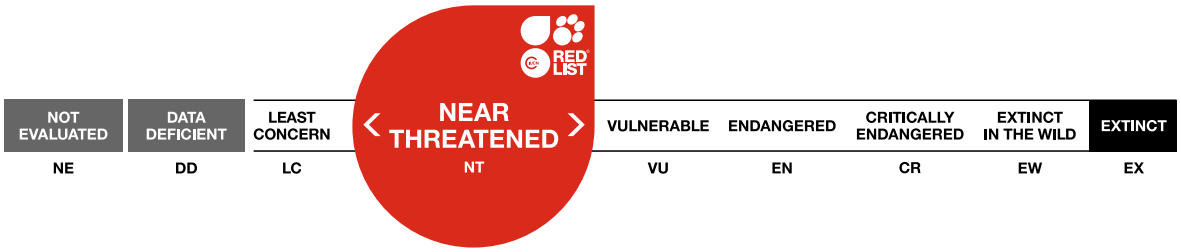
The IUCN Red List of Threatened Species™
ISSN 2307-8235 (online)
IUCN 2021: T12420A164578992
Scope(s): Global
Language: English

Hydrictis maculicollis, Spotted-necked Otter

Assessment by: Reed-Smith, J., Jacques, H. & Somers, M.J.



View on www.iucnredlist.org

Citation: Reed-Smith, J., Jacques, H. & Somers, M.J. 2021. *Hydrictis maculicollis*. *The IUCN Red List of Threatened Species* 2021: e.T12420A164578992. https://dx.doi.org/10.2305/IUCN.UK.2021-3.RLTS.T12420A164578992.en

Taxonomy

Kingdom	Phylum	Class	Order	Family
Animalia	Chordata	Mammalia	Carnivora	Mustelidae

Scientific Name: *Hydrictis maculicollis* (Lichtenstein, 1835)

Synonym(s):

- *Lutra maculicollis* Lichtenstein, 1835

Common Name(s):

- English: Spotted-necked Otter, Speckle-throated Otter, Spot-necked Otter
- French: Loutre à cou tacheté
- Spanish; Castilian: Nutria de Cuello Manchado

Taxonomic Notes:

While this species was included in the genus *Lutra* by, amongst others, Koepfli and Wayne (1998), recent molecular research places it in the genus Hydrictis Pocock, 1921 (Koepfli *et al.* 2008, Sato *et al.* 2012), and has been included as such in d'Inzillo Carranza and Rowe-Rowe (2013). While five subspecies have been recognised from across the continent (Meester *et al.* 1986), of which *H. m. maculicollis* occurs within the assessment region (Skinner and Chimimba 2005), further research is needed to confirm the validity of these.

Assessment Information

Red List Category & Criteria: Near Threatened A3cde ver 3.1

Year Published: 2021

Date Assessed: January 31, 2020

Justification:

The species occurs throughout most of tropical and sub-tropical sub-Saharan Africa, being restricted to areas of permanent fresh water, offering good shoreline cover and abundant prey base. Thus, while the distribution range is large, the spatial size of their occupied habitats is much smaller and faces continued loss particularly due to the widespread habitat destruction and pollution reported for much of the African continent (Ponsonby et al. 2016). The impact of global climate change throughout Africa (Magadza 1994, Dixon *et al*. 2003, Hendrix and Glaser 2007, Cianfrani *et al*. 2018) also has the potential of decreasing suitable habitat for otters and increasing human-otter conflict for increasingly scarce resources such as water, land, and fish. Both this decrease in suitable habitat and increase in human-otter conflict are currently occurring and will certainly increase over the next three generations.

This reassessment is based on a perceived (in regions where studies have been conducted) (Akpona *et al*. 2011, Akpona *et al.* 2015, Dognimon *et al.* 2019, Reed-Smith in prep.) and assumed (in regions where no studies have been done) population decline over the last 16 years and beyond. In much of their range, populations of Spotted-necked Otters are faced with habitat loss or degradation, polluted waters, and/or degraded aquatic ecosystems due to the introduction of exotic species such as Water Hyacinth

https://dx.doi.org/10.2305/IUCN.UK.2021-3.RLTS.T12420A164578992.en

(*Eichhornia crassipes*) and Nile Perch (*Lates niloticus*) and marginal agricultural practices. This habitat disturbance is exacerbated by poor sanitation infrastructure and growing industrial pollution. Additionally, the regional human populations are poverty-stricken, thereby, increasing pressure on all natural resources including water, vegetation, otters' prey base, as well as reducing suitable resting and denning sites vital to the survival of the species.

For all the above reasons and the lack of effective conservation measures, currently a continued decline in the overall Spotted-necked Otter population of at least 20% is suspected for the next three generations (23 years; Pacifici *et al*. 2013). Therefore, the species is listed as Near Threatened as it almost qualifies as threatened under criterion A3cde; this is a precautionary listing.

Previously Published Red List Assessments

2015 – Near Threatened (NT)
https://dx.doi.org/10.2305/IUCN.UK.2015-2.RLTS.T12420A21936042.en

2008 – Least Concern (LC)

2004 – Least Concern (LC)

2000 – Vulnerable (VU)

1996 – Lower Risk/least concern (LR/LC)

Geographic Range

Range Description:

Spotted-necked Otters are found in lakes and larger rivers throughout much of Africa south of 10°N latitude. They are common in Lake Victoria and across Zambia, but for some unexplained reason often are absent from what appear to be suitable habitats, such as the lakes and rivers, of East Africa and the Zambezi below Victoria Falls (Estes 1992). It is likely to be present throughout most of its historic range albeit, in reduced numbers due to habitat degradation, civil strife, polluted waterways, increasing human animosity towards this species, and use as a meat source (Reed-Smith 2010).

