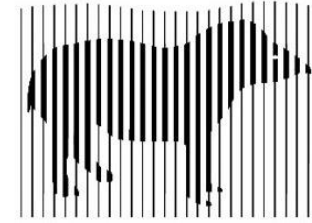


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# NAIRA a tool to automatic mammals genera identification in Camera Trapping Pictures

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# NAIRA III

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# ¿What to do?

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- Assisted construction of databases  
*(Darwin Core Format)*
- Automatic wildlife detection
- Automatic classification: Birds / Mammals
- Automatic identification of mammal genera

# ¿Which genera?

## Didelphimorphia

Didelphidae

**Didelphis**

## Cingulata

Dasypodidae

**Dasypus**

## Pilosa

Myrmecophagidae

**Tamandua**

## Artiodactyla

Cervidae

**Mazama**

Tayassuidae

**Pecari**

## Carnivora

Canidae

**Cerdocyon**

Felidae

**Leopardus**

**Panthera**

**Puma**

Mephitidae

**Conepatus**

Mustelidae

**Eira**

Procyonidae

**Nasua**

**Nasuella**

**Potos**

**Procyon**

## Rodentia

Caviidae

**Hydrochoerus**

Cuniculidae

**Cuniculus**

Dasyproctidae

**Dasyprocta**

Echimyidae

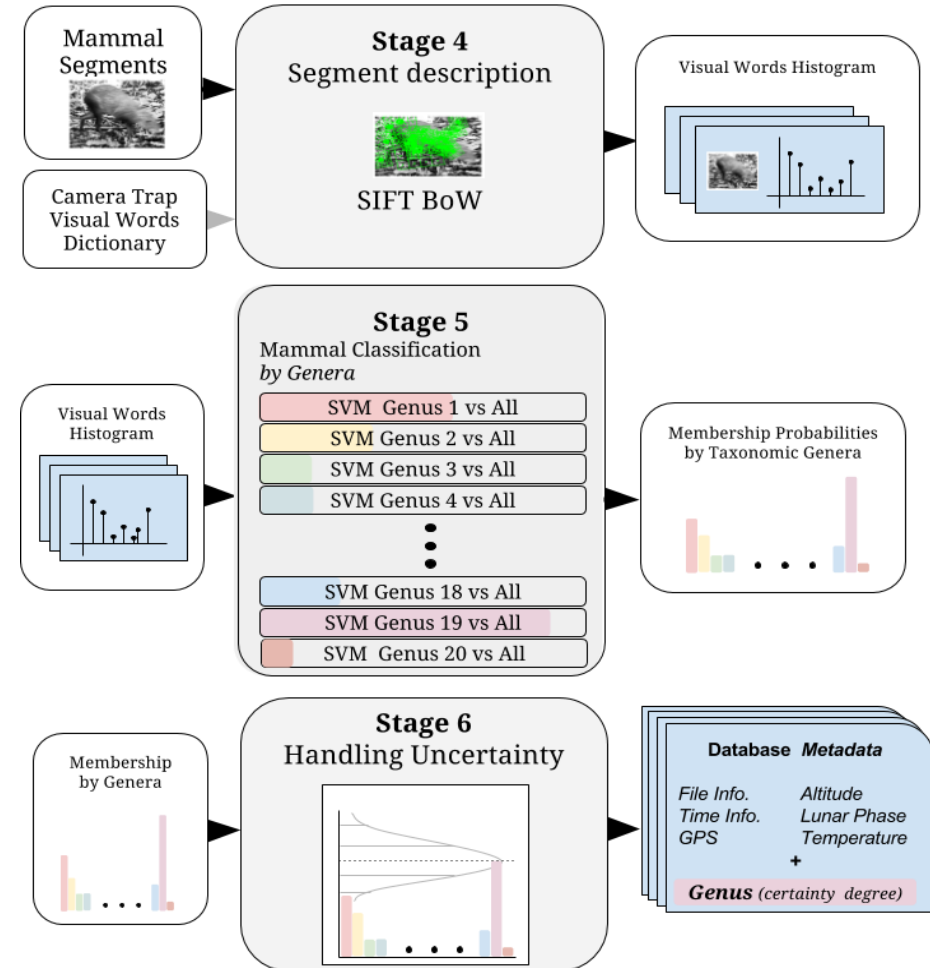
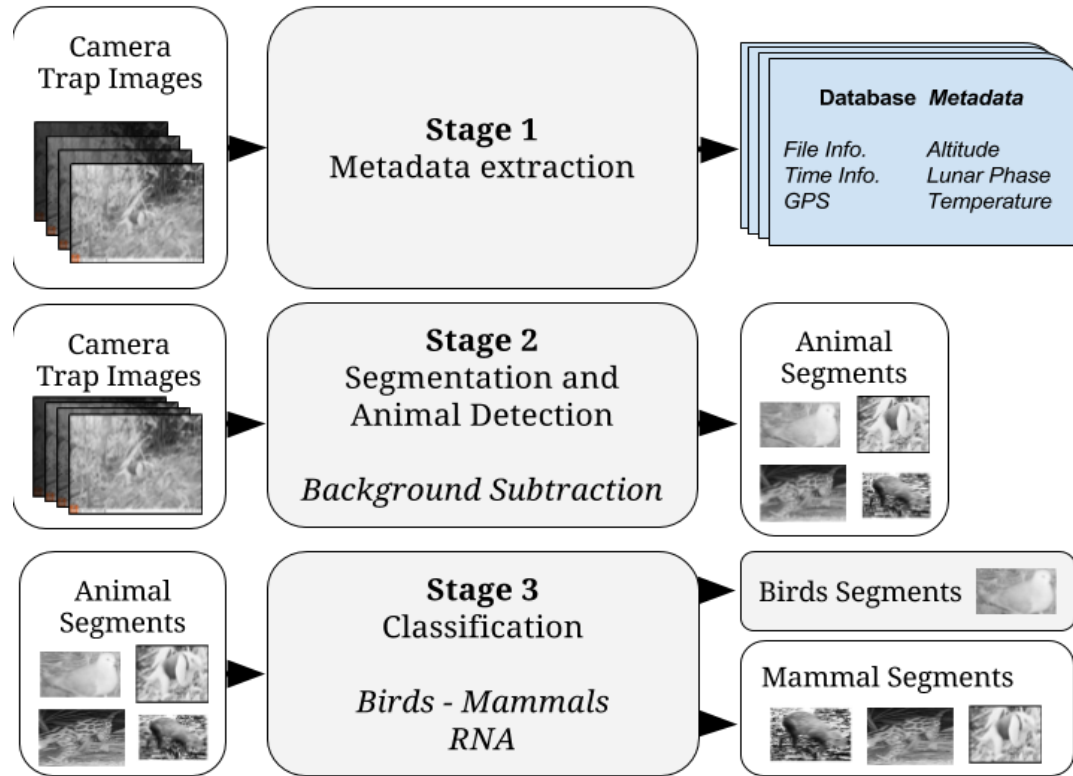
**Proechimys**

