



SMART for Health: An adaptation to support the collection of wildlife health data in the field

Rangers collecting Observations and Specimens

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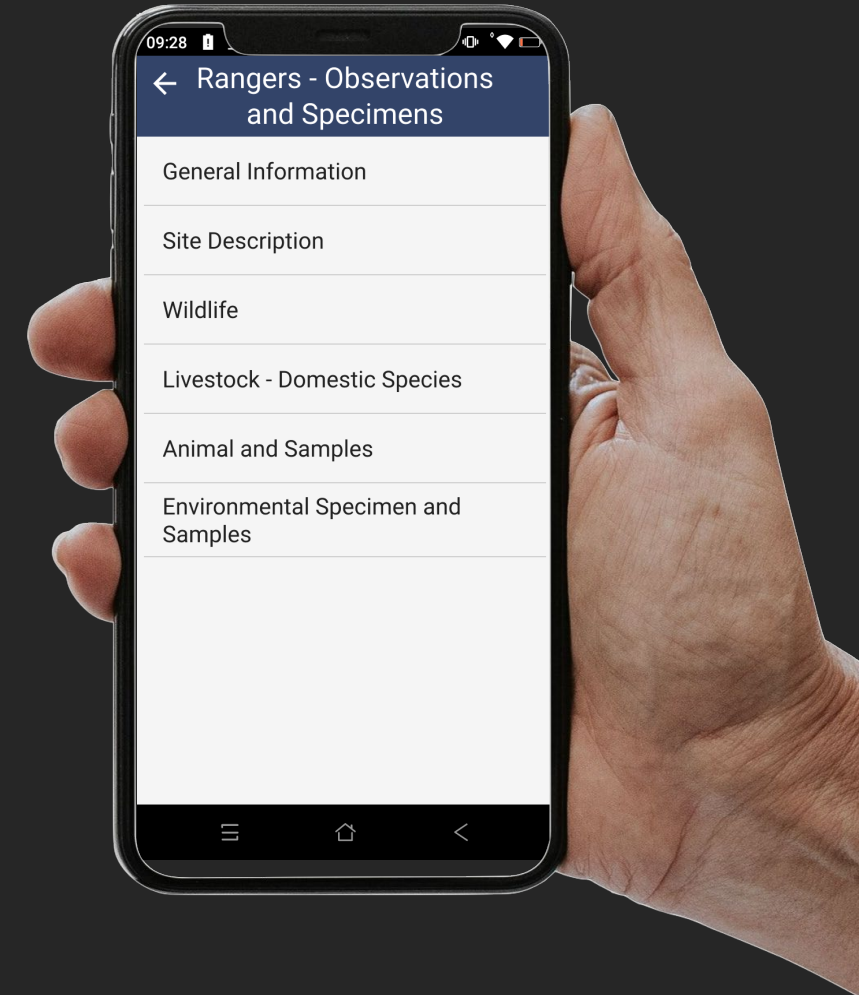
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SMART

...for Health

- Rangers are the eyes and ears watching over wildlife in protected areas
- SMART for Health collects data from **WILDLIFE HEALTH EVENTS** observed during patrols



What is a “Wildlife Health Event”?

Wildlife Health Event: is the finding of sick, injured, or dead in a specific location (+/- other healthy individuals nearby).

A Wildlife Health Event contains at least one individual of one species.

A Wildlife Health Event occurs in a location that is important to describe.

Recorded as a **SMART Independent Incident.**

A standalone group of healthy animals is NOT a Wildlife Health Event. However, healthy animals are important to document if found nearby dead, sick, or injured animals. For example, healthy animals found during an outbreak investigation.

Is it a “Wildlife Health Event”?

- One individual
- One species
- Alive
- Obviously injured
- No samples collected

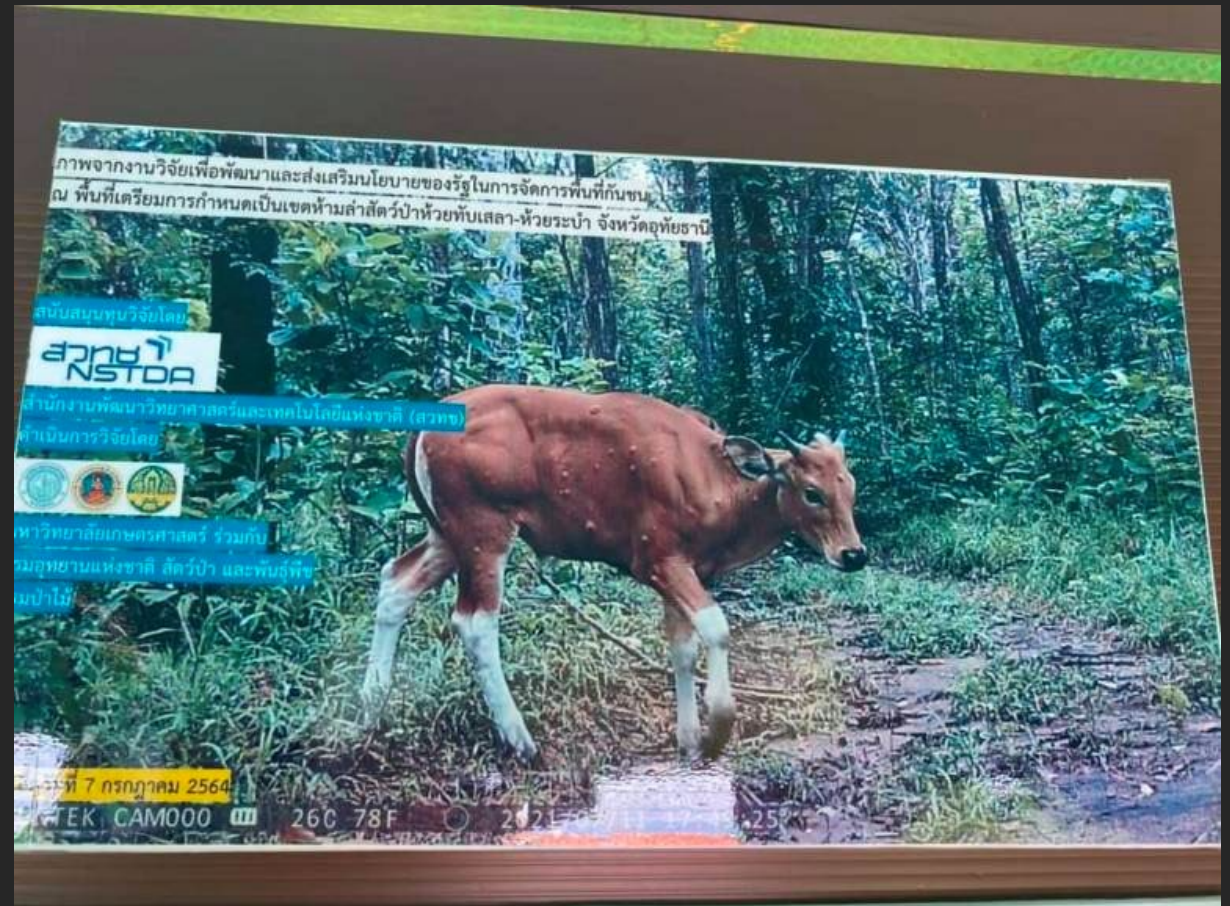
... **YES**, it is a Wildlife Health Event



Is it a “Wildlife Health Event”?

- One individual
- One species
- Alive
- Obviously sick
- No samples collected

... **YES**, it is a Wildlife Health Event



Is it a “Wildlife Health Event”?

- Several individuals
- One species
- All dead
- No samples collected

... **YES**, it is a Wildlife Health Event



Is it a “Wildlife Health Event”?

- Several individuals
- Same species
- Some dead, others obviously sick
- No samples collected

... **YES**, it is a Wildlife Health Event



Is it a “Wildlife Health Event”?

- Several individuals
 - Several species
 - Some dead, others obviously sick, and few healthy
 - Samples collected from animals
 - Samples collected from the soil
- ... **YES**, it is a Wildlife Health Event



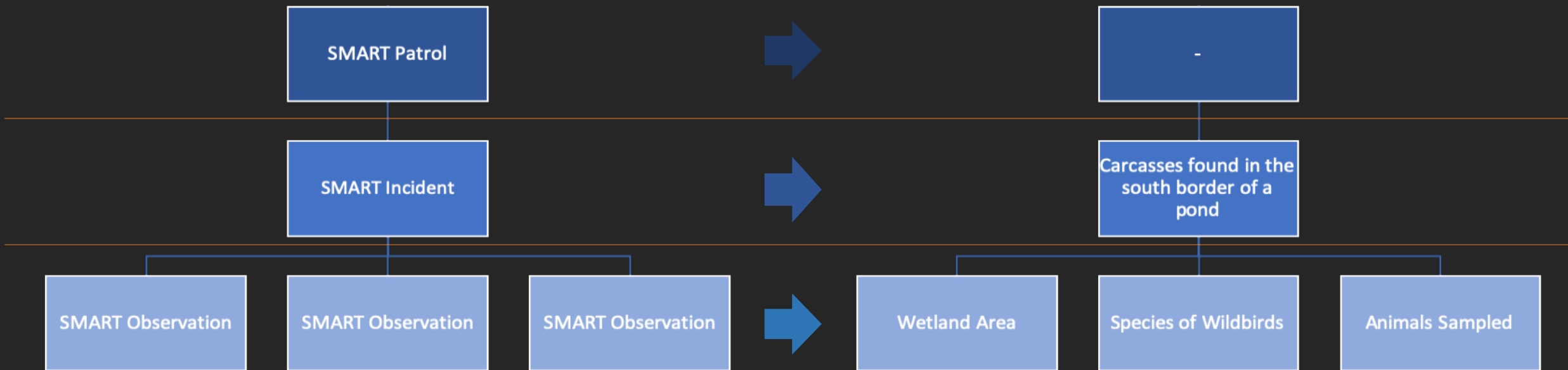
What is a Wildlife Health Event?

- Several individuals
 - Several species
 - No dead animals
 - No obviously sick or injured animals
- ... **NO, it is NOT** a Wildlife Health Event



How to document Wildlife Health Events using SMART?

