



Overview of the bushpig, *Potamochoerus larvatus* (Cuvier, 1822)

^{1,2}Ioan Oroian, ¹Marian Proorocu

¹ Department of Environmental Engineering and Protection, Faculty of Agriculture, University of Agricultural Sciences and Veterinary Medicine Cluj-Napoca, Cluj-Napoca, Romania; ² Balkan Environmental Association, Thessaloniki, Greece.
Corresponding author: I. Oroian, ioan.oroian@usamvcluj.ro

Abstract. This short work is a review of the wild suid species *Potamochoerus larvatus* (Cuvier, 1822). The bushpig, is a versatile and resilient species well adapted to a variety of African habitats. Despite facing localized threats, the overall population remains stable. Continued research and conservation efforts are necessary to ensure their coexistence with human activities and to mitigate potential conflicts. The bushpig's adaptability and ecological role make it an important species within its native range.

Key Words: *edwardsi*, *hassama*, *koiropotamus*, *nyasae*, *somaliensis*, African habitats.

Introduction. *Potamochoerus larvatus* (Cuvier, 1822) (meaning "river pig"), commonly known as the bushpig, is a wild pig species native to the forests and savannas of sub-Saharan Africa (Kingdon 1997). This species is notable for its adaptability to various habitats and its omnivorous diet. This short work is a review of the wild suid species *P. larvatus*.

Distribution. Bushpigs are found across a wide range of sub-Saharan Africa, from Ethiopia and Somalia in the northeast, extending southwards to South Africa and westwards to Angola and Namibia (Kingdon 1997; see Figure 1). Introduced populations are probably present in Madagascar, and they also occur on the Comoros archipelago (Simoons 1953; Wilson & Reeder 2005; Lee et al 2020). It is unclear how it reached these islands, but humans probably transported it there, possibly following domestication (Simoons 1953). Numerous hybrids with domestic pigs have been reported as well (Vercammen et al 1993). During the late 1970s or early 1980s, the bushpig seems to have expanded its range in Botswana (Vercammen et al 1993). It was suggested in 1993 that the northern range of the swine might have contracted due to sahelisation (Vercammen et al 1993). The species thrives in diverse habitats including forests, savannas, and areas with dense vegetation near water sources.



Figure 1. Approximate distribution of the bushpig (Source: Wilson & Mittermeier 2009, Wikipedia.org 2023. This file is licensed under the Creative Commons Attribution-Share Alike 3.0 Unported license).

Taxonomy.

Kingdom: Animalia
 Phylum: Chordata
 Class: Mammalia
 Order: Artiodactyla
 Family: Suidae
 Genus: *Potamochoerus*
 Species: *P. larvatus* (Figure 2).

Genetic analyses have revealed significant regional variations within bushpig populations, suggesting a complex evolutionary history and potential subspecies differentiation. According to Wilson and Reeder (2005), there are several subspecies recognized:

- P. larvatus larvatus* – Comoros, western Madagascar;
- P. larvatus nyasae* – DR Congo, Angola, eastern South Africa, southeast Africa to southern Tanzania;
- P. larvatus edwardsi* – syn. *hova*, eastern Madagascar;
- P. larvatus koiropotamus* – Cape Region (see Figure 2);
- P. larvatus hassama* – Ethiopia, Eritrea, Sudan, South Sudan;
- P. larvatus somaliensis* – Somalia.

However, one problem remains unsolved. According to evolutionary species concept, there is no place in taxonomy for subspecies (Wiley & Mayden 2000; Nowak et al 2009; Stoian et al 2018; Păpuc et al 2022; Kovacs & Petrescu-Mag 2022; Gavriloaie & Petrescu-Mag 2023).



Figure 2. A southern bushpig (*P. larvatus koirpotamu*) at the San Diego Zoo, California, USA (Source: Colin M. L. Burnett, Wikipedia.org 2023. This file is licensed under the Creative Commons Attribution-Share Alike 3.0 Unported license).