## Lagomorpha

Leporidae

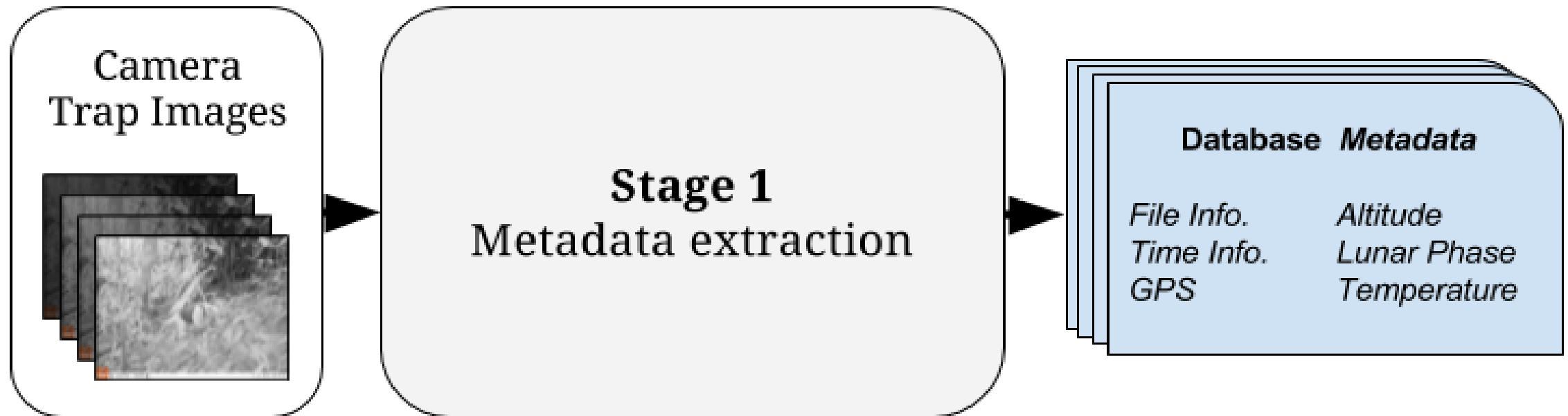
**Sylvilagus**

# ¿How?



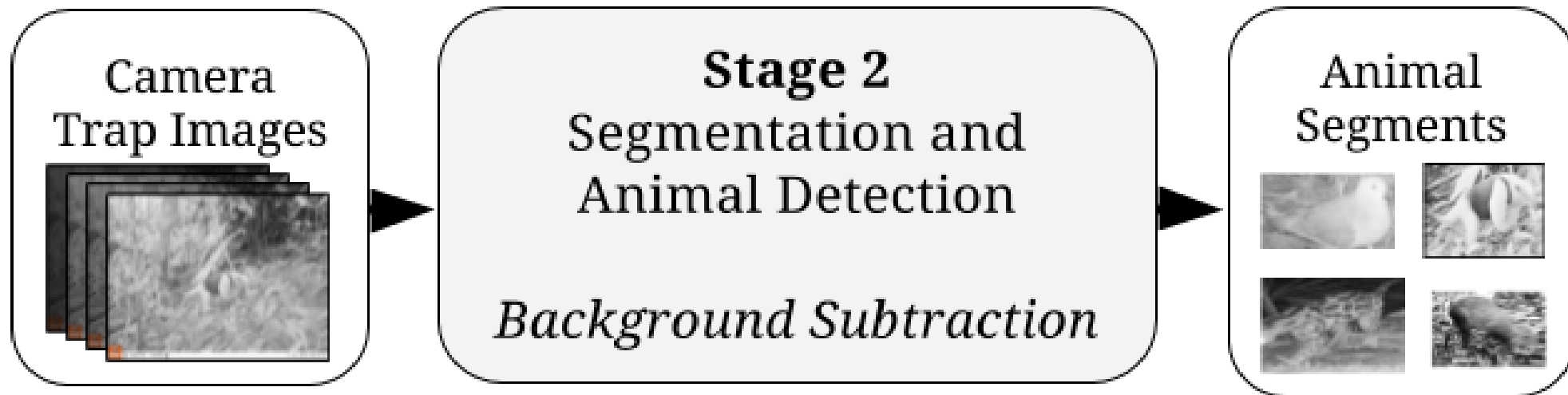
