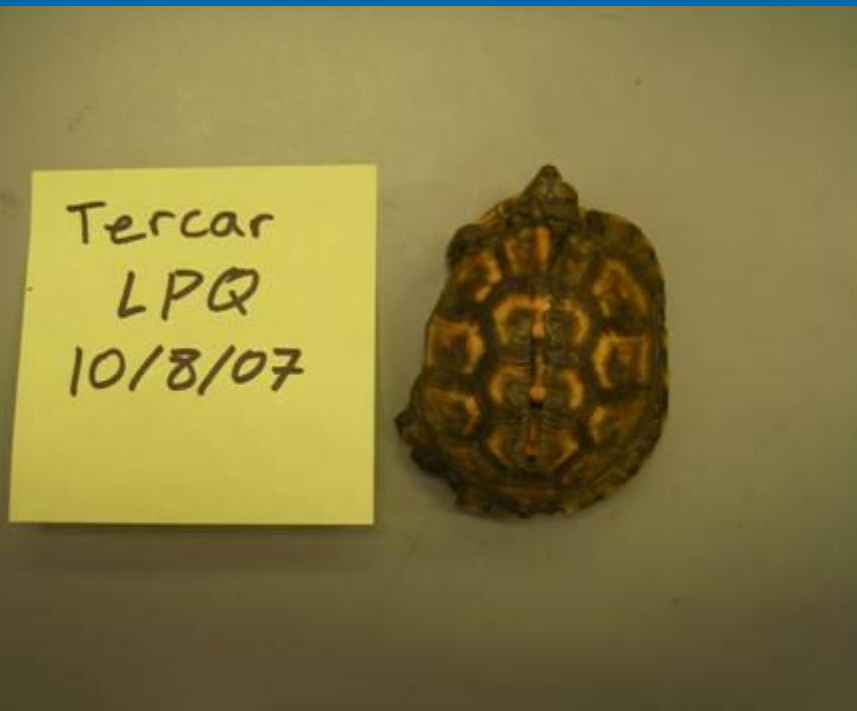
Tercar
LOQ
9/24/07



Tercar
LOQ
9/24/07

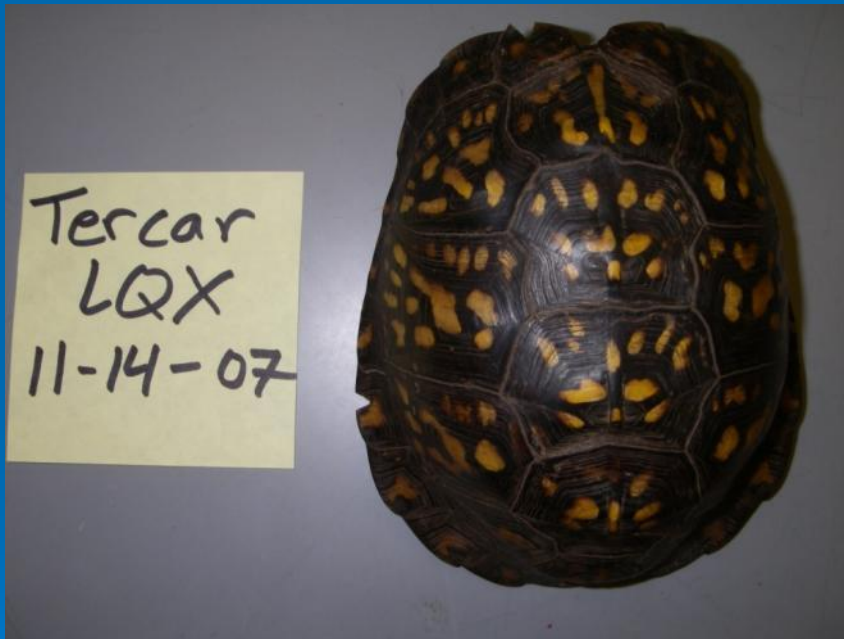


Injuries should be visible



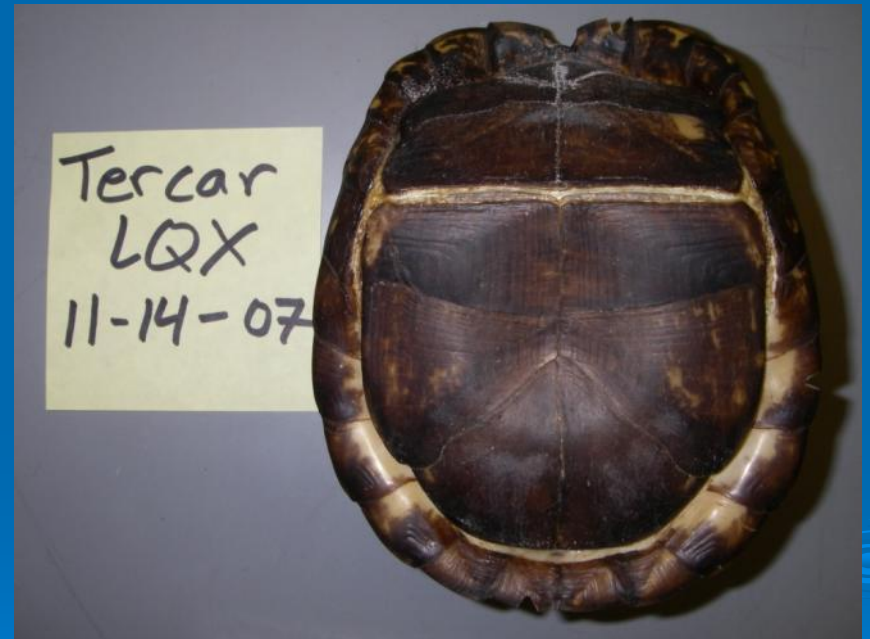
Saving the file on your computer