Physical description. Adult bushpigs stand from 66 to 100 cm at the shoulder (Kingdon 1997), with mature boars potentially weighing up to 150 kg, though 60 to 80 kg is more typical (Kingdon 1997; Furstenburg 2011). Sows generally weigh between 45 to 70 kg (Furstenburg 2011). They resemble domestic pigs and can be identified by their pointed, tufted ears and distinctive facial markings (Wikipedia.org 2023).

Bushpigs exhibit variations in hair and skin color across their range. Southern *koiropotamus* and *nyasae* populations are dark reddish, sometimes almost black, with coat color darkening as they age (Wikipedia.org 2023). Their heads have a 'face mask' with contrasting patterns of blackish to dark brown and white to dark grey, or occasionally entirely whitish (Dorst & Dandelot 1970; Wikipedia.org 2023). Ears are adorned with tassels of long hair. Their very sharp tusks are short and not very noticeable. Unlike warhogs, bushpigs run with their long, thin tails down (Dorst & Dandelot 1970).

Males are generally larger than females, and older males develop two warts on their snouts (Wikipedia.org 2023). Piglets are born with pale yellowish longitudinal stripes

on a dark brown background, which soon fade as the coat turns reddish brown with a black and white dorsal crest in both sexes (Dorst & Dandelot 1970). The mane bristles when the animal is restless (Wikipedia.org 2023).

Diet. Bushpigs are omnivores, with a diet consisting of roots, tubers, fruits, invertebrates, small vertebrates, and carrion. They are known for their rooting behavior, which can cause significant disturbance to the soil.

Social structure and reproduction. Bushpigs are highly social animals, typically found in sounders of up to twelve members, although groups of three to five are more common (Wikipedia.org 2023). A typical group consists of a dominant male and female, along with other females and juveniles (Furstenburg 2011). When groups encounter each other, they engage in ritual aggressive behavior but will actually fight over significant food sources (Wikipedia.org 2023). While sounders have home ranges, they are not territorial, and their ranges overlap. Groups generally avoid each other, attacking any intruders near the sounder, including non-bushpigs (Furstenburg 2011). Home ranges span from 400 to 1,000 hectares, with an average of 720 hectares in the Knysna forest region (Furstenburg 2011). Nearly half of the population consists of solitary wandering animals (Wikipedia.org 2023). Small bachelor groups of young males also form, with ranges overlapping those of sounders. Young males avoid sounders to prevent confrontation (Wikipedia.org 2023). Litters typically consist of one to nine, usually three, young (Furstenburg 2011). The period from mating to the end of gestation lasts eight to ten months (Wikipedia.org 2023). Alpha sows will aggressively chase off young males after six months and will do the same to some of the two-year-old beta sows (Furstenburg 2011). Young males reach social maturity at 30 months (Furstenburg 2011). Mating primarily occurs from late autumn to early winter, with farrowing possible year-round but peaking during the warmest part of summer (October to February in South Africa) (Furstenburg 2011).

The alpha sow constructs a nest three meters wide and one meter high during the winter, using stacked hay, twigs, or plant debris from floods as bedding (Furstenburg 2011). This nest keeps the litter of piglets for about four months while they wean (Wikipedia.org 2023). Males are the main caregivers, with sows visiting the nest only to wean the piglets. Sows have six teats (Furstenburg 2011).

Communication. Bushpigs communicate through vocalizations, scent markings, and body language. Grunts, squeals, and growls are common sounds used to maintain group cohesion and deter predators (Dorst & Dandelot 1970).

Habitat and adaptation. Bushpigs are highly adaptable and can occupy a wide range of environments, from dense forests to open savannas and agricultural areas. They are mainly nocturnal, require access to water and prefer habitats with thick cover for protection. Their adaptability has allowed them to thrive in regions heavily modified by human activity.

