MEERKATS

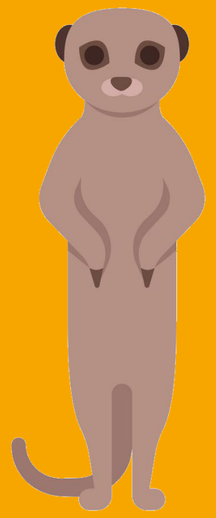
Jessie Boylan

Curator / Zoo Manager

EEP Coordinator Meerkat / BIAZA Mammal Working Group Chair

jessie.boylan@hertfordshirezoo.com

- EEP Species Overview
- Health & Husbandry
- Animal Management



WHY?!

I wish you a lot of strength when reading

That is a hell of a task.

Indeed a mammoth task, brave of you to conquer this.

Good luck in the grandiose plan!

Good look with this immense task

Good luck with what must be an immense task

I wish you good luck with this enormous task.

Was there alcohol being consumed when you agreed to that?

Wow, you are going for it.

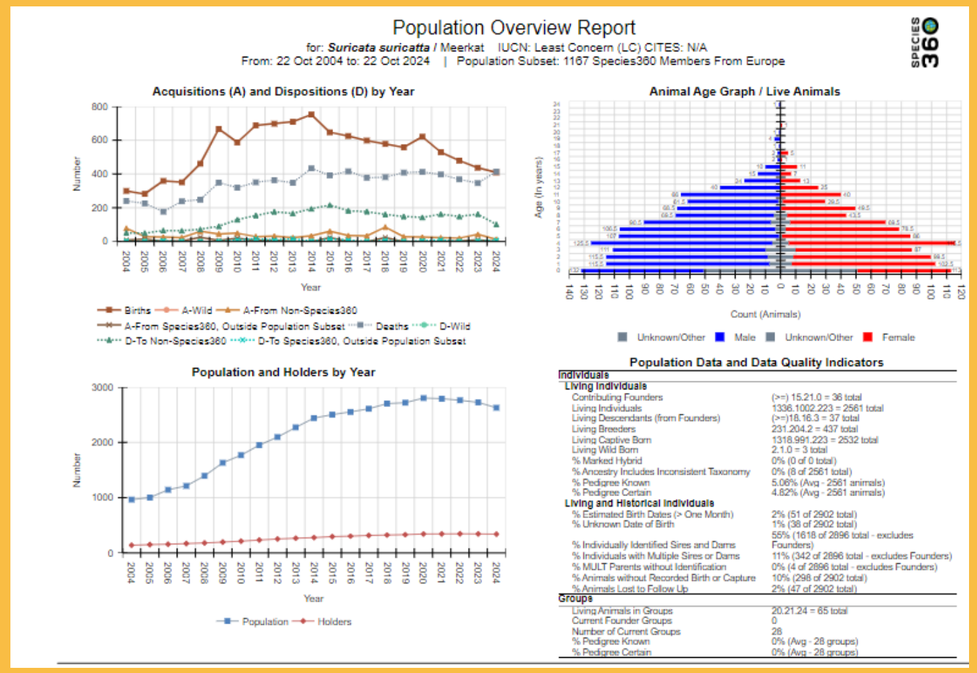
Sorry Jessie, I fell off my chair...

What a huge task!

Are you mad!!

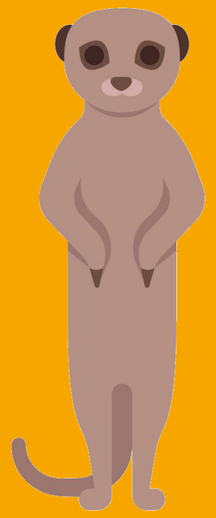
Thanks for taking the time on compiling all the information on the meerkat European population, and what is even going to be a bigger task, to analyze all the data!