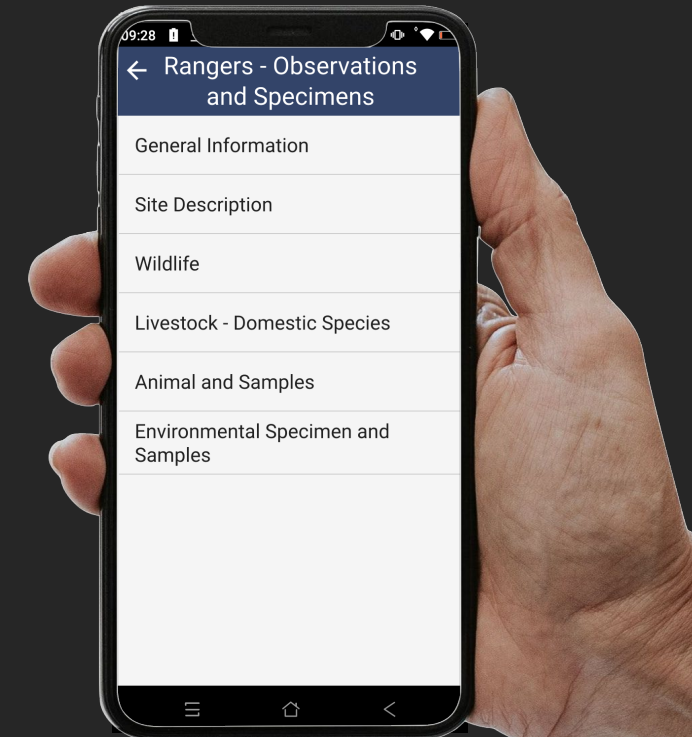
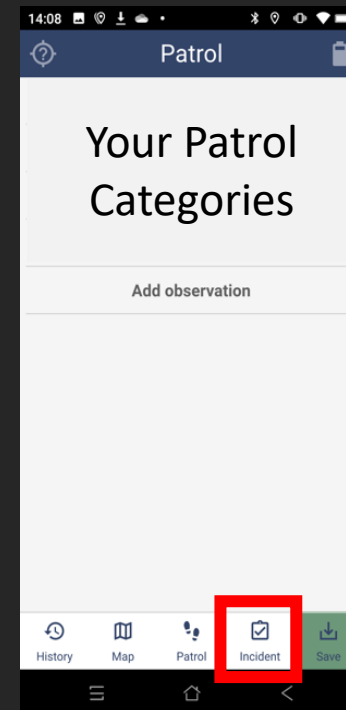
- As a SMART INDEPENDENT INCIDENT
- SMART INCIDENTS are documented using SMART Categories



While patrolling you find a Wildlife Health Event



- By the time you find a Wildlife Health Event, save your current data and then click on the Incident button of the Patrol Screen to access SMART for Health Categories



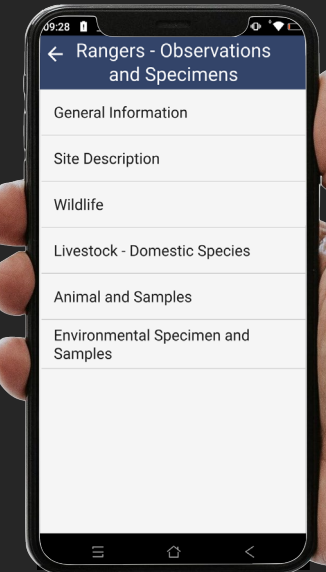
We want to learn where, when



- Each Event occurs at one specific location at a specific time (date). Therefore, dead animals at the same location in two different dates are two different Events. Each Event must be recorded as a single and unique incident

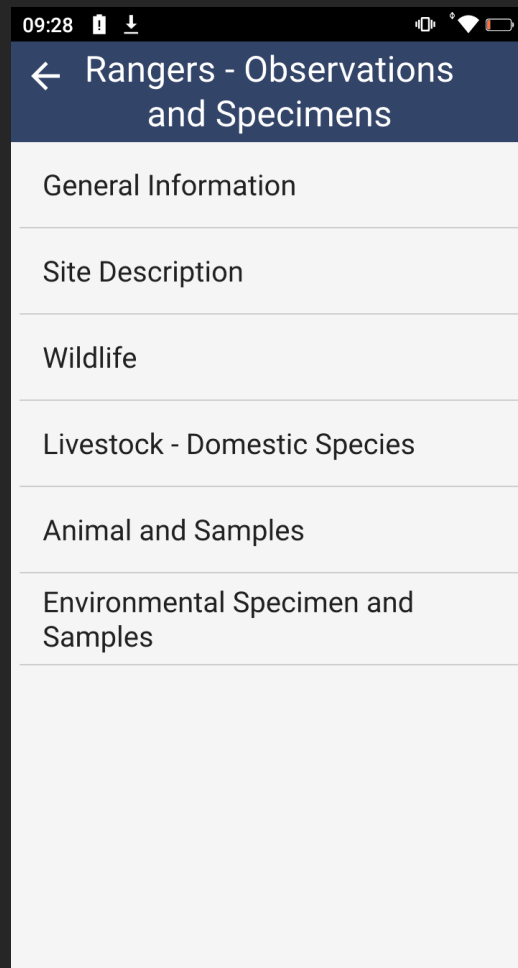


2 km



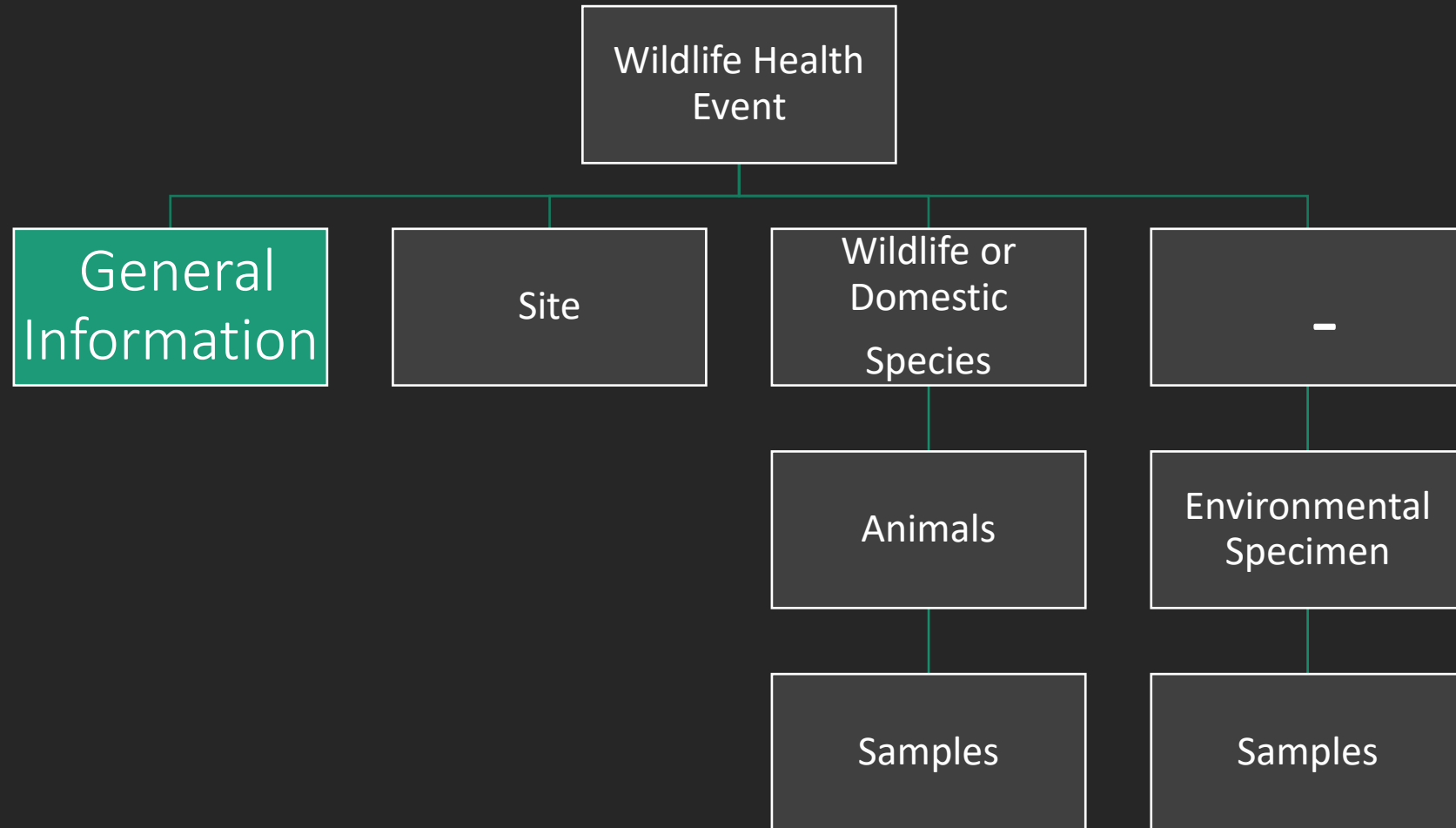
We want to learn what for each Wildlife Health Event

- Using SMART for Health Categories record different components of the Event
- Each Category has specific fields of requested data



