**Tiger-Dhole Project Meeting [16 Feb 2022]**

**Internal Report for Dhole [FY 21/22]**

1. Use the baseline data collected from both dens, see for any changes in behaviors. Aim towards identifying if larger space and/or environmental complexity leads to increased activity (e.g. pool, cubbing den, sand pit, etc) Use this report as stepping stone for the Dhole study. Linear regression and then r & r2 \*(try first and engage DJ’s help)
2. Report format will be similar to scientific report except Conclusion will be changed to Future direction (new keepers can understand why the study started and which direction it aims to head towards).

**Dholes**

1. New study, with the focus on each individual grouping only. Study sites will be at respective dholes exhibits to relate with RF exhibits.
2. Split exhibits into zones: 2 options.
3. Even zones (even measurement)
4. Uneven zones (use resources in the exhibit; foliage, pool, boulder, etc) \*more feasible
5. Another method of zoning would be segmenting the exhibit laterally (e.g. from furthest part of the exhibit to the frontmost end.)
6. Use of stimuli (scents, sounds; e.g. buggy, key sound, etc) in the various zones with the objective of essentially figuring out if the stimuli can get them into zones with better visibility (\*randomized) (\* consider lateral zoning for 6.0 and uneven zoning for the other 2?; feasible?)
7. To be measured via electivity index and modified spread of participation.
8. Electivity index works if stimuli used are food-based enrichments, few suggestions:
   1. Scattered feeding
   2. Buried feed – preferable as more time will be spent in the exhibit
   3. Try out insects – can source from WNC and fragile forest
   4. Zip-line for both exhibits, cheaper version but need to ensure food can snap off straight away as animals engaged with the device.
9. Suggested observation time: 5 minutes observations for every hour (similar to M2 study)
10. ZooMonitor (\*need to figure out)

**Tigers**

1. Same as dhole, to re-do the study and study site will be in the exhibit.
2. Split exhibits into zones: 2 options.
3. Even zones (need measurement)
4. Uneven zones (use resources in the exhibit; foliage, pool, boulder, etc) \*more feasible
5. Lateral zoning might be more relatable to Bongsu as he prefers more shaded and secluded area. (\*to consider?) - Bongsu’s spot has good coverage of trees and soft substrate/leaf litter.
6. Use of stimuli (scents, sounds; e.g. clicker, key sound, etc) in the various zones (\*randomized) - can try out fish (\*discuss w Kumar first), Bongsu a bit unresponsive to meat at times.
7. To measure via electivity index and modified spread of participation.
8. Pacing could be a coping mechanism for him
9. ZooMonitor

Mod SPI: Assesses their zonal occupancy. Exhibits have been zonified based of items of interest and visitor view ability

Results Scale from 0 - 1: an index of or closer to 0 would indicate the animals are utilising the zones evenly; a result of/or closer to 1 would indicate uneven usage of the zones highlighting our need to figure out how to rectify the issue or figuring out how we can manipulate their usage of the zones

Tentative methodology:

Instantaneous sampling for all 3; total duration 15mins with 1 min intervals; recording to be set from 3 - 4, 4 - 5, & 5 - 6 (\* Only non-ops days; non-rainy days too?) \* note down the weather conditions

Treatment:

Scents: Blood, Fecal Water (needs 2 days get approval from vets), Catnip Spray

* KIV for now: Enrichments: Zipline (4.1 & Tigers), Anchored Bones, Blood Blocks; Tilapia in Cascade (Tiger & maybe 4.1), Scattered Feeding (Non Visual- meaning animals are confined and are unable to see where meat is scattered)

Tentative RFN Devices: Scent Machine, Sound device, Body scratch stations, Carnivore Box (fridge that throws out meat),

\*For electivity Index  
Flamingo Zotero

Investigating the effect of social grouping on captive leopard cats?

