

African Pygmy Hedgehog (*Atelerix spp.*)

Information Sheet

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The descriptive term 'African Pygmy Hedgehog' often refers to a mix of species within the *Atelerix* genus. This genus is native to Africa and includes four members, although in recent years, *A. albiventris* has been the focus of selective breeding for the pet trade due to its small size (Santana *et al.* 2010). African Pygmy hedgehogs are increasing in popularity as exotic pets, although many are being presented to veterinarians with diseases and husbandry-related disorders (Lennox, 2007). The following information therefore reviews captive husbandry, health and natural-behaviour considerations to inform protocol for captive African Pygmy hedgehogs. This, in turn, raises questions as to the welfare impact of captivity on this species.

Species Background

Hedgehogs comprise twelve species which are found in much of Africa, Asia and Europe. They are characterised by protective spines, an ability to roll into a tight defensive ball and a largely nocturnal, solitary nature (Heatley, 2005). Despite their wild status, African Pygmy hedgehogs are commonly encountered in the North American pet trade, although importation is highly controlled to limit potential disease risks (Heatley, 2005). The average weight and length of an African Pygmy hedgehog is 335g and 21cm respectively, and selective breeding is now responsible for several colour varieties (Santana *et al.* 2010).

In the wild, African Pygmy hedgehogs inhabit various dry-soil habitats, including grasslands and woodlands, with sheltered nests made of leaves or matted grass occupied daily for resting (Santana *et al.* 2010). They have well-developed sight, scent and hearing senses which allow prey to be located up to 4cm beneath ground-level (Santana *et al.* 2010). Although plant matter can be consumed, diet largely comprises invertebrates such as beetles, earthworms and slugs, alongside small vertebrate such as lizards and frogs (Santana *et al.* 2010). Plant-based cellulose is not efficiently digested; instead the external skeleton of insects is broken down into a source of dietary fibre (Dierenfeld, 2009).

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Captive Husbandry

African Pygmy hedgehogs are best suited to housing with smooth walls and floors; these limit injury scope, are cleanable, filter light and diminish household noises (Banks *et al.* 2010). Wire cages are not recommended. Considering the wild African hedgehog has a 200-300m home-range (Santana *et al.* 2010), housing should be as large and well-ventilated as possible. This should include absorbent bedding such as newspaper and fleeces, replaced daily to limit infection risks, alongside boxes or shelters to simulate nests. Housing temperatures should be maintained at 25-30°C to stop hibernation from occurring (Santana *et al.* 2010) which, due to reduced immune response, increases infection risk (Bouma *et al.* 2010).

Whilst hedgehogs often move slowly, they are capable of speed and climbing; particularly during the night or evening when they are most active (Santana *et al.* 2010). Housing enrichment which allows this behaviour, without injury or limb-entrapment risk, is therefore ideal. Hiding places, tunnels, pots, straw or leaf provisions can be provided and rotated regularly to promote exercise, novelty and exploration. Natural materials are ideal, including wood bark or branches sourced from non-pesticide trees without signs of disease or damage, although these should be replaced frequently for hygiene purposes. Commercial wet and dry cat food (non-fish), mealworms and limited vegetable portions should be provided regularly: mealworms prevent malnutrition and dried foods limit dental disease. A water dish should be constantly available as some hedgehogs never adapt to bottle drinkers (Santana *et al.* 2010).

African Pygmy hedgehogs are a largely solitary species and therefore should be housed alone. Occasionally however, captive females will share housing without conflict, although signs of stress should be observed; this includes hissing and occasionally, screaming (Santana *et al.* 2010). By contrast, a relaxed hedgehog will lay its spines relatively flat to its body. Pregnant females should always be housed separately, and disruption to females with young should be minimal to reduce risks of desertion or cannibalism (Santana *et al.* 2010). Other behaviours to be aware of include self-anointing, whereby the hedgehog expels a saliva mix onto its spines. Although reasons for self-anointing are unknown, this appears to be related to contact with aversive substances and as such, may have defence origins (D'have *et al.* 2005).

Captive Health

The expected lifespan of wild African Pygmy hedgehogs is up to 4 years, although captive counterparts often exceed this age due to advances in veterinary care (Heatley *et al.* 2005). Captive hedgehogs however, are susceptible to various diseases including tumours, heart disease, wobbly hedgehog syndrome, musculoskeletal disorders and eye injury. Tumours are commonly diagnosed (Phair *et al.* 2011), and whilst advancing age is considered a risk factor, individuals from 1 month of age can be affected (Heatley *et al.* 2005). In general, 85% of hedgehog tumours are malignant and prognosis is poor (Heatley *et al.* 2005).