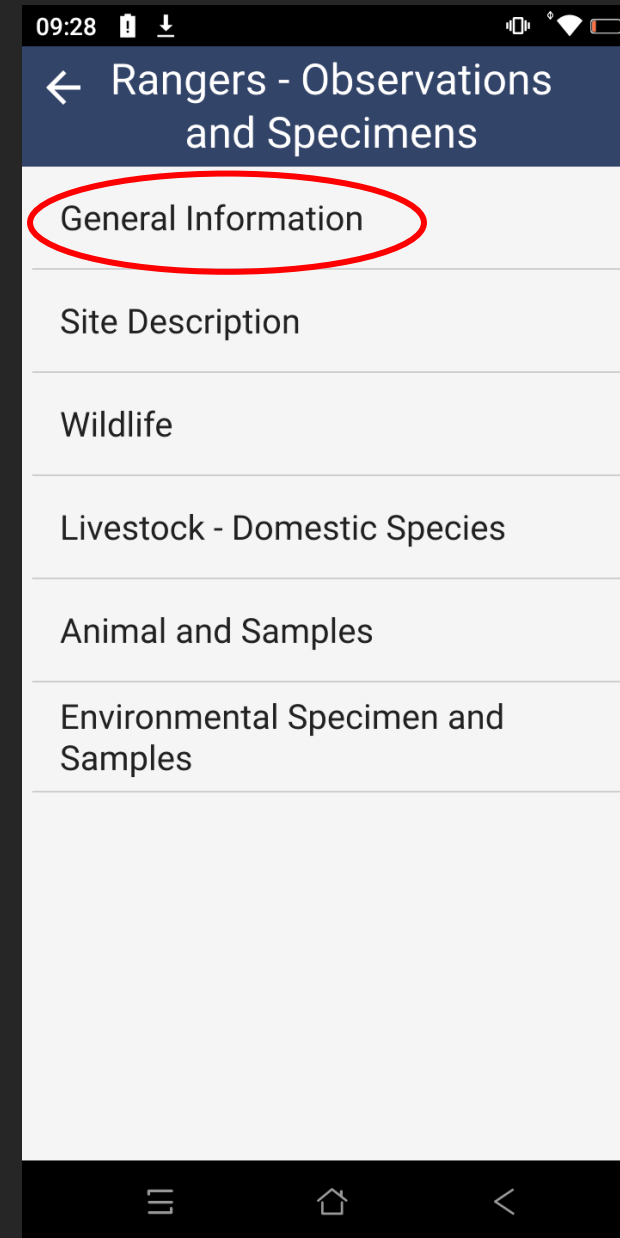
- Provide general information of the event
- Describe the event site
- Describe the observed species of wildlife
- Describe the observed livestock or domestic species
- Describe an individual animal sampled and its samples
- Describe samples from unknown animal or abiotic origin

Documenting the protected area of the Event and its recorder

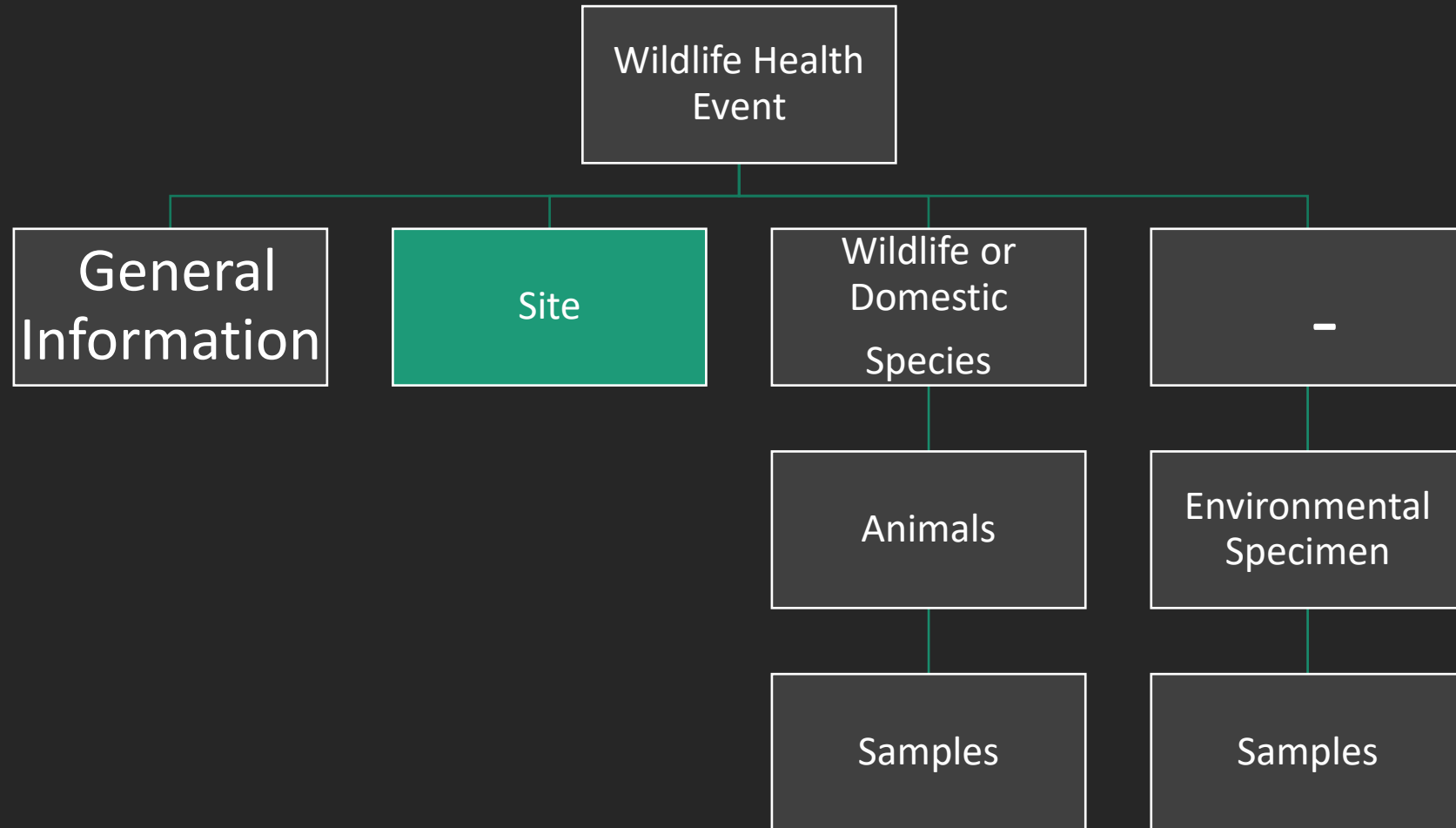


Documenting the features at the site of the Event

- A Wildlife Health Event happens at a protected area and it is responsibility of the patrol leader. Always use the “General Information” Category to identify the protected area and the recorder of the Event

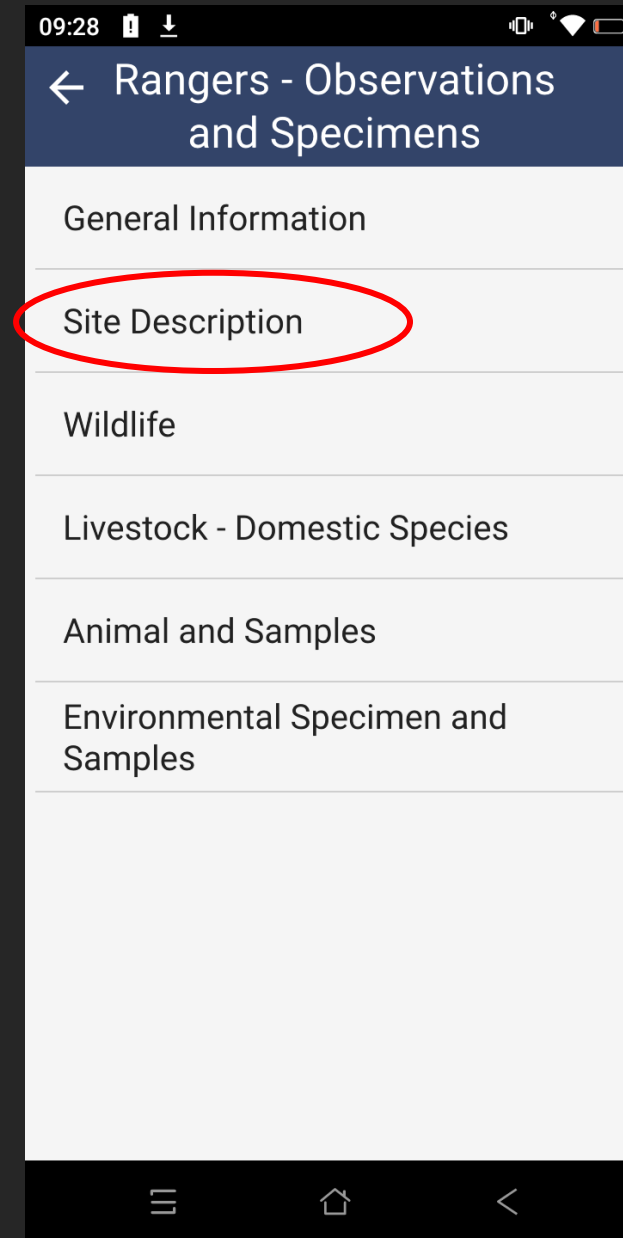


Documenting the features at the site of the Event



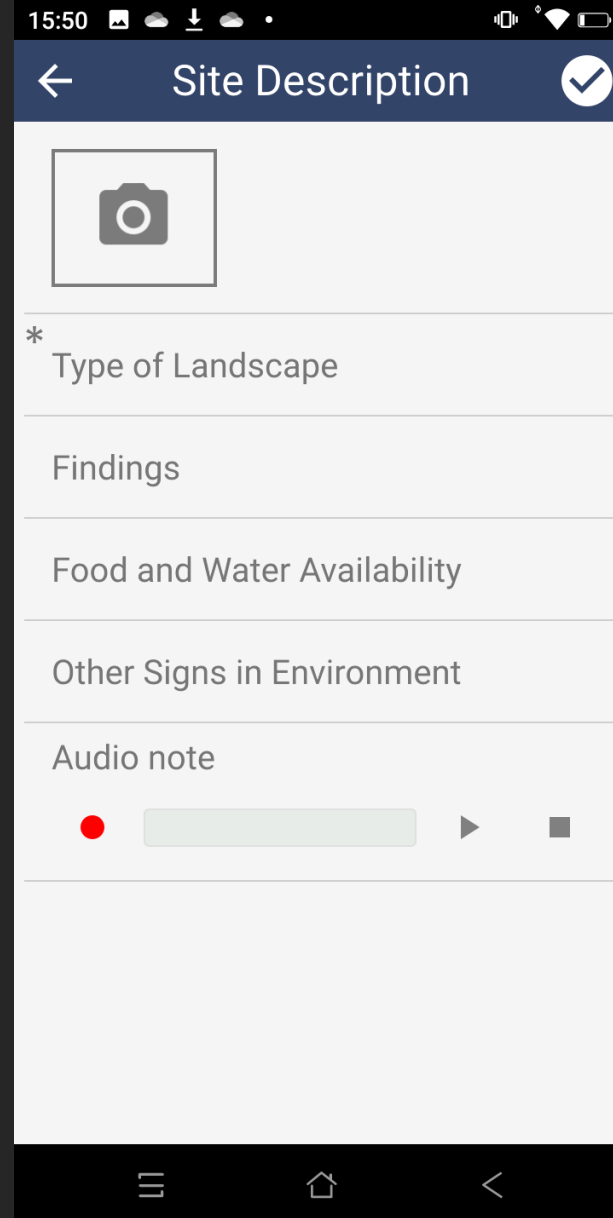
Documenting the features at the site of the Event

- A Wildlife Health Event happens at a specific location, therefore, always use the “Site Description” Category as part of its description.