However, due to the paucity of current information, their continued presence in Angola, Burkina Faso, Burundi, Chad, Côte d'Ivoire, Equatorial Guinea, Eritrea, Ethiopia, Guinea, Liberia, Mali, Nigeria, Sierra Leone, and Sudan is presumed. The species is believed to be extinct in Burundi, Ghana, Lesotho, and Togo (Reed-Smith *et al*. 2014).

Current reports indicate the Spotted-necked Otter is present in reduced numbers in Benin, Botswana, Cameroon, Central African Republic, Congo, The Democratic Republic of the Congo, Gabon, Guinea-Bissau, Kenya, Malawi, Mozambique, Namibia, Niger, Rwanda, South Africa, United Republic of Tanzania, Uganda, Zambia, and Zimbabwe (Reed-Smith *et al*. 2014, Akpona *et al.* 2015). The large lakes of Central and East Africa and possibly the larger river systems are important sites for the conservation of this species.

Country Occurrence:

Native, Extant (resident): Angola; Benin; Botswana; Burkina Faso; Cameroon; Central African Republic; Chad; Congo; Congo, The Democratic Republic of the; Côte d'Ivoire; Equatorial Guinea; Eritrea; Ethiopia;

Gabon; Guinea; Guinea-Bissau; Kenya; Liberia; Malawi; Mali; Mozambique; Namibia; Niger; Nigeria; Rwanda; Sierra Leone; South Africa; Sudan; Tanzania, United Republic of; Uganda; Zambia; Zimbabwe

Native, Possibly Extinct: Burundi; Ghana; Lesotho; Togo

https://dx.doi.org/10.2305/IUCN.UK.2021-3.RLTS.T12420A164578992.en

Distribution Map

Legend

EXTANT (RESIDENT)

Compiled by:

IUCN (International Union for Conservation of Nature) 2015

The boundaries and names shown and the designations used on this map do not imply any official endorsement, acceptance or opinion by IUCN.

https://dx.doi.org/10.2305/IUCN.UK.2021-3.RLTS.T12420A164578992.en

Population

Like other otter species, abundance and density of Spotted-necked Otter appear to be dependent, in part, on the availability of fish; consequently, this species historically was common or fairly common in the fish-rich Central African lakes, but generally uncommon or rare in the rest of Africa where fish fauna tends to be poor (Rowe-Rowe 1990, 1995; d'Inzillo Carranza and Rowe-Rowe 2013). In an area that included a highland stream and man-made lakes in South Africa, Perrin *et al*. (2000) estimated one otter/1–2 km of stream, while in less suitable habitat Rowe-Rowe (1992) estimated one otter/6–11 km. In a more recent study (Kubheka *et al*. 2013) detected only 25% of the number of spraints located during two previous studies in an area of intense human disturbance but roughly the same number of spraints located in an undisturbed area during the latter 1993 study indicating a reduction in otter numbers in areas of increased human presence. In the Central and East African lakes, density was estimated at between one and two otters per kilometre of shoreline (Procter 1963, Kruuk and Goudswaard 1990, Lejeune and Frank 1990 cited in D'Inzilla-Carranza and Rowe-Rowe 2013). A more recent study (2006 – 2011) of Lake Victoria detected what could be a similar abundance on portions of the protected shoreline of Rubondo Island National Park, but local sources reported a perceived decline in, or absence of otters along other portions of the lake's shorelines.

Their abundance also appears to be dependent on suitable habitat (Reed-Smith 2010) which includes dense vegetative cover (Dognimon *et al.* 2019) and/or the presence of large, piled boulder shorelines. Early studies of this species inhabiting large East African lakes and South African riverine systems reported observations of group size ranging up to approximately 20 individuals (Rowe-Rowe and Somers 1998, Reed-Smith unpublished data). Recent studies in East Africa (Reed-Smith *et al.* 2010, Reed-Smith *et al*. in preparation, and unpublished data for Tanzania, Kenya, and Uganda) indicate population declines due to habitat loss, water course changes due to drought, increased human populations, and increased eradication of otters as perceived competitors as well as for consumption and traditional medicine. Based on informant interviews in East Africa (Reed-Smith *et al*. 2010 and unpublished data) as well as reports from other range countries, this species is seldom observed or not seen as often as it was 10 years ago and groups of more than five are rarely seen. Over the last six years, in areas of Lake Victoria where otters were routinely observed, informants now report rarely or never seeing them. From West Africa, recent studies have reported the presence of the Spotted-necked Otter to the south of Benin (Dognimon *et al*. 2019) based on field observation. Overfishing and destruction of the wetland habitat for agriculture are the main reasons of the declining population trend according to the local perception. Although the species has been previously reported form the Northern Cape Province from the Vaal River (Stuart 1981, Skinner and Chimimba, 2005), Power and Slater-Jones (2010) reported a range extension up to the Orange River, 1200 km downstream of the existing range, though they have mentioned that intensive surveys are required to determine their extensive occurrence in the Orange River.

Unfortunately, beyond these personal accounts, there is a lack of data availability on the status and ecology of this species throughout most of their historic range for the last fifteen years and only marginally more for the last 30 years. An additional problem in assessing their status is that throughout most of their range there is often no distinction made by local people between *H. maculicollis* and *Aonyx capensis* or *A. congicus* which are sympatric species in some parts of their range countries.

