

# Session 3:

## The individual Identification process

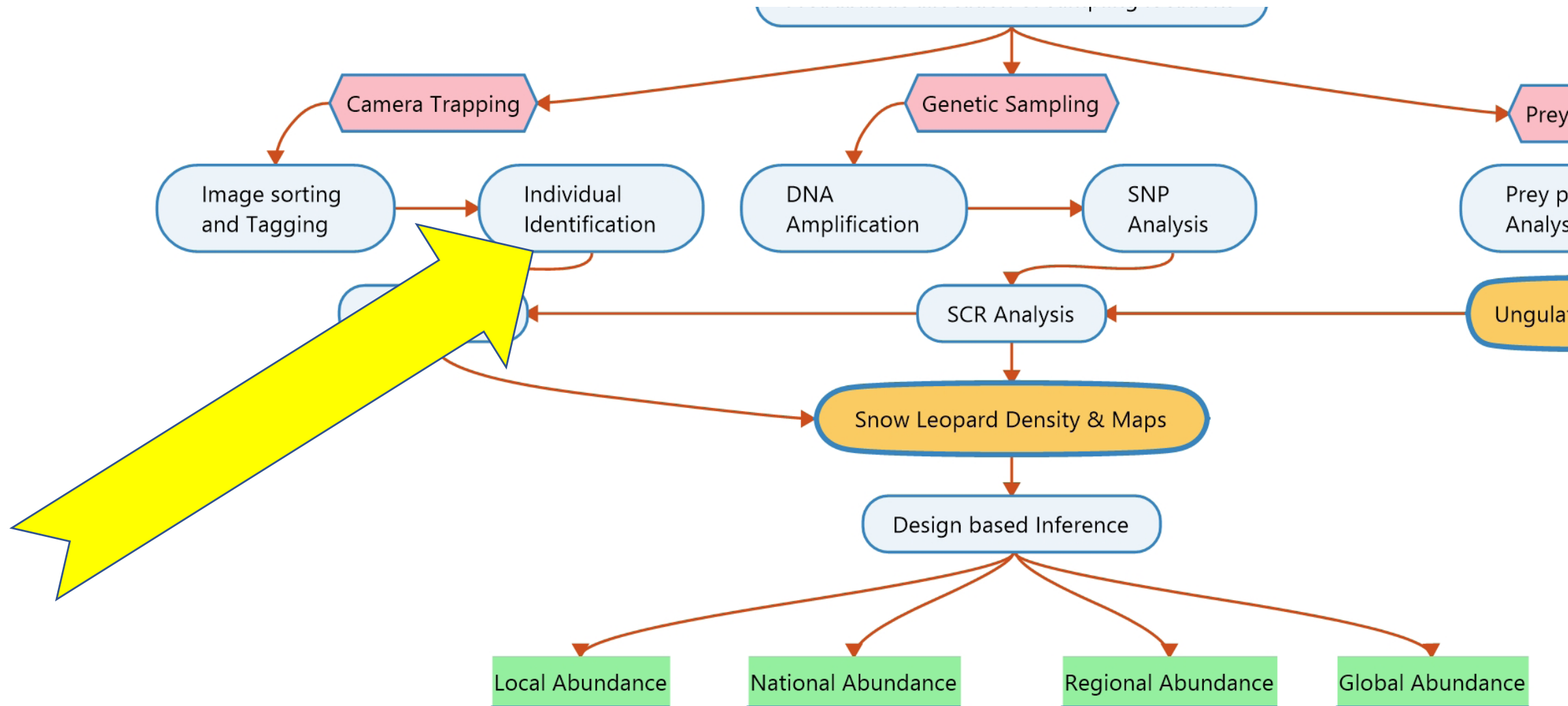
Koustubh Sharma & Justine Shanti Alexander