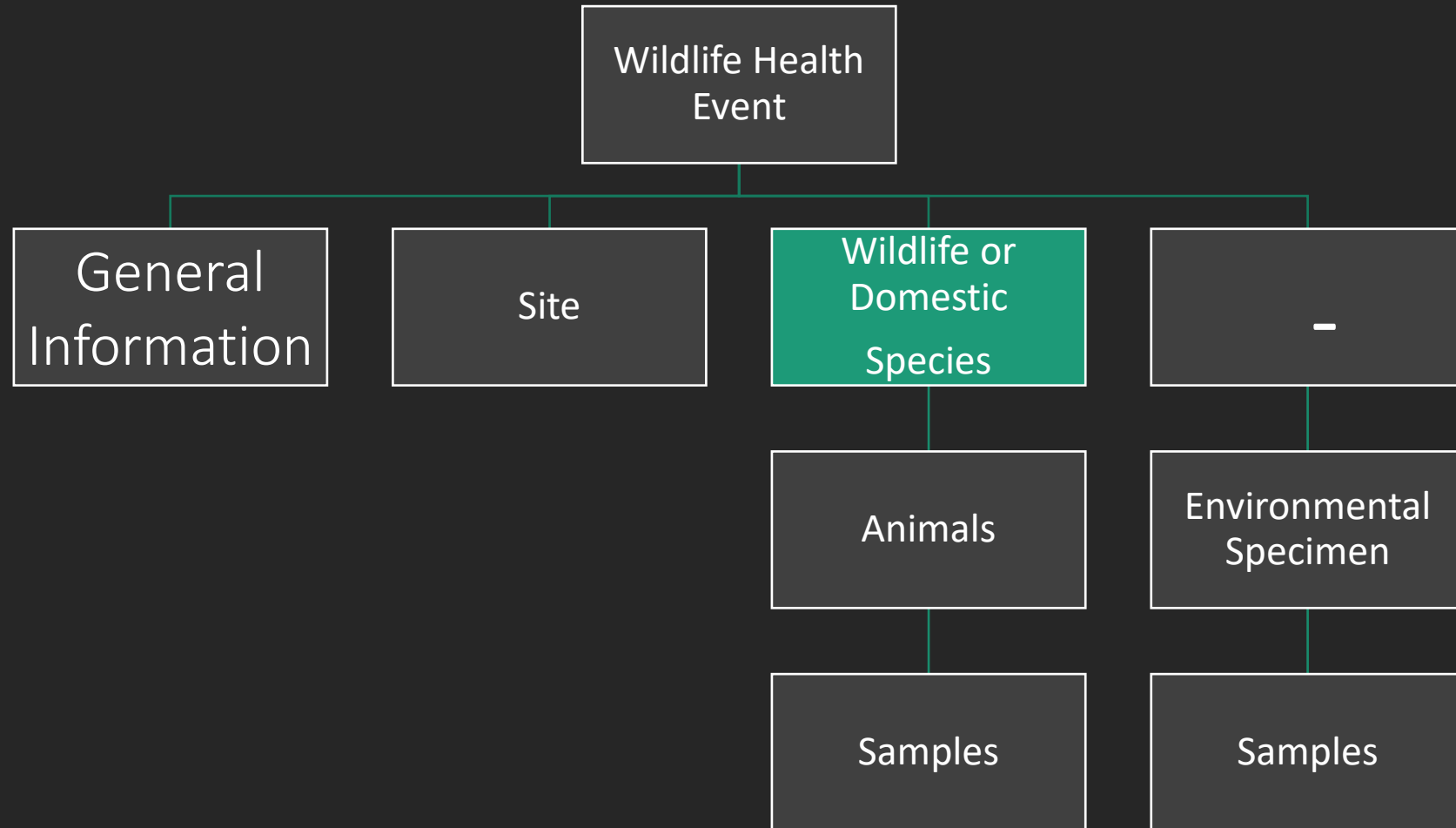
Documenting the features at the site of the Event

- Describe the site of the Event using the list of options in the **“Type of Landscape”** dropdown menu
- Enter the observed **“Food and Water Availability”**
- Enter **“Other Signs in Environment”**



The screenshot shows a mobile application interface titled "Site Description". At the top, there is a camera icon for taking a photo. Below this, there are several input fields with labels: "* Type of Landscape", "Findings", "Food and Water Availability", and "Other Signs in Environment". At the bottom of the form, there is an "Audio note" section with a red recording indicator, a progress bar, a play button, and a stop button. The status bar at the top shows the time as 15:50 and various system icons. The bottom navigation bar contains three icons: a menu icon, a home icon, and a back icon.

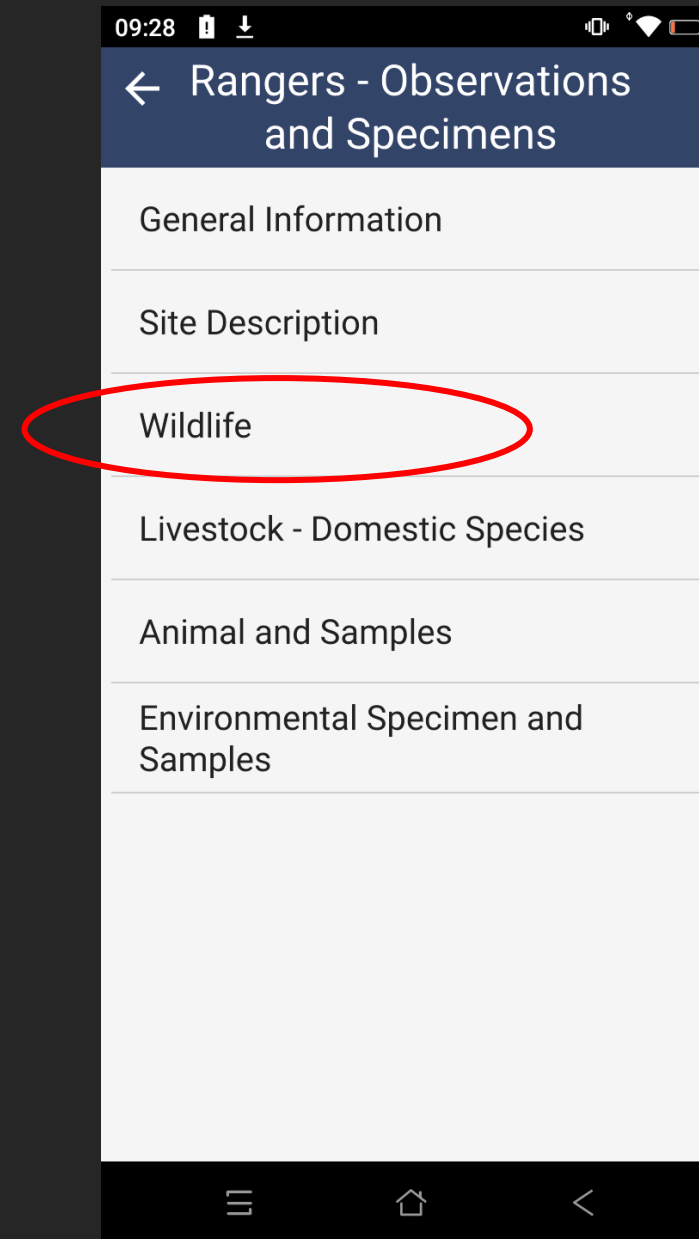
Documenting the species at the Event



Documenting wildlife species in the Event

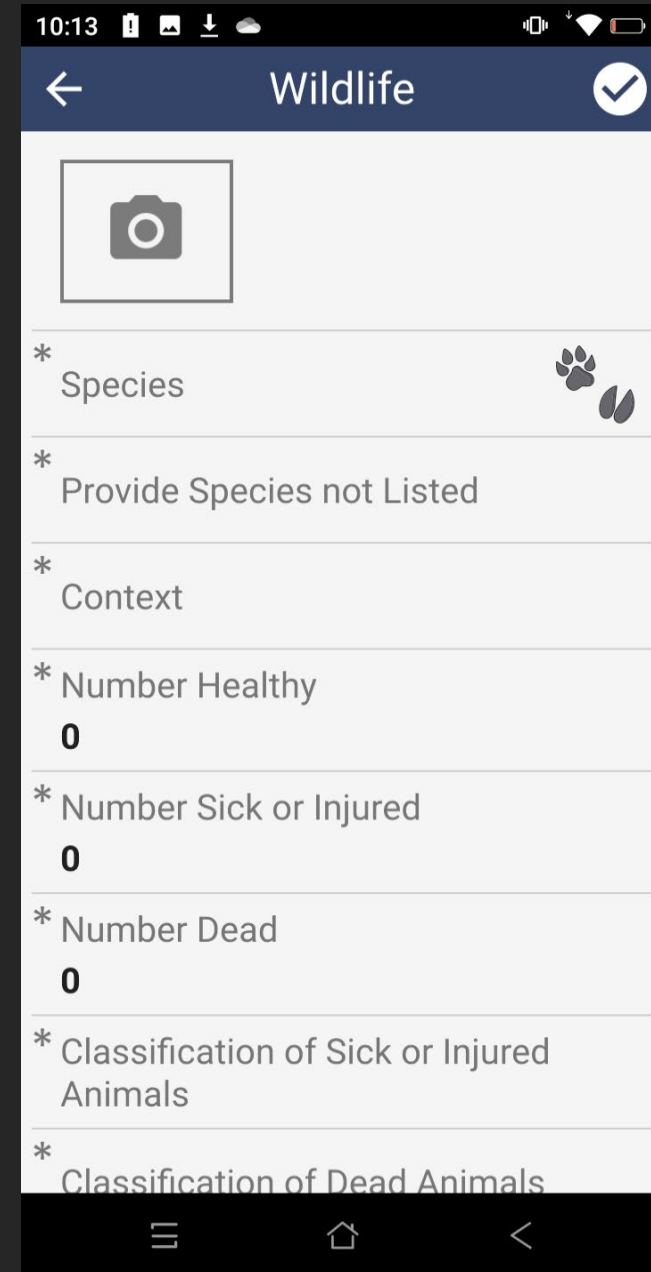
After you complete the Site Description,
document the **species** observed in the Event

- An Event with one individual of one wildlife species implies recording one species and, therefore, using the wildlife Category once.
- An Event involving several individuals that belong to 8 species implies recording 8 species, and, therefore, using the wildlife Category 8 times.