Give file same name as label, with “car” or “pla” at end



FILE NAME:

Tercar-LQX-11-14-07-car



FILE NAME:

Tercar-LQX-11-14-07-pla

Turtle Measurements

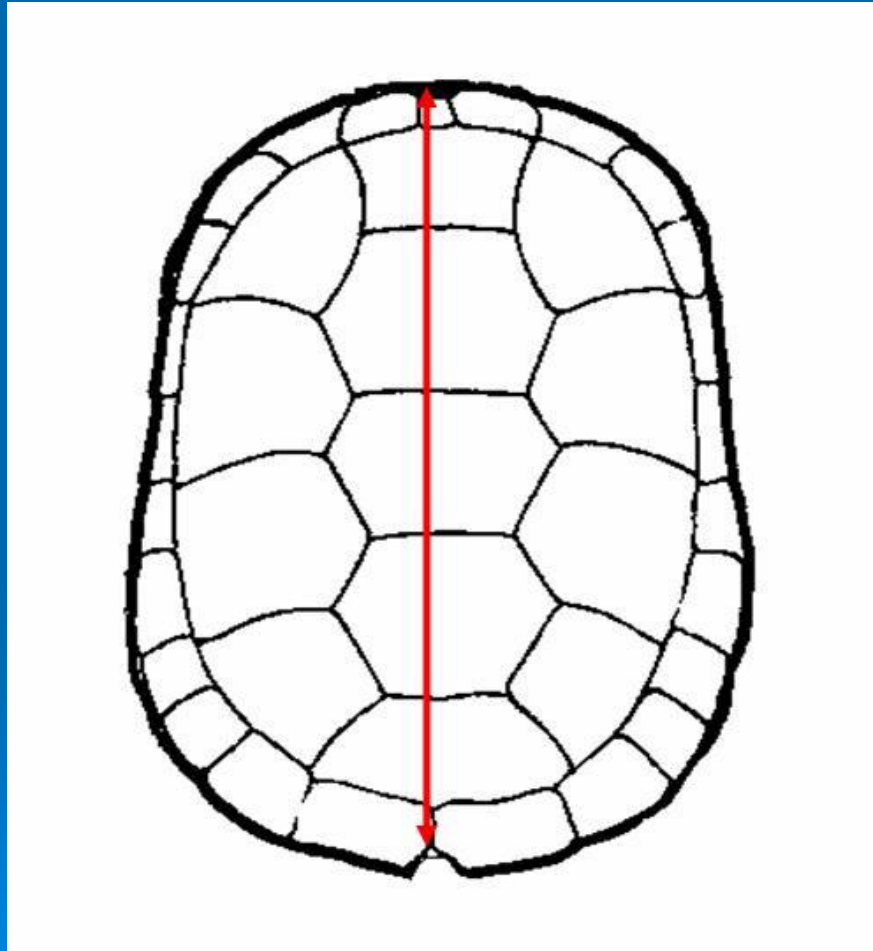
- All measurements in “mm” (metric please!)

- Measurements:

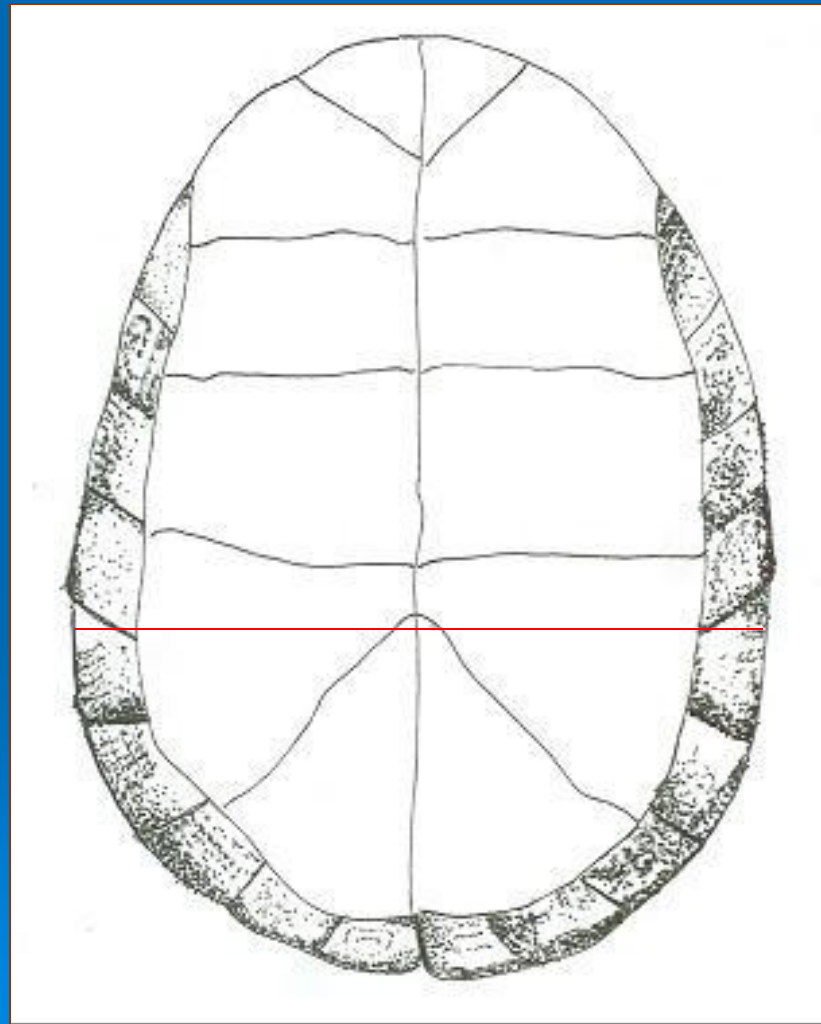
- Straightline CL: Straightline Carapace Length
- Max CW: Maximum Carapace Width
- PL Anterior to hinge: Plastron Length from anterior to hinge
- PL Hinge to posterior: Plastron Length from hinge to posterior
- Shell height at hinge (measured on turtle's right side)



Straightline Carapace Length:



Max CW: Maximum Carapace Width



Plastron Length

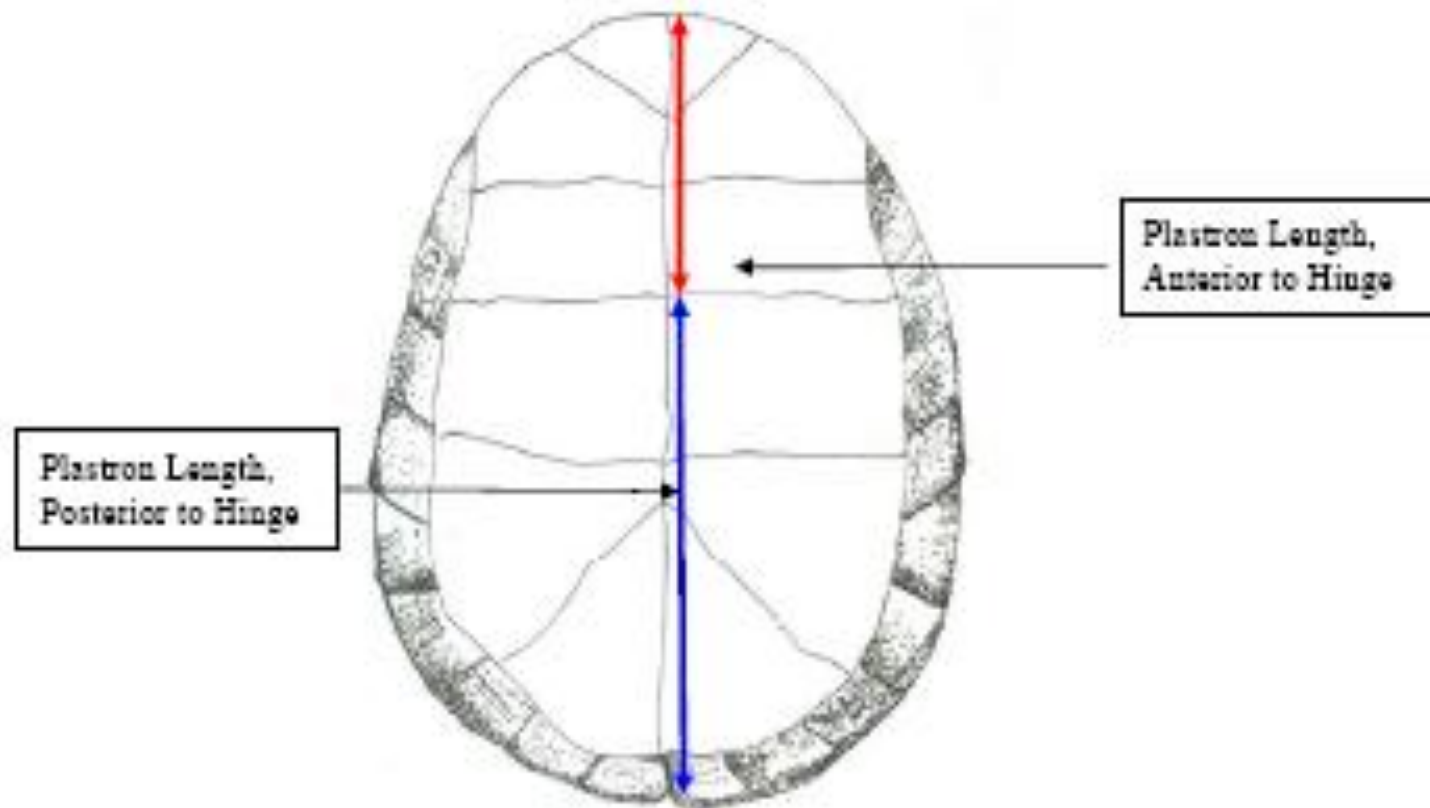
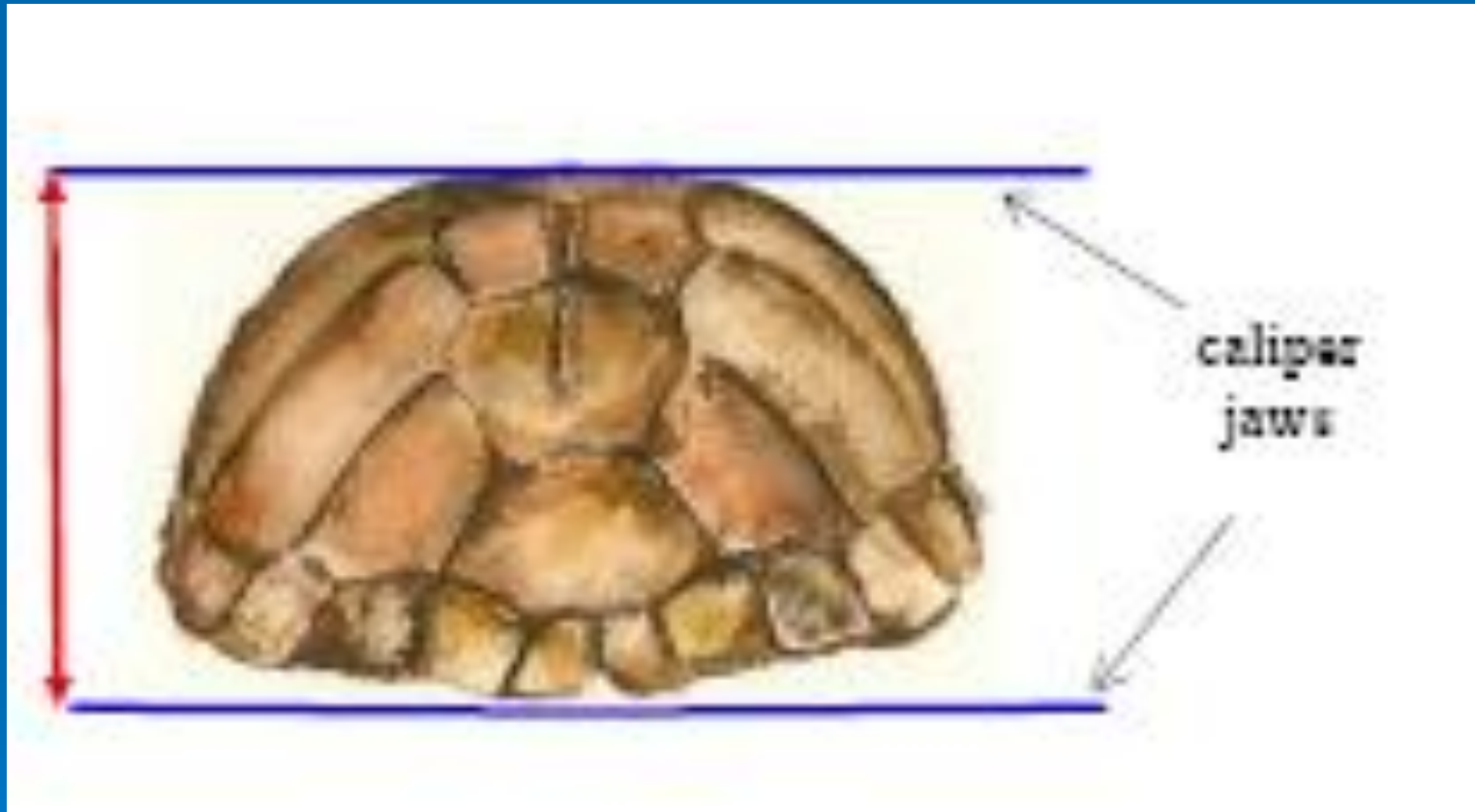


Figure 20. Plastron length (total) is measured by adding the two measurements shown above. Drawing by Jenny Kimmel.