- **341 Holders Europe**
- **Population = 2,627**
- **New Style EEP for EAZA - different goals & management**

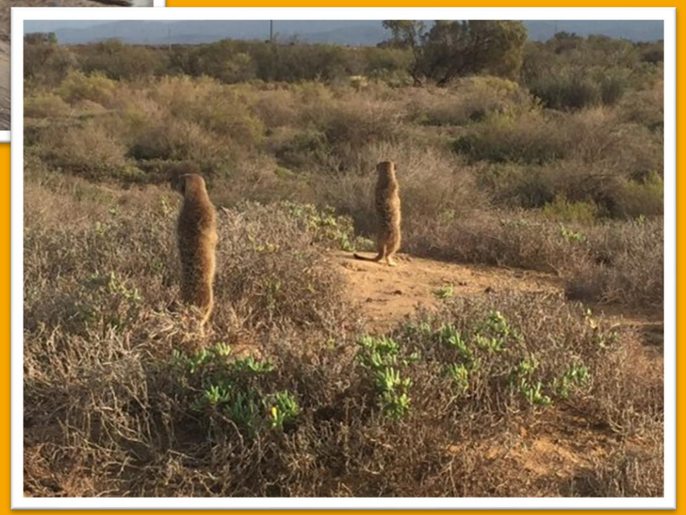


EAZA Small Carnivore TAG

Hertfordshire ZOO



WHY?



- **2018: 93% want meerkats in long term collection plan**
- **Popular & Engaging species: 85% collections use species in education programmes**
- **Zoo Education: Naturalistic exhibits where can display natural behaviours provides opportunity to educate about exotic pet trade and the species evolutionary and behavioral ecology**
- ***Colleges first experience with species***

EAZA Small Carnivore TAG

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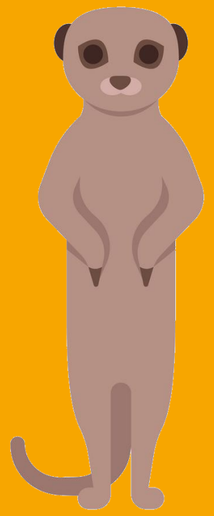

GOALS

EEP Goals

- **Encourage institutions to consider keeping threatened small carnivores with higher conservation value**
  - Through communication with SC TAG
  - TAG expects between 2 to 5% of institutions will choose to change to threatened small carnivores in the next five years.

- **Identify population management tools for reducing population growth whilst still being able to maintain exhibit needs**
  - Data to investigate contraceptive effects on social group dynamics
  - Include all contraception information in ZIMS & in the EAZA Reproductive Management Group (RMG) database
  - Send coordinator information on social introductions particularly the merging of groups to better be able to maintain displays of larger groups for holders in nonbreeding situations.

- **To better determine the most appropriate enclosure facilities/substrate types for meerkats**
  - Best Practice Guidelines
  - Husbandry (including substrate) Survey - improvement of animal welfare.

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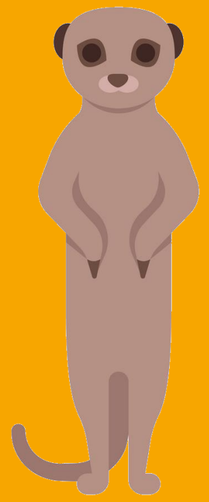


ACTION

- **No specific breeding and transfer recommendations**
  - Contact EEP coordinator before obtaining animals from **or** transferring to a non-EAZA institution.
- **The aim is to reduce no. of individuals being transferred out of EAZA institutions to prevent adding to irresponsible breeding or ending up in the pet trade.** Also, as a genetic management strategy, we want to avoid a situation where only a few institutions are responsible for most outbound transfers.
- **Husbandry survey & information on social introductions**
- **LTMP recognised staff training***

Long-term Management Plan
for the
Meerkats
Suricata suricatta
EAZA *Ex situ* Programme (EEP)

23 February 2023

DISCOVER THE FUN! PARADISE WILDLIFE PARK

EAZA

EEP coordinator
Jessie Boylan
Paradise Wildlife Park
Zoological Society of Hertfordshire

Population biologists
María Paula Balcázar-Vargas
EAZA Executive Office

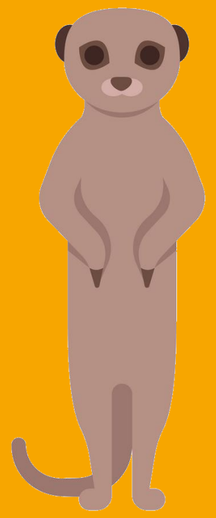
Contents

Calls for Action

The meerkat is a new style EEP, and the next few years will be decisive in consolidating the programme. The Meerkat EEP has very different goals and management than most EEPs you may be familiar with. In the years to come, we will learn how we can better work together, exchange experiences and manage the population.