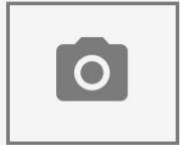
Documenting wildlife species in the Event


- Select the species to the best of your knowledge
- If you choose “Species Not Listed” then provide species in the next field
- “Context”: the captivity classification of the animals of the species being recorded. Select all that apply.
- Provide the number of healthy, sick or injured, and dead individuals of THIS species observed in the event



10:13 [status icons]

← Wildlife ✓



* Species 

* Provide Species not Listed

* Context

* Number Healthy
0

* Number Sick or Injured
0

* Number Dead
0

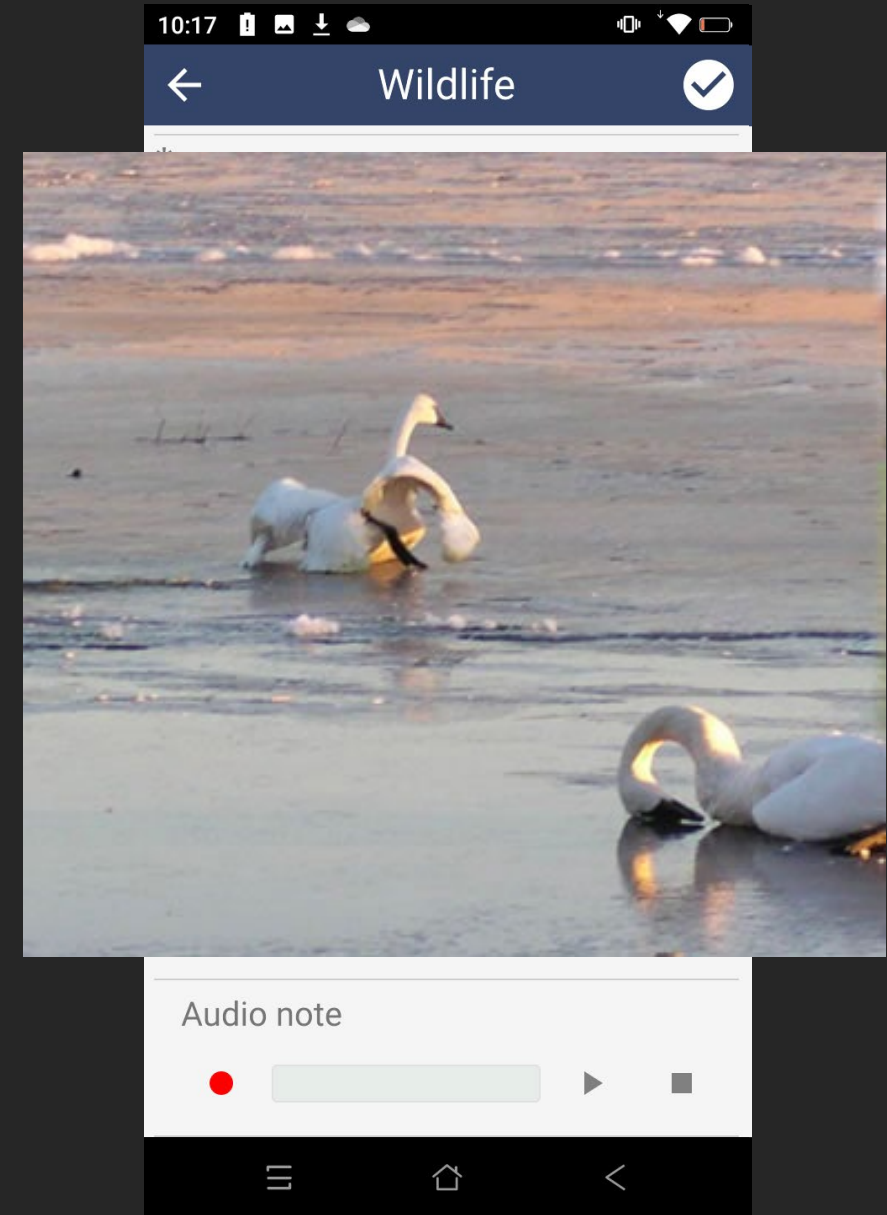
* Classification of Sick or Injured Animals

* Classification of Dead Animals

[bottom navigation icons]

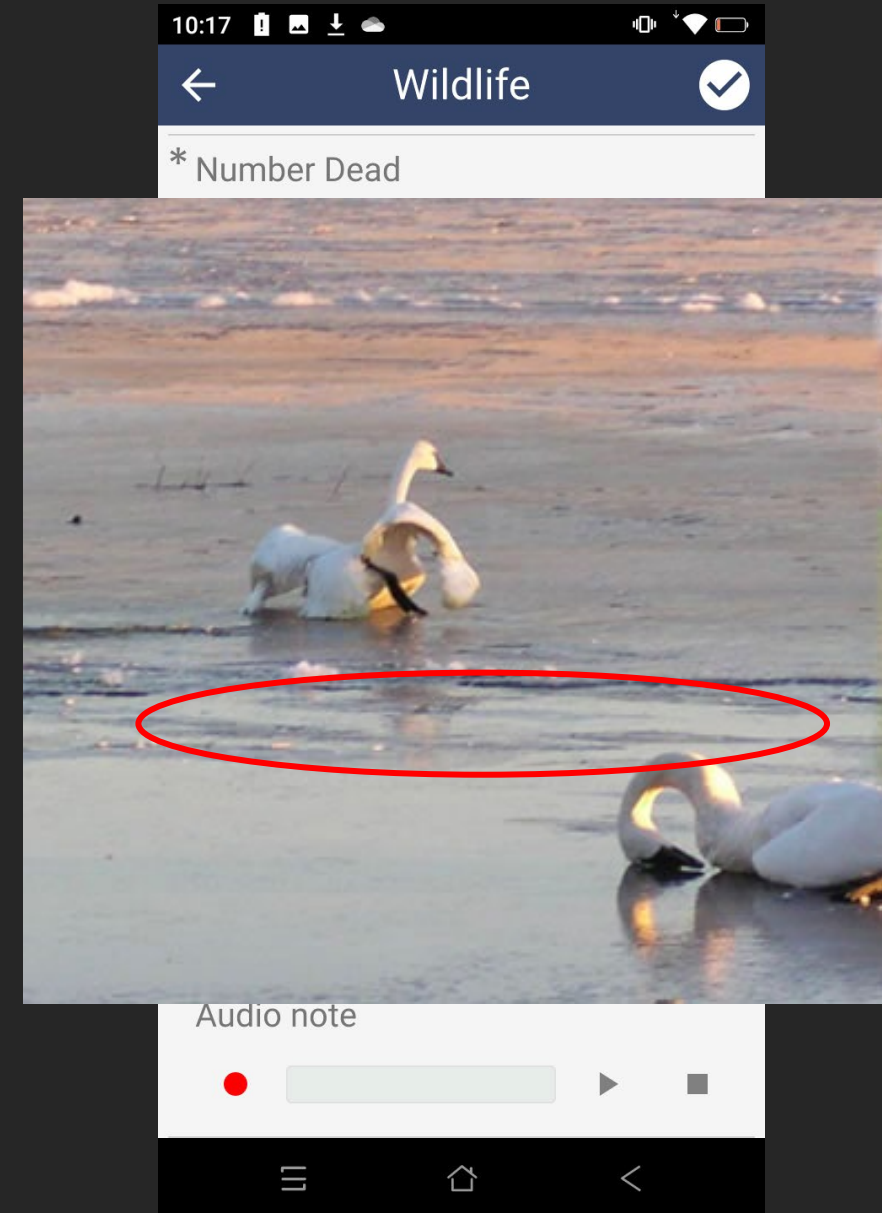
Documenting wildlife species in the Event

- Provide the Sex x Age categories of the Sick or Injured Animals and Dead Animals
- **Anomalies in Sick, Injured, or Dead Animals:** Provide a description of the obvious problems you see in the dead, sick, or injured animals of the species recorded.
- **Condition Dead Animals:** choose from the options all that apply. If no animals are dead then choose “No Dead Animals”.



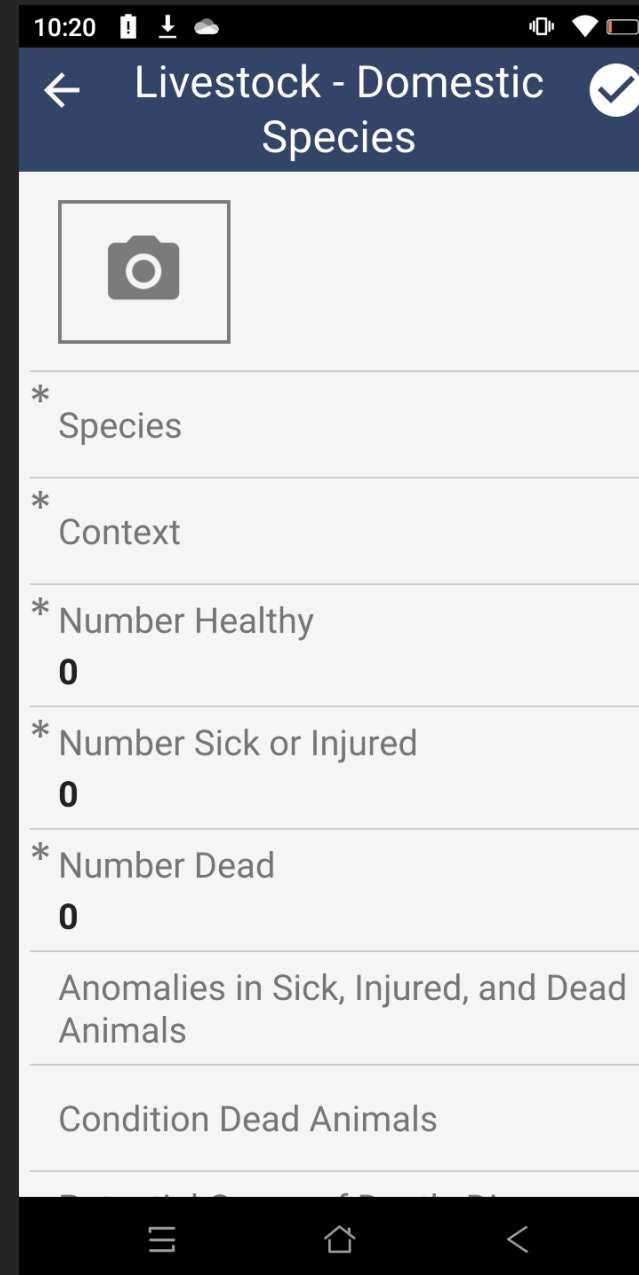
Documenting wildlife species in the Event

- **Potential cause of Death, Disease, or Injury:** assessment of the suspected cause of death, disease, or injury of the animals of the recorded species
- If no animals of the species are dead, sick, or injured choose “No Dead, Sick, or Injured Animals”.