# Stage 1

## Metadata extraction



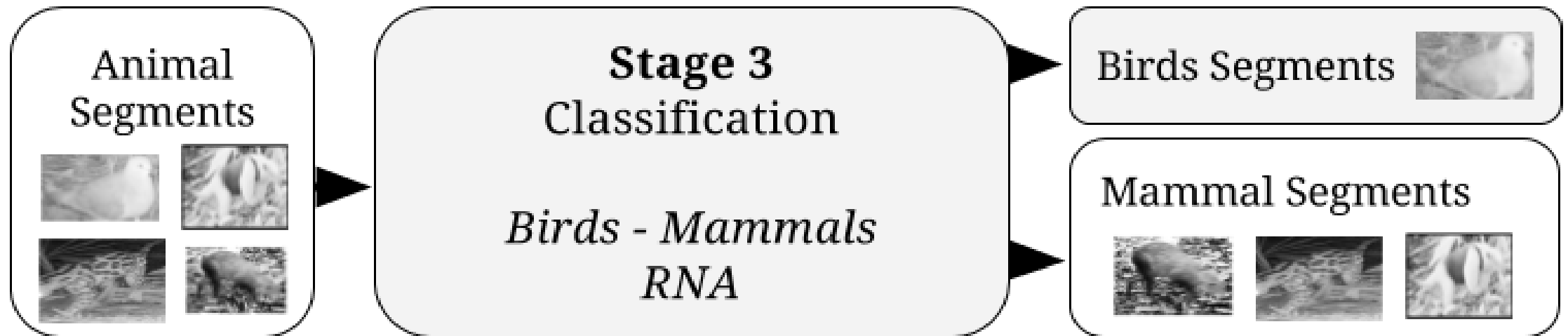
# Stage 2

## Segmentation and Animal Detection



# Stage 3