EAZA Small Carnivore TAG

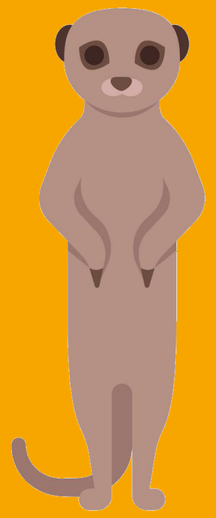
Hertfordshire ZOO



HEALTH

33 different health issues reported: *(order of occurrence)*

- **Wounds from conspecific fighting**
- **Dental issues (abscesses, broken teeth, gum infections)**
- **Toxoplasmosis**
- **Young mortality**
- **Undiagnosed neurological problems (epilepsy & seizures)**
- Hair loss
- No reproduction (infertility/subfertility)
- Obesity
- Arthritis
- Heart failure/enlarged heart
- Over grown claws & pulled claws
- Urinary tract infections
- Pneumonia
- Cholesterol granuloma
- Unknown intoxication
- Poisoning (wild salamanders)
- Coccidiosis
- Reproductive tract infection
- Ostesarcoma (paw)
- Lung sarcoma
- Ascites + liver failure
- Diarrhoea
- Eye infection
- Dermatitis
- Abscesses
- Kidney issues
- Acute loss of back legs – recovered
- Enteritis in juveniles
- Campylobacter jejuni



Toxoplasmosis *(Toxoplasma gondii)*

HEALTH

The parasite is transmitted via 3 ways:

1) **Congenital:** Infection during pregnancy
2) **Faecal-oral:** Ingestion contaminated feline faecal matter
3) **Carnivorism:** After ingestion of infected tissues

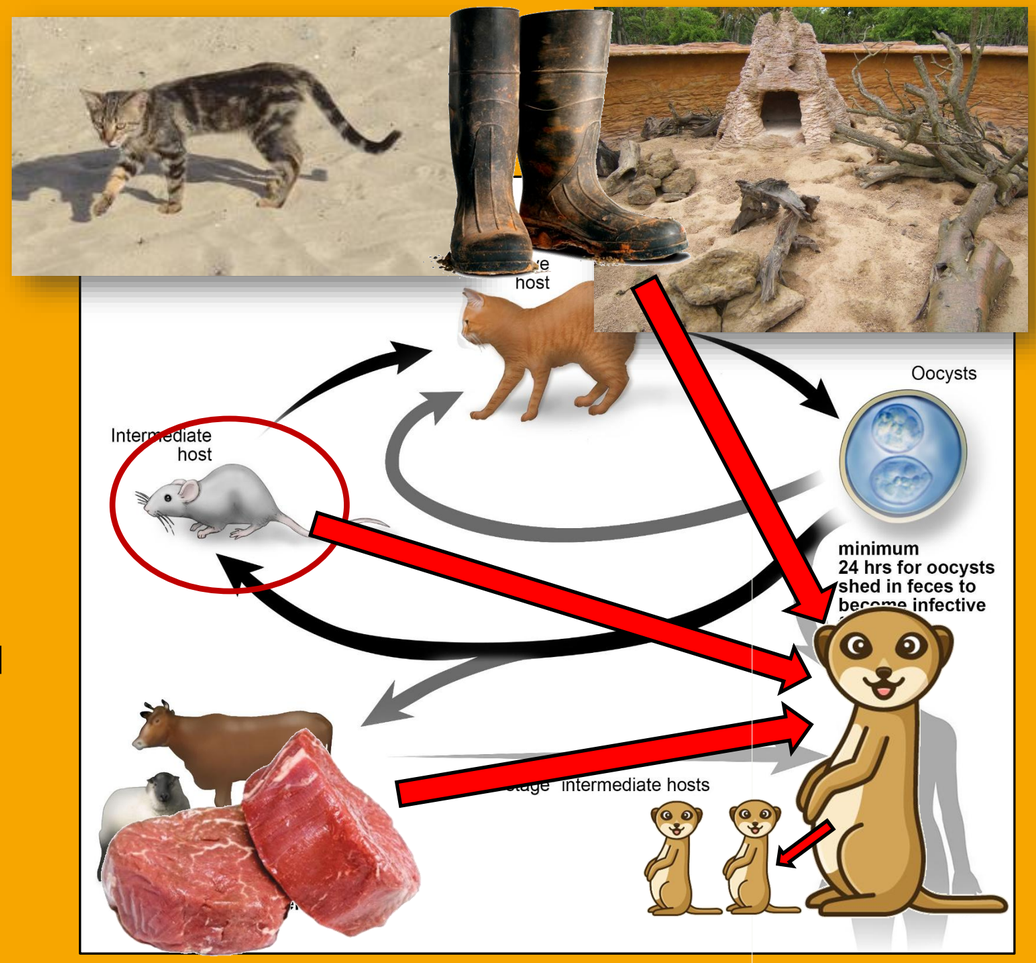
Infection may be common in many species with no clinical disease.