SNOW  
LEOPARD  
NETWORK

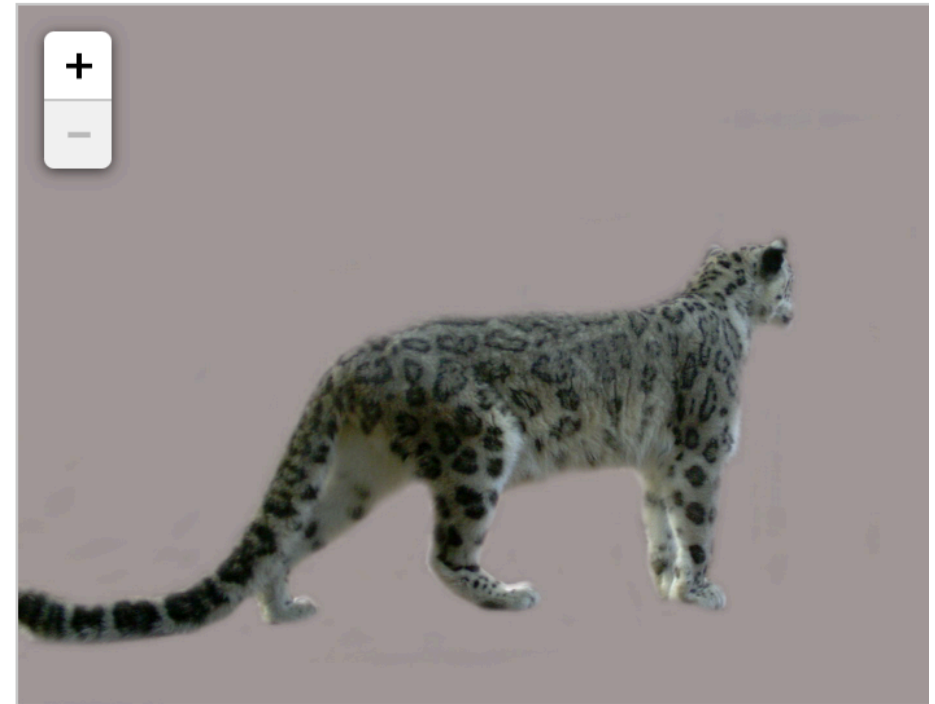


# PAWS Process

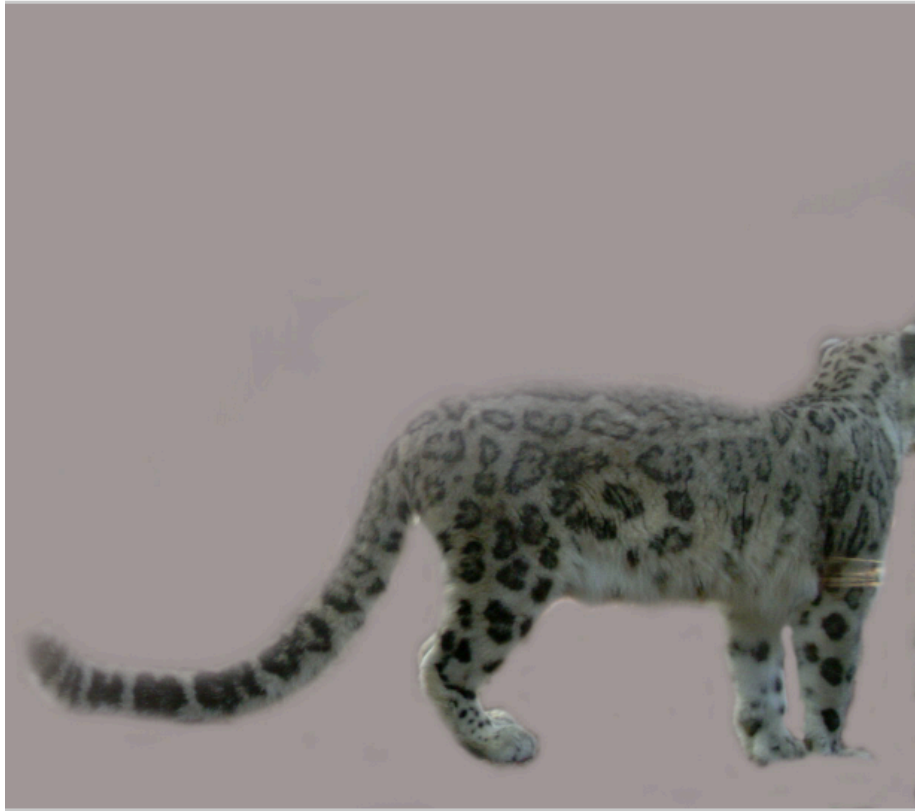


# Are these two cats the same?

---



# Are these two cats the same?





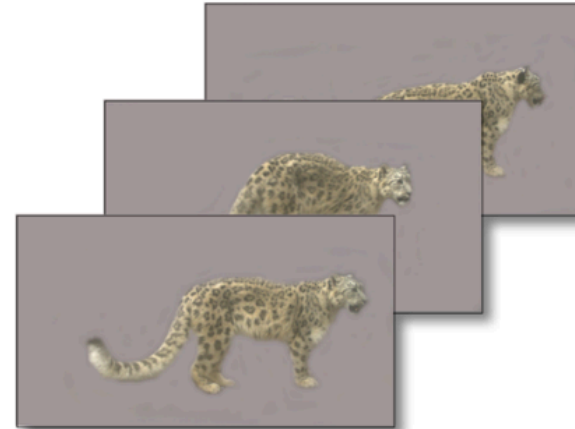
# Identification errors in camera- trap studies result in systematic population overestimation

## *Scientific Reports*

---



**Controlled camera trap events**  
in zoo enclosures, 3 to 11 pictures  
of the right side for each event



**For each of the 16 cats**  
1 to 5 events per cat for a total of 40 events

**Given to 8 observers**  
who are asked to identify which events show the  
same individual cat







# Observer Fatigue

Necessary to minimize the misidentification  
errors



CAREFUL SCRUTINY



TRANSPARENT  
REPORTING



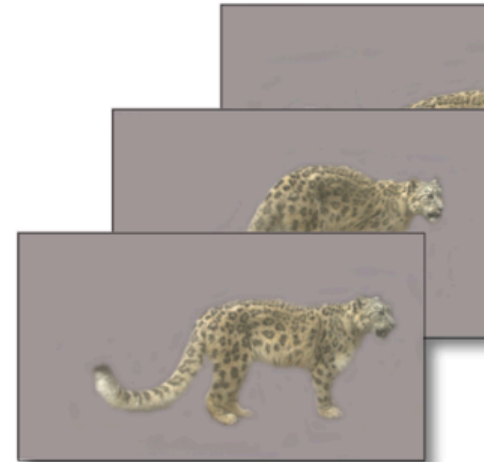
SKILLS DEVELOPMENT  
AND ASSESSMENT.

# Use the GSLEP training and evaluation app

---



**Controlled camera trap events**  
in zoo enclosures, 3 to 11 pictures  
of the right side for each event



**For each of the 16 cats**  
1 to 5 events per cat for a total of

**Given to 8 observers**  
who are asked to identify which of  
same individual cat

*Report:*

- *Accuracy*
- *Confidence*
- *Sample Size*




Use at least three marking patterns to confirm matches or differences and exclude any suspect cases



**Figure 3. Multiple images with more than one body part of the snow leopard could be photographed using a single camera trap capable of taking multiple images rapidly (<1 second intervals).** Here we show 3 out of the 30 different photos of a male snow leopard taken on the same encounter during the 2 minutes that he lingered in front of the camera. These images were used to create references for identifying 8 body parts, including face, tail, and both flanks, hindlegs and forelegs of this particular snow leopard.  
doi:10.1371/journal.pone.0101319.g003