Current Population Trend: Decreasing

Habitat and Ecology (see Appendix for additional information)

The Spotted-necked Otter inhabits freshwater habitats where water is unsilted, unpolluted, and rich in small to medium sized fishes (Reed-Smith 2010, d'Inzillo Carranza and Rowe-Rowe 2013). The species is comparatively common in Central and East Africa, where suitable habitat constitutes of large lakes and open waters, such as the Okavango Delta (Rowe-Rowe and Somers 1998). Elsewhere, it is found in streams, rivers and impoundments up to altitudes of 2,500m (Yalden *et al.* 1996). Wherever it occurs, the spotted-necked otter prefers shallow to deep waters (Larivière 2002). In a telemetry study conducted in Kwa-Zulu Natal, South Africa, the core areas of habitat included highland river and tributaries, natural oxbow lakes and some man-made lakes artificially stocked with alien trout (Perrin *et al.* 2000). Human presence negatively influences spotted-necked otter, but human presence alone cannot explain the absence of spotted-necked otters in an area, because other habitat features such as presence or absence of vegetation cover along the banks also determine the occurrence of otters (Dognimon *et al.* 2019). In Benin, West Africa the Spotted-necked Otter is frequently observed in the *Ouémé* valley especially along the River Hlan, possibly due to the abundance of fish (Akpona, 2004). In riparian and lacustrine habitats adequate vegetation in the form of long grass, reeds, dense bushes, overhanging trees and large boulder piles are essential to provide cover during periods of inactivity and for denning. Unlike African Clawless Otter, they do not occur in marine or estuarine waters (Angelici *et al.* 2004).

Predominantly a piscivore, the Spotted-necked Otter, also occasionally feeds on crabs, frogs, insects and birds. In L. Muhazi (Rwanda) and L. Victoria (Tanzania) diet consists almost entirely of fish of the genus *Haplochromis*, followed by fish of the genus *Tilapia* (Procter 1963, Kruuk and Goudswaard 1990, Lejeune 1990). Kingdon (1977) in L. Bunyoni (Uganda/Rwanda) reported that the main prey before the introduction of *Tilapia* spp. was the Clawed Toad (*Xenopus laevis*), and the otter population at that time was thriving. In South Africa, where fish faunas of inland rivers are poor, the species appears to forage on almost equal amounts of fish, crabs and frogs, supplemented by small amounts of dragonfly (Odonata) larvae (Rowe-Rowe 1977a, Somers and Purves 1996, Perrin and Carugati 2000). In South Africa, the fish was consumed more during autumn and winter while crabs were consumed more during spring and summer (Rowe-Rowe 1977a, Perrin and Carugati 2000). This could be related to the effects of water temperature on the prey: during the cold season crabs retreat into inaccessible places and at the same time the efficiency of locomotion of fishes is reduced by cold water (Rowe-Rowe 1977a). In all studies to date, Spotted-necked Otters fed mainly on small fish, 80–90% being smaller than 100–150 mm fork length (Rowe-Rowe and Somers 1998). When preying on crabs, specimens with a carapace width <45 mm appear to be selected (Rowe-Rowe and Somers 1998) and Rowe-Rowe (1977) found that most crabs with a carapace width >50 mm were avoided. Somers and Purves (1996) in the Bushman R. also found fish of the genus *Tilapia* to be the main component of its diet, and they did not find remains of any other species of fish. Rowe-Rowe (1977) and Perrin and Carranza (2000) suggested that they hunt mainly by sight. However, in the lakes where both small fishes and Spotted-necked Otters are most abundant, the water is very turbid (Lejeune and Frank 1990, H. Kruuk pers. comm.), suggesting that senses additional to sight are used. Foraging occurs mainly within 2–10 m of the shore (Procter 1963, Lejeune 1989, Kruuk and Goudswaard 1990, Reed-Smith *et al.* 2014). Foraging dives generally have a duration of 16–25 sec in deep water (Lejeune 1989) and shorter (5–20 sec) in shallower water (Rowe-Rowe 1977). Surfacing periods between unsuccessful dives are brief (6–10 sec) as are those when small fish are caught and eaten in the water (11–16 sec) (Lejeune 1989). Larger prey is taken to the shore and eaten out of the water (Procter 1963, Rowe-Rowe 1977). Prey appears to be always captured in the

mouth. Very small fish (<60 mm) are eaten from the head, but all larger fish and frogs are eaten tail first, with the heads sometimes being discarded (Rowe-Rowe 1977, Power and Slater-Jones 2010). Foraging is mostly solitary, except in lakes where the otters fish in large groups (Procter 1963, Kruuk and Goudswaard 1990, Reed-Smith *et al.* 2014).

Systems: Terrestrial, Freshwater (=Inland waters)

Use and Trade

The species is hunted for food, medicinal purposes, and pelt (De Luca *et al.* 2018, Reed-Smith *et al.* 2010, Mgomo and Reed-Smith 2020).

Threats (see Appendix for additional information)

The Spotted-necked Otter is decreasing throughout its range, mainly as a result of the alteration or degradation of freshwater habitats and riparian vegetation. This rapid habitat loss is exacerbated by a growing, poor population engaged in unsustainable agricultural activity (Rowe-Rowe 1990, 1992, 1995; Kipkemboi *et al.* 2007) and unsustainable fishing practices (LVFO 2008, Yan 2017). These practices have led to bank and shoreline erosion, denuding the rivers of important vegetative cover used by the otters, increased human presence which is disruptive to otter denning, increased use of smaller mesh nets and poisoning to improve catches, and the change or depletion of the otters' prey base (Kruuk and Goudswaard 1990). Pollution of waters with agricultural, livestock, and societal wastes also are threatening with evidence of the bioaccumulation of organochlorines and other biocontaminants recorded in Spotted-necked Otters (Mason and Rowe-Rowe 1992). The rate of otters becoming entangled in set and discarded fishing nets is impossible to determine. However, based on known entanglement of other species it has likely increased over the occasional drowning reported previously (Stuart 1985, Rowe-Rowe 1990).