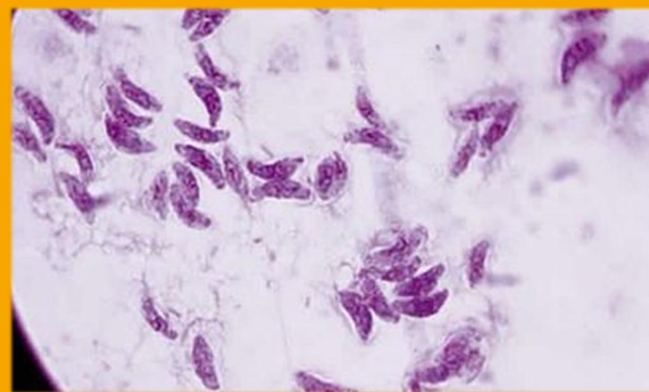
However, fatal acute toxoplasmosis has been commonly reported in marsupials, New World primates, prosimians, **meerkats** and in some ruminants.

Symptoms: Toxoplasmosis should be considered if any major organ systems are affected (lung, liver, CNS)

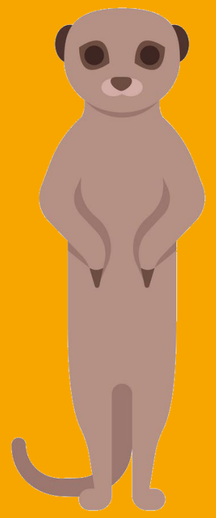
Prevention in Zoos:

- Prevent feral cats from entering exhibits
- Reduce exposure to feline faeces
- Reduce exposure to raw red meats (pre frozen meat is preferred to fresh)





Cholesterol Screening



HEALTH

Levels across Europe (mmol/L):

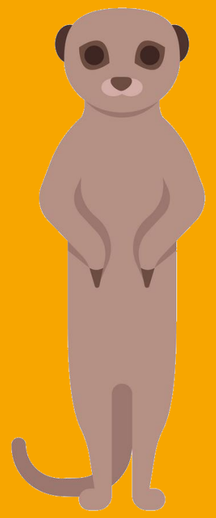
- 5.4, 6.2, 6.2, 6.5, 6.5, 6.6, 7.5, 7.6, 7.7, 9.7 (2017 & 2018)
- 11.2 (2012). 5.10 & 6.37 (2018). Post diet change in 2012
- Ranged 7.7 - 20.2
- Ranged 7.4-10.5 (11 individuals tested - 2017)
- 8.9 15.08 (2015) 9.48 (2018)
- 15.4
- 20.8 (mean 2014); 9.2 (mean 2018) Ranging 8.3-10.1. Post diet change
- Ranged 10.4 - 17.3 (2018)
- 10.0, 10.9, 11.1, 11.4, 12.4, 13.0, 14.5, 15.2
- 16.6 14.1 19.1 21.0 18.0 20.2 (2019)
- 26.9, 17.48, 17
- 20
- 23.2 - 38.7 but up to **82.3**
- 25.4 (mean level). 2018 (14.15)
- **80**

Cholesterol granulomas

Carnivore - cat/dog 4-5 mmol/L
Omnivore - human 3-6 mmol/L
Insectivore - hedgehog 3 mmol/L
Herbivore - horse/ rabbit 1-2 mmol/L

Most levels are double free-ranging *S.suricatta* reference limits (4.0 -7.8 mmol/L)

Gledhill, L., unpublished data (wild meerkat cholesterol levels)



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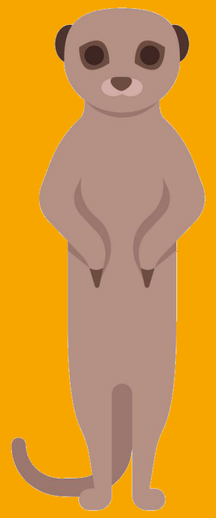


HEALTH

High Cholesterol – Why?