Shell height at hinge



- Measure the shell between the hinge of the plastron and the top of the carapace

Habitat

Record 1- 9:

1=field/forest edge (within
6m of boundary)

2=field

3=pine forest

4=hardwood forest

5=stream/river

6=open wetland

7=forested wetland

8=other

9=mixed pine/hardwood
forest

Other: use it VERY sparingly



TURTLE CONDITION & NOTES



Injuries/Defects

➤ Options:

- None
- Crushed or damaged carapace
- Crushed or damaged plastron
- Damaged eye or eyes
- Missing digits and/or limbs
- Skin/soft tissue scars or injuries
- Tooth marks on shell
- Other

➤ Area for notes specific to injuries or defects

Illness/Health Issues

➤ Options:

- None
- Discharge from eyes, mouth, and/or nose
 - If yes, what color is discharge?
- Discharge from vent.
 - If yes, what color is discharge?
- Swollen right ear
- Swollen left ear
- Swollen or closed right eye
- Swollen or closed left eye
- Other

➤ Area for notes specific to health issues

Parasites

- Options:
 - None
 - Leech(es)
 - Tick(s)
 - Other

- Area for notes specifically about parasites

Figures 1, 2, 3

- Figure 1:
 - Indicate turtle's ID mark on this figure
- Figures 2 & 3:
 - Indicate details about turtle condition (injuries, defects, health issues, parasites, etc.)
- When possible, use scientific terminology to describe where the injury, defect, or parasite is located
 - See p.29 in Box Turtle Connection Book

Indicate ID file markings in Figure 1. Show any Injuries, Unusual Scute Patterns, or Defects in Figures 2 and 3:

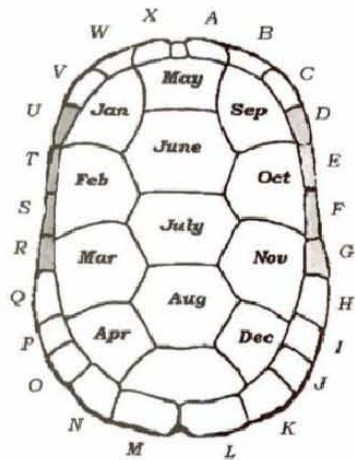


Figure 1

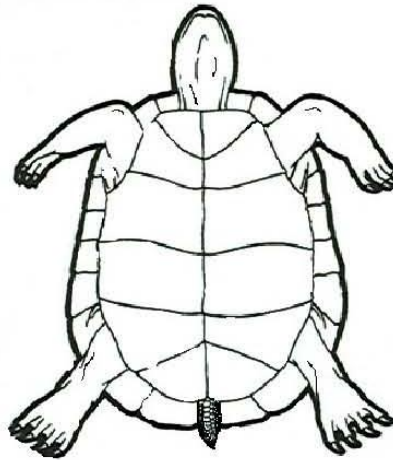


Figure 2

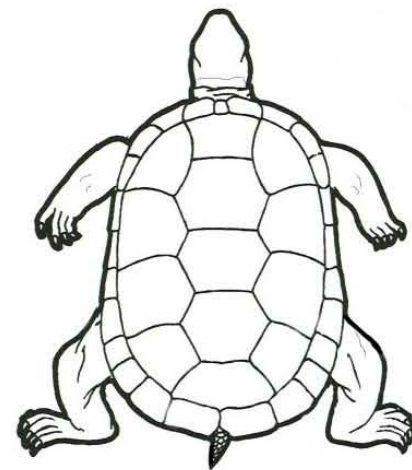


Figure 3

Comments

- Extra space to write notes about anything not noted elsewhere.
- Examples:
 - Interesting/unusual behavior – mating, laying eggs, acting strange
 - If uncertain about M/F, record the characteristics here
 - If put “Other” for habitat, describe it here



Protocols: Injured/Sick turtles

➤ INJURIES:

- Note injuries and include cause (e.g., vehicle), if known
- Can put epoxy and tape over injury to the shell
- Record dead turtles too – Check for marks on dead turtles