Human-wildlife conflict. Studies in agricultural regions have highlighted the impact of bushpigs on crop damage, leading to efforts to develop mitigation strategies to reduce conflicts with farmers. *P. larvatus* is noted for its destructive grubbing behavior, uprooting shrubs and scattering them around, unearthing root crops, consuming only a few, and trampling the rest (Furstenburg 2011; Dorst & Dandelot 1970). Its favorite crops include pô-pô, bananas, sugarcane, and maize, cutting down taller plants at the base to access the fruit (Furstenburg 2011). Other preferred agricultural crops are beans, groundnuts, peas, pumpkins, sweet potatoes, carrots, potatoes, spanspek, pineapple, watermelon, alfalfa, nuts, and green pasture (Furstenburg 2011; Wikipedia.org 2023). Chicken pens are often destroyed and raided. There are also a few instances of bushpigs breaking into domestic pig paddocks to kill and consume both the sows and piglets (Furstenburg 2011).

Bushpigs are highly aggressive and extremely powerful (Wikipedia.org 2023). In one instance, a game scout had to spend three days in a tree to avoid a stalking bushpig. Wounded bushpigs are very dangerous and should not be tracked alone (Furstenburg 2011). They are fast and skilled swimmers (Dorst & Dandelot 1970). Bushpigs can be carriers of diseases such as African swine fever, which poses a threat to both wild and domestic pig populations (Díaz-Cao et al 2023). Research is ongoing to understand their role in disease transmission (Díaz-Cao et al 2023).

Eliminating or managing the bushpig population on farms is quite challenging (Furstenburg 2011). In Southern Africa, periodic culls are organized by governments to reduce bushpig numbers (Díaz-Cao et al 2023). This practice was also implemented by the governments of Malawi and the Democratic Republic of the Congo during the 1940s. In Madagascar, similar measures might be required (Rakotoarivony et al 2022) to safeguard other native species (Wikipedia.org 2023). These culling efforts, however, have generally not been successful (Furstenburg 2011).

Conservation status. The International Union for Conservation of Nature (IUCN) lists the bushpig as a species of Least Concern due to its wide distribution and presumed large population (Seydack 2015). Although they have an important ecological role in ecosystems (Hikel et al 2023), bushpigs are considered pests in agricultural areas due to their crop-raiding behavior (Rakotoarivony et al 2022; Díaz-Cao et al 2023).

Conclusion. *Potamochoerus larvatus*, the bushpig, is a versatile and resilient species well adapted to a variety of African habitats. Despite facing localized threats, the overall population remains stable. Continued research and conservation efforts are necessary to ensure their coexistence with human activities and to mitigate potential conflicts. The bushpig's adaptability and ecological role make it an important species within its native range.

Conflict of interest. The authors declare that there is no conflict of interest.

References

- Díaz-Cao J. M., Grossmann N., Goodman S. M., Bosch J., Guis H., Rasamoelina M., Rakotoarivony R., Jori F., Martínez-López B., 2023 A maximum entropy species distribution model to estimate the distribution of bushpigs on Madagascar and its implications for African swine fever. *Transboundary and Emerging Diseases*, 2023: Article ID 7976252, <https://doi.org/10.1155/2023/7976252>.
- Dorst J., Dandelot P., 1970 *A field guide to the larger mammals of Africa* (2 ed.). London: Collins. 178-179 p.
- Furstenburg D., 2011 Focus on the bushpig (*Potamochoerus larvatus*). *South African Hunter* 07054:52-55.
- Gavriloaie C., Petrescu-Mag I. V., 2023 Portrait of *Hylochoerus meinertzhageni* Thomas, 1904, the giant forest hog. *Porc Res* 13(1):22-26.
- Hikel K. B., Peters M. K., Linden J., Linden B., 2023 The role of bushpigs (*Potamochoerus larvatus*) as seed dispersers in indigenous forests in the Soutpansberg Mountain range, South Africa. *Animal Biology* 74(1):37-58.
- Kingdon J., 1997 *The Kingdon guide to African mammals*. Academic Press Limited, London. 544 pp.
- Kovacs E., Petrescu-Mag I. V., 2022 What is the species concept most currently accepted by zoologists? *AES Bioflux* 14(2):57-61.
- Lee C., Day J., Goodman S. M., Pedrono M., Besnard G., Frantz L., Taylor P. J., Herrera M. J., Gongora J., 2020 Genetic origins and diversity of bushpigs from Madagascar (*Potamochoerus larvatus*, family Suidae). *Scientific Reports* 10(1):20629. <https://doi.org/10.1038/s41598-020-77279-5>.
- Nowak M., Petrescu-Mag I. V., Mierzwa D., Popek W., 2009 On some interesting Romanian gudgeons (Cyprinidae: *Romanogobio*) found in the collection of Museum and Institute of Zoology PAS. *AES Bioflux* 1(2):81-88.