**Tentative Methodology (1/3/22)**

3 time slots: 2 – 3 (Baseline, no treatment), 3 – 4, 4 – 5 ; Only 1 type of scent to be used in a day; 2 zones each time slot, while using only 1 spot within each zone; For now just plan out which zones to use when (Do up a table for this)

To collect total of 10 days for each treatment, for trial stage just collect 2 days worth of data for each treatment; observe if there is good data to be collected, if engagement and revisitability rates are low need to revisit methodology

Limit to 4/5 behaviours: Lo, Rest, Scm, Dg, Investigative behaviour (would digging come here?)

Observe 2 main things: Duration of time spent engaged with scents placed within the zones; REvisitation frequency during the 10 min duration

Observations will be keyed in on Zoomonitor at 1 min intervals for a total of 10 mins (\* see if this is feasible, will not be easy to keep confining and releasing the Tigers)

Trial will be 2 weeks

Better if got camera traps to try out first if not use the action cams

Inform curators on tentative enrichment ideas and feasibility on rolling them out soon

**Things to request for**

1) Additional support from C3 since aardvark study is not entirely that worth putting so much time into

2) Need to liaise with H1 Keepers to keep drive thru gates open for the duration of the study as we need to set up and take down the cameras during the stipulated time frames

3) Live fish (tilapia) from WNC or various moats

4) Social Groupings- Tentatively not going to RF?, when will their moves to SZG take place and/or when will they be grouped seperately from Intan?, if these occur in the near future then we probably have to omit them from the study (discuss with DJ) \* Keep aside abit of token meat for the Tigers to condition them for frequent shifting between raceway/ yard & exhibit

|  |  |  |
| --- | --- | --- |
| Behaviour | Acronym | Definition |
| Locomotion | Lo | Movement from 1 point to another (Running, Jumping Swimming) |
| Scent Marking | Scm | Scent marking behaviour conducted either via excrement or rubbing scent glands on surfaces |
| Investigative Behaviour | In | Animal is displaying behaviours such as Smelling/Sniffing, Listening out for sounds, Glancing in various directions or Digging to identify source of stimuli |
| Resting | Re | Animal is Stationary, Sleeping or Resting Awake |
| Out of Sight | OOS | Animal is out of sight or (unable to conclusively state what behaviour the animal is engaged in) \*to place under others? |
| Others | O | All other behaviours |

Things to note

Do pilot study and calibration with Krys (28/03)

Razaks reccomendations CCTV- Get a quotation from Ah Pin (Go with Jeffs with suggestion for action cams)

Indian Wolf & Red Dhole 4 cams each...

Confirm Fecal usages with Vets

Confirm which groups with Ceci

Ask DJ if we need to randomize the baseline time frame (DJ wants to see how long it takes for them to be habituated or conditioned to the routine)

ASk DJ if The sample size is based off per day or based off each treatment( It’s the control!!!!!)

Stick to 2.0 Malayan Tiger and 6.0

Keep in mind of using the Internal report data from 6.0 with RFN study

Relook into the zonification for 6.0 and 2.0 for 2.0 separate it into an X for 2.0, and look towards combining Zone a & B for 6.0

Do up zones after video footage from pilot study

Paraslik

Find quotations for action cams

After the pilot study reanalyse the ethograms and see if more behaviours are needed

Engage DJ to help with churning out hypothesis

Entrophy to plot out space usage? (Ref point: Enclosure use as a measure of behavioural welfare in three zoo-housed African wild dogs Lycaon pictus)

Would catnip affect the study considering how it induces a chemical reaction in cats brains....

Meeting 22/03

Due to the tight timeline that the intern that’s around we might have to conduct the study full out from May itself

* Need to see if there are increases in activity
* And how they react to the scent; are the attracted or repelled by it
* RE edit the methodology to 10 mins (is it ATO or instant) for activity levels in person recording need to change out; revisitation will only be counted in no of times (video recording)
* Look into zonation after data collection
* For now 10 days for treatments; might increase to 15 or 20 days to based on whether an trends are present or not and 5 days for Baseline
* Instead of changing out trial using raincoats? Take turns with both
* For the baseline, just simulate the routine. Follow the time frames: 10 – 12; 13-15; 15-17
* When collecting baseline confine the animals and go into the exhibit for 5 mins or so....
* Sort out the 8 to 10 zones for both exhibits