- Lower activity levels?
- Obesity?
- Physiologically species normal trait?
- Inadequate nutrition:

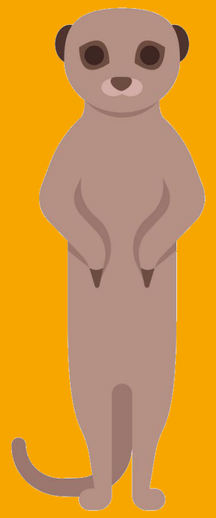
Captive diet? Unauthorised feeding?

88 projectiles thrown (over 33 days)
91% of these were **food sources**
89% were consumed
(Taylor, 2018)

Common captive diets are higher in <u>saturated fats</u>:
Mice, Chicks, Eggs, Horse meat, Mealworms

High levels of <u>unsaturated fatty acids</u> are found in *S.suricatta* wild diet - predominantly insects (78.1% - mostly beetles and arachnids) & reptiles (19.9%).
These acids have been shown to *reduce cholesterol levels*.

Captive Diet



HEALTH

S.suricatta Diet Components Across Europe


Insects 91%


Fruit 74%


Pellet 73%


Rodents 67%


Veg 75%


Poultry 74%


Eggs 54%


Red meat 44%

Other 24%


Fish 17%

Diet considerations:

- Saturated fats – *cholesterol?*
- Fresh raw red meat – *toxoplasmosis?*
- Sugars/complex carbs – *dentition & obesity?*
- Food compositions – *dentition?*
- Amount & ingredients of complete pellet

'Other' (not recommended):

Honey
Cheese
Breadcrumbs
Parrot rearing feed
Pasta / Noodles / Rice
Canned dog/cat food

151 Diets

Diet Sheet
Meerkat
Suricata suricatta

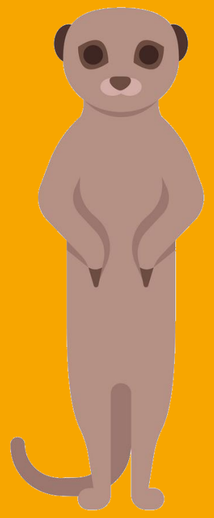
HertFordshire ZOO

Daily Diet per Animal 15- 12 - 2023

Item	Individual weight	Nintu's group (6:0) total weight	Daisy's group (0.3) total weight	Captain's group (1:1) total weight
Omnivore pellet	15g	90g	45g	30g
Vegetables	55g	330g	165g	110g

