



MIXED-SPECIES EXHIBITS WITH CARNIVORANS II.

Mixed-species exhibits with Mongooses (*Herpestidae*) and Madagascar Carnivores (*Eupleridae*)

Written by KRISZTIÁN SVÁBIK
Assistant Curator, Budapest Zoo and Botanical Garden, Hungary

Email: svabik.krisztian@gmail.com

11th April 2018
Refreshed: 10th May 2020

Cover photo © Xavier Bayod Farré



CONTENTS

INTRODUCTION	4
Mutualism, as a new concept of mixed-species exhibitry	5
LIST OF SPECIES COMBINATIONS – <i>HERPESTIDAE</i>	7
Meerkat, <i>Suricata suricatta</i>	8
Yellow Mongoose, <i>Cynictis penicillata</i>	10
Common Dwarf Mongoose, <i>Helogale parvula</i>	11
Banded Mongoose, <i>Mungos mungo</i>	12
Gambian Mongoose, <i>Mungos gambianus</i>	13
Common Cusimanse, <i>Crossarchus obscurus</i>	14
Common Slender Mongoose, <i>Galerella sanguinea</i>	15
White-tailed Mongoose, <i>Ichneumia albicauda</i>	16
Marsh Mongoose, <i>Atilax paludinosus</i>	17
Egyptian Mongoose, <i>Herpestes ichneumon</i>	18
Indian Grey Mongoose, <i>Herpestes edwardsii</i>	19
LIST OF SPECIES COMBINATIONS - <i>EUPLERIDAE</i>	20
Ring-tailed Vontsira, <i>Galidia elegans</i>	21
Narrow-striped Boky, <i>Mungotictis decemlineata</i>	22
LIST OF MIXED-SPECIES EXHIBITS WITH LOCATIONS - <i>HERPESTIDAE</i>	23
Herpestids with herpestids	24
Meerkat, <i>Suricata suricatta</i>	28
Yellow Mongoose, <i>Cynictis penicillata</i>	54
Common Dwarf Mongoose, <i>Helogale parvula</i>	61
Banded Mongoose, <i>Mungos mungo</i>	73
Gambian Mongoose, <i>Mungos gambianus</i>	79
Common Cusimanse, <i>Crossarchus obscurus</i>	80
Common Slender Mongoose, <i>Galerella sanguinea</i>	81
White-tailed Mongoose, <i>Ichneumia albicauda</i>	82
Marsh Mongoose, <i>Atilax paludinosus</i>	84
Egyptian Mongoose, <i>Herpestes ichneumon</i>	85
Indian Grey Mongoose, <i>Herpestes edwardsii</i>	86
LIST OF MIXED-SPECIES EXHIBITS WITH LOCATIONS - <i>EUPLERIDAE</i>	87
Ring-tailed Vontsira, <i>Galidia elegans</i>	88
Narrow-striped Boky, <i>Mungotictis decemlineata</i>	89
SUMMARIZE THE EXPERIENCES	91
Mongooses.....	91
Madagascar Carnivores.....	93



ACKNOWLEDGEMENTS	95
REFERENCES	96



INTRODUCTION

Currently, there are 34 species of mongooses described in the family *Herpestidae*, although further taxonomic research may lead to this number changing in the future. Twenty-five members of the taxon live in Africa, and nine in Asia. According to the current subdivision of *Herpestidae*, – using not only morphology, but also behavioural ecology and molecular markers – two subfamilies are supported within the taxon. The subfamily *Herpestinae* involves 23, mostly large and solitary mongoose species (genus *Atilax*, *Bdeogale*, *Cynictis*, *Galerella*, *Herpestes*, *Ichneumia*, *Paracynictis*, *Rhynchogale*, *Xenogale*), while the subfamily *Mungotinae* comprises 11, mainly small and social species (genus *Crossarchus*, *Dologale*, *Helogale*, *Liberiictis*, *Mungos*, *Suricata*) (GILCHRIST, J. S, JENNINGS, A. P., VERON, G. & CAVALLINI, P. 2009).

In the list below, you can see which species have been kept in mixed exhibits in captivity. Due to the similarities in morphology and lifestyle, two additional species from family *Eupleridae* - the Ring-tailed Vontsira (*Galidia elegans*) and the Narrow-striped Boky (*Mungotictis decemlineata*) - are also mentioned here (recent placement of this taxon is: family *Eupleridae*, Madagascar Carnivores, subfamily *Galidiinae*, Mongoose-like Madagascar Carnivores).

Mongooses, *Herpestidae*

Meerkat, *Suricata suricatta* Schreber, 1776

Yellow Mongoose, *Cynictis penicillata* G.B. Cuvier, 1829

Common Dwarf Mongoose, *Helogale parvula* Sundevall, 1847

Banded Mongoose, *Mungos mungo* Gmelin, 1788

Gambian Mongoose, *Mungos gambianus* Ogilby, 1835

Common Cusimanse, *Crossarchus obscurus* F.G. Cuvier, 1825

Common Slender Mongoose, *Galerella sanguinea* Rüppell, 1835

White-tailed Mongoose, *Ichneumia albicauda* G.B. Cuvier, 1829

Marsh Mongoose, *Atilax paludinosus* G.B. Cuvier, 1829

Egyptian Mongoose, *Herpestes ichneumon* Linnaeus, 1758

Indian Grey Mongoose, *Herpestes edwardsii* É. Geoffroy Saint-Hilaire, 1818

Madagascar Carnivores, *Eupleridae*

Ring-tailed Vontsira, *Galidia elegans* I. Geoffroy Saint-Hilaire, 1837

Narrow-striped Boky, *Mungotictis decemlineata* A. Grandidier, 1867



Mutualism, as a new concept of mixed-species exhibitry

Social species often display an impressive level of cooperation such as babysitting youngsters or predator perception and deterrence; but interspecific cooperation also occurs within the taxon Herpestidae. Common Cusimanses have been observed playing with Mona Monkeys (*Cercopithecus mona*). Liberian Mongooses (*Liberiictis kuhni*) are often found in association with Sooty Mangabeys (*Cercocebus atys*) and flee in response to the primates' anti-predator warning calls. Banded Mongooses also respond with increased vigilance to the alarm calls of several other species, particularly Plovers (*Vanellus spp.*), Meerkats respond to the warning calls of Fork-tailed Drongos (*Dicrurus adsimilis*), and Southern Yellow-billed Hornbill (*Tockus leucomelas*). It is worth mentioning that Fork-tailed Drongos are capable of using deceptive mimicked alarm calls to steal food from different birds and meerkats (kleptoparasitism). Cape Grey Mongooses (*Galerella pulverulenta*) have been observed to associate with small raptors, such as African Marsh Harriers (*Circus ranivorus*) during foraging. The Yellow Mongoose was observed in cooperative vigilance with a group of Meerkats. Meerkats are excellent diggers and excavate dens themselves, but usually occupy dens dug by other small mammals. These shelters may be shared with Yellow Mongooses and South African Ground Squirrels (*Xerus inauris*). Furthermore, in some cases we can speak about real mutualistic relationships. Common Dwarf Mongooses in the Taru desert region of Kenya form foraging communities with a variety of endemic bird species, especially the Von der Decken's Hornbill (*Tockus deckeni*), the Eastern Yellow-billed Hornbill (*Tockus flavirostris*) and the Red-billed Hornbill (*Tockus erythrorhynchus*). This mutualistic association between the birds and the small mammals is actively sought by both parties, so both the hornbills and the mongooses seek each other out in order to forage together and warn each other of nearby raptors and other predators. Common Warthogs (*Phacochoerus africanus*) in Queen Elizabeth National Park (Uganda) and Maasai Mara National Reserve (Kenya) have learned to lie down in the presence of banded mongooses. In response, the mongooses have learned to inspect the warthogs for ticks, groom them, remove and eat ectoparasites. These mutualistic relationships have served as a base for creating mixed-species exhibits with the given mongoose species in captivity: Banded Mongoose & Common Warthog coexistence has been tried out in Chester Zoo (United Kingdom); Common Dwarf Mongoose & Hornbill (*Tockus spp.*) combination has been created in Tiergarten Schönbrunn (Vienna, Austria), Tiergarten Nürnberg (Germany), Bronx Zoo (New York, USA), Dallas Zoo (USA), Oregon Zoo (USA) and Great Plains Zoo & Delbridge Museum of Natural History (USA).



Common Dwarf Mongoose (*Helogale parvula*) and Von der Decken's Hornbill (*Tockus deckeni*)

Tiergarten Schönbrunn, Vienna, Austria

Photo © Petra Urbanek



Banded Mongooses (*Mungos mungo*) and Common Warthog (*Phacochoerus africanus*)

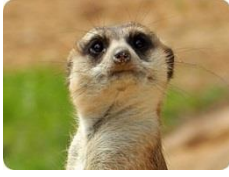
Chester Zoo, United Kingdom

Photo © Christopher Holland



LIST OF SPECIES COMBINATIONS - *HERPESTIDAE*

The list shows examples of species combinations with at least one herpestid species combined with the taxa below



Meerkat, *Suricata suricatta* (Photo © Anita Mazács)

Aardvark, *Orycteropus afer*
Rock Hyrax, *Procavia capensis*
African Elephant, *Loxodonta africana*
Thick-tailed Greater Galago, *Otolemur crassicaudatus*
Ring-tailed Lemur, *Lemur catta*
Red Ruffed Lemur, *Varecia rubra*
Red-chested mustached tamarin, *Saguinus labiatus*
Red-faced Spider Monkey, *Ateles paniscus*
Grivet Monkey, *Chlorocebus aethiops*
Sykes's Monkey, *Cercopithecus albogularis*
Roloway Monkey, *Cercopithecus roloway*
King Colobus, *Colobus polykomos*
Guinea Baboon, *Papio papio*
Hamadryas Baboon, *Papio hamadryas*
Western Lowland Gorilla, *Gorilla gorilla gorilla*
European ground squirrel, *Spermophilus citellus*
South African Ground Squirrel, *Xerus inauris*
Cape Porcupine, *Hystrix africaeaustralis*
Crested Porcupine, *Hystrix cristata*
Indian Crested Porcupine, *Hystrix indica*
African Brush-tailed Porcupine, *Atherurus africanus*
Lion, *Panthera leo*
Aardwolf, *Proteles cristatus*
Yellow Mongoose, *Cynictis penicillata*
Banded Mongoose, *Mungos mungo*
Common Dwarf Mongoose, *Helogale parvula*
Bat-eared Fox, *Otocyon megalotis*
Fennec Fox, *Vulpes zerda*
Plains Zebra, *Equus quagga burchellii*
Grevy's Zebra, *Equus grevyi*
Common Warthog, *Phacochoerus africanus*
Red River Hog, *Potamochoerus porcus*
Klipspringer, *Oreotragus oreotragus*
Guenther's Dik-dik, *Madoqua guentheri*
Kirk's Dik-dik, *Madoqua kirkii*
Kafue Lechwe, *Kobus leche kafuensis*
Black Wildebeest, *Connochaetes gnou*
Giraffe, *Giraffa camelopardalis*
Helmeted Guineafowl, *Numida meleagris*
Blue Crane, *Grus paradisea*
Von der Decken's hornbill, *Tockus deckeni*
Red-billed Hornbill, *Tockus erythrorhynchus*
Red-crested Turaco, *Tauraco erythrolophus*