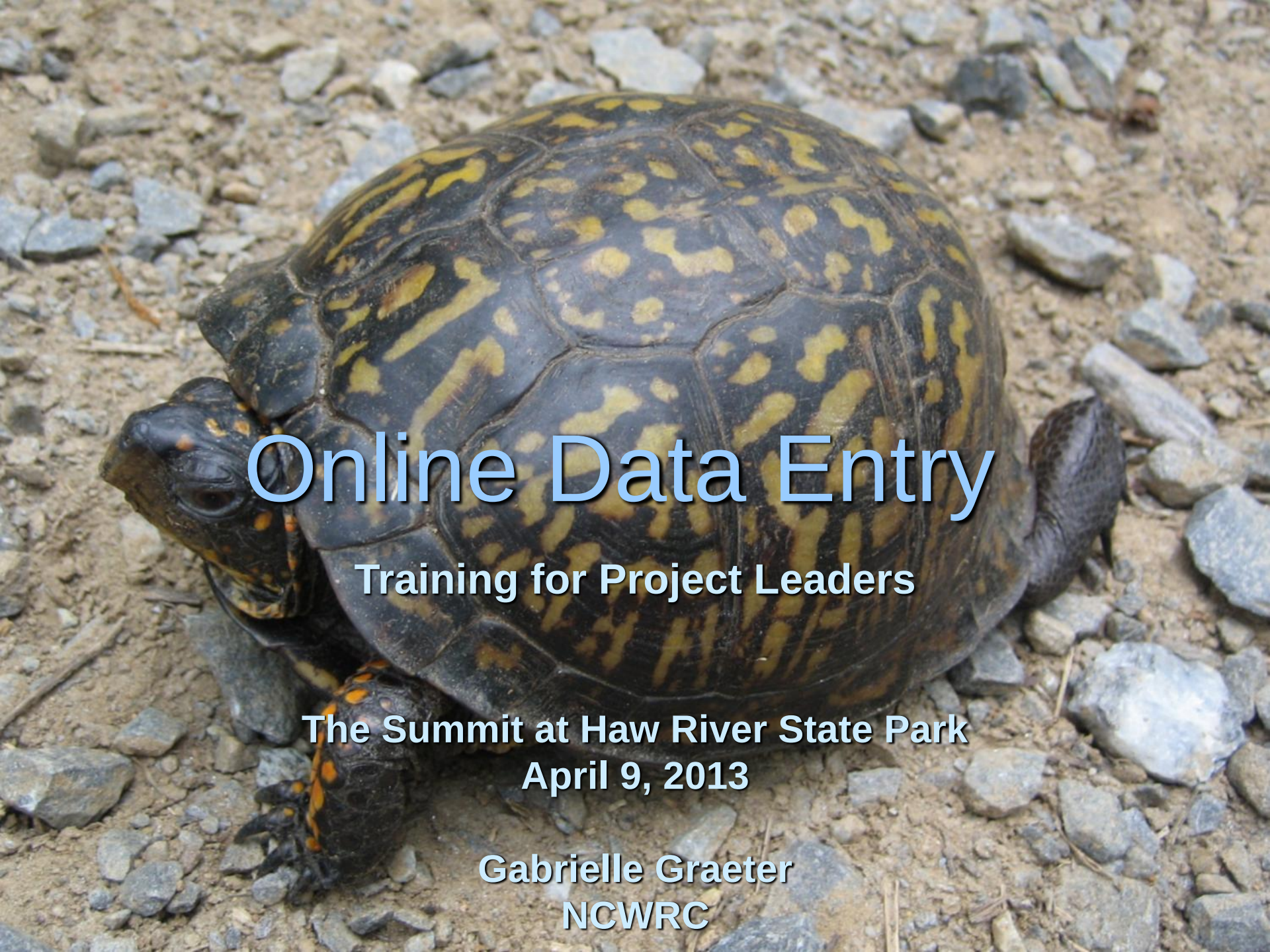
➤ DISEASE/PARASITES/ETC:

- Note anything else that seems strange
- Take close-up photos
- Contact us to let us know

Protocols: Turtle Introductions/Relocations

- Do NOT introduce turtles into your population – we want to study the native population
- Mark the location where turtle was found (temporarily)
- Ideally would release turtle within a few minutes of finding it (after recording data)
- Always return turtle to location where was found
 - ONLY EXCEPTION: if in middle of a road, move it about 20 feet off the road in the direction it was facing when you found it.





Online Data Entry

Training for Project Leaders

The Summit at Haw River State Park
April 9, 2013

Gabrielle Graeter
NCWRC

Submitting Data

- Enter data online
 - Data from Capture Datasheet
 - Upload Photos



EarthLink
CONNECTED

Web

0 Email

Protection

Toolbox

Games

Search

HELP

PAWS Box Turtle Connection - Windows Internet Explorer

https://ncpaws.org/PAWS/Wildlife/CureSurvey/BoxTurtle/EffortLog.aspx

Google

PAWS Box Turtle Connection

HOME | LOGOUT | HELP



PAWS



graeternj

Employee Search

Wildlife

Budget Tool

Box Turtle Conn.

FAMRSNET

Big Game Reporting

Administration

Wildlife Observation

Other Links

Box Turtle Connection

EFFORT LOG

Select a year:

2009

Add Effort Log Entry

Select a Site:

-- Select a Study Site --

Date	Location	Time Spent	Turtles Captured	Reports Administration

Done

Internet 100%

Slide 46 of 58

Ripple

start

Agenda

Microsoft P...

Adobe Acr...

Chaps 11-1...

BTC Tier 3 ...

PAWS Box ...

9:22 PM

DEMONSTRATION



Deadline for Entering Data Online

- For all past data: **ASAP (please)**
- For 2013 data: **December 1, 2013 – put this in your calendars now**



TIP SHEET for Online Data Entry

Box Turtle Connection Tip Sheet

Effort Log	1
Entering a Turtle Capture	3
Location Details	4
Google Maps	5
Turtle Description	8
Turtle Condition	9
Turtle Capture Data Summary Review	10
View Turtle Captures	11
Reports	12

The purpose of this tip sheet is to describe the steps for entering the data into the Box Turtle Connection application in PAWS. To access the Box Turtle Connection application, log in to PAWS, click on **Wildlife** in the side menu, and then click on the **Box Turtle Conn.** link. This will take you to the Effort Log Main Page.

Note: This website only works with Internet Explorer.

Effort Log

Step 1. Access the Effort Log

Action: The Effort Log will be the first page you seen when you enter the Box Turtle application. To access the Effort Log, log in to PAWS, click on **Wildlife** in the side menu, and then click on the **Box Turtle Conn.** link.