Otters are also killed for food or skins, as a perceived threat to poultry, or as a competitor for fish (Rowe-Rowe 1990, Akpona *et al.* 2011, Reed-Smith *et al.* 2010, Mgomo and Reed-Smith 2020). Introduction of alien fish species that out-compete the smaller indigenous fish was identified as a main threat for the Lake Victoria population (Kruuk and Goudswaard 1990). Increased commercial use of Africa's fish resource as well as increasing dependence on fish as a source of protein for local populations is leading to an increase in conflicts between otters and fishermen (Akpona *et al.* 2015, Abdallah 2017, Ergete *et al.* 2018, Mgomo and Reed-Smith 2020. The Spotted-necked Otter is the most expensive species of small carnivore species sold in the animal-based medicine market in Benin (Djagoun and Gaubert 2009). Ammouso 2003 record that the hunting pressure on H. maculicollis for food and ritual practices is increasing because their capture does not require expensive investment in equipment.

Habitat loss and increased conflict with people is impacting all populations. The increase in human numbers dependent on fish as a source of protein is particularly threatening in the large East African lakes which are historically important refugia for this species. It has been reported that the introduction of Nile Perch (Lates niloticus) into Lake Victoria and their impact on the diversity of the fish biomass in the lake is forcing a dietary shift for the otters (Kruuk and Goudswaard 1990). This shift in prey base has been observed (Reed-Smith 2010) but its full impact is unknown at this time particularly for areas outside of the protected national park where recent studies have occurred. The introduction of invasive alien species such as water hyacinth (Eichhornia crassipes) is also degrading the water ecosystem.

https://dx.doi.org/10.2305/IUCN.UK.2021-3.RLTS.T12420A164578992.en

The impact of global climate change throughout Africa (Magadza 1994, Dixon *et al.* 2003, Hendrix and Glaser 2007, Cianfrani *et al.* 2018) also has the potential of decreasing suitable habitat for otters and increasing human/otter conflict for increasingly scarce resources such as water, land, and fish. UNECA projected in a 1999 study that portions of the Spotted-necked Otter's current range would be experiencing fresh water stress and scarcity by 2025 with much of the rest of its range considered vulnerable to these hydrologic issues.

Conservation Actions **(see Appendix for additional information)**

Currently there are only a few regionally based conservation actions in place for this species (e.g African Otter Network and IUCN SSC-Otter Specialist Group projects, listed as Vulnerable in South Africa) and it is technically protected in all national parks. The species has also been listed as Vulnerable in the Benin Red List (Neuenschwander *et al.* 2011), informing about urgent conservation actions required on the species.

They are present in several protected areas across their range but are little known and seldom seen by staff or visitors. Efforts should be made to educate range country park staff about all otter species and the role they play in a healthy ecosystem to increase awareness and protection for this species. This lack of knowledge by range country professionals can be mitigated by initiating an awareness campaign for all range country wildlife professionals. This campaign should be expanded to target human populations sharing their ecosystems with otters, particularly where traditional tales about otter behaviour are deleterious to the species future survival (e.g. otters rape women or raid young maize crops).

Another significant conservation action is taking steps to create a network with field biologists working in ecosystems where otters are found. The creation of a user-friendly system to report otter sightings would significantly contribute to our knowledge of their current distribution and aid researchers in future assessments of status and population trends in Africa where they inhabit areas that are hard to reach, or dangerous to survey due to the presence of crocodiles, hippopotamus, etc. Networking with other researchers to create synergy between conservation efforts also would benefit preservation of important otter habitats and ecosystems.

There is need for detailed studies on the distribution and current status of this species as well as conducting public relations campaigns to increase awareness of the presence of otters in Africa.

It is listed in CITES Appendix II.

Credits

Assessor(s): Reed-Smith, J., Jacques, H. & Somers, M.J.

Reviewer(s): Hussain, S.A. & Duplaix, N.

Contributor(s): Hoffmann, M.

Authority/Authorities: IUCN SSC Otter Specialist Group

https://dx.doi.org/10.2305/IUCN.UK.2021-3.RLTS.T12420A164578992.en

Bibliography

Abdallah, H. 2017. EOC states now act on overfishing to save stocks in Lake Victoria. The East African, 13 March 2017.

Akpona, A.H. 2004. Facteurs de conservation des loutres au Sud du Bénin: cas delaforêt classée de la Lama et des corridors avec les zones humides de la valléedel'Ouémé. Bénin: Mém.d'Ing.Agr.FSA/UAC.

Akpona, H.A., Djagoun, C.A.M.S., Harrington, L.A., Mensah, G.A., Kabre, A.T. and Sinsin, B. 2015. Conflict between spotted-necked otters and fishermen in Hlan River, Benin. *Journal for Nature Conservation* 27: 63-71.

Akpona, H.A., Sinsin, B. and Mensah, G.A. 2011. Monitoring and Threat Assessment of the Spotted-necked Otter (*Lutra maculicollis*) in Southern Benin Wetlands. *IUCN Otter Specialist Group Bulletin* 28: 45-59.

Angelici, F.M., Politano, E., Bogudue, A.J. and Luiselli, L. 2005. Distribution and habitat of otters (Aonyx capensis and Lutra maculicollis) in southern Nigeria. *Italian Journal of Zoology* 72(3): 223-227.

Cianfrani, C., Broennimann, I., Loy, A. and Guisan, A. 2018. More than range exposure: Global otter vulnerability to climate change. *Biological Conservation* 221(2018): 103-113.