Pelican sp., *Pelecanus sp.*

African Spurred Tortoise, *Centrochelys sulcata*

Leopard Tortoise, *Stigmochelys pardalis*



Yellow Mongoose, *Cynictis penicillata* (Photo © Krisztián Svábik)

Rock Hyrax, *Procavia capensis*
South African Ground Squirrel, *Xerus inauris*
Cape Porcupine, *Hystrix africaeaustralis*
Crested Porcupine, *Hystrix cristata*
Indian Crested Porcupine, *Hystrix indica*
Lion, *Panthera leo*
Meerkat, *Suricata suricatta*
Bat-eared Fox, *Otocyon megalotis*
Fennec Fox, *Vulpes zerda*
Red River Hog, *Potamochoerus porcus*
Secretarybird, *Sagittarius serpentarius*
Rüppell's Griffon Vulture, *Gyps rueppellii*
Hooded Vulture, *Necrosyrtes monachus*
Palm-nut Vulture, *Gypohierax angolensis*
Blue Crane, *Grus paradisea*
African Spurred Tortoise, *Centrochelys sulcata*
Leopard Tortoise, *Stigmochelys pardalis*



Common Dwarf Mongoose, *Helogale parvula* (Photo © Anita Mazács)

Aardvark, *Orycteropus afer*
Rock Hyrax, *Procavia capensis*
Bush Hyrax, *Heterohyrax brucei*
Garnett's Greater Galago, *Otolemur garnettii*
South African Ground Squirrel, *Xerus inauris*
Cape Porcupine, *Hystrix africaeaustralis*
Indian Crested Porcupine, *Hystrix indica*
Meerkat, *Suricata suricatta*
Bat-eared Fox, *Otocyon megalotis*
Fennec Fox, *Vulpes zerda*
Klipspringer, *Oreotragus oreotragus*
Kirk's Dik-dik, *Madoqua kirkii*
Von der Decken's Hornbill, *Tockus deckeni*
Red-billed Hornbill, *Tockus erythrorhynchus*
Jackson's Hornbill, *Tockus jacksoni*
Trumpeter Hornbill, *Bycanistes bucinator*
Red-cheeked Cordon-bleu, *Uraeginthus bengalus*
Violet-backed Starling, *Cinnyricinclus leucogaster*
Yellow-crowned Bishop, *Euplectes afer*
African Spurred Tortoise, *Centrochelys sulcata*
Leopard Tortoise, *Stigmochelys pardalis*
Nile Crocodile, *Crocodylus niloticus*
West African Crocodile, *Crocodylus suchus*
African Cichlids, *Cichlidae*



Banded Mongoose, *Mungos mungo* (Photo © Krisztián Svábik)

Rock Hyrax, *Procavia capensis*

Grivet Monkey, *Chlorocebus aethiops*

Colobus sp., *Colobus sp.*

Mandrill, *Mandrillus sphinx*

Crested Porcupine, *Hystrix cristata*

Meerkat, *Suricata suricatta*

Common Warthog, *Phacochoerus africanus*

Red River Hog, *Potamochoerus porcus*

Red-billed Hornbill, *Tockus erythrorhynchus*

Leopard Tortoise, *Stigmochelys pardalis*



Gambian Mongoose, *Mungos gambianus* (Photo © Krisztián Svábik)

Black Vulture, *Aegypius monachus*
Egyptian Vulture, *Neophron percnopterus*
Griffon Vulture, *Gyps fulvus*
Himalayan Griffon Vulture, *Gyps himalayensis*
Rüppell's Vulture, *Gyps rueppelli*
Hooded Vulture, *Necrosyrtes monachus*
Secretarybird, *Sagittarius serpentarius*
Trumpeter Hornbill, *Bycanistes bucinator*
Spur-winged Goose, *Plectropterus gambensis*



Common Cusimanse, *Crossarchus obscurus* (Photo © Alan Hill)

Blue-eyed Black Lemur, *Eulemur flavifrons*

Diana Monkey, *Cercopithecus diana*

Crested Porcupine, *Hystrix cristata*

African Brush-tailed Porcupine, *Atherurus africanus*



Common Slender Mongoose, *Galerella sanguinea* (Photo © Krisztián Svábik)

Rock Hyrax, *Procavia capensis*

African Spurred Tortoise, *Centrochelys sulcata*

Leopard Tortoise, *Stigmochelys pardalis*



White-tailed Mongoose, *Ichneumia albicauda* (Photo © Larry Jackson)

Northern Plains Gray Langur, *Semnopithecus entellus*
Western Lowland Gorilla, *Gorilla gorilla gorilla*
Egyptian Mongoose, *Herpestes ichneumon*



Marsh Mongoose, *Atilax paludinosus* (Photo © Jonas Livet)

Eastern Black-and-white Colobus, *Colobus guereza*



Egyptian Mongoose, *Herpestes ichneumon* (Photo © Anna Liflyand)

White-tailed Mongoose, *Ichneumia albicauda*



Indian Grey Mongoose, *Herpestes edwardsii* (Photo © Aniketan Math)

Rhesus Monkey, *Macaca mulatta*
Dwarf Goat, *Capra hircus*



LIST OF SPECIES COMBINATIONS - *EUPLERIDAE*

The list shows examples of species combinations with at least one euplerid species combined with the taxa below



Ring-tailed Vontsira, *Galidia elegans* (Photo © Brian Gratwicke)

White-fronted Lemur, *Eulemur albifrons*

Black Lemur, *Eulemur macaco*

Northern Plains Gray Langur, *Semnopithecus entellus*

Leopard Tortoise, *Stigmochelys pardalis*



Narrow-striped Boky, *Mungotictis decemlineata* (Photo © Tamás Boros)

White-fronted Lemur, *Eulemur albifrons*

Crowned Lemur, *Eulemur coronatus*

Red-bellied Lemur, *Eulemur rubriventer*

Malagasy Giant Jumping Rat, *Hypogeomys antimena*



**LIST OF MIXED-SPECIES EXHIBITS WITH LOCATIONS -
*HERPESTIDAE***

The list shows specific examples of mixed-species exhibits involving at least one herpestid species combined with the taxa below, with indication of the institution(s) where they have been tried out



Herpestids with herpestids (Photo © Dr. Helmut Mägdefrau)

Combined species:

- Meerkat, *Suricata suricatta*
- Yellow Mongoose, *Cynictis penicillata*

Institution(s): ZOO Antwerpen (Belgium), De Zonnegloed Sanctuary (Vleteren, Belgium), Yorkshire Wildlife Park (Doncaster, United Kingdom), Kirkleatham Owl Centre (Redcar, United Kingdom), Newquay Zoo (United Kingdom), Toni's Zoo (Rothenburg, Switzerland), Knies Kinderzoo (Rapperswil-Jona, Switzerland), Tierpark Nordhorn (Germany), Tiergarten Nürnberg (Germany), Tierpark Hamm (Germany), Tierpark Ströhen (Wagenfeld, Germany), Tiergarten Delitzsch (Germany), GaiaZOO (Kerkrade, the Netherlands)



Meerkats (*Suricata suricatta*) and Yellow Mongoose (*Cynictis penicillata*)
Tiergarten Nürnberg, Germany
Photo © Dr. Helmut Mägdefrau



Yellow Mongooses (*Cynictis penicillata*) and Meerkat (*Suricata suricatta*)
Tiergarten Nürnberg, Germany
Photo © Mario Berndtgen

Combined species:

- Meerkat, *Suricata suricatta*
- Yellow Mongoose, *Cynictis penicillata*
- Blue Crane, *Grus paradisea*

Institution(s): Five Sisters Zoo Park (West Calder, United Kingdom)

Combined species:

- Meerkat, *Suricata suricatta*
- Yellow Mongoose, *Cynictis penicillata*
- Crested Porcupine, *Hystix cristata*

Institution(s): Woburn Safari Park (Milton Keynes, United Kingdom)



Combined species:

- Meerkat, *Suricata suricatta*
- Yellow Mongoose, *Cynictis pemnicillata*
- Lion, *Panthera leo*

Institution(s): Zoologischer Garten Schwerin (Germany)

Combined species:

- Meerkat, *Suricata suricatta*
- Yellow Mongoose, *Cynictis penicillata*
- Fennec Fox, *Vulpes zerda*
- South African Ground Squirrel, *Xerus inauris*

unknown institution

Combined species:

- Meerkat, *Suricata suricatta*
- Yellow Mongoose, *Cynictis penicillata*
- African Spurred Tortoise, *Centrochelys sulcata*

Institution(s): Toni's Zoo (Rothenburg, Switzerland)

Combined species:

- Meerkat, *Suricata suricatta*
- Yellow Mongoose, *Cynictis penicillata*
- African Spurred Tortoise, *Centrochelys sulcata*
- Leopard Tortoise, *Stigmochelys pardalis*

Institution(s): Toni's Zoo (Rothenburg, Switzerland)

Combined species:

- Meerkat, *Suricata suricatta*
- Banded Mongoose, *Mungos mungo*

unknown institution



Combined species:

- Meerkat, *Suricata suricatta*
- Common Dwarf Mongoose, *Helogale parvula*

Institution(s): Borth Wild Animal Kingdom (United Kingdom)