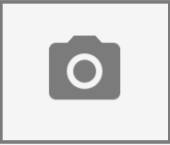
Documenting livestock or domestic species in the Event

- Similar to the Wildlife Category but simpler
- Fewer attributes but same logic



10:20 [status icons]

← Livestock - Domestic Species ✓



* Species

* Context

* Number Healthy
0

* Number Sick or Injured
0

* Number Dead
0

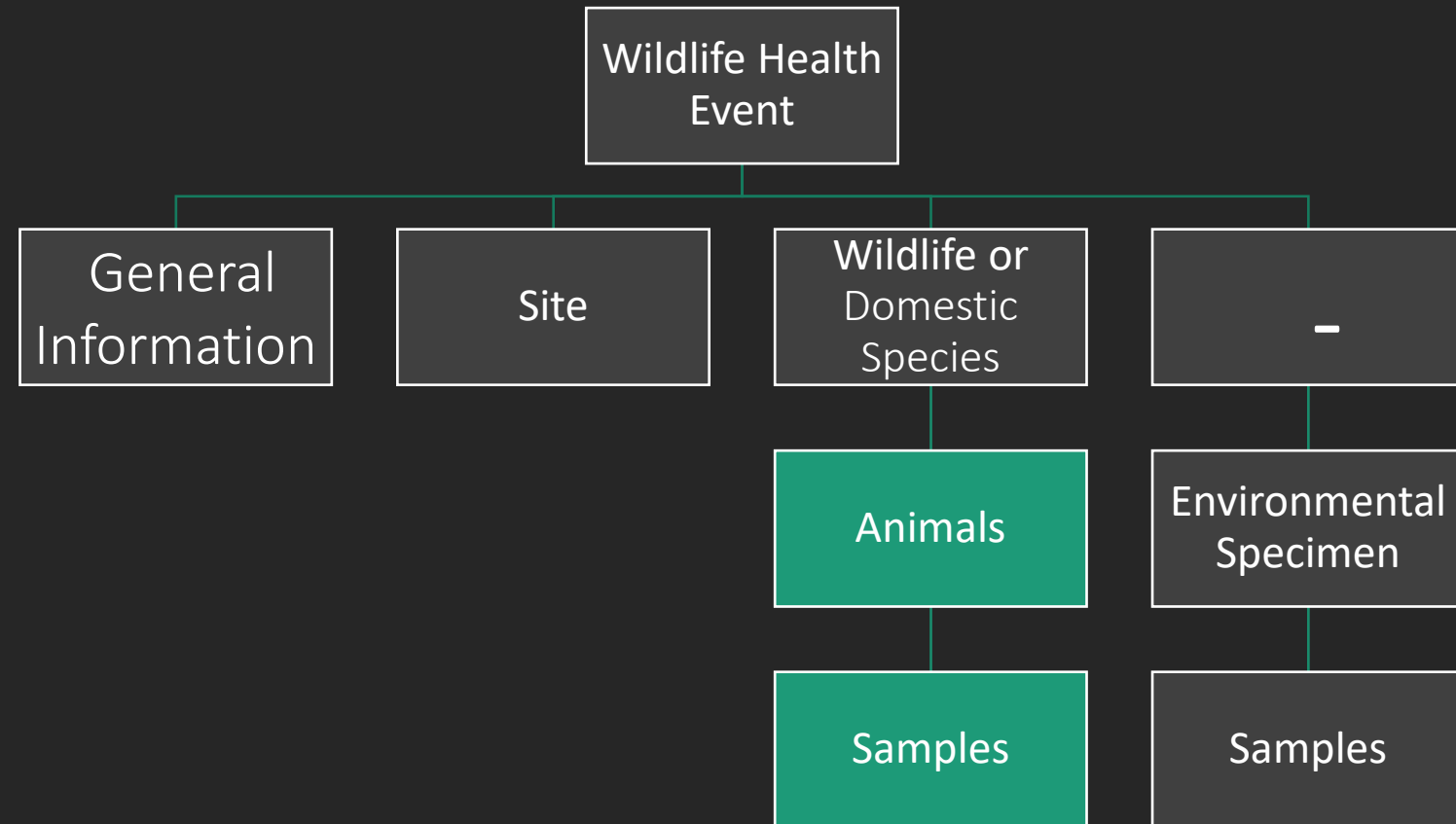
Anomalies in Sick, Injured, and Dead Animals

Condition Dead Animals

[navigation icons]

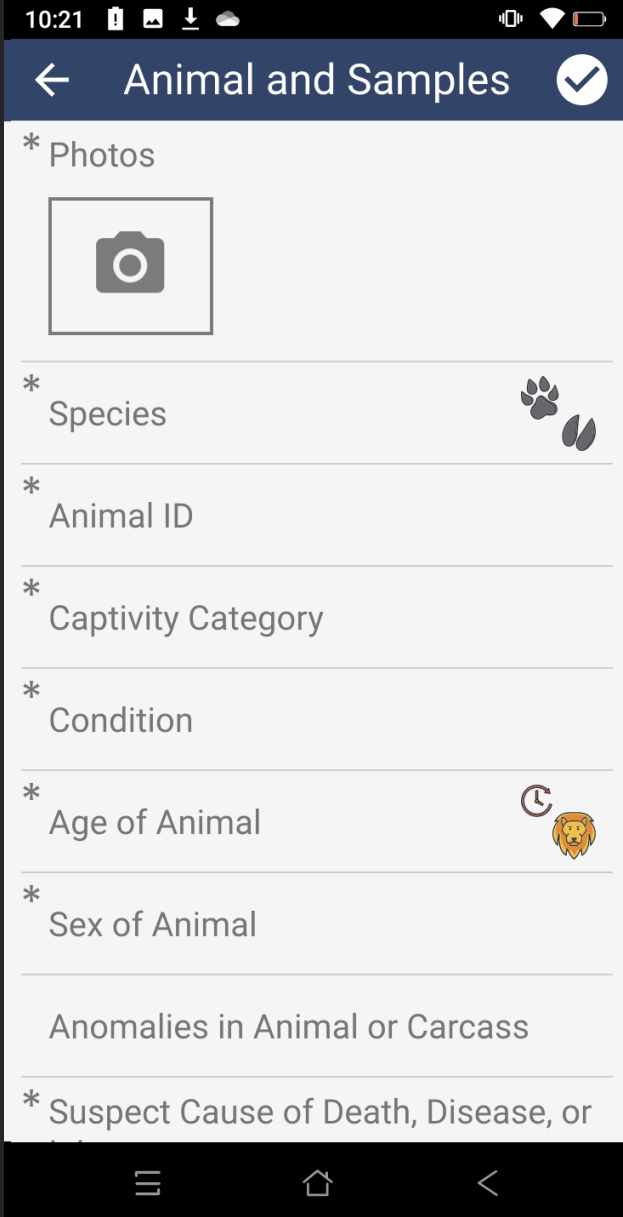
Documenting the **animals** of the Event that were **sampled** and their samples

- Provide individual data only for the specific animals that supplied samples
- If an animal of species X supplied samples, then the species of that animal must be included using the “Wildlife” or “Livestock” Categories.
- The sampled individuals must be included in the counts of individuals per species (“Wildlife” or “Livestock” Categories)
- Describe the samples collected




Documenting individual animals in the Event


- Attributes requesting information on individual animals are similar to those at the “Species” level
- **Animal ID** identifies the specific individual
- "Captivity Category" at encounter
- "**Condition**" when animal is first observed. Animal parts (e.g. only a leg) are not dead animals but “Animal parts”
- “**Suspect cause of death, disease, or injury**”: assessment of the potential cause
- What if I see dead, sick, or injured animal(s) **but no sample was collected?**: provide the “**Species**” level information only



10:21 [Battery] [Signal] [Wi-Fi] [Location] [Vibration]

← Animal and Samples ✓



* Photos


* Species 

* Animal ID

* Captivity Category

* Condition

* Age of Animal  

* Sex of Animal

Anomalies in Animal or Carcass

* Suspect Cause of Death, Disease, or

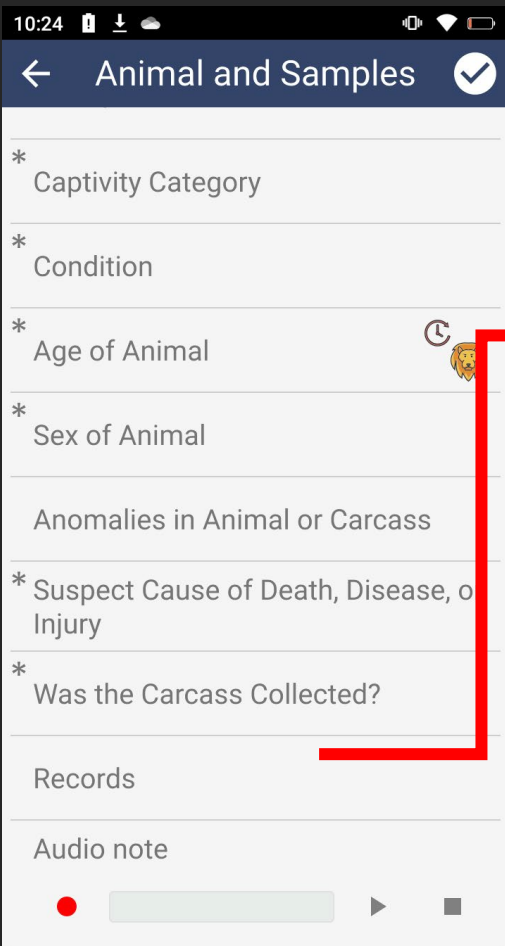
[Menu] [Home] [Back]