Colyn, M., Guilloux, G. and Perpete, O. 1996. Origine et évolution des savanes du Mayombe: apport de l'étude de la faune mammalienne. In: Report for Programme BIOFAC/CEE (DG VIII), Origine, maintien et perte de la biodiversité en Afrique Centrale.. CNRS/UMR 6552. Station biologique Université de Rennes, Rennes.

Davis, J.A. 1978. A classification of the otters. In: N. Duplaix (ed.), Otters: proceedings of the First Working Meeting of the Otter Specialist Group, pp. 14-33. Morges, Switzerland.

De Luca, D.W, Dewas, M., Mpunga, N., Machaga, S.J. and Phillipps, G.P. 2018. The conservation status of otters in southwest Tanzania. *IUCN Otters Specialist Group Bulletin* 35(3): 134-147.

d'Inzillo Carranza, I. and Rowe-Rowe, D.T. 2013. Spotted-necked Otter *Hydrictis maculicollis*. In: J. Kingdon and M. Hoffmann (eds), *The Mammals of Africa. Volume V: Carnivores, Pangolins, Equids and Rhinoceroses*, Bloomsbury Publishing, London.

Dixon, R.K., Smith, J. and Guill, S. 2003. Life on the Edge: Vulnerability and Adaptation of African Ecosystems to Global Climate Change. *Mitigation and Adaptation Strategies for Global Change* 8: 93-113.

Djagoun, C.A.M.S. and Gaubert, P. 2009. Small carnivorans from southern Benin: a preliminary assessment of diversity and hunting pressure. *Small Carnivore Conservation*: 1-10.

Dognimon, S., Djagoun, C.A.M.S., Djego, S., Akpona, H.A., Djego, J., Jean Didier, T., Akpona, Jd.T. and Sinsin, B. 2019. Spotted-necked otter (*Hydrictis maculicollis*) distribution and determining factors of habitat occurrence in the lower Ouémé valley, Southern Benin. *IUCN Otter Spec. Group Bull.* 36(1): 48-60.

Dumalisle, L., Somers, M., Walters, M. and Nel, M. 2005. Tourist's willingness to pay to view otters along the wild coast, South Africa: a potential for increased ecotourism. *The Journal for Transdisciplinary Research S.A.* 1(1): 97-106.

Ergete, E.A., Hailemariam, T.W., Balakrishnan, M., Serfass, T.L. 2018. Fishermen Knowledge and Conflict with African Clawless Otter in and around Lake Tana, Ethiopia. *African Journal of Ecology* 56(2): 409-413.

Estes, R.D. (ed.). 1992. *The Behavior Guide to African Mammals : Including Hoofed Mammals, Carnivores, Primates*. pp. 437. University of California Press.

Hendrix, C.S. and Glaser, S.M. 2007. Trends and triggers: climate, climate change, and civil conflict in Sub-Saharan Africa. *Political Geography* 26: 695-715.

IUCN. 2021. The IUCN Red List of Threatened Species. Version 2021-3. Available at: www.iucnredlist.org. (Accessed: 09 December 2021).

Jacques, H. 2006. *Aonyx congicus*, Mission Cameroon. Grenoble.

Kingdon, J. 1977. East African Mammals: An Atlas of Evolution in Africa. Vol. IIIA: Carnivores. Academic Press, London, 476 pp.

Kipkemboi, J., Van Dam, A.A., Ikiara, M.M., Denny, P. 2007. Integration of smallholder wetland aquaculture-agriculture systems (fingerponds) into riparian farming systems on the shores of Lake Victoria, Kenya: socio-economics and livelihoods.

Koepfli, K.P. and Wayne, R.K. 1998. Phylogenetic relationships of otters (Carnivora: Mustelidae) based on mitochondrial cytochrome b sequences. *Journal of Zoology* 246: 410-416.

Koepfli, K.-P., Deer, K.A., Slater, G.J., Begg, C., Begg, K., Grassman, L., Lucherini, M., Veron, G. and Wayne, R.K. 2008. Multigene phylogeny of the Mustelidae: resolving relationships, tempo and biogeographic history of a mammalian adaptive radiation. *BMC Biology* 6: 10. doi:10.1186/1741-7007-6-10.

Kruuk, H. and Goudswaard, P.C. 1990. Effects of changes in fish populations in Lake Victoria on the food of otters (*Lutra maculicollis* Schinz and *Aonyx capensis* Lichtenstein). *African Journal of Ecology* 28: 322-329.

Kubheka, S.P. Rowe-Rowe, D. Alletson, J.D. and Perrin R.M. 2013. Possible influence of increased riparian activity (stream modification and agricultural intensification) on abundance of South African otters. *African Journal of Ecology* 51: 288-294.

Lake Victoria Fisheries Organization (LVFO) Secretariat. 2008. *Lake Victoria Fisheries Organization of the East African Community: The Fisheries Management Plan For Lake Victoria*. www.lvfo.org

Larivière, S. 2002. Lutra maculicollis. *Mammalian Species* 712: 1-6.

Lejeune, A. and Frank, V. 1990. Distribution of Lutra maculicollis in Rwanda: ecological constraints. *IUCN Otter Specialist Group Bulletin* 5: 8-16.

Magadza, C.H.D. 1994. Climate Change: some likely multiple impacts in Southern Africa. *Food Policy 1994* 19(2): 165-191.

Mason, C.F. and Rowe-Rowe D.T. 1992. Organochlorine pesticide residues and PCBs in otter scats from Natal. *South African Journal of Wildlife Research* 22: 29-31.

Meester, J.A.J., Rautenbach, I.L., Dippenaar, N.J. and Baker, C.M. 1986. Classification of Southern African Mammals. *Transvaal Museum Monograph* 5: 1-359.