- Păpuș T., Balint C., Petrescu-Mag R. M., 2022 Why is *Poecilia wingei* a distinct species from other species of the genus? *Poec Res* 12(1):29-33.
- Rakotoarivony R., Molia S., Rakotomalala E., Ramy-Ratiarison R., Jori F., Pedrono M., 2022 Bushpig (*Potamochoerus larvatus*) hunting in rural areas of Madagascar and its health and socioeconomic implications. *Frontiers in Conservation Science* 3:732626. <https://doi.org/10.3389/fcosc.2022.732626>.
- Seydack A. H. W., 2015 *Potamochoerus larvatus*. Red List. IUCN. e.T41770A44140926. <https://dx.doi.org/10.2305/IUCN.UK.2016-1.RLTS.T41770A44140926.en>.
- Simoons F. J., 1953 Notes on the bush-pig (*Potamochoerus*). *Uganda Journal* 17:80-81.
- Stoian R. O., Botha M., Petrescu-Mag I. V., 2018 Beekeeping in Romania and artificial insemination of honey bee, *Apis mellifera*. State of the art. *ABAH Bioflux* 10(2):93-121.
- Vercammen P., Seydack A. H. W., Oliver W. L. R., 1993 The bush pigs (*Potamochoerus porcus* and *P. larvatus*). In Oliver W. L. R. (ed). *Pigs, Peccaries and Hippos. Status Survey and Conservation Action Plan*. IUCN, Gland, Switzerland 93–101 p.
- Wikipedia.org, 2023 <https://en.wikipedia.org/wiki/Bushpig>.
- Wiley E. O., Mayden R. L., 2000 The evolutionary species concept. In: *Species concepts and phylogenetic theory: a debate*. Wheeler Q. D., Meier R. (eds), Columbia University Press, New York, 70-89 p.
- Wilson D. E., Mittermeier R. A., 2009 *Cephas - Handbook of the mammals of the world*. Vol. 2. Hoofed mammals. Lynx, Barcelona. 886 pp.
- Wilson D. E., Reeder D. M. (eds), 2005 *Mammal species of the world: a taxonomic and geographic reference* (3rd edn). Johns Hopkins University Press. 2142 pp.

Received: 16 November 2023. Accepted: 09 December 2023. Published online: 27 December 2023.

Authors:

Ioan Oroian, Department of Environmental Engineering and Protection, Faculty of Agriculture, University of Agricultural Sciences and Veterinary Medicine Cluj-Napoca, Cluj-Napoca, Romania, e-mail: ioan.oroian@usamvcluj.ro

Marian Proorocu, Department of Environmental Engineering and Protection, Faculty of Agriculture, University of Agricultural Sciences and Veterinary Medicine Cluj-Napoca, Cluj-Napoca, Romania, e-mail: mproorocu@yahoo.com

This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution and reproduction in any medium, provided the original author and source are credited.

How to cite this article:

Oroian I., Proorocu M., 2023 Overview of the bushpig, *Potamochoerus larvatus* (Cuvier, 1822). *Porc Res* 13(1):31-36.