The disease described as wobbly hedgehog syndrome (WHS) is a progressive paralysis which in North America, occurs in approximately 10% of captive African hedgehogs (Graesser *et al.* 2006). Symptoms include loss of coordination and neurological signs, progressing to complete paralysis, with disease onset generally before 2 years of age. This is considered an inherited disease influenced by diet, husbandry or infectious agents (Banks *et al.* 2010). An emerging musculoskeletal disease causing degenerative spinal discs, which clinically resembles WHS, has also been identified; although disease onset tends to be later (Raymond *et al.* 2009). Other musculoskeletal diseases, often manifesting as lameness, can be a result of overgrown nails, foot infection, obesity, arthritis or fractures (Banks *et al.* 2010). Obesity is a common problem, as hedgehogs naturally have a low metabolic rate (Santana *et al.* 2010), yet captive individuals may be over-fed or have limited activity opportunity.

Corneal ulcers, or other eye injuries, also occur frequently in captive African hedgehogs, although vision loss does not appear to impact environmental navigation (Banks *et al.* 2010). Additionally, captive African hedgehogs are susceptible to various bacterial, fungal and viral infections, including ringworm and salmonella; the latter estimated to be carried by up to 28% of individuals (Santana *et al.* 2010). Symptoms may include weight-loss, poor skin health, respiratory problems or changes in faecal composition or colour, and a veterinarian should be consulted immediately if disease is suspected.

Further Considerations

The process of domestication occurs as many generations of a particular species are bred for certain traits, whilst being regularly handled by humans. For domestication to be successful, both humans and the species concerned must benefit (Robinson, 2011). A primary example is the domestic dog, who secured food and companionship in return for hunting and guarding. Despite mutual benefits however, the process of dog domestication

took between 10,000-33,000 years (Wayne and vonHoldt, 2012). By comparison, hedgehog domestication began in the 1980s, and whilst humans may benefit from this relationship, mutuality is questionable.

References

Banks, R. E. Sharp, J. M. Doss, S. D. and Vanderford, D. A. 2010. *Exotic Small Mammal Care and Husbandry*. USA: Wiley-Blackwell.

Bouma, H. R. Carey, H. V. and Kroese, F. G. M. 2010. Hibernation: The immune system at rest? *Journal of Leukocyte Biology*, 88(4) 619-624.

D'have, H. Scheirs, J. Verhagen, R. and De Coen, W. 2005. Gender, age and seasonal dependent self-anointing in the European hedgehog *Erinaces europaeus*. *Acta Theriologica*, 50(2) 167-173.

Dierenfeld, E. S. 2009. Feeding behavior and nutrition of the African Pygmy hedgehog (*Atelerix albiventris*). *Veterinary Clinics of North America: Exotic Animal Practice*. 12(2) 335-337.

Graesser, D. Spraker, T. R. Dressen, P. Garner, M. M. Raymond, J. T. Terwilliger, G. Kim, J. and Madri, J. A. 2006. AEMV forum: Wobbly hedgehog syndrome in African Pygmy hedgehogs (*Atelerix spp.*). *Journal of Exotic Pet Medicine*. 15(1) 59-65.

Heatley, J. J. 2005. *Manual of Exotic Pet Practice*. GB: Elsevier.

Heatley, J. J. Mauldin, G. E. and Cho, D. Y. 2005. A review of neoplasia in the captive African hedgehog (*Atelerix albiventris*). *Seminars in Avian and Exotic Medicine*. 14(3) 182-192.

Lennox, A. M. 2007. Emergency and critical care procedures in Sugar Gliders (*Petaurus breviceps*), African hedgehogs (*Atelerix albiventris*), and Prairie dogs (*Cynomys spp*). *Veterinary Clinics of North America: Exotic Animal Practice*. 10(2) 533-555.

Phair, K. Carpenter, J. W. Marrow, J. Andrews, G. and Bawa, B. 2011. Management of an extraskeletal osteosarcoma in an African hedgehog (*Atelerix albiventris*). *Journal of Exotic Pet Medicine*. 20(2) 151-155.

Raymond, J. T. Aguilar, R. Dunker, F. Ochsenreiter, J. Nofs, S. Shellabarger, W. and Garner, M. M. 2009. Intervertebral disc disease in African hedgehogs (*Atelerix albiventris*): Four cases. *Journal of Exotic Pet Medicine*. 18(3) 220-223.

Robinson, J. L. 2011. *Domestication*. American Medical Association. USA: Salem Press.

Santana, E. M. Jantz, H. E. and Best, T. L. 2010. *Atelerix albiventris* (Erinaceomorpha: Erinaceidae). *Mammalian Species*. 42(857) 99-110.

Wayne, R. K. And vonHoldt, B. M. 2012. Evolutionary genomics of dog domestication. *Mammalian Genome*. 23 3-18.