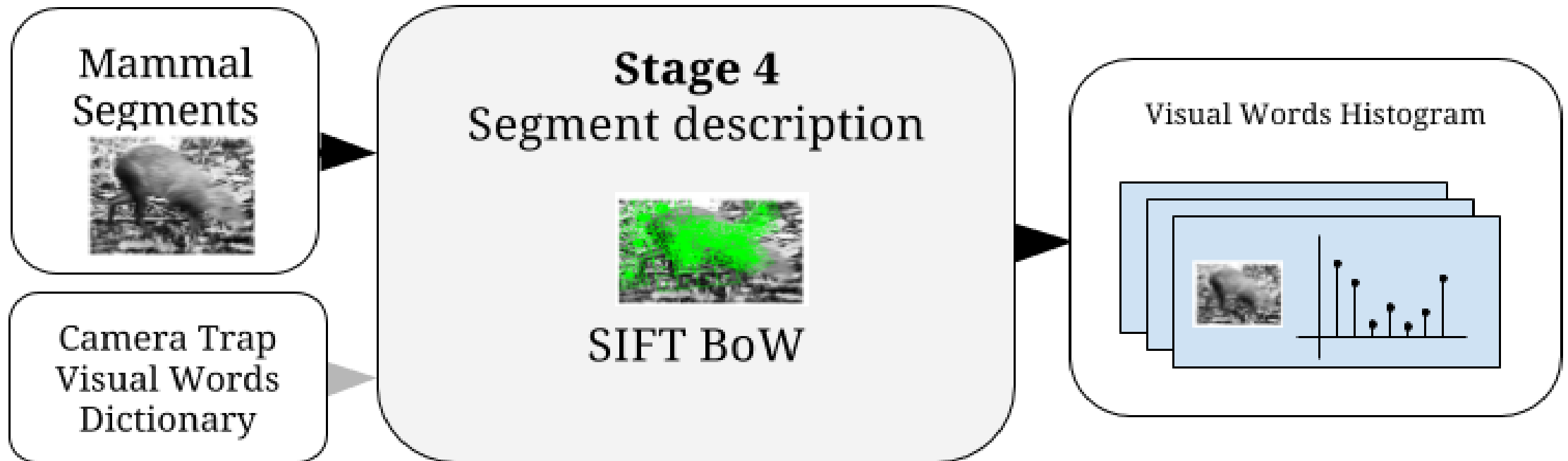
## Birds – Mammals Classification





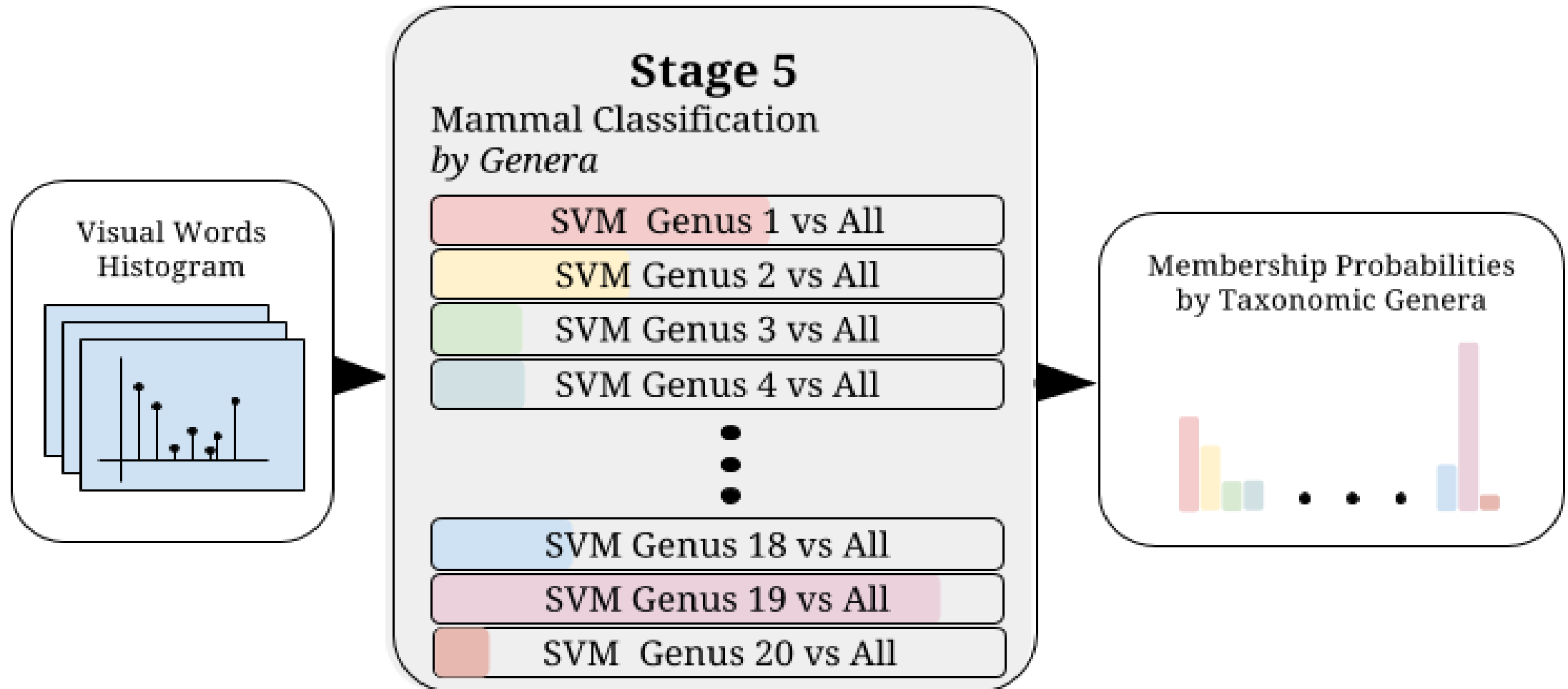
# Stage 4

## Segment description