Documenting the samples collected from individual animals

Individual Animal

Samples collected from the individual animal

- Each “**Record**” is one sample collected from the specific animal being documented
- “**Sample ID**” identifies the specific sample and should match the labels used in the field on tubes, bags, etc.
- “**Sample type**”: select from the list provided
- “**Collected from the environment**”: “Yes” if the sample **was not collected directly** from the individual (feces without the animal present)
- Use notes to provide any other important information
- Checkmark and either choose to enter another sample or go back to the “Animal and Samples” screen



10:24

← Animal and Samples ✓

* Captivity Category

* Condition

* Age of Animal ⌚

* Sex of Animal

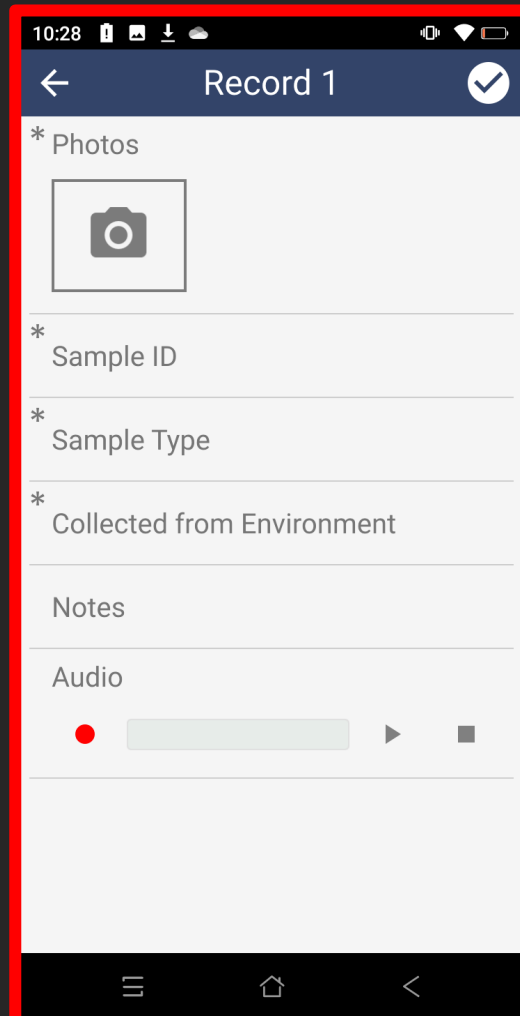
Anomalies in Animal or Carcass

* Suspect Cause of Death, Disease, or Injury

* Was the Carcass Collected?

Records

Audio note



10:28

← Record 1 ✓

* Photos

* Sample ID

* Sample Type

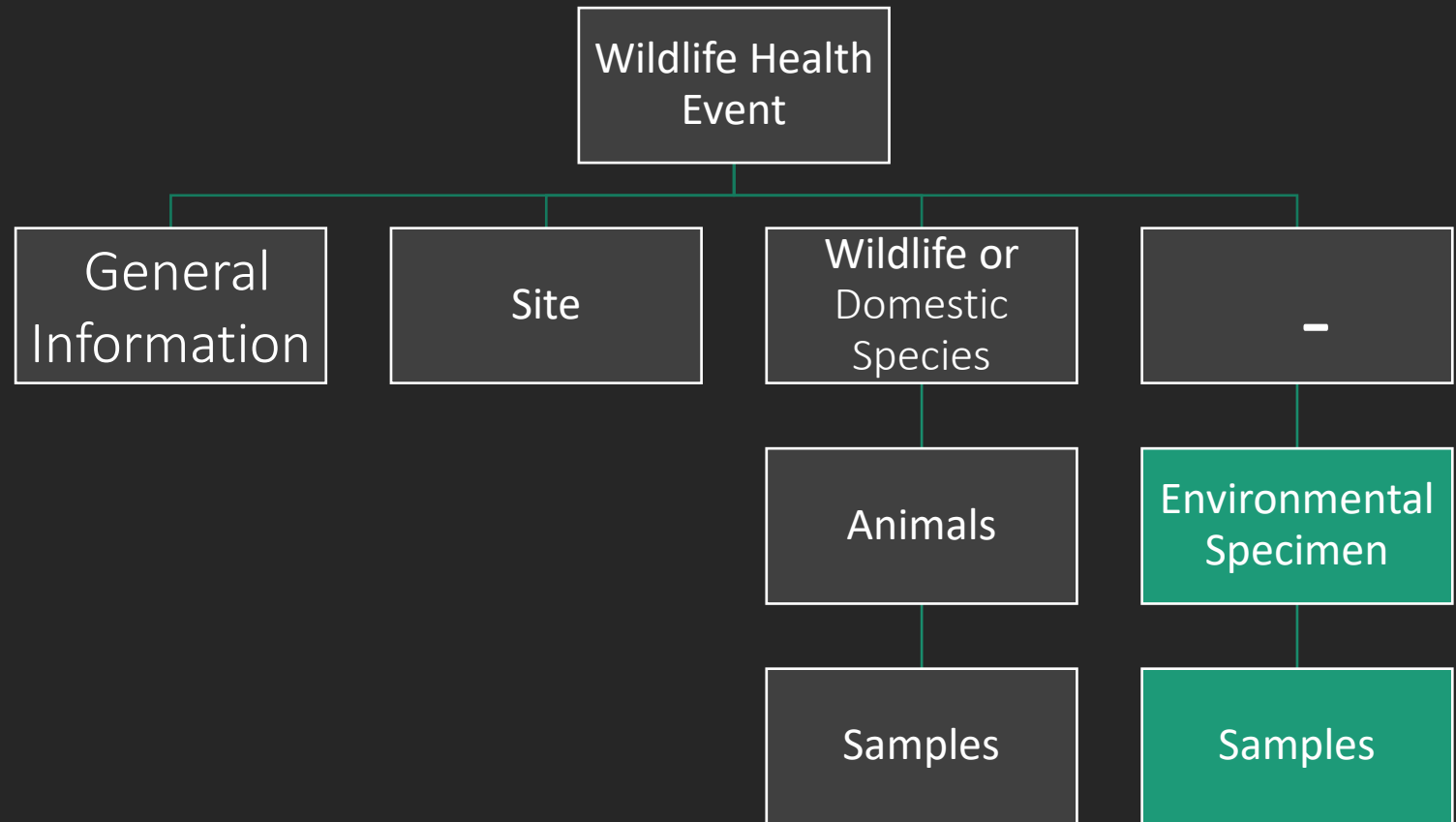
* Collected from Environment

Notes

Audio

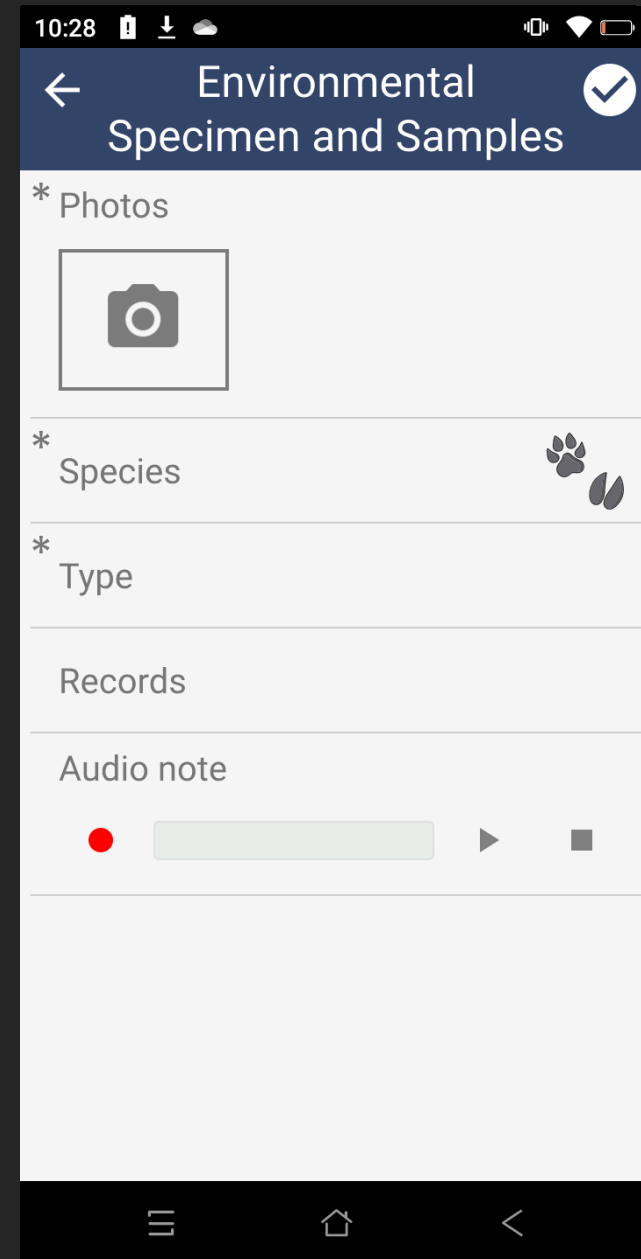
Documenting the **environmental specimens** and their samples

- Provide individual data for those materials or tissues that do not have an animal origin or whose animal of origin is unknown
- Examples:
 - Feces found on the ground but the animal that dropped the feces is unknown
 - Water



Documenting the **environmental specimens** and their samples


- Provide the species that supplied the specimen if it is known. For water, soil, sediment, etc. answer “Abiotic”.
- Provide the “**Type**” of environmental specimen from the dropdown list provided
- Use the “Record” attribute to document the samples from each environmental specimen