Combined species:

- Egyptian Mongoose, *Herpestes ichneumon*
- White-tailed Mongoose, *Ichneumia albicauda*

Institution(s): Samjung The Park (Busan, South Korea)



Meerkat, *Suricata suricatta*

Combined species:

- Meerkat, *Suricata suricatta*
- Yellow Mongoose, *Cynictis penicillata*

Institution(s): ZOO Antwerpen (Belgium), De Zonnegloed Sanctuary (Vleteren, Belgium), Yorkshire Wildlife Park (Doncaster, United Kingdom), Kirkleatham Owl Centre (Redcar, United Kingdom), Newquay Zoo (United Kingdom), Toni's Zoo (Rothenburg, Switzerland), Knies Kinderzoo (Rapperswil-Jona, Switzerland), Tierpark Nordhorn (Germany), Tiergarten Nürnberg (Germany), Tierpark Hamm (Germany), Tierpark Ströhen (Wagenfeld, Germany), Tiergarten Delitzsch (Germany), GaiaZOO (Kerkrade, the Netherlands)



Meerkat (*Suricata suricatta*) and Yellow Mongoose (*Cynictis penicillata*)
Yorkshire Wildlife Park, United Kingdom
Photo © Christopher Holland



Meerkat (*Suricata suricatta*) and Yellow Mongoose (*Cynictis penicillata*)
Toni's Zoo, Rothenburg, Switzerland
Photo © Krisztián Svábik

Combined species:

- Meerkat, *Suricata suricatta*
- Yellow Mongoose, *Cynictis penicillata*
- Blue Crane, *Grus paradisea*

Institution(s): Five Sisters Zoo Park (West Calder, United Kingdom)

Combined species:

- Meerkat, *Suricata suricatta*
- Yellow Mongoose, *Cynictis penicillata*
- Crested Porcupine, *Hystix cristata*

Institution(s): Woburn Safari Park (Milton Keynes, United Kingdom)



Combined species:

- Meerkat, *Suricata suricatta*
- Yellow Mongoose, *Cynictis penicillata*
- Lion, *Panthera leo*

Institution(s): Zoologischer Garten Schwerin (Germany)

Combined species:

- Meerkat, *Suricata suricatta*
- Yellow Mongoose, *Cynictis penicillata*
- Fennec Fox, *Vulpes zerda*
- South African Ground Squirrel, *Xerus inauris*

unknown institution

Combined species:

- Meerkat, *Suricata suricatta*
- Yellow Mongoose, *Cynictis penicillata*
- African Spurred Tortoise, *Centrochelys sulcata*

Institution(s): Toni's Zoo (Rothenburg, Switzerland)

Combined species:

- Meerkat, *Suricata suricatta*
- Yellow Mongoose, *Cynictis penicillata*
- African Spurred Tortoise, *Centrochelys sulcata*
- Leopard Tortoise, *Stigmochelys pardalis*

Institution(s): Toni's Zoo (Rothenburg, Switzerland)

Combined species:

- Meerkat, *Suricata suricatta*
- South African Ground Squirrel, *Xerus inauris*

Institution(s): ZOO Dvůr Králové (Czech Republic), ZOO Olomouc (Czech Republic), Korkeasaari Zoo (Helsinki, Finland)



Combined species:

- Meerkat, *Suricata suricatta*
- European Ground Squirrel, *Spermophilus citellus*

Institution(s): RZSS Edinburgh Zoo (United Kingdom)

Combined species:

- Meerkat, *Suricata suricatta*
- Banded Mongoose, *Mungos mungo*

unknown institution

Combined species:

- Meerkat, *Suricata suricatta*
- Common Dwarf Mongoose, *Helogale parvula*

Institution(s): Borth Wild Animal Kingdom (United Kingdom)

Combined species:

- Meerkat, *Suricata suricatta*
- Lion, *Panthera leo*

Institution(s): Colchester Zoo (United Kingdom)

Combined species:

- Meerkat, *Suricata suricatta*
- Bat-eared Fox, *Otocyon megalotis*

Institution(s): Reaseheath Zoo (Nantwich, United Kingdom), Combe Martin Wildlife & Dinosaur Park (Ilfracombe, United Kingdom), San Diego Zoo (United States of America), World of Birds Wildlife Sanctuary and Monkey Park (Cape Town, South African Republic)



Combined species:

- Meerkat, *Suricata suricatta*
- Aardwolf, *Proteles cristatus*
- Crested Porcupine, *Hystrix cristata*

Institution(s): Phoenix Zoo (United States of America)

Combined species:

- Meerkat, *Suricata suricatta*
- African Elephant, *Loxodonta africana*

Institution(s): Jardim Zoológico de Lisboa (Portugal)

Combined species:

- Meerkat, *Suricata suricatta*
- Cape Porcupine, *Hystrix africaeaustralis*
- Plains Zebra, *Equus quagga burchellii*
- Kafue Lechwe, *Kobus leche kafuensis*

Institution(s): Newquay Zoo (United Kingdom)

Combined species:

- Meerkat, *Suricata suricatta*
- Grevy's Zebra, *Equus grevyi*
- Black Wildebeest, *Connochaetes gnou*
- Helmeted guineafowl, *Numida meleagris*
- Pelican, *Pelecanus* sp.

Institution(s): ARTIS Amsterdam Royal Zoo (the Netherlands)



**Former mixed exhibit with Meerkats (*Suricata suricatta*) and hoofed mammals
ARTIS Amsterdam Royal Zoo, the Netherlands
Photo © Krisztián Svábik**

Combined species:

- Meerkat, *Suricata suricatta*
- Rock Hyrax, *Procavia capensis*
- South African Ground Squirrel, *Xerus inauris*
- Red-billed Hornbill, *Tockus erythrorhynchus*

Institution(s): Zoo Basel (Switzerland)

Combined species:

- Meerkat, *Suricata suricatta*
- Common Warthog, *Phacochoerus africanus*

Institution(s): Ouwehands Dierenpark (Rhenen, the Netherlands)



Meerkat (*Suricata suricatta*) and Common Warthog (*Phacochoerus africanus*) mixed exhibit
Ouwehands Dierenpark, Rhenen, the Netherlands
Photo © Gabriella Mótyán



Meerkats (*Suricata suricatta*) and Common Warthogs (*Phacochoerus africanus*)
Ouwehands Dierenpark, Rhenen, the Netherlands
Photo © Marcel Holtrop



Combined species:

- Meerkat, *Suricata suricatta*
- Red River Hog, *Potamochoerus porcus*

Institution(s): Pairi Daiza (Brugelette, Belgium)

Combined species:

- Meerkat, *Suricata suricatta*
- Klipspringer, *Oreotragus oreotragus*

Institution(s): Omaha's Henry Doorly Zoo & Aquarium (Nebraska, United States of America)



Meerkat (*Suricata suricatta*) and Klipspringer (*Oreotragus oreotragus*)
Omaha's Henry Doorly Zoo & Aquarium, Nebraska, United States of America
Photo © Brent Huffman



Meerkat (*Suricata suricatta*) and Klipspringer (*Oreotragus oreotragus*)
Omaha's Henry Doorly Zoo & Aquarium, Nebraska, United States of America
Photo © Brent Huffman



Meerkats (*Suricata suricatta*) and Klipspringers (*Oreotragus oreotragus*)
Omaha's Henry Doorly Zoo & Aquarium, Nebraska, United States of America
Photo © Scott Richardson



Meerkat (*Suricata suricatta*) and Klipspringer (*Oreotragus oreotragus*)
Omaha's Henry Doorly Zoo & Aquarium, Nebraska, United States of America
Photo © Scott Richardson

Combined species:

- Meerkat, *Suricata suricatta*
- Guenther's Dik-dik, *Madoqua guentheri*

Institution(s): Disney's Animal Kingdom (Orlando, United States of America)

Combined species:

- Meerkat, *Suricata suricatta*
- Kirk's Dik-dik, *Madoqua kirkii*

Institution(s): Dallas Zoo (Texas, United States of America)

Combined species:

- Meerkat, *Suricata suricatta*
- Giraffe, *Giraffa camelopardalis*

Institution(s): ZSL London Zoo (United Kingdom)



Combined species:

- Meerkat, *Suricata suricatta*
- Rock Hyrax, *Procavia capensis*
- Leopard Tortoise, *Stigmochelys pardalis*
- African Spurred Tortoise, *Centrochelys sulcata*

Institution(s): Dierenpark Zie-Zoo (Volkel, the Netherlands)

Combined species:

- Meerkat, *Suricata suricatta*
- Indian Crested Porcupine, *Hystrix indica*

Institution(s): Jászberényi Állat- és Növénykert (Hungary), Gyöngyösi Állatkert és Szabadidőpark (Hungary), Opel-Zoo (Kronberg, Germany), Zoo Hoyerswerda (Germany), Allwetterzoo Münster (Germany), Erlebnis-Zoo Hannover (Germany), GaiaZOO (Kerkrade, the Netherlands)



Meerkats (*Suricata suricatta*) and Indian Crested Porcupine (*Hystrix indica*)
GaiaZOO, Kerkrade, the Netherlands
Photo © GaiaZOO



Meerkats (*Suricata suricatta*) and Indian Crested Porcupine (*Hystrix indica*) feeding
Jászberényi Állat- és Növénykert, Hungary
Photos © Krisztián Svábik



Combined species:

- Meerkat, *Suricata suricatta*
- Crested Porcupine, *Hystrix cristata*

Institution(s): Zoo Heidelberg (Germany), All Things Wild (Honeybourne, United Kingdom), Folly Farm Adventure Park and Zoo (Kilgetty, United Kingdom), Tropical Butterfly House Wildlife And Falconry Centre (North Anston, United Kingdom), De Zonnegloed Sanctuary (Vleteren, Belgium), Zoo Basel (Switzerland), North Carolina Zoo (Asheboro, United States of America), Wellington Zoo (New Zealand)

Combined species:

- Meerkat, *Suricata suricatta*
- Cape Porcupine, *Hystrix africaeaustralis*

Institution(s): Askham Bryan Wildlife & Conservation Park (United Kingdom), Belfast Zoo (United Kingdom), Chester Zoo (United Kingdom), Reaseheath Zoo (Nantwich, United Kingdom), Northumberland Country Zoo (Morpeth, United Kingdom), Flamingo Land (Malton, United Kingdom), Paignton Zoo Environmental Park (United Kingdom), Combe Martin Wildlife & Dinosaur Park (Ilfracombe, United Kingdom), Cotswold Wildlife Park and Gardens (Burford, United Kingdom), Longleat Safari Park (Warminster, United Kingdom) (walk-through), Welsh Mountain Zoo (Colwyn Bay, United Kingdom), København Zoo (Denmark), Oasys MiniHollywood (Tabernas, Almeria, Spain), Brookfield Zoo (Chicago, United States of America), Pueblo Zoo (United States of America), Calgary Zoo (Canada), Monarto Zoo (Australia)



Meerkats (*Suricata suricatta*) and Cape Porcupine (*Hystrix africaeaustralis*)
Longleat Safari Park, Warminster, United Kingdom
Photo © www.zoochat.com



**Meerkats (*Suricata suricatta*) and Cape Porcupine (*Hystrix africaeaustralis*)
Longleat Safari Park, Warminster, United Kingdom
Photo © Jim Wilson**

Combined species:

- Meerkat, *Suricata suricatta*
- African Brush-tailed Porcupine, *Atherurus africanus*

Institution(s): Brookfield Zoo (Chicago, United States of America), North Carolina Zoo (Asheboro, United States of America)



Combined species:

- Meerkat, *Suricata suricatta*
- Cape porcupine, *Hystrix africaeaustralis*
- African Spurred Tortoise, *Centrochelys sulcata*

Institution(s): Diergaarde Blijdorp (Rotterdam, the Netherlands)

Combined species:

- Meerkat, *Suricata suricatta*
- Rock Hyrax, *Procavia capensis*

Institution(s): Zoo Dresden (Germany), Rīgas Nacionālais zooloģiskais dārzs (Latvia), GaiaZOO (Kerkrade, the Netherlands), Oglebay Good Zoo (Wheeling, United States of America), Hogle Zoo (Salt Lake City, United States of America)

Combined species:

- Meerkat, *Suricata suricatta*
- Rock Hyrax, *Procavia capensis*
- Crested Porcupine, *Hystrix cristata*

Institution(s): Zoo Basel (Switzerland)

Combined species:

- Meerkat, *Suricata suricatta*
- African Spurred Tortoise, *Centrochelys sulcata*

Institution(s): Fővárosi Állat- és Növénykert (Budapest, Hungary), Bioparc València (Spain), Nahariya Botanic Garden and Zoo (Israel), Five Sisters Zoo Park (West Calder, United Kingdom), Tropikariet Helsingborg (Sweden), Parc Merveilleux (Bettembourg, Luxembourg), Reptilium Terrarien- und Wüstenzoo (Landau in der Pfalz, Germany), Terrariet Vissenbjerg (Denmark)



Meerkat (*Suricata suricatta*) and African Spurred Tortoise (*Centrochelys sulcata*)
Bioparc València, Spain
Photo © Xavier Bayod Farré



Meerkats (*Suricata suricatta*) and African Spurred Tortoise (*Centrochelys sulcata*)
Fővárosi Állat- és Növénykert, Budapest, Hungary
Photos © Krisztián Svábik



Meerkats (*Suricata suricatta*) and African Spurred Tortoise (*Centrochelys sulcata*)
Fővárosi Állat- és Növénykert, Budapest, Hungary
Photos © Krisztián Svábik



Combined species:

- Meerkat, *Suricata suricatta*
- Leopard Tortoise, *Stigmochelys pardalis*

Institution(s): Dallas Zoo (Texas, United States of America), Caldwell Zoo (Texas, United States of America)

Combined species:

- Meerkat, *Suricata suricatta*
- African Spurred Tortoise, *Centrochelys sulcata*
- Leopard Tortoise, *Stigmochelys pardalis*

Institution(s): Sea Life Adventure (United Kingdom)

Combined species:

- Meerkat, *Suricata suricatta*
- Black-necked Weaver, *Ploceus nigricollis*
- African Spurred Tortoise, *Centrochelys sulcata*

Institution(s): Tropikariet Helsingborg (Sweden)

Combined species:

- Meerkat, *Suricata suricatta*
- Aardvark, *Orycteropus afer*

Institution(s): Chester Zoo (United Kingdom), ZSL London Zoo (United Kingdom), Blackpool Zoo (United Kingdom), Africa Alive! (Kessingland, United Kingdom), Philadelphia Zoo (United States of America)



Meerkat (*Suricata suricatta*) and Aardvark (*Orycteropus afer*)
Africa Alive!, Kessingland, United Kingdom
Photo © Africa Alive!



Meerkats (*Suricata suricatta*) and Aardvark (*Orycteropus afer*)
ZSL London Zoo, United Kingdom
Photo © Krisztián Svábik



Meerkat (*Suricata suricatta*) and Aardvark (*Orycteropus afer*) mixed exhibit
ZSL London Zoo, United Kingdom
Photo © Krisztián Svábik

Combined species:

- Meerkat, *Suricata suricatta*
- Aardvark, *Orycteropus afer*
- Thick-tailed Greater Galago, *Otolemur crassicaudatus*
- African Brush-tailed Porcupine, *Atherurus africanus*

Institution(s): Omaha's Henry Doorly Zoo and Aquarium (United States of America)

Combined species:

- Meerkat, *Suricata suricatta*
- Red-chested Mustached Tamarin, *Saguinus labiatus*

Institution(s): Shepreth Wildlife Park (United Kingdom)



Combined species:

- Meerkat, *Suricata suricatta*
- Red-faced Spider Monkey, *Ateles paniscus*

Institution(s): ARTIS Amsterdam Royal Zoo (the Netherlands)

Combined species:

- Meerkat, *Suricata suricatta*
- Western Lowland Gorilla, *Gorilla gorilla gorilla*

Institution(s): Zoo d'Amnéville (France), Zoo Opole (Poland)

Combined species:

- Meerkat, *Suricata suricatta*
- Western Lowland Gorilla, *Gorilla gorilla gorilla*
- Sykes' Monkey, *Cercopithecus albogularis*

Institution(s): ARTIS Amsterdam Royal Zoo (the Netherlands)



Meerkats (*Suricata suricatta*) and Western Lowland Gorilla (*Gorilla gorilla gorilla*)
ARTIS Amsterdam Royal Zoo, the Netherlands
Photo © Arjan Haverkamp



**Meerkats (*Suricata suricatta*) and Western Lowland Gorilla (*Gorilla gorilla gorilla*)
ARTIS Amsterdam Royal Zoo, the Netherlands
Photos © Arjan Haverkamp**



Combined species:

- Meerkat, *Suricata suricatta*
- Roloway Monkey, *Cercopithecus roloway*
- Western Lowland Gorilla, *Gorilla gorilla gorilla*
- Red-crested Turaco, *Tauraco erythrolophus*

Institution(s): Ouwehands Dierenpark (Rhenen, the Netherlands)



Meerkat (*Suricata suricatta*) and Red-crested Turaco (*Tauraco erythrolophus*) inside the gorilla indoor exhibit
Ouwehands Dierenpark, Rhenen, the Netherlands
Photo © Gabriella Mótyán

Combined species:

- Meerkat, *Suricata suricatta*
- Ring-tailed Lemur, *Lemur catta*

Institution(s): Tiergarten Schönbrunn (Vienna, Austria)



Combined species:

- Meerkat, *Suricata suricatta*
- Red Ruffed Lemur, *Varecia rubra*

Institution(s): Tiergarten Schönbrunn (Vienna, Austria)

Combined species:

- Meerkat, *Suricata suricatta*
- Grivet Monkey, *Chlorocebus aethiops*

Institution(s): Tiergarten Schönbrunn (Vienna, Austria), Attica Zoological Park (Spata, Athens, Greece)

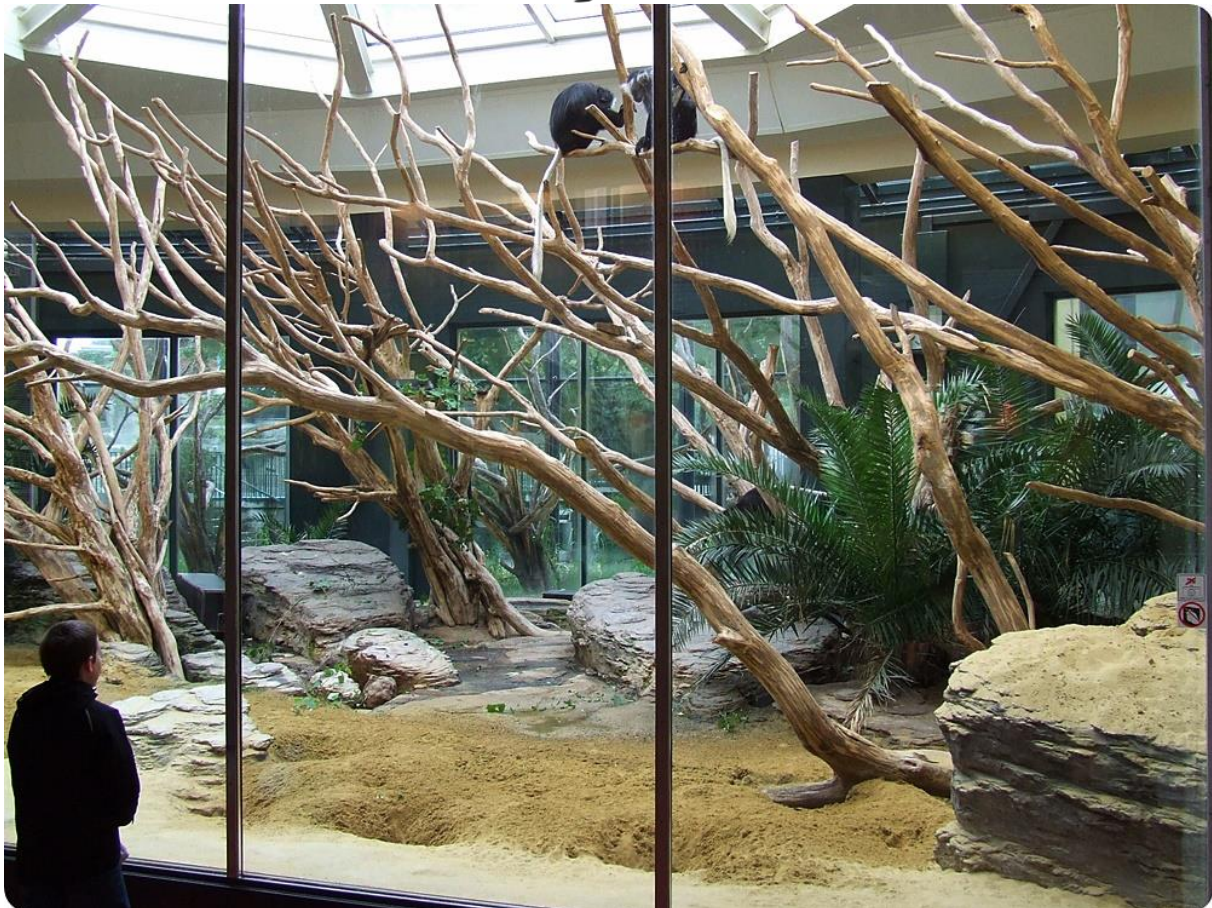
Combined species:

- Meerkat, *Suricata suricatta*
- King Colobus, *Colobus polykomos*

Institution(s): Tiergarten Schönbrunn (Vienna, Austria)



Meerkats (*Suricata suricatta*) and King Colobus (*Colobus polykomos*)
Tiergarten Schönbrunn, Vienna, Austria
Photo © Jutta Kirchner



Meerkats (*Suricata suricatta*) and King Colobus (*Colobus polykomos*) mixed indoor exhibit

Tiergarten Schönbrunn, Vienna, Austria

Photo © Krisztián Svábik

Combined species:

- Meerkat, *Suricata suricatta*
- Hamadryas Baboon, *Papio hamadryas*

Institution(s): Skansen-Akvariet (Stockholm, Sweden)

Combined species:

- Meerkat, *Suricata suricatta*
- Guinea Baboon, *Papio papio*

unknown institution



Combined species:

- Meerkat, *Suricata suricatta*
- Von der Decken's Hornbill, *Tockus deckeni*

Institution(s): Smithsonian National Zoological Park (Washington, United States of America)



Yellow Mongoose, *Cynictis penicillata*

Combined species:

- Yellow Mongoose, *Cynictis penicillata*
- Meerkat, *Suricata suricatta*

Institution(s): ZOO Antwerpen (Belgium), De Zonnegloed Sanctuary (Vleteren, Belgium), Yorkshire Wildlife Park (Doncaster, United Kingdom), Kirkleatham Owl Centre (Redcar, United Kingdom), Newquay Zoo (United Kingdom), Toni's Zoo (Rothenburg, Switzerland), Knies Kinderzoo (Rapperswil-Jona, Switzerland), Tierpark Nordhorn (Germany), Tierpark Hamm (Germany), Tierpark Ströhen (Wagenfeld, Germany), Tiergarten Nürnberg (Germany), Tiergarten Delitzsch (Germany), GaiaZOO (Kerkrade, the Netherlands)



jörg everding
fotografie

Yellow Mongoose (*Cynictis penicillata*) and Meerkat (*Suricata suricatta*)
Tierpark Nordhorn, Germany
Photo © Jörg Everding



Yellow Mongoose (*Cynictis penicillata*) and Meerkat (*Suricata suricatta*)
GaiaZOO, Kerkrade, the Netherlands and Tiergarten Nürnberg, Germany
Photos © GaiaZOO and Dr. Helmut Mägdefrau

Combined species:

- Yellow Mongoose, *Cynictis penicillata*
- Meerkat, *Suricata suricatta*
- Blue Crane, *Grus paradisea*

Institution(s): Five Sisters Zoo Park (West Calder, United Kingdom)

Combined species:

- Yellow Mongoose, *Cynictis penicillata*
- Meerkat, *Suricata suricatta*
- Közönséges tarajössül, *Hystix cristata*

Institution(s): Woburn Safari Park (Milton Keynes, United Kingdom)



Combined species:

- Yellow Mongoose, *Cynictis penicillata*
- Meerkat, *Suricata suricatta*
- Lion, *Panthera leo*

Institution(s): Zoologischer Garten Schwerin (Germany)

Combined species:

- Yellow Mongoose, *Cynictis penicillata*
- Meerkat, *Suricata suricatta*
- Fennec Fox, *Vulpes zerda*
- South African Ground Squirrel, *Xerus inauris*

unknown institution

Combined species:

- Yellow Mongoose, *Cynictis penicillata*
- Meerkat, *Suricata suricatta*
- African Spurred Tortoise, *Centrochelys sulcata*

Institution(s): Toni's Zoo (Rothenburg, Switzerland)

Combined species:

- Yellow Mongoose, *Cynictis penicillata*
- Meerkat, *Suricata suricatta*
- African Spurred Tortoise, *Centrochelys sulcata*
- Leopard Tortoise, *Stigmochelys pardalis*

Institution(s): Toni's Zoo (Rothenburg, Switzerland)

Combined species:

- Yellow Mongoose, *Cynictis penicillata*
- Lion, *Panthera leo*

Institution(s): Zoo Basel (Switzerland), ZOO Antwerpen (Belgium)



Combined species:

- Yellow Mongoose, *Cynictis penicillata*
- Bat-eared Fox, *Otocyon megalotis*

Institution(s): ZOO Antwerpen (Belgium)



Yellow Mongoose (*Cynictis penicillata*) and Bat-eared Fox (*Otocyon megalotis*)
ZOO Antwerpen, Belgium
Photo © Tom van Deuren

Combined species:

- Yellow Mongoose, *Cynictis penicillata*
- Rock Hyrax, *Procavia capensis*

Institution(s): ZOO Dvůr Králové (Czech Republic), Fővárosi Állat- és Növénykert (Budapest, Hungary)



Yellow Mongoose (*Cynictis penicillata*) and Rock Hyrax (*Procavia capensis*) mixed outdoor exhibit

ZOO Dvůr Králové, Czech Republic

Photo © Krisztián Svábik

Combined species:

- Yellow Mongoose, *Cynictis penicillata*
- Red River Hog, *Potamochoerus porcus*

Institution(s): Chester Zoo (United Kingdom)

Combined species:

- Yellow Mongoose, *Cynictis penicillata*
- Cape Porcupine, *Hystrix africaeaustralis*

Institution(s): Chester Zoo (United Kingdom), Zoologischer Garten Magdeburg (Germany)



Combined species:

- Yellow Mongoose, *Cynictis penicillata*
- Cape Porcupine, *Hystrix africaeaustralis*
- Secretarybird, *Sagittarius serpentarius*
- Rüppell's Griffon Vulture, *Gyps rueppellii*
- Hooded Vulture, *Necrosyrtes monachus*
- Palm-nut Vulture, *Gypohierax angolensis*

Institution(s): Zoologischer Garten Magdeburg (Germany) (walk-through exhibit)

Combined species:

- Yellow Mongoose, *Cynictis penicillata*
- Crested Porcupine, *Hystrix cristata*

Institution(s): ZSL London Zoo (United Kingdom)



Yellow Mongoose (*Cynictis penicillata*) and Crested Porcupine (*Hystrix cristata*) mixed exhibit

**ZSL London Zoo, United Kingdom
Photo © Krisztián Svábik**



Combined species:

- Yellow Mongoose, *Cynictis penicillata*
- Indian Crested Porcupine, *Hystrix indica*

Institution(s): Dierenpark Zie-Zoo (Volkel, the Netherlands), Zoo de Lille (France), Zoo de Bordeaux Pessac (France)



Yellow Mongoose (*Cynictis penicillata*) and Indian Crested Porcupine (*Hystrix indica*)
Dierenpark Zie-ZOO, Volkel, the Netherlands
Photo © John de Greef

Combined species:

- Yellow Mongoose, *Cynictis penicillata*
- African Spurred Tortoise, *Centrochelys sulcata*

Institution(s): Abenteuerland Walter Zoo (Gossau, Switzerland)



Common Dwarf Mongoose, *Helogale parvula*

Combined species:

- Common Dwarf Mongoose, *Helogale parvula*
- Meerkat, *Suricata suricatta*

Institution(s): Borth Wild Animal Kingdom (United Kingdom)

Combined species:

- Common Dwarf Mongoose, *Helogale parvula*
- Bat-eared Fox, *Otocyon megalotis*

Institution(s): Zoo des Sables d'Olonne (France)

Combined species:

- Common Dwarf Mongoose, *Helogale parvula*
- Fennec Fox, *Vulpes zerda*

Institution(s): Zoo de Lille (France)

Combined species:

- Common Dwarf Mongoose, *Helogale parvula*
- Bush Hyrax, *Heterohyrax brucei*

Institution(s): Zoo Frankfurt (Germany)



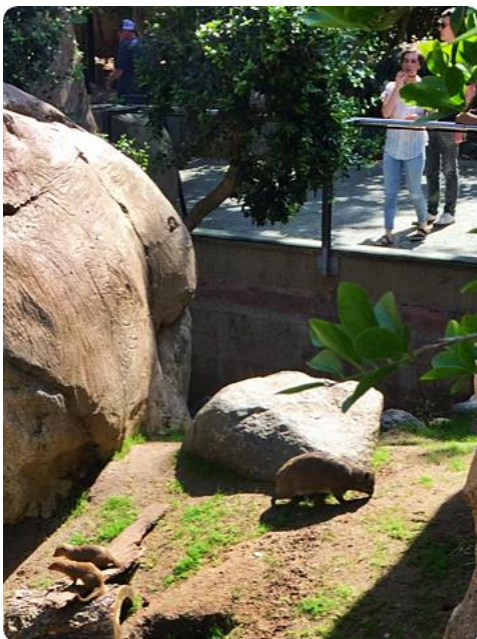
Common Dwarf Mongooses (*Helogale parvula*) and Bush Hyrax (*Heterohyrax brucei*)
Zoo Frankfurt, Germany
Photo © Nicolas Brüning



Combined species:

- Common Dwarf Mongoose, *Helogale parvula*
- Rock Hyrax, *Procavia capensis*
- Klipspringer, *Oreotragus oreotragus*
- South African Ground Squirrel, *Xerus inauris*