Mgomo, W. and Reed-Smith, J. 2020. An Assessment of Human Attitudes Towards Otters in Mbinga District, Tanzania. *IUCN Otter Specialist Group Bulletin* 37(2): 81-97.

Neuenschwander, P., Sinsin, B. and Goergen, G. (eds). 2011. Nature Conservation in West Africa: Red List for Benin. IITA, Ibadan, Nigeria. 365 pages.

Pacifici, M., Santini, L., Di Marco, M., Baisero, D., Francucci, L., Grottolo Marasini, G., Visconti, P. and

Rondinini, C. 2013. Generation length for mammals. *Nature Conservation* 5: 87–94.

Perrin, M.R. and Carugati, C. 2000. Habitat use by the Cape clawless otter and the spotted-necked otter in the KwaZulu–Natal Drakensberg, South Africa. *South African Journal of Wildlife Research* 30: 103–113.

Perrin, M.R., D'Inzillo, I., Carranza and Linn, I.J. 2000. Use of space by the spotted-necked otter in the KwaZulu-Natal Drakensberg, South Africa. *South African Journal of Wildlife Research* 30: 15-21.

Ponsonby, D.W., Rowe-Rowe, D., Power, R.J. and Somers, M.J. 2016. A conservation assessment of Hydrictis maculicollis. In Child MF, Roxburgh L, Do Linh San E, Raimondo D, Davies-Mostert HT, editors. The Red List of Mammals of South Africa, Swaziland and Lesotho. South African National Biodiversity Institute and Endangered Wildlife Trust, South Africa.

Power, R.J. and Slater-Jones, S. 2010. Spotted-necked otter in the lower Orange River, Northern Cape, South Africa. *South African Journal of Wildlife Research* 40: 181-183.

Procter, J. 1963. A contribution to the natural history of the spotted-necked otter (*Lutra maculicollis* Lichtenstein) in Tanganyika. *East African Wildlife Journal* 1: 93-102.

Reed-Smith, J. 2010. An Assessment of Seasonality and Shoreline Characteristics Associated with Latrine Site Use by Spotted-necked otter (*Lutra maculicollis* Lichtenstein, 1835) with a Preliminary Report on Spotted-necked Otter Behavior on Rubondo Island National Park, Tanzania. Masters Project. George Mason University.

Reed-Smith, J., Olouch, I., Origa, M., Kihedu, T.S., Muhabi, M.M., Ogada, M., Lebora, A. and Serfass, T. 2010. Consumptive uses of and lore pertaining to spotted-necked otters in East Africa – A preliminary report from the Lake Victoria area of Kenya, Tanzania, and Uganda. *IUCN Otter Specialist Group Bulletin* 27(2).

Reed-Smith, J., Serfass, T., Kihudu, T. S. and Mussa, M. 2014. Preliminary report on the behavior of spotted-necked otter (*Lutra maculicollis*, Lichtenstein, 1835) living in a lentic ecosystem. *Zoo Biology* 33(2): 121-130.

Reuther, C., Ehlers, M., Schuhmann, M., Kalz, B. and Fickel, J. 2003. New findings on otters in Guinea-Bissau. *IUCN Otter Specialist Group Bulletin* 20: 19-27.

Rowe-Rowe, D. T. 1977a. Food ecology of otters in Natal, South Africa. *Oikos* 28: 210-219.

Rowe-Rowe, D. T. 1977b. Prey capture and feeding behaviour of South African otters. *Lammergeyer* 23: 13–21.

Rowe-Rowe, D.T. 1990. Action plan for African otters. In: P. Foster-Turley, S. MacDonald and C. Mason (eds), *Otters: an Action Plan for their Conservation*, pp. 41-51. IUCN, Gland, Switzerland.

Rowe-Rowe, D.T. 1992. *The Carnivores of Natal*. Natal Parks Board, Pietermaritzburg, South Africa.

Rowe-Rowe, D.T. 1995. Distribution and status of African otters. *Habitat* 11: 8-10.

Rowe-Rowe, D.T. and Somers, M.J. 1998. Diet, foraging behaviour and coexistence of African otters and the water mongoose. In: N. Dunstone and M. Gorman (eds), *Behaviour and Ecology of Riparian Mammals. Symposia of the Zoological Society of London 71*, pp. 215-227. Cambridge University Press, Cambridge, UK.

Sato, J.J., Wolsan, M., Prevosti, F.J., Delia, G., Begg, C., Begg, K., Hosoda, T., Campbell, K.L. and Suzuki, H. 2012. Evolutionary and biogeographic history of weasel-like carnivorans (Musteloidea). *Molecular Phylogenetics and Evolution* 63: 745-757.

Skinner, J.D. and Chimimba, C.T. 2005. The mammals of the southern African subregion, 3rd edn. Cambridge University Press, Cambridge.

Somers, M.J. and Purves, M.G. 1996. Trophic overlap between three syntopic semi-aquatic carnivores: Cape clawless otter, spotted-necked otter and water mongoose. *African Journal of Ecology* 34(2): 158-166.

Stevens, S., Serfass, T.L and Organ, J.F. 2007. Otters and wildlife Tourism: a recipe for conservation success? *Proceedings of the Vth TAWIRI Conference, 3-6 December 2007, Arusha, Tanzania*..

Stuart, C.T. 1985. The status of two endangered carnivores occurring in the Cape Province, South Africa, *Felis serval* and *Lutra maculicollis*. *Biological Conservation* 32: 375-382.

Wozencraft, W.C. 2005. Order Carnivora. In: D.E. Wilson and D.M. Reeder (eds), *Mammal Species of the World: A Taxonomic and Geographic Reference. Third Edition*, pp. 532-628. Johns Hopkins University Press, Baltimore.