10:28

← Environmental Specimen and Samples ✓

* Photos


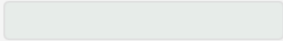




* Species 

* Type

Records

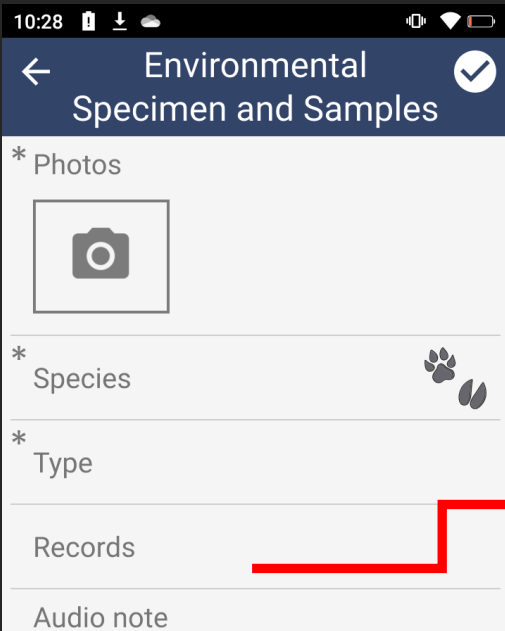
Audio note

☰ ⌂ <

Documenting the **environmental specimens** and their samples

Environmental Specimen



10:28

← Environmental Specimen and Samples ✓

* Photos

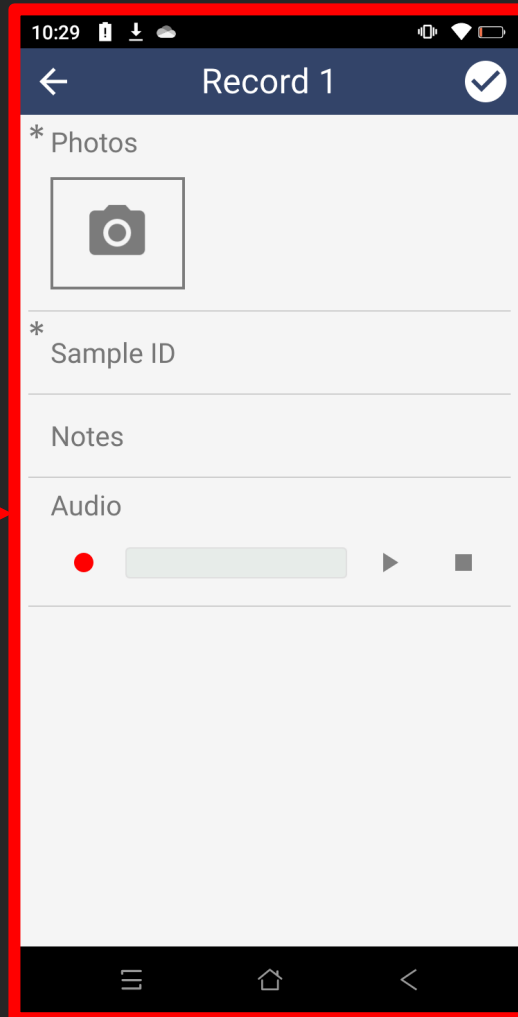
* Species

* Type

Records

Audio note

Samples collected from the Environmental Specimen



10:29

← Record 1 ✓

* Photos

* Sample ID

Notes

Audio

“Environmental Specimen” refers to the source of the sample

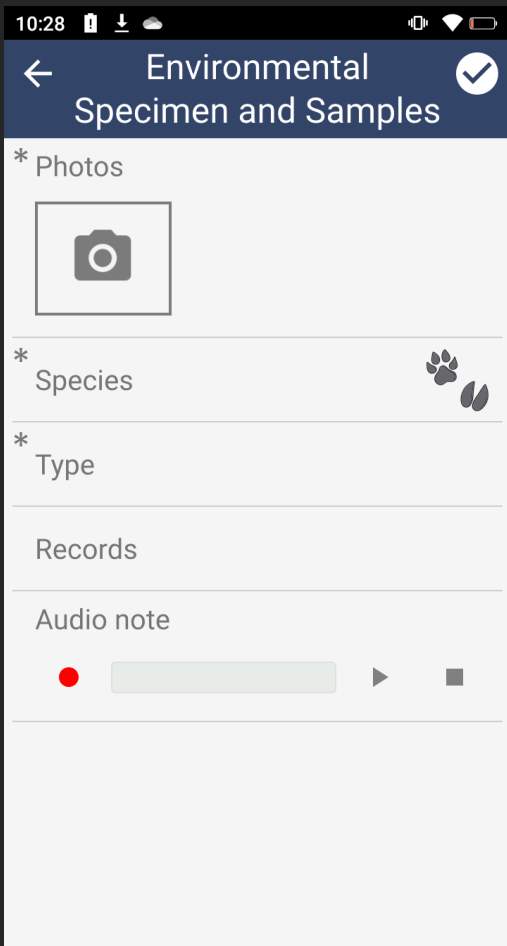
“Sample” is generally a specific collection of a certain amount of the larger “Specimen”

e.g. a swab from a pile of feces



Documenting the **environmental specimens** and their samples

Environmental Specimen



10:28

← Environmental Specimen and Samples ✓

* Photos

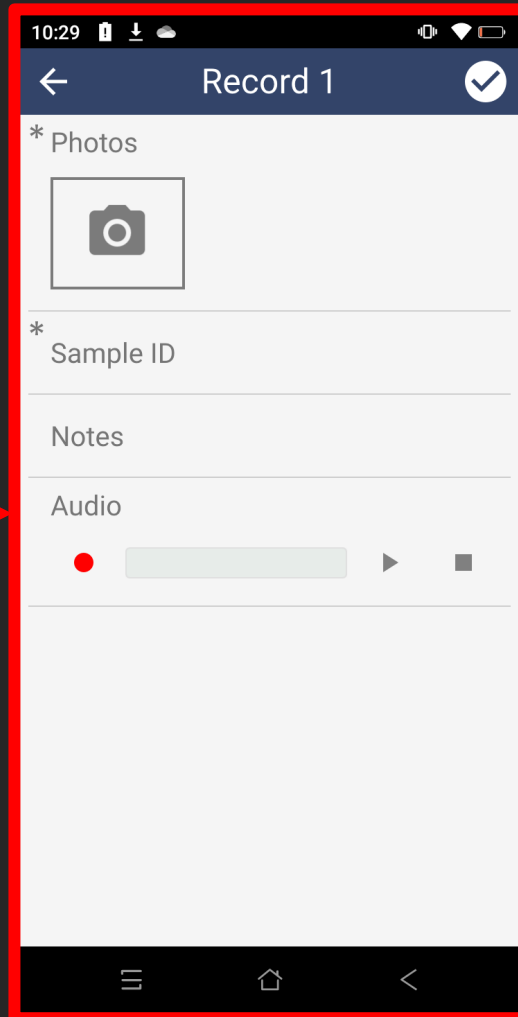
* Species

* Type

Records

Audio note

Samples collected from the Environmental Specimen



10:29

← Record 1 ✓

* Photos

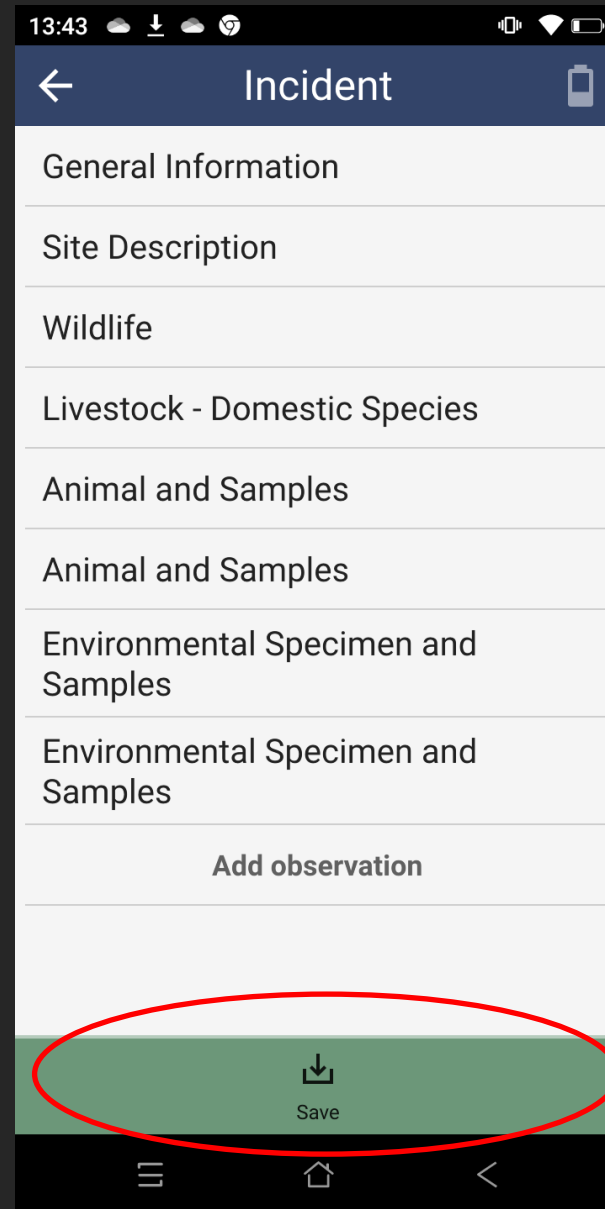
* Sample ID

Notes

Audio

- Each “Record” is one sample collected from the environmental specimen being documented
- Provide the **Sample ID** that identifies the specific sample. It should match the labels used in the field on tubes, bags, etc.
- Use “Notes” to provide any other important information
- Checkmark and choose to enter another sample or go back to the “Environmental Specimen” screen

Save the Wildlife Health Event



Real World Demonstration

- Scenario 1:
 - You find fresh wild boar feces and take a sample
- Scenario 2:
 - You find a banteng with clinical signs suspicious for lumpy skin disease. You also see 1 healthy banteng and 10 domestic cows. 3 of the domestic cows have clinical signs suspicious for lumpy skin disease. You don't take any samples.
- Scenario 3:
 - You come across a pond and see:
 - 20 dead Asian openbill storks (15 juveniles, 5 adults, unknown sex)
 - 15 carcasses early decomposition, 5 carcasses advanced decomposition and missing feathers/skin on the underside of wings
 - 3 weak openbills that can't fly (all male adults)
 - 50 healthy openbills (unknown age and sex)
 - 2 dead cattle egrets (unknown age and sex)
 - You decide to collect **oral and cloacal swabs from 1 dead openbill, 1 whole egret carcass, 2 water samples, and 1 sediment sample**

Thank you for supporting wildlife
health surveillance