Institution(s): San Diego Zoo (United States of America)



**Common Dwarf Mongooses (*Helogale parvula*), Rock Hyraxes (*Procavia capensis*) and Klipspringers (*Oreotragus oreotragus*) in the famous Kopje-exhibit
San Diego Zoo, California, United States of America
Photos © Alex Kantorovich and Curby Simerson**



Combined species:

- Common Dwarf Mongoose, *Helogale parvula*
- Red-cheeked Cordon-bleu, *Uraeginthus bengalus*
- Violet-backed Starling, *Cinnyricinclus leucogaster*
- Yellow-crowned Bishop *Euplectes afer*
- Nile Crocodile, *Crocodylus niloticus*
- African Cichlids, *Cichlidae*

Institution(s): Zoo Basel (Switzerland)



Common Dwarf Mongoose (*Helogale parvula*) and Nile Crocodile (*Crocodylus niloticus*) mixed exhibit with free-flight birds and African Cichlids inside the Gamgoas House at Basel
Zoo Basel, Switzerland
Photos © Krisztián Svábik



Combined species:

- Common Dwarf Mongoose, *Helogale parvula*
- West African Crocodile, *Crocodylus suchus*

Institution(s): AQUATIS Aquarium-Vivarium (Lausanne, Switzerland)



Common Dwarf Mongoose (*Helogale parvula*) and West African Crocodile (*Crocodylus suchus*)
AQUATIS Aquarium-Vivarium, Lausanne, Switzerland
Photo © Fabian Schmidt

Combined species:

- Common Dwarf Mongoose, *Helogale parvula*
- Garnett's Greater Galago, *Otolemur garnettii*

Institution(s): Zoologická zahrada hl. m. Prahy (Czech Republic)

Combined species:

- Common Dwarf Mongoose, *Helogale parvula*
- South African Ground Squirrel, *Xerus inauris*

Institution(s): Zoologischer Garten Magdeburg (Germany)



Common Dwarf Mongooses (*Helogale parvula*) and South African Ground Squirrel (*Xerus inauris*)

Zoologischer Garten Magdeburg, Germany

Photo © www.zoochat.com

Combined species:

- Common Dwarf Mongoose, *Helogale parvula*
- Cape Porcupine, *Hystrix africaeaustralis*

Institution(s): Cotswold Wildlife Park and Gardens (Burford, United Kingdom)

Combined species:

- Common Dwarf Mongoose, *Helogale parvula*
- Indian Crested Porcupine, *Hystrix indica*

Institution(s): Opel-Zoo (Kronberg, Germany)

Combined species:

- Common Dwarf Mongoose, *Helogale parvula*
- Aardvark, *Orycteropus afer*
- several free-flight African bird species

Institution(s): ZOO Wrocław (Poland)



**Common Dwarf Mongoose (*Helogale parvula*) and Aardvark (*Orycteropus afer*) mixed exhibit with several free-flight birds - Hadada Ibises (*Bostrychia hagedash*) in the picture - inside the Afrykarium at Wrocław ZOO Wrocław, Poland
Photos © Krisztián Svábik**



Combined species:

- Common Dwarf Mongoose, *Helogale parvula*
- Aardvark, *Orycteropus afer*
- South African Ground Squirrel, *Xerus inauris*
- Kirk's Dik-dik, *Madoqua kirkii*
- several free-flight African bird species

Institution(s) with this coexistence: ZOO Wrocław (Poland)



Common Dwarf Mongoose (*Helogale parvula*) and South African Ground Squirrels (*Xerus inauris*)

ZOO Wrocław, Poland

Photo © Örs Görög

Combined species:

- Common Dwarf Mongoose, *Helogale parvula*
- Red-billed Hornbill, *Tockus erythrorhynchus*

Institution(s): Tiergarten Nürnberg (Germany), Oregon Zoo (Portland, United States of America)



Common Dwarf Mongooses (*Helogale parvula*) and Red-billed Hornbills (*Tockus erythrorhynchus*)

Tiergarten Nürnberg, Germany

Photo © Tiergarten Nürnberg

Combined species:

- Common Dwarf Mongoose, *Helogale parvula*
- Jackson's Hornbill, *Tockus jacksoni*

Institution(s): Dallas Zoo (United States of America)

Combined species:

- Common Dwarf Mongoose, *Helogale parvula*
- Von der Decken's Hornbill, *Tockus deckeni*

Institution(s): Bronx Zoo (New York, United States of America), Great Plains Zoo & Delbridge Museum of Natural History (Sioux Falls, United States of America), Tiergarten Schönbrunn (Vienna, Austria)



Common Dwarf Mongoose (*Helogale parvula*) and Von der Decken's Hornbill (*Tockus deckeni*)

Tiergarten Schönbrunn, Vienna, Austria

Photo © Petra Urbanek



Common Dwarf Mongoose (*Helogale parvula*) and Von der Decken's Hornbill (*Tockus deckeni*) mixed indoor exhibit inside the East Africa House at Vienna

Tiergarten Schönbrunn, Vienna, Austria

Photo © Krisztián Svábik



Combined species:

- Common Dwarf Mongoose, *Helogale parvula*
- Trumpeter Hornbill, *Bycanistes bucinator*

Institution(s): Dallas Zoo (Texas, United States of America)

Combined species:

- Common Dwarf Mongoose, *Helogale parvula*
- African Spurred Tortoise, *Centrochelys sulcata*

Institution(s): Uilen- en Dierenpark „de Paay” (Beesd, the Netherlands)

Combined species:

- Common Dwarf Mongoose, *Helogale parvula*
- Leopard Tortoise, *Stigmochelys pardalis*

Institution(s): Bioparc - Zoo de Doué la Fontaine (France)



Common Dwarf Mongooses (*Helogale parvula*) and Leopard Tortoise (*Stigmochelys pardalis*)

**Bioparc - Zoo de Doué la Fontaine, France
Photo © Bioparc - Zoo de Doué la Fontaine**



Common Dwarf Mongooses (*Helogale parvula*) and Leopard Tortoise (*Stigmochelys pardalis*)

Bioparc - Zoo de Doué la Fontaine, France

Photo © Bioparc - Zoo de Doué la Fontaine



Banded Mongoose, *Mungos mungo*

Combined species:

- Banded Mongoose, *Mungos mungo*
- Meerkat, *Suricata suricatta*

unknown institution

Combined species:

- Banded Mongoose, *Mungos mungo*
- Crested Porcupine, *Hystrix cristata*

Institution(s): Denver Zoo (Colorado, United States of America), Houston Zoo (Texas, United States of America)



Banded Mongooses (*Mungos mungo*) and Crested Porcupine (*Hystrix cristata*)
Denver Zoo, Colorado, United States of America
Photo © Brian Aucone



Combined species:

- Banded Mongoose, *Mungos mungo*
- Mandrill, *Mandrillus sphinx*

Institution(s): Zoo Dresden (Germany)

Combined species:

- Banded Mongoose, *Mungos mungo*
- Grivet Monkey, *Chlorocebus aethiops*

Institution(s): Parco Natura Viva (Bussolengo, Italy)

Combined species:

- Banded Mongoose, *Mungos mungo*
- Colobus, *Colobus sp.*

Unknown institution

Combined species:

- Banded Mongoose, *Mungos mungo*
- Rock Hyrax, *Procavia capensis*

Institution(s): Tiergarten Nürnberg (Germany)

Combined species:

- Banded Mongoose, *Mungos mungo*
- Common Warthog, *Phacochoerus africanus*

Institution(s): Chester Zoo (United Kingdom), Haller Park (Mombasa, Kenya)



Banded Mongoose (*Mungos mungo*) and Common Warthogs (*Phacochoerus africanus*)
Chester Zoo, United Kingdom
Photo © Krisztián Svábik



Banded Mongooses (*Mungos mungo*) and Common Warthog (*Phacochoerus africanus*)
interactive behaviour
Chester Zoo, United Kingdom
Photo © Christopher Holland



**Banded Mongooses (*Mungos mungo*) and Common Warthog (*Phacochoerus africanus*)
interactive behaviour
Chester Zoo, United Kingdom
Photo © Alan Hill**



**Banded Mongoose (*Mungos mungo*) and Common Warthog (*Phacochoerus africanus*)
mixed exhibit
Chester Zoo, United Kingdom
Photo © Krisztián Svábik**



Combined species:

- Banded Mongoose, *Mungos mungo*
- Red River Hog, *Potamochoerus porcus*

Institution(s): Safaripark Beekse Bergen (Hilvarenbeek, the Netherlands)



Banded Mongooses (*Mungos mungo*) and Red River Hog (*Potamochoerus porcus*)
Safaripark Beekse Bergen, Hilvarenbeek, the Netherlands
Photo © Örs Görög



Banded Mongooses (*Mungos mungo*) and Red River Hogs (*Potamochoerus porcus*)
Safaripark Beekse Bergen, Hilvarenbeek, the Netherlands
Photo © Maarten de Ruiter



Combined species:

- Banded Mongoose, *Mungos mungo*
- Red-billed Hornbill, *Tockus erythrorhynchus*

Institution(s): Tiergarten Nürnberg (Germany)

Combined species:

- Banded Mongoose, *Mungos mungo*
- Leopard Tortoise, *Stigmochelys pardalis*

Institution(s): Tropicarium Kolmården (Sweden)



Gambian Mongoose, *Mungos gambianus*

Combined species:

- Gambian Mongoose, *Mungos gambianus*
- Black Vulture, *Aegypius monachus*
- Egyptian Vulture, *Neophron percnopterus*
- Griffon Vulture, *Gyps fulvus*
- Himalayan Griffon Vulture, *Gyps himalayensis*
- Rüppell's Vulture, *Gyps rueppelli*
- Hooded Vulture, *Necrosyrtes monachus*
- Secretarybird, *Sagittarius serpentarius*
- Trumpeter Hornbill, *Bycanistes bucinator*
- Spur-winged Goose, *Plectropterus gambensis*

Institution(s): ZOO a zámek Zlín-Lešná (Czech Republic)



Walk-through vulture aviary where ground level is inhabited by Gambian Mongooses (*Mungos gambianus*)

ZOO a zámek Zlín-Lešná, Czech Republic
Photo © Krisztián Svábik



Common Cusimanse, *Crossarchus obscurus*

Combined species:

- Common Cusimanse, *Crossarchus obscurus*
- Crested Porcupine, *Hystrix cristata*
- Blue-eyed Black Lemur, *Eulemur flavifrons*

Institution(s): Memphis Zoo (Tennessee, United States of America)

Combined species:

- Common Cusimanse, *Crossarchus obscurus*
- Crested Porcupine, *Hystrix cristata*

Institution(s): Shepreth Wildlife Park (United Kingdom)

Combined species:

- Common Cusimanse, *Crossarchus obscurus*
- African Brush-tailed Porcupine, *Atherurus africanus*

Institution(s): Paignton Zoo Environmental Park (United Kingdom)

Combined species:

- Common Cusimanse, *Crossarchus obscurus*
- Diana Monkey, *Cercopithecus diana*

Institution(s): Newquay Zoo (United Kingdom)



Common Slender Mongoose, *Galerella sanguinea*

Combined species:

- Common Slender Mongoose, *Galerella sanguinea*
- Rock Hyrax, *Procavia capensis*
- African Spurred Tortoise, *Centrochelys sulcata*
- Leopard Tortoise, *Stigmochelys pardalis*

Institution(s): Dierenpark Zie-Zoo (Volkel, the Netherlands)



White-tailed Mongoose, *Ichneumia albicauda*

Combined species:

- White-tailed Mongoose, *Ichneumia albicauda*
- Egyptian Mongoose, *Herpestes ichneumon*

Institution(s): Samjung The Park (Busan, South Korea)



White-tailed Mongoose (*Ichneumia albicauda*) and Egyptian Mongoose (*Herpestes ichneumon*) mixed exhibit

Samjung The Park, Busan, South Korea

Photo © Alex Kantorovich

Combined species:

- White-tailed Mongoose, *Ichneumia albicauda*
- Northern Plains Gray Langur, *Semnopithecus entellus*

Institution(s): Zoo Heidelberg (Germany)



Combined species:

- White-tailed Mongoose, *Ichneumia albicauda*
- Western Lowland Gorilla, *Gorilla gorilla gorilla*

Institution(s): Zoo Heidelberg (Germany)



Marsh Mongoose, *Atilax paludinosus*

Combined species:

- Marsh Mongoose, *Atilax paludinosus*
- Eastern Black-and-white Colobus, *Colobus guereza*

Institution(s): Randers Regnskov (Denmark)



Marsh Mongoose (*Atilax paludinosus*) and Eastern Black-and-white Colobus (*Colobus guereza*) former mixed exhibit
Randers Regnskov, Denmark
Photo © Kåre Jensen



Egyptian Mongoose, *Herpestes ichneumon*

Combined species:

- Egyptian Mongoose, *Herpestes ichneumon*
- White-tailed Mongoose, *Ichneumia albicauda*

Institution(s): Samjung The Park (Busan, South Korea)



Indian Grey Mongoose, *Herpestes edwardsii*

Combined species:

- Indian Grey Mongoose, *Herpestes edwardsii*
- Rhesus Monkey, *Macaca mulatta*
- Dwarf Goat, *Capra hircus*

Institution(s): Zoo Heidelberg (Germany)



**Indian Grey Mongoose (*Herpestes edwardsii*) and Rhesus Monkey (*Macaca mulatta*)
with an enrichment tool filled with food**

**Zoo Heidelberg, Germany
Photo © York von Selasinsky**



LIST OF MIXED-SPECIES EXHIBITS WITH LOCATIONS - *EUPLERIDAE*

The list shows specific examples of mixed-species exhibits involving at least one madagascar carnivore species combined with the taxa below, with indication of the institution(s) where they have been tried out



Ring-tailed Vontsira, *Galidia elegans*

Combined species:

- Ring-tailed Vontsira, *Galidia elegans*
- White-fronted Lemur, *Eulemur albifrons*

Institution(s): Zoologická a botanická zahrada města Plzně (Czech Republic)

Combined species:

- Ring-tailed Vontsira, *Galidia elegans*
- Black Lemur, *Eulemur macaco*

Institution(s): Zoologická a botanická zahrada města Plzně (Czech Republic)

Combined species:

- Ring-tailed Vontsira, *Galidia elegans*
- Northern Plains Gray Langur, *Semnopithecus entellus*

Institution(s): Zoo Heidelberg (Germany)

Combined species:

- Ring-tailed Vontsira, *Galidia elegans*
- Leopard Tortoise, *Stigmochelys pardalis*

Institution(s): Dierenpark Zie-Zoo (Volkel, the Netherlands)



Narrow-striped Boky, *Mungotictis decemlineata*

Combined species:

- Narrow-striped Boky, *Mungotictis decemlineata*
- Malagasy Giant Jumping Rat, *Hypogeomys antimena*

unknown institution

Combined species:

- Narrow-striped Boky, *Mungotictis decemlineata*
- White-fronted Lemur, *Eulemur albifrons*

Institution(s): Zoologická a botanická zahrada města Plzně (Czech Republic)

Combined species:

- Narrow-striped Boky, *Mungotictis decemlineata*
- Red-bellied Lemur, *Eulemur rubriventer*

Institution(s): Zoologická a botanická zahrada města Plzně (Czech Republic)

Combined species:

- Narrow-striped Boky, *Mungotictis decemlineata*
- Crowned Lemur, *Eulemur coronatus*

Institution(s): Newquay Zoo (United Kingdom)



Narrow-striped Boky (*Mungotictis decemlineata*) and Crowned Lemur (*Eulemur coronatus*) mixed exhibit
Newquay Zoo, United Kingdom
Photo © Owen Taylor



SUMMARIZE THE EXPERIENCES

This document purposefully focuses on creating a list of mixed-species exhibits with family *Herpestidae* and *Eupleridae*, for further and detailed information it is worth contacting the institutions mentioned above. Only a short summary of the general experiences is given here. Many of the listed coexistences are still ongoing at present; many of them are not anymore.

Mongoose

In reference to exhibiting different mongoose species in the same enclosure the most frequent is the Meerkat & Yellow Mongoose combination. The two species also have a co-occurrence in their distribution area in nature. Adult specimens of both species can be dangerous for the other taxa's subadult individuals. The mixed exhibit for the two species did not work for breeding of Meerkats at Tiergarten Nürnberg. The mongooses killed and fed the young Meerkats after leaving the burrow. After that they have had to separate the species for some two months due to raise the young Meerkats. When the colony of Meerkats grew up to some 15 individuals, they expected they should be able to defend their youngsters, but it failed. Therefore the zoo decided to keep the breeding group of mongooses together with a bachelor group of Meerkats, which combination seems to work without problems (MÄGDEFRAU 2018, pers. comm.). After one of the mongooses died in GaiaZOO the institution had to separate the species (BOER 2018, pers. comm.). Mongooses can play prey and predator species in a mixed exhibit as well. According to several zoos experiences the mongoose and Lion cohabitation was not successful. In these cases the smaller species had an enclosure of their own and they have had access to the enclosure of the big cats through tunnels, where many alternative tunnels and exits were hidden. In a coexistence of mongooses and Lions lethal accidents have also been reported during the period of introduction as one of the Lions was able to catch a mongoose at Zoologischer Garten Schwerin and ZOO Antwerpen (HAMMER 2002, PAPIES 2018, pers. comm.). In Schwerin the initial group structure was 1.1 Meerkat, 1.2 Yellow Mongoose and 1.2 Lion, later on the mongooses established a group as they were well breeding. The outdoor enclosure was a 700 m² hilly area with grass and rocks, including an extensive system of underground caves and tubes, comprising 28 exits and mongooses had 12 m² area exclusively for their own. The tube system was extended and the mongooses were habituated to the enclosure for two weeks in absence of lions. During this habituation phase, animals were regularly frightened by several stimuli to improve their anti predator behaviours. Two Yellow Mongooses were preyed upon by lions. With rising numbers of lions present in the outdoor enclosure, mongooses started to become more cryptic lifestyle. Worth mentioning that Yellow Mongooses might prey upon young Meerkats (ZIEGLER 2002). In Zoo Basel Yellow Mongooses were also killed and eaten by Lions (HOUWALD 2018, pers. comm.). One of the most important question is to decide whether we would like to breed the species involved in a multi-species exhibit. On several occasions, Porcupines, South



African Ground Squirrels and Rock Hyraxes with youngsters had to be separated from Meerkats, as the mongooses could have been dangerous to the babies and might have killed them. A few lethal accidents have also been reported with these combinations. Young South African Ground Squirrels were killed by Meerkats in Basel (HOUWALD 2018, pers. comm.). Banded Mongooses and Rock Hyraxes should have been separated in Tiergarten Nürnberg due to stress and birth problems in hyrax group (HAMMER 2002, MÄGDEFRAU 2018, pers. comm.). GaiaZOO combined Meerkat with Rock Hyrax and as long as they kept a non-breeding situation with the hyraxes, everything went well, but when the young were born aggression started towards the mongooses (BOER 2018, pers. comm.). In Oglebay Good Zoo some aggression between male Rock Hyrax and Meerkats was also occurred when first introduced. Male hyrax was somewhat aggressive with Meerkats when it was first introduced to the exhibit but female hyraxes got along very well with the mongooses. They would even curl up together when temperature would get cooler. Most of the aggression between the male hyrax and the Meerkats occurred over a nestbox as both species were trying to occupy. When nestboxes with holes small enough to keep the hyrax out were made, all got along well. Male hyrax has also been separated when young mongooses were present (PETEFISH 2004).

One of the oldest and most famous mixed-species exhibit with mongooses is the Kopje Exhibit at San Diego Zoo opened in 1986. The masterful artificial rock outcroppings imitates a naturalistic landscape and beforehand was home to Common Dwarf Mongooses, Rock Hyraxes, South African Ground Squirrels and Klipspringers. At present the rodents are not here anymore (SIMERSON 2018, pers. comm.). Mongoose family have been seen chasing and molesting a ground squirrel. The rodents did not come out during daytime when the small carnivores were most active, they were tend to hide in underground tunnels. A pregnant squirrel was also kept separately from the group (HAMMER 2002).