Outcome: The Effort Log Screen will be displayed.

Note: An effort log must be created before any Box Turtle Captures can be entered.

Date	Location	Time Spent	Turtles Captured	Reports
3/2/2009	Outside DSS	4:55	0	Add Capture View Captures
	BD	1:23	2	

Figure 1 - Effort Log

Step 2. View existing log entries.

Action: To view existing Effort Log entries, use the drop down lists to select a year and site.

Outcome: The effort log list will display any log entries for the current year and site selections.

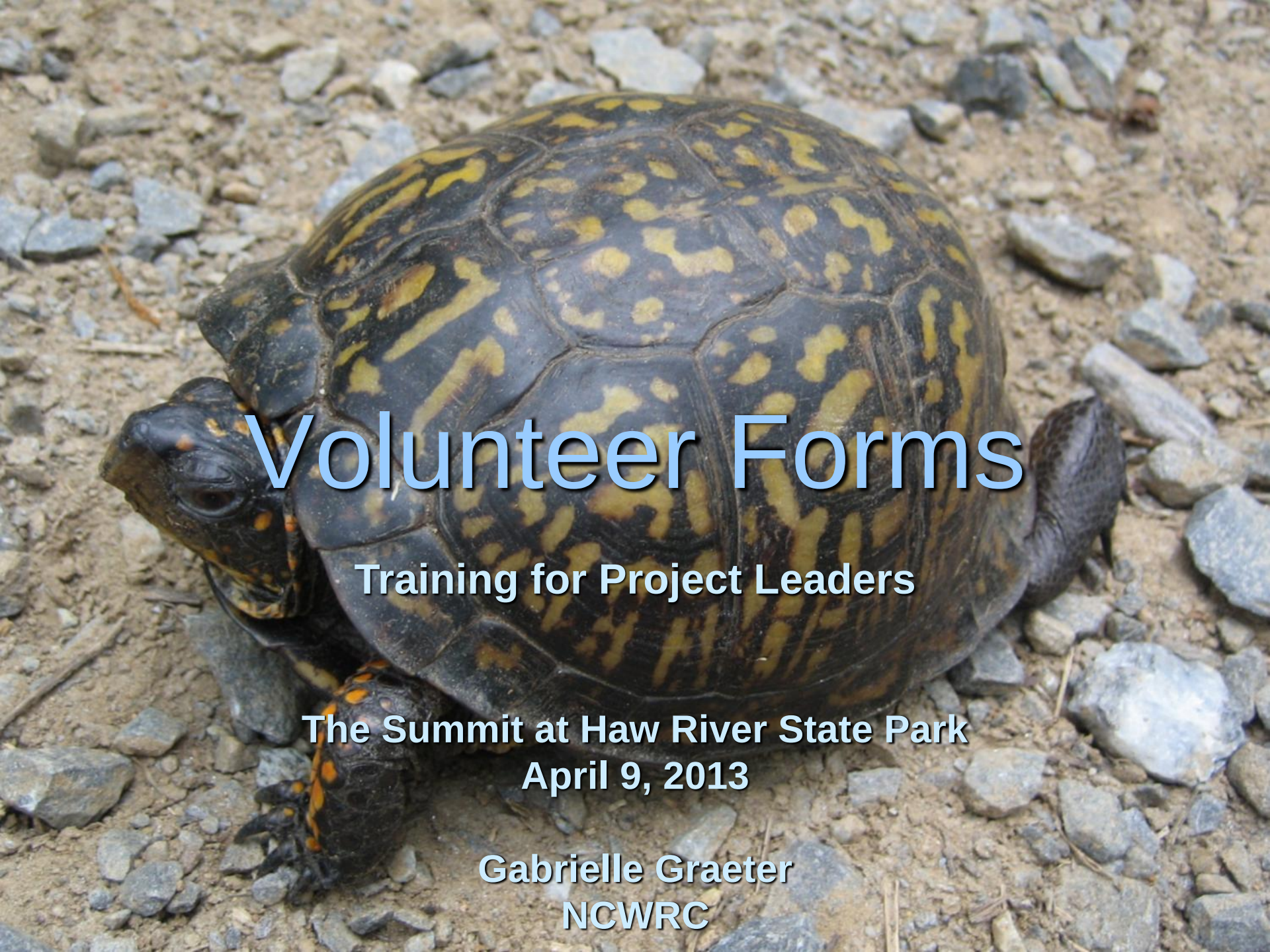
Step 3. Add/Edit Effort Log Entry

Action: To add a new Effort log entry, click the **Add Effort Log Entry** link. To modify an existing entry, click on the date for the log entry.

Skill-Refresher Stations

- Fill out your datasheet as you rotate through these stations
- 1. Marking Turtles (Steve O'Neil)
- 2. Measuring & Weighing Turtles (John Groves)
- 3. Determining sex & Counting Annuli (Ann Somers)
- 4. Photo Documentation (Brian Bockhahn)
- 5. Online Data Entry (Gabrielle Graeter)
- 6. Defining your Study Site (Jeff Humphries)

20 minutes at each station

A box turtle with a dark brown shell featuring prominent yellow-orange spots and stripes. The turtle is positioned on a light-colored, gravelly surface. The text "Volunteer Forms" is overlaid in a large, light blue font across the center of the image.