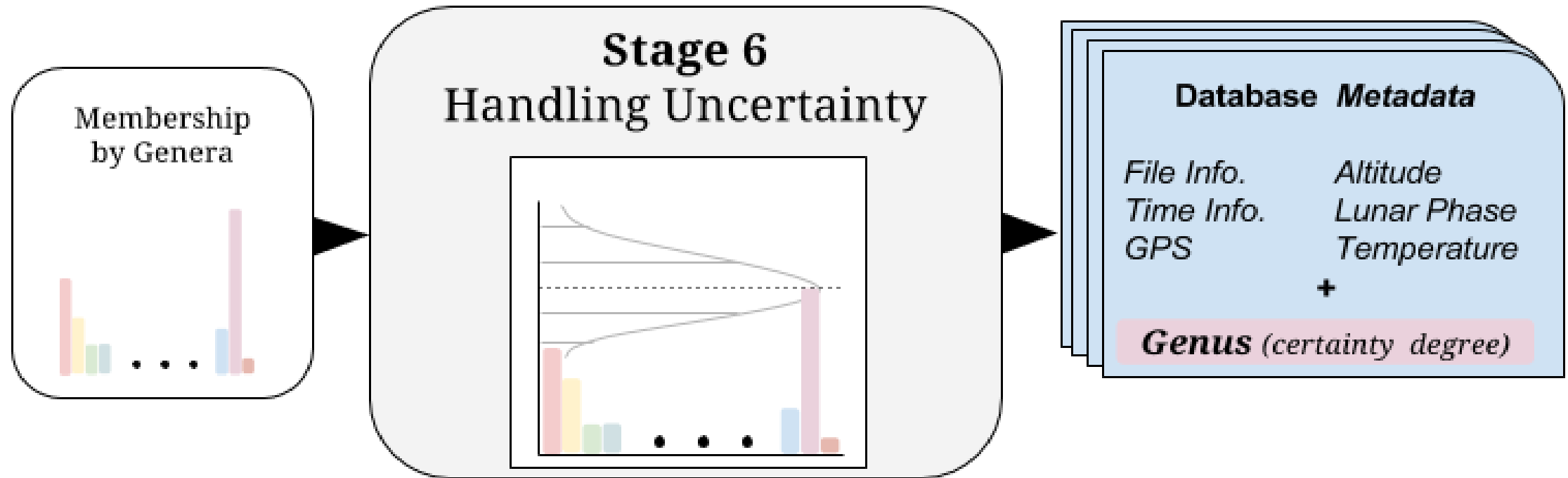
# Stage 5

## Mammal Classification



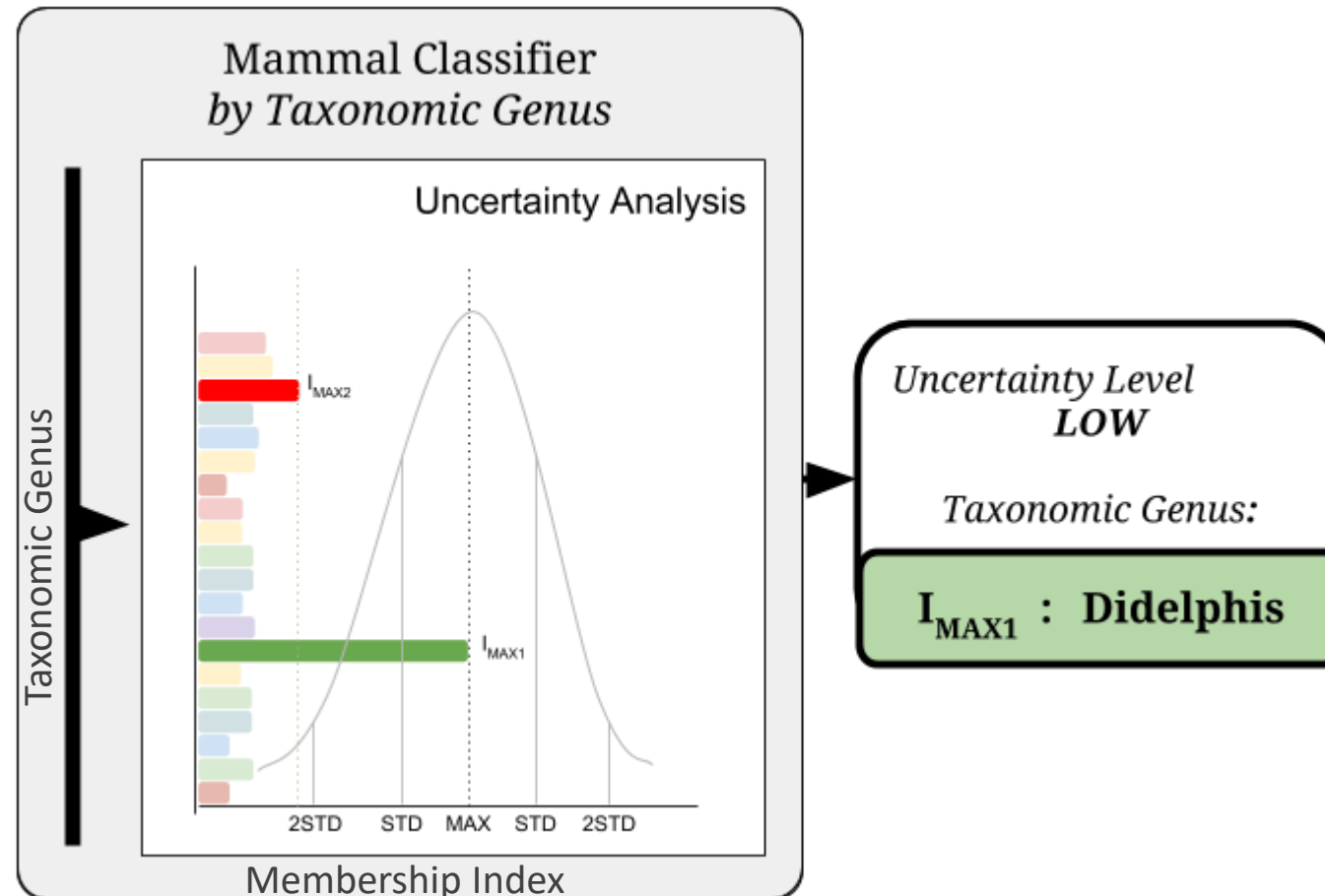
# Stage 6

## Uncertainty