Yalden, D.W., Largen, M.J., Kock, D. and Hillman, J.C. 1996. Catalogue of the Mammals of Ethiopia and Eritrea. 7. Revised checklist, zoogeography and conservation. *Tropical Zoology* 9(1): 73-164.

Yan (Editor). 2017. Tanzania reinforces war against illegal fishing in Lake Victoria.

Citation

Reed-Smith, J., Jacques, H. & Somers, M.J. 2021. *Hydrictis maculicollis*. *The IUCN Red List of Threatened Species* 2021: e.T12420A164578992. https://dx.doi.org/10.2305/IUCN.UK.2021-3.RLTS.T12420A164578992.en

Disclaimer

To make use of this information, please check the Terms of Use.

External Resources

For Supplementary Material, and for Images and External Links to Additional Information, please see the Red List website.

Appendix

Habitats

(http://www.iucnredlist.org/technical-documents/classification-schemes)

Habitat	Season	Suitability	Major Importance?
1. Forest -> 1.7. Forest - Subtropical/Tropical Mangrove Vegetation Above High Tide Level	Resident	Suitable	Yes
5. Wetlands (inland) -> 5.1. Wetlands (inland) - Permanent Rivers/Streams/Creeks (includes waterfalls)	Resident	Suitable	Yes
5. Wetlands (inland) -> 5.2. Wetlands (inland) - Seasonal/Intermittent/Irregular Rivers/Streams/Creeks	-	Marginal	-
5. Wetlands (inland) -> 5.5. Wetlands (inland) - Permanent Freshwater Lakes (over 8ha)	Resident	Suitable	Yes
5. Wetlands (inland) -> 5.6. Wetlands (inland) - Seasonal/Intermittent Freshwater Lakes (over 8ha)	-	Marginal	-
5. Wetlands (inland) -> 5.7. Wetlands (inland) - Permanent Freshwater Marshes/Pools (under 8ha)	Resident	Suitable	Yes
5. Wetlands (inland) -> 5.13. Wetlands (inland) - Permanent Inland Deltas	Resident	Suitable	Yes
9. Marine Neritic -> 9.10. Marine Neritic - Estuaries	-	Marginal	-
12. Marine Intertidal -> 12.7. Marine Intertidal - Mangrove Submerged Roots	-	Suitable	-
13. Marine Coastal/Supratidal -> 13.5. Marine Coastal/Supratidal - Coastal Freshwater Lakes	Resident	Suitable	Yes
15. Artificial/Aquatic & Marine -> 15.1. Artificial/Aquatic - Water Storage Areas (over 8ha)	-	Marginal	-
15. Artificial/Aquatic & Marine -> 15.2. Artificial/Aquatic - Ponds (below 8ha)	-	Marginal	-
15. Artificial/Aquatic & Marine -> 15.3. Artificial/Aquatic - Aquaculture Ponds	-	Marginal	-
15. Artificial/Aquatic & Marine -> 15.9. Artificial/Aquatic - Canals and Drainage Channels, Ditches	-	Marginal	-

Use and Trade

(http://www.iucnredlist.org/technical-documents/classification-schemes)

End Use	Local	National	International
1. Food - human	Yes	No	No
3. Medicine - human & veterinary	Yes	No	No

https://dx.doi.org/10.2305/IUCN.UK.2021-3.RLTS.T12420A164578992.en

End Use	Local	National	International
10. Wearing apparel, accessories	Yes	No	No

Threats

(http://www.iucnredlist.org/technical-documents/classification-schemes)

Threat	Timing	Scope	Severity	Impact Score
1. Residential & commercial development -> 1.1. Housing & urban areas	Ongoing	Whole (>90%)	Rapid declines	High impact: 8
	Stresses:	1. Ecosystem stresses -> 1.1. Ecosystem conversion 1. Ecosystem stresses -> 1.2. Ecosystem degradation 1. Ecosystem stresses -> 1.3. Indirect ecosystem effects		
1. Residential & commercial development -> 1.2. Commercial & industrial areas	Ongoing	Whole (>90%)	Rapid declines	High impact: 8
	Stresses:	1. Ecosystem stresses -> 1.1. Ecosystem conversion 1. Ecosystem stresses -> 1.2. Ecosystem degradation 1. Ecosystem stresses -> 1.3. Indirect ecosystem effects		
2. Agriculture & aquaculture -> 2.1. Annual & perennial non-timber crops -> 2.1.2. Small-holder farming	Ongoing	Whole (>90%)	Rapid declines	High impact: 8
	Stresses:	1. Ecosystem stresses -> 1.1. Ecosystem conversion 1. Ecosystem stresses -> 1.2. Ecosystem degradation		
2. Agriculture & aquaculture -> 2.3. Livestock farming & ranching -> 2.3.2. Small-holder grazing, ranching or farming	Ongoing	Whole (>90%)	Rapid declines	High impact: 8
	Stresses:	1. Ecosystem stresses -> 1.1. Ecosystem conversion 1. Ecosystem stresses -> 1.2. Ecosystem degradation		
4. Transportation & service corridors -> 4.1. Roads & railroads	Ongoing	Majority (50-90%)	Rapid declines	Medium impact: 7
	Stresses:	1. Ecosystem stresses -> 1.2. Ecosystem degradation 1. Ecosystem stresses -> 1.3. Indirect ecosystem effects 2. Species Stresses -> 2.1. Species mortality		
5. Biological resource use -> 5.1. Hunting & trapping terrestrial animals -> 5.1.1. Intentional use (species is the target)	Ongoing	Majority (50-90%)	Very rapid declines	High impact: 8
	Stresses:	2. Species Stresses -> 2.1. Species mortality		
5. Biological resource use -> 5.1. Hunting & trapping terrestrial animals -> 5.1.3. Persecution/control	Ongoing	Majority (50-90%)	Very rapid declines	High impact: 8
	Stresses:	2. Species Stresses -> 2.1. Species mortality		
5. Biological resource use -> 5.4. Fishing & harvesting aquatic resources -> 5.4.2. Intentional use: (large scale) [harvest]	Ongoing	Majority (50-90%)	Very rapid declines	High impact: 8
	Stresses:	2. Species Stresses -> 2.1. Species mortality		
5. Biological resource use -> 5.4. Fishing & harvesting aquatic resources -> 5.4.3. Unintentional effects: (subsistence/small scale) [harvest]	Ongoing	Majority (50-90%)	Very rapid declines	High impact: 8
	Stresses:	2. Species Stresses -> 2.1. Species mortality		