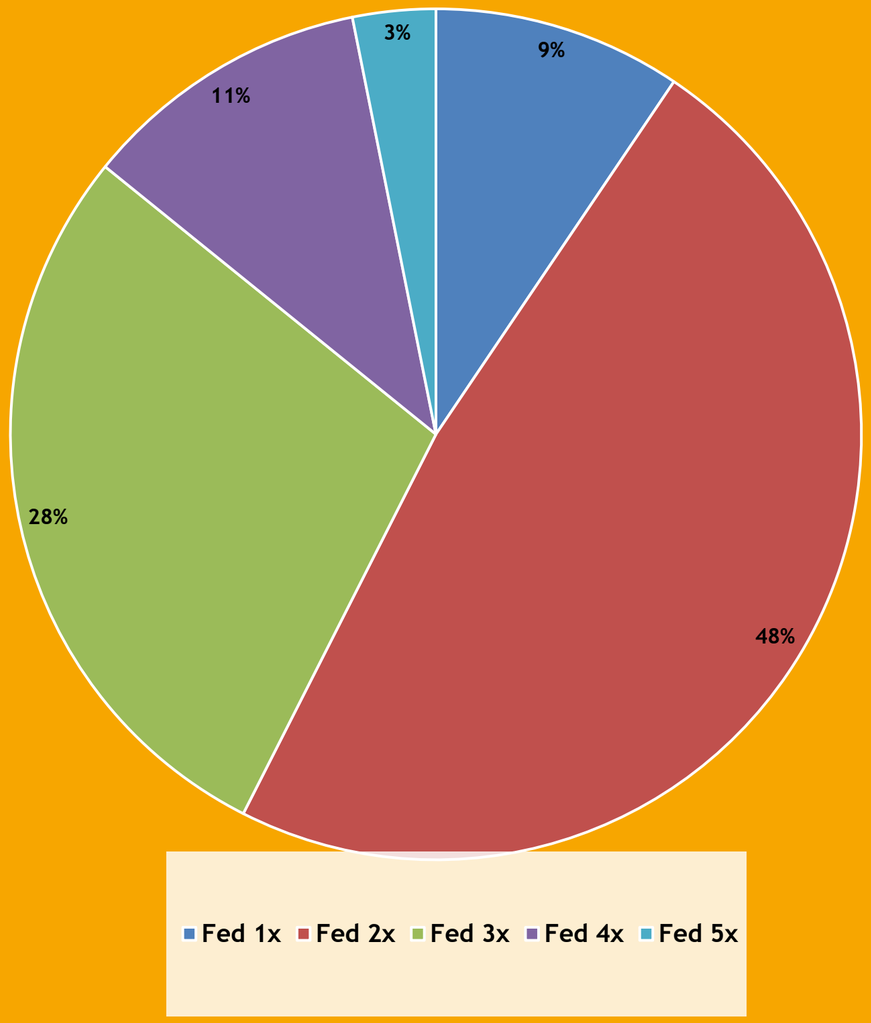
	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
Nintu's group	90ml scoop crickets	20 locusts per meerkat	90ml scoop of mealworms	90ml scoops crickets	20 locusts per meerkat	90ml scoops crickets	90ml scoop of mealworms
Daisy's group	45ml scoop crickets	20 locusts per meerkat	45ml scoop of mealworms	45ml scoop crickets	20 locusts per meerkat	45ml scoop crickets	45ml scoop of mealworms
Captain's group	30ml scoop crickets	20 locusts per meerkat	30ml scoop of mealworms	30ml scoop crickets	20 locusts per meerkat	30ml scoop crickets	30ml scoop of mealworms

- Choose 4-5 different vegetables and they should be cut into 1cm size pieces
- Vegetables that can be used: cucumber, courgette, celery, aubergine, green beans, sugar snap peas, mange tout, pepper, asparagus, mushroom, tomatoes, broccoli and cauliflower