Analysis



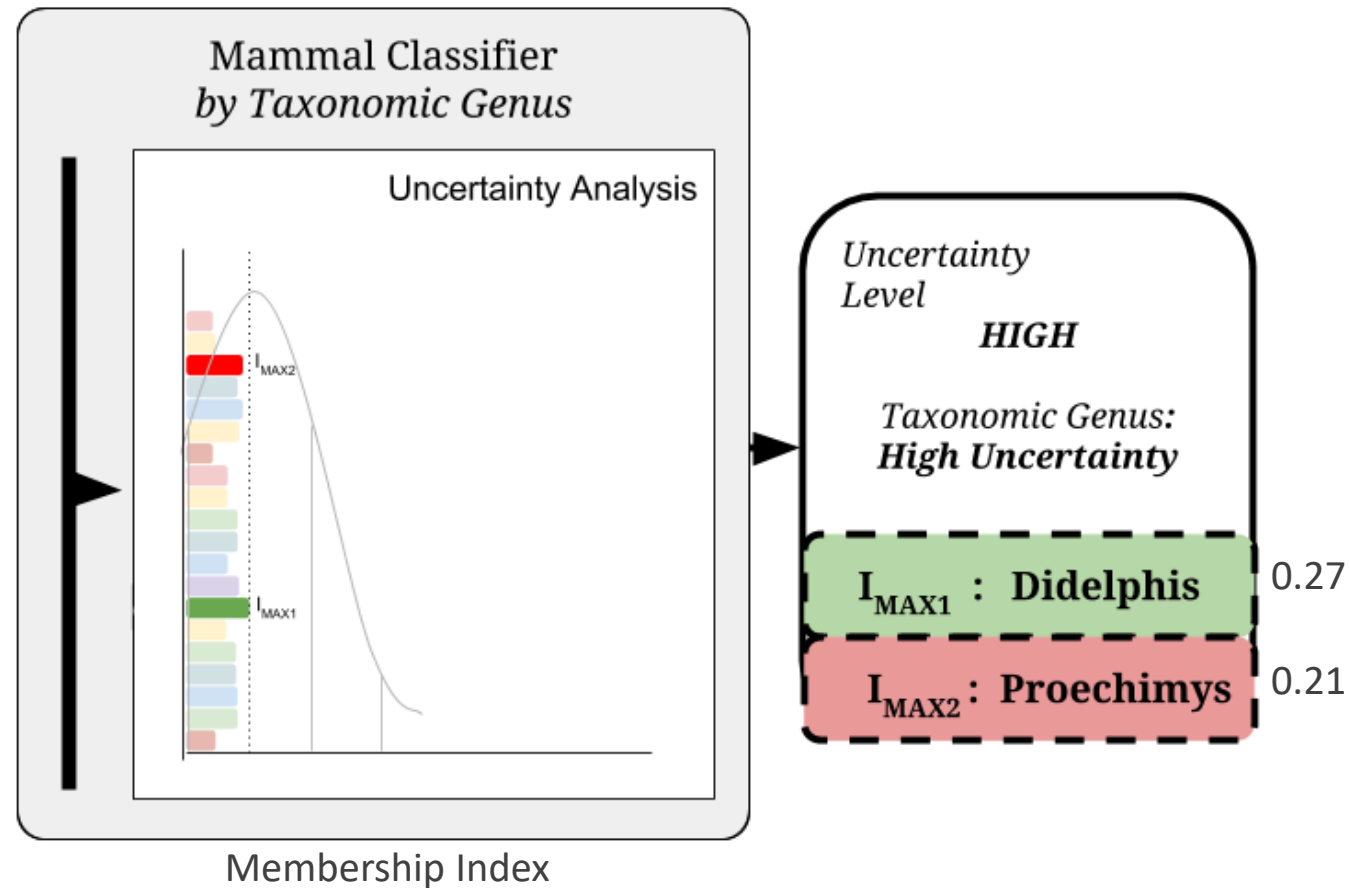
# Stage 6

## Low Uncertainty



# Stage 6

## High Uncertainty



# Validation