Volunteer Forms

Training for Project Leaders

The Summit at Haw River State Park
April 9, 2013

Gabrielle Graeter
NCWRC

Volunteer Forms

- Provides a match for the NC Wildlife Resources Commission federal grants
- Necessary to keep our programs going
- Every minute and mile counts!
- Last year the BTC project earned >\$125,000 in match with volunteer forms!!!!
- Your hours count as long as you are NOT federally funded

Volunteer Application



RETURN FORMS TO:
 Gabrielle Graeter
 172 Davenport Rd
 Asheville, NC 28806
 828-273-9097
g.graeter@earthlink.net

VOLUNTEER APPLICATION **Nongame and Endangered Wildlife Projects**

N.C. Wildlife Resources Commission, Division of Wildlife Management
 Nongame and Endangered Wildlife Program

This information is needed to ensure that we continue to qualify for and receive funding for our nongame and endangered wildlife projects. A report of your voluntary contribution of time and expenses will be submitted to document the actual costs of these projects. Please complete the following information for our records.

VOLUNTEER PROJECT (Check All That Apply)

Reptiles

☐

Amphibians

☐

Other Specify Below:

☐

Type of Other Projects:

LAST NAME		FIRST NAME		MI
Social Security or Driver's License #:				
PERMANENT ADDRESS:				
Street or PO:				
City:		State:		Zip:
Phone Number: () --				
TEMPORARY ADDRESS: (During Volunteer Project)				
Street or PO:				
City:		State:		Zip:
Phone Number: () --				

Thank you for your interest and support of the NC Nongame and Endangered Wildlife Program.

Volunteer Form



RETURN FORMS TO:
Gabrielle Graeter
172 Davenport Rd
Asheville, NC 28806
(828) 273-9097
ggraeter@earthlink.net

In-Kind Matching Services for Nongame and Endangered Wildlife Projects

N.C. Wildlife Resources Commission, Division of Wildlife Management

Nongame and Endangered Wildlife Program

This information is needed to ensure that we continue to qualify for and receive funding for our nongame and endangered wildlife projects. Please fill in the following information and sign your name. Enter the number of **HOURS** you assisted with the project activity, the number of **MILES** you drove to and from the location, and the cost of any **MEALS** you paid for during the project activity. If you spent money on materials for the activity, enter the amount under **EXPENSES** and attach a receipt or an explanation. **Thank you for your interest and support of the North Carolina Nongame and Endangered Wildlife Program.**

Name (Please Print - Last, First, MI)		Social Security or Driver's License #				
	Date	Volunteer Activity	Hours	Miles	Meals	Expenses
1.						
2.						
3.						
4.						
5.						
6.						
7.						
8.						
9.						
10.						
PLEASE CHECK ONE ACTIVITY BLOCK	REPTILES		Totals			
	AMPHIBIANS		Hours	Miles	Meals	Expenses
	OTHER: _____		SUBMIT REPORTS MONTHLY			

Certification of Accuracy: I hereby certify that the foregoing information is correct to the best of my knowledge and represents a true and accurate record to my volunteer participation.

Volunteer's Signature		Date	
NCWRC USE ONLY			
Nongame Project Leader/Biologist		Date	
Location of Activity	County	District	
Type of Activity	Number of Volunteers	FA Code	

Filling out Volunteer Forms

- Volunteer Application form – each person only fills out once
 - Other staff that are spending time working on the BTC project at your study area
 - Volunteer Form
 - Complete one today
 - I'll email you a copy
 - I will email you 1x/year to request these Volunteer Forms via mail/email to Gabrielle (should be in September this year)
 - Thank You!
- 
- The background of the slide features several concentric, light blue circular ripples, resembling water droplets, scattered across the lower half of the image.

Questions?

- 1. Online data entry
- 2. Volunteer forms
- 3. other?



RETURN FORMS TO:
Gabrielle Graeter
172 Davenport Rd
Asheville, NC 28806
(828) 273-9097
g.graeter@carhlink.net

In-Kind Matching Services for Nongame and Endangered Wildlife Projects
N.C. Wildlife Resources Commission, Division of Wildlife Management
Nongame and Endangered Wildlife Program

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Date	Volunteer Activity	Hours	Miles	Meals	Expenses
1.					
2.					
3.					
4.					
5.					
6.					
7.					
8.					
9.					
10.					
PLEASE CHECK ONE ACTIVITY BLOCK	REPTILES	Totals			
	AMPHIBIANS		Hours	Miles	Meals
	OTHER:	SUBMIT REPORTS MONTHLY			

Certification of Accuracy: I hereby certify that the foregoing information is correct to the best of my knowledge and represents a true and accurate record to my volunteer participation.

Volunteer's Signature

Date

NCWRC USE ONLY

Nongame Project Leader/Biologist

Date

Location of Activity

County

District

Type of Activity

Number of Volunteers

FA Code