# Use 2-3 observers for the individual ID



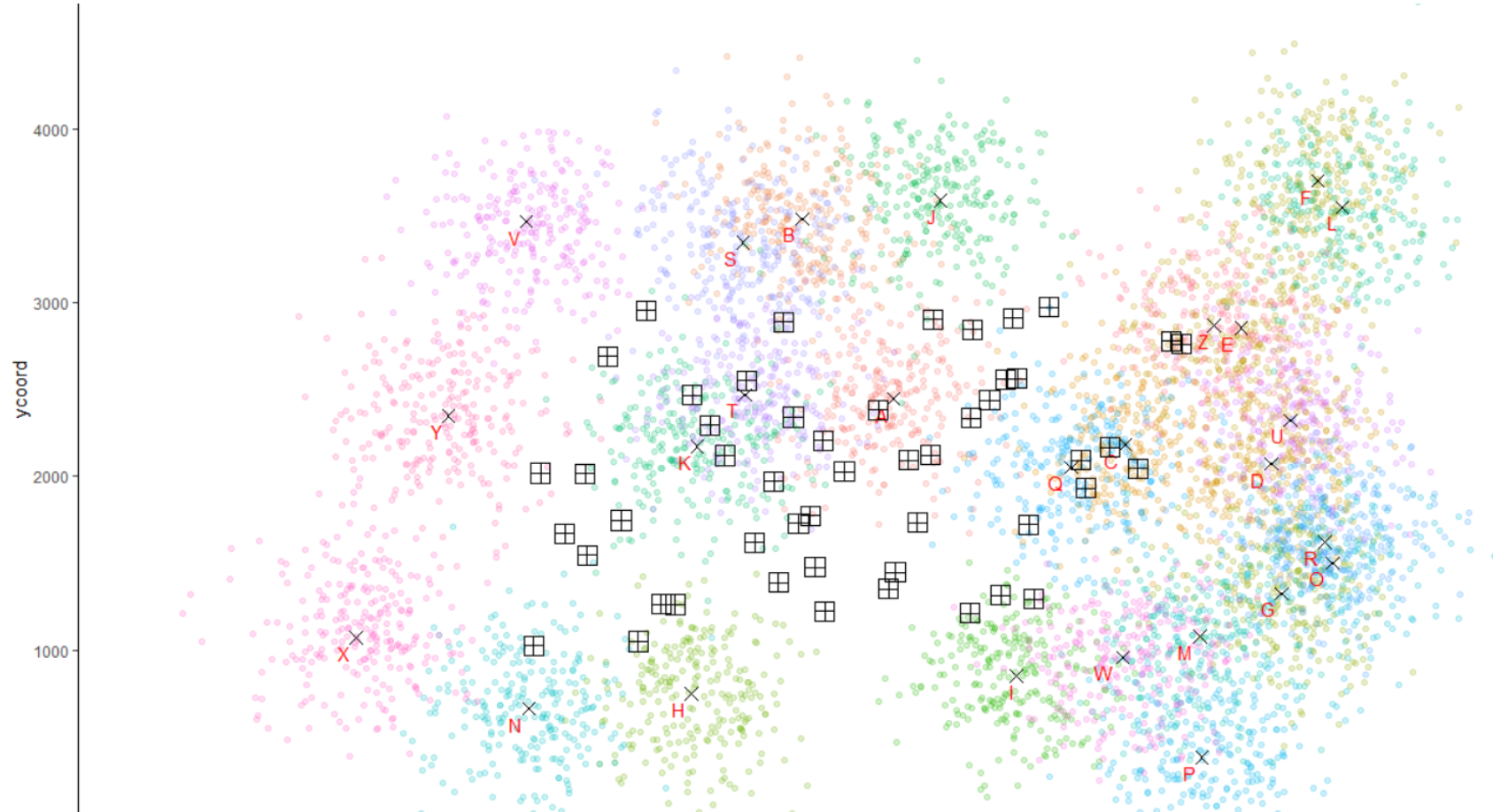
Pics ID	# Photos	Date	Time	description	Tengis_ID	Munib_ID NAME	Justine_ID	USE in SCR analysis
0362-0366	5	03.09.17	07:29:58	PM	Unknown	Kurzawa	Unknown5	-
1944-1953	10	29.09.17	01:33:09	AM	Kurzawa	Kurzawa	Kurzawa	Kurzawa
2206-2210	5	02.10.17	05:07:35	AM	Devekh c	Devekh c	Devekh c	Devekh c
0031-0070	37	27.06.17	10:38:36	PM	Umtiti	Umtiti	Umtiti	Umtiti
0536-0564	29	10.07.17	12:36:15	AM	Umtiti	Umtiti	Umtiti	Umtiti
0596-0600	5	08.08.17	08:27:59	PM	Digne	Digne	Digne	-
0151-0155	5	27.09.17	02:11:36	AM	Tolisso	Tolisso	Miranda	Miranda
0186-0200	15	09.10.17	09:51:40	PM	Coman	Coman	Coman	Coman
0201-0210	10	09.10.17	11:05:06	PM	Agnes cub1 Dagina	Agnes cub1 Dagina	Agnes cub1 Dagina	Dagina
0166-0171	6	07.09.17	01:44:30	AM	Coman	Coman	Coman	Coman
0191-0247	57	22.09.17	06:34:54	AM	Rabiot	Rabiot	Cub.Rabiot	-
0291-0305	15	27.09.17	07:06:03	AM	Tolisso	Tolisso	Miranda	Miranda
0326-0330	5	07.10.17	04:03:23	PM	Tolisso	Tolisso	Miranda	Miranda
0896-0920	25	09.09.17	04:34:20	AM	Kurzawa	Kurzawa	Kurzawa	Kurzawa
0921-0930	10	09.09.17	08:33:36	PM	Devekh c	Devekh c	Devekh c	Devekh c
1026-1043	18	14.09.17	03:35:35	AM	Kurzawa	Kurzawa	Kurzawa	Kurzawa
1201-1203	3	20.09.17	01:44:34	AM	Devekh c	Too blur to ID correc	Unknown 4	-
1356-1375	20	24.09.17	10:42:14	PM	Antoine	??	Antoine	Antoine
1416-1420	5	28.09.17	04:51:00	PM	Kurzawa	Kurzawa	Kurzawa	Kurzawa