Exhibiting mongooses - especially Meerkats - with Porcupines - especially with genus *Hystrix* - is the most usual combination which seems to work without problems in the majority of the cases. It is important to mention that mongooses could have been dangerous to the porcupine babies and might have killed them - a few lethal accidents have also been reported - so the female Porcupines with babies have to be separated from the mongooses for a few weeks after births. Many species of mongooses - especially Meerkats - are excellent diggers and holes could be dangerous for small and large ungulate species as well. The hoofed mammals could also be dangerous as well, on one occasion in London Zoo a couple of Meerkats were trampled to death by a Giraffe, as the mongooses have had free access to the ungulate indoor stalls but they quickly learnt to be more cautious (HAMMER 2002).

Housing diurnal mongoose species with nocturnal species, such as Aardvarks, means that animals generally use the exhibit at different times of the day. In Philadelphia Zoo Meerkats had climbing structures and hollowed logs the Aardvark did not have access to or fit into, furthermore, a plexiglass wall with a mongoose-sized access divided the space so that the Meerkats had an area of their own (HAMMER 2002). In many cases, primates pose special problems in a multi-species exhibit. In Zoo Prague the Common Dwarf Mongoose and Garnett's Greater Galago coexistence is partly successful. There were always two galago males and a family group of mongooses. The breeding of mongooses was always very limited, but it was never clear if the presence of the primates is the reason for it. The previous group of mongooses had some aggression towards the galagos, especially attacking the galagos and tried to bite them on their tails. At present the major problem is the proper



feeding: to prevent eating the other species' diet, galagos are partly fed from hand and mongooses are fed in bowls hidden in the nestboxes with small openings to prevent galago activity (BRANDL 2018, pers. comm.). In Zoo Heidelberg the mixed exhibit with White-tailed Mongooses and Western Lowland Gorillas has worked without problems for several years, until a subadult gorilla male started to chase and catch the mongooses which were older meanwhile and not so fast as before. Then the zoo had to stop it and kept the old mongooses together with the Northern Plains Gray Langurs which worked well until the last mongoose died in a natural way due to high age. Also in Heidelberg the Indian Grey Mongooses were kept successfully together with Rhesus Macaques and Dwarf Goats (REICHLER-DANIELOWSKI 2018, pers. comm.). In Tiergarten Schönbrunn Meerkats share the exhibit with King Colobuses. This combination - as in most of the cases - seems to depend on the individuals. The first colobus male was aggressive towards the Meerkats and even killed one offspring once. Now the institution has a new male and there are no problems at all any more. The mongooses sometimes play with the tip of the tails of the colobus (DUNGL 2018, pers. comm.).

In some cases, overt aggression between the species occurred. Banded Mongoose and Mandrill coexistence was not successful at Zoo Dresden. Firstly the mongooses were given exclusive access to the outdoor enclosure for several days to habituate them to the new environment. Several days after Mandrills had also been given access to the outdoor enclosure and after that the primates - except the alpha male - chased the mongoose whenever they could. Two mongooses were lethally injured (ZIEGLER 2002). Even in the absence of a high level of aggression between the species, there may be evidence that one of the species is under stress. Diana Monkey and Common Cusimanse cohabitation in Newquay Zoo proved to be unsuccessful as well. The primates began to grab at the mongooses and eventually tried to pick the Cusimanse up which has also resulted in the monkeys receiving a number of bites to their fingers (TAYLOR 2012, pers. comm.). Marsh Mongooses and Eastern Black-and-white Colobuses coexisted very well for many years in Randers Regnskov. The species did not really interact much since the monkeys mostly stayed in the top of the enclosure whereas the mongooses only used the floor (WINTHER LASSEN 2018, pers. comm.). The Common Dwarf Mongoose and Hornbill mixed exhibits work perfectly fine in Vienna, Bronx and Nuremberg as well (DUNGL 2018, pers. comm., McCANN 2018, pers. comm., MÄGDEFRAU 2018, pers. comm.). In Vienna there is a plan to introduce a third species, the Giant Plated Lizard (*Matobosaurus validus*) into the exhibit as well (DUNGL 2018, pers. comm.).

Mongooses were also mixed with different species of tortoises. Three years ago Bioparc - Zoo de Doué la Fontaine has created an enclosure with Common Dwarf Mongoose and Leopard Tortoise. The cohabitation was working without problem until the tortoises tried to mate. The mongooses attacked the tortoise penis. One of the males had only some stitches but for another the veterinary team had to amputate the penis because of the bites. Now mongooses are only with female tortoises (and the amputated male) together (POPELIN-WEDLARSKI 2019, pers. comm.). A similar problem was also reported in reference to Meerkats and African Spurred Tortoise.

Madagascar Carnivores

Some mixed exhibits with Madagascar Carnivores have also been reported. In Zoo Heidelberg - after the White-tailed Mongoose and Northern Plains Gray Langur



cohabitation has been ended - the monkeys now share their exhibit with an older female Ring-tailed Vontsira which works without problems (REICHLER-DANIELOWSKI 2018, pers. comm.). Dierenpark Zie-ZOO has tried out mix their Ring-tailed Vontsirias with Leopard Tortoise but the small carnivores attacked the legs of the reptiles so the species had to separated (DE GREEF 2018, pers. comm.). The Ring-tailed Vontsira and Narrow-striped Boky coexistence with different species of lemurs in Zoo Pilsen was successful: there were no problems regarding behaviour, but feeding competition between species needed to be solved (VIDUNA 2018, pers. comm.).

The Narrow-striped Boky and Crowned Lemur mixed exhibit at Newquay Zoo was a success. The lemurs were introduced to the enclosure first to become familiar with the new environment. The mongooses were introduced to their indoor area a week later and kept inside for a couple of days to become familiar with their new surroundings and nest boxes. When they were introduced to each other for the first time, both species seemed a little surprised to see each other, but there was no adverse interaction or any indications of stress (TAYLOR 2010). Both of the species was bred during the coexistence. When the lemurs bred the mongoose were locked in during the day and allowed out during the evening and vice versa for the lemurs due to potential predation of the lemur offspring (TAYLOR 2012, pers. comm.).



ACKNOWLEDGEMENTS

I would like to thank all the persons very much who helped to improve this short summary with providing information and photographs as well, in particulare:

Brian AUCONE Senior Vice President for Animal Sciences (Denver Zoo, United States of America), Hanneke de BOER Education & Conservation (GaiaZOO, Kerkrade, the Netherlands), Dr. Pavel BRANDL curator (Zoologická zahrada hl. m. Prahy, Czech Republic), Nicolas BRÜNING assistant (Zoo Frankfurt, Germany), Dr. Eveline DUNGL curator (Tiergarten Schönbrunn, Vienna, Austria), John de GREEF volunteer photographer (Dierenpark Zie-Zoo, Volkel, the Netherlands), Dr. Friederike von HOUWALD curator (Zoo Basel, Switzerland), Brent HUFFMAN Lead Keeper & Zoologist, AZA Ungulates Team (Toronto Zoo, Canada), Jennifer IRELAND curator (North Carolina Zoo, Asheboro, United States of America), Dr. Helmut MÄGDEFRAU director (Tiergarten Nürnberg, Germany), Colleen McCANN curator (Bronx Zoo, New York, United States of America), Matthias PAPIES curator (ZOO Antwerpen, Belgium), Florine POPELIN-WEDLARSKI scientific assistant (Bioparc - Zoo de Doué la Fontaine, France), Sandra REICHLER-DANIELOWSKI curator (Zoo Heidelberg, Germany), Fabian SCHMIDT curator (Zoo Leipzig, Germany), Curby SIMERSON associate curator (San Diego Zoo, United States of America), Owen TAYLOR head keeper (Paignton Zoo Environmental Park, United Kingdom), Hilda TRESZ Behavioral Enrichment & International Animal Welfare coordinator (Phoenix Zoo, United States of America), Lars VERSTEEGE curator (Safaripark Beekse Bergen, Hilvarenbeek, the Netherlands), Richard VIDUNA curator & registrar (Zoologická zahrada Jihlava, Czech Republic), Guna VITOLA Animal Collection manager (Rīgas Nacionālais zooloģiskais dārzs, Latvia), Anne Rikke WINTHER LASSEN biologist & registrar (Randers Regnskov, Denmark)

As well as I would like to thank all the persons very much who helped to improve this document with providing further photographs, their names are listed below:

Mario BERNDTGEN, Tamás BOROS, Tom van DEUREN, Jörg EVERDING, Xavier Bayod FARRÉ, Örs GÖRÖG, Arjan HAVERKAMP, Alan HILL, Christopher HOLLAND, Marcel HOLTROP, Larry JACKSON, Kåre JENSEN, Alex KANTOROVICH, Jutta KIRCHNER, Anna LIFLYAND, Jonas LIVET, Aniketan MATH, Anita MAZÁCS, Scott RICHARDSON, Maarten de RUITER, York von SELASINSKY, Petra URBANEK, Jim WILSON



REFERENCES:

AZA Small Carnivore TAG 2011. Mongoose, Meerkat & Fossa (Herpestidae/Eupleridae) Care Manual. Association of Zoos and Aquariums, Silver Spring, MD. pp.103.

GILCHRIST, J. S, JENNINGS, A. P., VERON, G. & CAVALLINI, P. 2009. Family Herpestidae (Mongooses). Pp. 262-328 in: WILSON, D. E. & MITTERMEIER, R. A. eds. 2009. Handbook of the Mammals of the World. Vol. 1. Carnivores. Lynx Edicions, Barcelona.

HAMMER, G. 2002. Mixed species exhibits involved mammals: stock report and problems. Dissertation. Naturwissenschaftliche Fakultät Universität Salzburg.

MACDONALD, D. (ed.) 2001. The New Encyclopedia of Mammals. Brown Reference Group Limited

PETEFISH, D. 2004. Mixed Species Survey. Peoria's Glen Oak Zoo

RASA, O. A. 1983. Dwarf mongoose and hornbill mutualism in the Taru Desert, Kenya. Behavioral Ecology and Sociobiology, 12(3), 181-190.

TAYLOR, O. 2010. Managing the Narrow-striped Mongoose in a mixed exhibit at Newquay Zoo. International Zoo News, Vol. 57/4., No. 381. Published by the North of England Zoological Society.

ZIEGLER, T. 2002. Selected Mixed Species Exhibits in Zoological Gardens. Primate Report 64.

www.zoochat.com