HEALTH

Frequency of Feeds



Weight Management

24% of collections routinely weigh their meerkats

6% of collections only weighed when anaesthetised

70% do not weigh their meerkats

Min. weight reported: **520g**

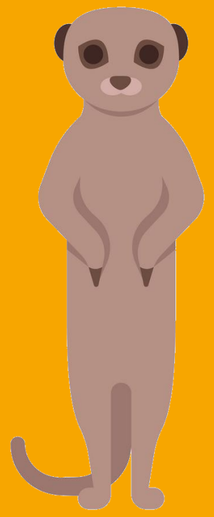
Max. weight reported: **1.65kg**

Mean Minimum: **854g**

Mean Maximum: **1.17kg**

Wild weights: **~600-800g**

Body Condition Scoring



MANAGEMENT

Enclosure Design

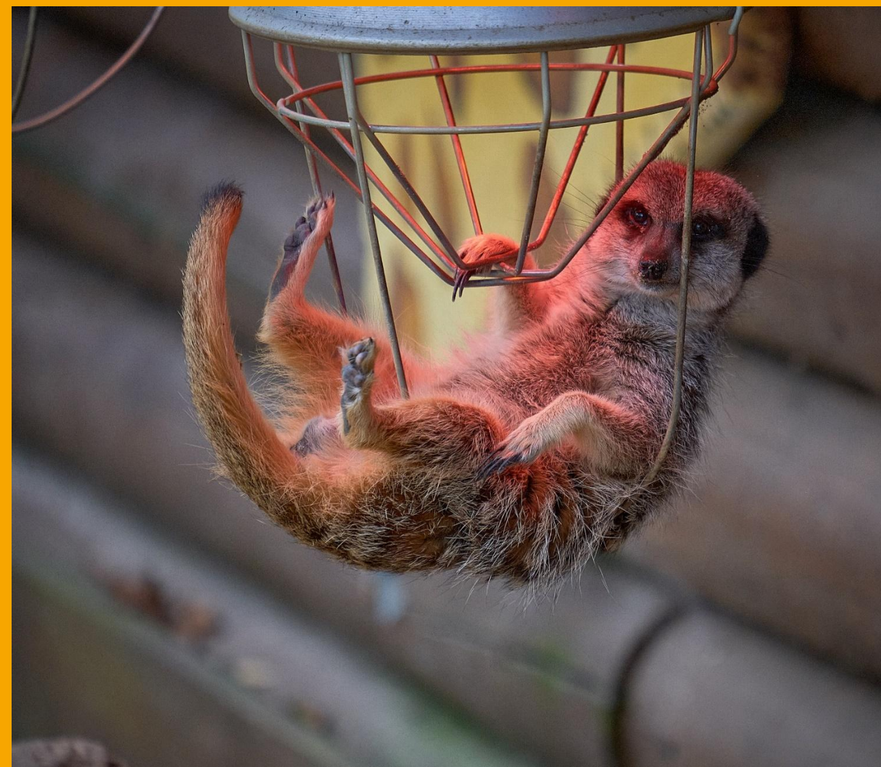
- Minimum space 32m2

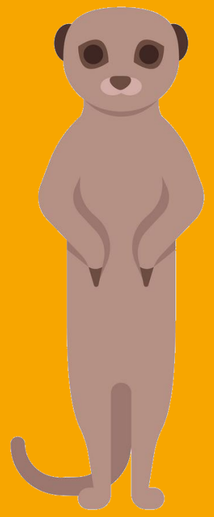
- Providing a **heated indoor enclosure** is essential for allowing meerkats to perform their natural behaviours and maintain their social systems without compromising their thermoregulation.

    - Mean temperature during the coldest months in wild is 14C which should be the minimum temperature maintained in indoor enclosures.

- Sleep in groups within burrows – **enough nestboxes to accommodate the entire population**. Since meerkats sleep in subgroups based on their hierarchical structure, **multiple nestboxes** should be provided

BPG's Pending





MANAGEMENT

Enclosure Design

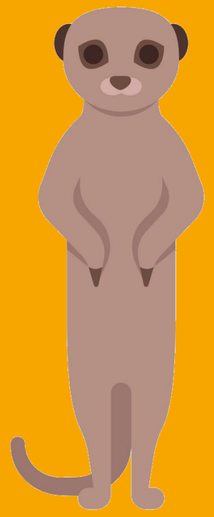
BPG's Pending

- Sleep in groups within burrows – **enough nestboxes to accommodate the entire population**. Since meerkats sleep in subgroups based on their hierarchical structure, **multiple nestboxes** should be provided

- The most commonly used substrates are 'sand' and 'natural soil'. Choosing **appropriate substrates is crucial for burrow stability**/safety, reproduction, thermoregulation and natural behaviour.

- The height of enclosures ranged from 60 to 500 centimetres, with 90% of escapes occurring in enclosures with barrier heights of 120 centimetres or less. **Use of overhangs OR electric wire is advised.**

- **Separation areas** ☆



Challenges - Social Carnivores

MANAGEMENT

Who run the world? Girls

Typically, groups consist of a dominant male and a dominant female that take control in breeding and reproducing offspring. Female meerkats can acquire the dominant position either due to death of the current dominant female or overtaking her position. Breeding females can sustain their position for a duration exceeding ten years.

- **Single-sex groups** - primarily with siblings to remain stable

- **Evictions** are a frequent event particularly in larger groups. All holders are asked to consider their institutions' policy on managing evicted individuals in advance

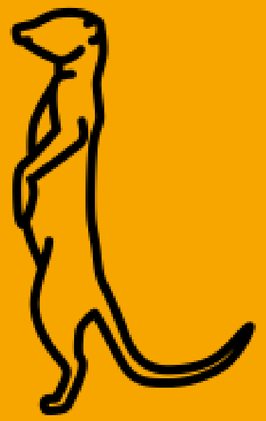
- **Introductions** of multiple individuals extremely difficult

- **Contraception** – follow guidelines carefully

EAZA RMG
EAZA Reproductive Management Group

MANAGEMENT

Training



THANK YOU

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