# Report number of unidentified capture events

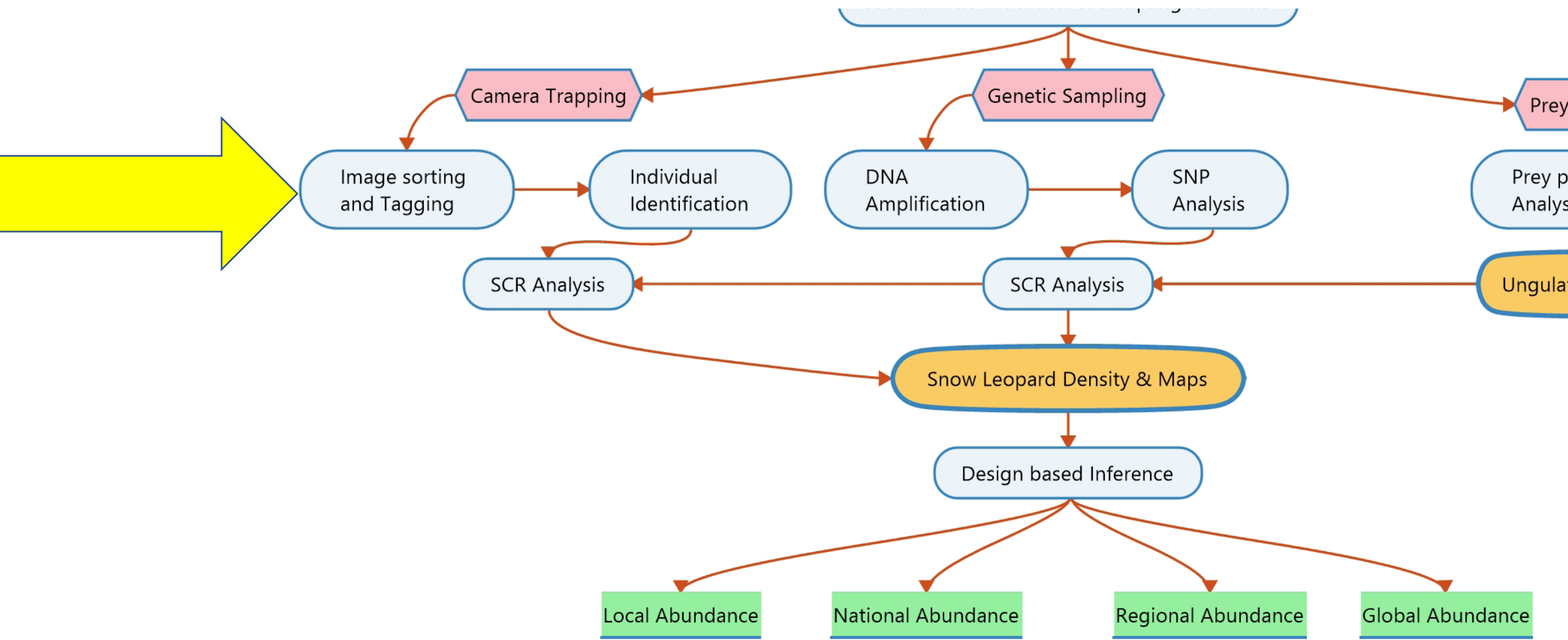


# Check spatial clustering of each individual



Present identification sheet as annexure to  
the results

# PAWS Process



How to manage your camera trap  
photographs?




# Tagging

- A software such as DigiKam helps in systematic meta-tagging
- where the information is stored on each photograph.