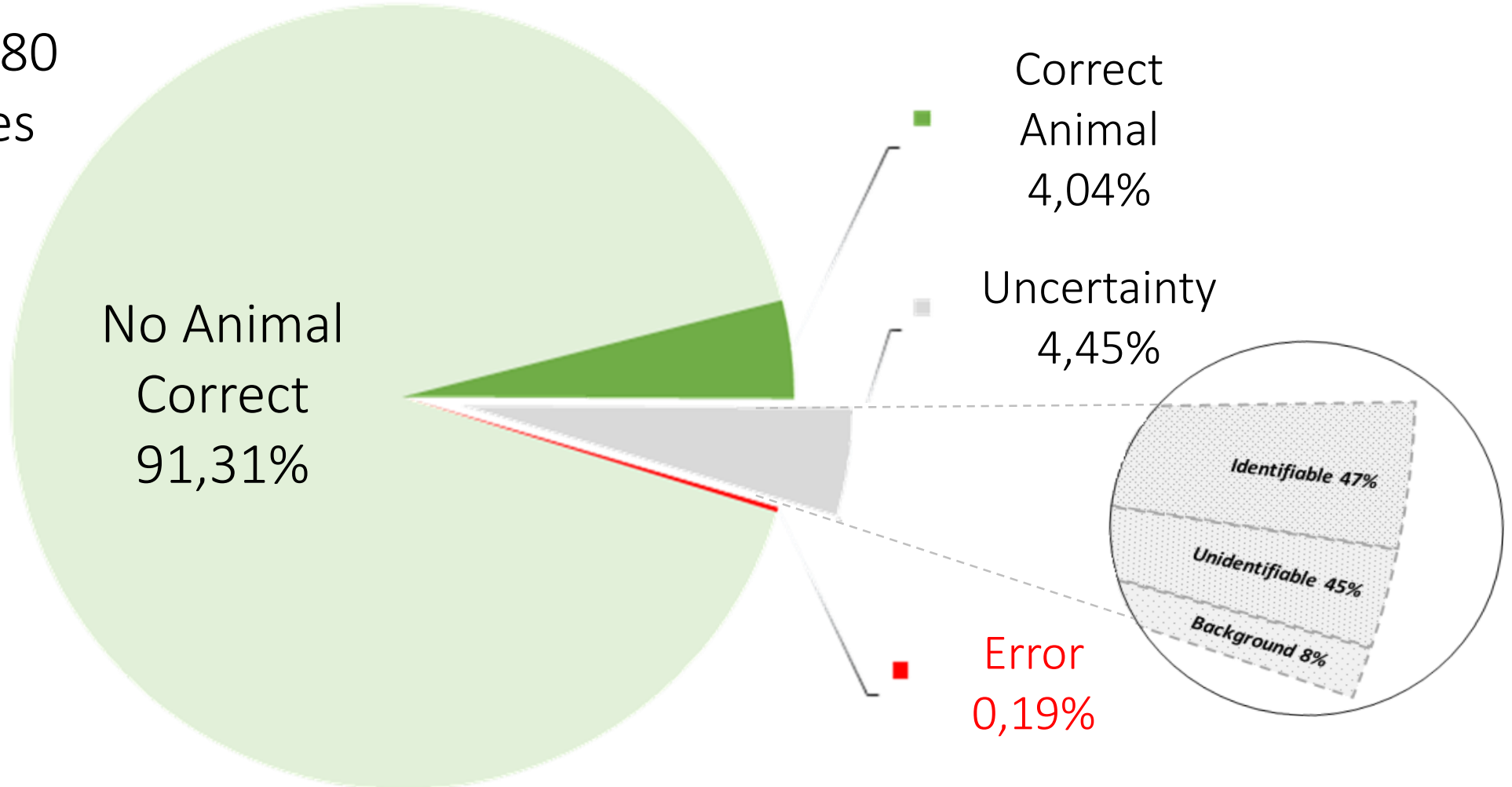
## New Set of Pictures

- Final validation process
- 70.780 Pictures
- Manually Labeled dataset by IAvH experts.