# Add metadata to photos

## Configure Metadata Storage to Files




Set here if you want to store the information assigned to items in digiKam in the files' metadata, to improve interoperability with other photo management programs:

☐ Do nothing

☒ Add information to files

*Note:* recording information to the files' metadata can slow down photo management operations.



Help

< Back

Cancel

Next >



# Tagging structure

## Species

- Snow leopards
- Wolves
- Red fox
- Pika
- Bearded vulture

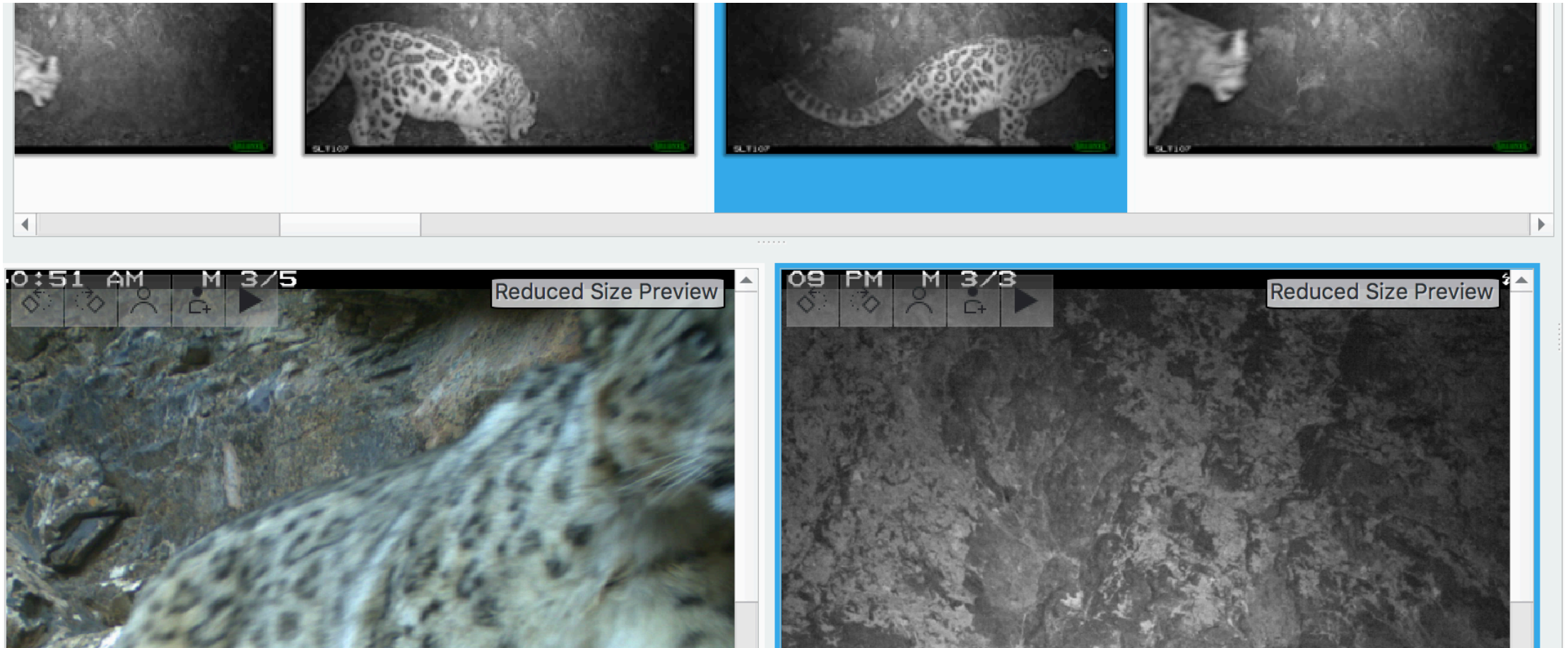
## Individuals

- Anu
- Dagina
- Anu cub 1 (2013)
- Anu cub 2 (2013)
- Anu cub 1 (2015)
- Beneke

## Flank

- Right
- Left
- Back
- Tail
- Head

# DigiKam Example



# Other softwares

Software: CPW Photo Warehouse

- <https://cpw.state.co.us/learn/Pages/ResearchMammalsSoftware.aspx>





What happens if there is  
indeed an Error?