# Performance

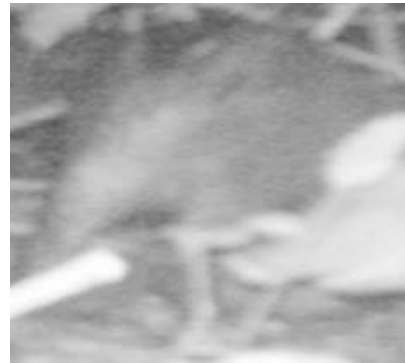
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n = 70780  
pictures

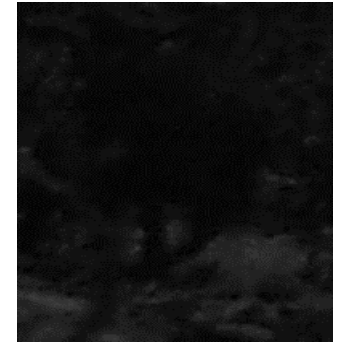


# Error Analysis -causes

64%  
Partial or Occluded

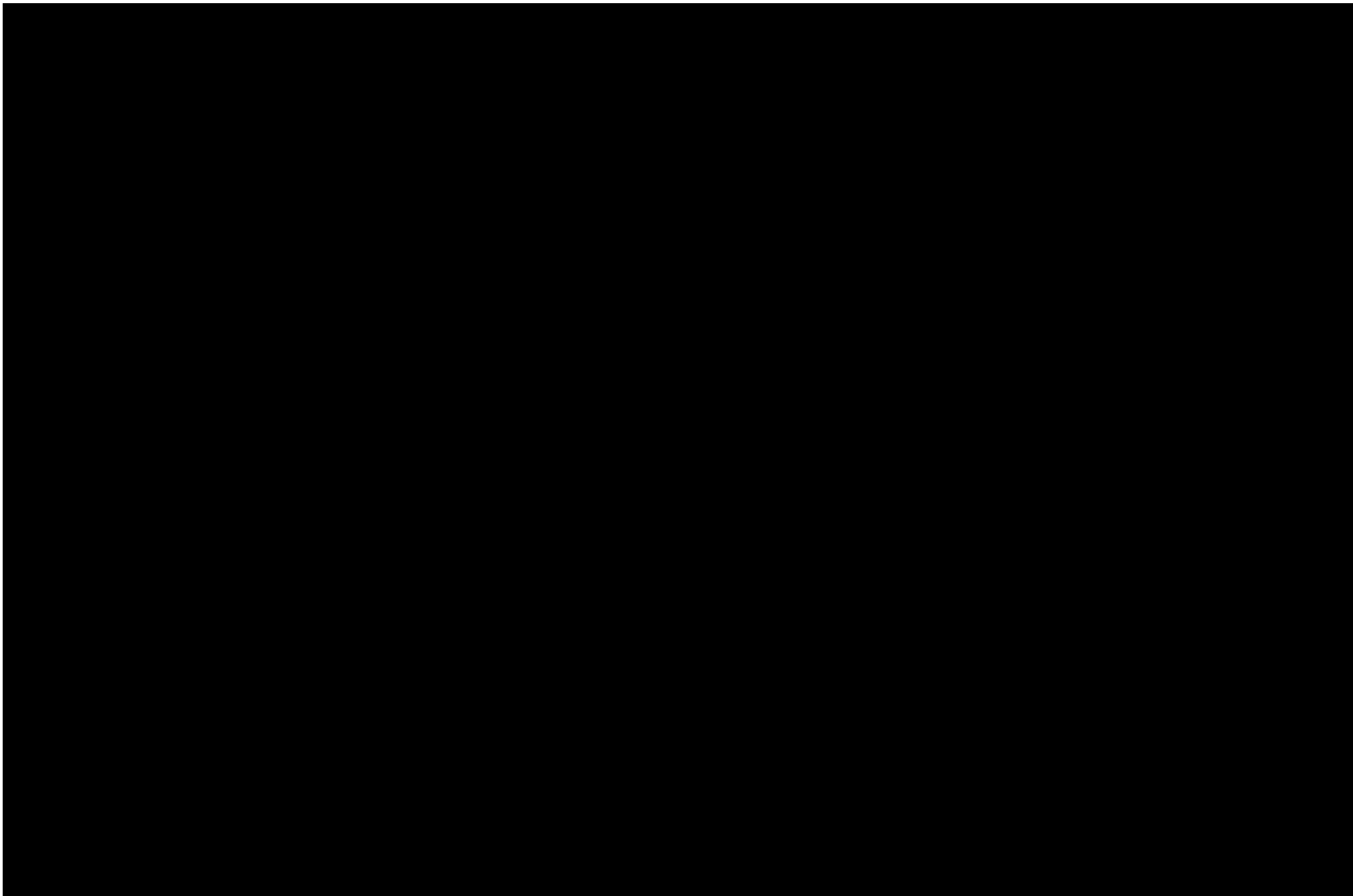


27%  
Low resolution



9% Algorithm error





# Dónde hay datos y quién los tomó



# Dónde hay datos y quién los tomó





# RED COLOMBIANA DE FOTOTRAMPEO

Una herramienta para conectar a quienes muestrean vertebrados terrestres en Colombia

ENCUENTRA MÁS DETALLES



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Supported by COLCIENCIAS  
Research Project No. 111571451061



# Future Work

## Contextual Information



# Future Work

## Contextual Information



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