https://dx.doi.org/10.2305/IUCN.UK.2021-3.RLTS.T12420A164578992.en

5. Biological resource use -> 5.4. Fishing & harvesting aquatic resources -> 5.4.4. Unintentional effects: (large scale) [harvest]	Ongoing	Majority (50-90%)	Very rapid declines	High impact: 8
	Stresses:	2. Species Stresses -> 2.1. Species mortality		
6. Human intrusions & disturbance -> 6.3. Work & other activities	Ongoing	Majority (50-90%)	Causing/could cause fluctuations	Medium impact: 6
	Stresses:	1. Ecosystem stresses -> 1.2. Ecosystem degradation		
7. Natural system modifications -> 7.2. Dams & water management/use -> 7.2.4. Abstraction of surface water (unknown use)	Ongoing	Majority (50-90%)	Causing/could cause fluctuations	Medium impact: 6
	Stresses:	1. Ecosystem stresses -> 1.1. Ecosystem conversion 1. Ecosystem stresses -> 1.2. Ecosystem degradation		
7. Natural system modifications -> 7.2. Dams & water management/use -> 7.2.10. Large dams	Ongoing	Whole (>90%)	Rapid declines	High impact: 8
	Stresses:	1. Ecosystem stresses -> 1.1. Ecosystem conversion 1. Ecosystem stresses -> 1.2. Ecosystem degradation		
8. Invasive and other problematic species, genes & diseases -> 8.1. Invasive non-native/alien species/diseases -> 8.1.2. Named species (Eichhornia crassipes)	Ongoing	Majority (50-90%)	Causing/could cause fluctuations	Medium impact: 6
	Stresses:	1. Ecosystem stresses -> 1.2. Ecosystem degradation		
9. Pollution -> 9.1. Domestic & urban waste water -> 9.1.1. Sewage	Ongoing	Majority (50-90%)	Very rapid declines	High impact: 8
	Stresses:	1. Ecosystem stresses -> 1.2. Ecosystem degradation 1. Ecosystem stresses -> 1.3. Indirect ecosystem effects		
9. Pollution -> 9.3. Agricultural & forestry effluents -> 9.3.2. Soil erosion, sedimentation	Ongoing	Majority (50-90%)	Rapid declines	Medium impact: 7
	Stresses:	1. Ecosystem stresses -> 1.2. Ecosystem degradation		
9. Pollution -> 9.3. Agricultural & forestry effluents -> 9.3.3. Herbicides and pesticides	Ongoing	Majority (50-90%)	Rapid declines	Medium impact: 7
	Stresses:	1. Ecosystem stresses -> 1.2. Ecosystem degradation 2. Species Stresses -> 2.1. Species mortality		
11. Climate change & severe weather -> 11.1. Habitat shifting & alteration	Future	Whole (>90%)	Rapid declines	Medium impact: 6
	Stresses:	1. Ecosystem stresses -> 1.1. Ecosystem conversion 1. Ecosystem stresses -> 1.2. Ecosystem degradation		
11. Climate change & severe weather -> 11.2. Droughts	Future	Whole (>90%)	Rapid declines	Medium impact: 6
	Stresses:	1. Ecosystem stresses -> 1.2. Ecosystem degradation		
11. Climate change & severe weather -> 11.4. Storms & flooding	Future	Whole (>90%)	Rapid declines	Medium impact: 6
	Stresses:	1. Ecosystem stresses -> 1.2. Ecosystem degradation		

Conservation Actions in Place

(http://www.iucnredlist.org/technical-documents/classification-schemes)

Conservation Action in Place
In-place research and monitoring
Action Recovery Plan: No
Systematic monitoring scheme: No
In-place land/water protection
Conservation sites identified: No
Occurs in at least one protected area: Yes
In-place species management
Harvest management plan: No
In-place education
Included in international legislation: Yes
Subject to any international management / trade controls: Yes

Conservation Actions Needed

(http://www.iucnredlist.org/technical-documents/classification-schemes)

Conservation Action Needed
1. Land/water protection -> 1.1. Site/area protection
1. Land/water protection -> 1.2. Resource & habitat protection
2. Land/water management -> 2.1. Site/area management
2. Land/water management -> 2.2. Invasive/problematic species control
2. Land/water management -> 2.3. Habitat & natural process restoration
4. Education & awareness -> 4.3. Awareness & communications
5. Law & policy -> 5.1. Legislation -> 5.1.2. National level

Research Needed

(http://www.iucnredlist.org/technical-documents/classification-schemes)

Research Needed
1. Research -> 1.2. Population size, distribution & trends
1. Research -> 1.3. Life history & ecology
1. Research -> 1.4. Harvest, use & livelihoods
1. Research -> 1.5. Threats
2. Conservation Planning -> 2.1. Species Action/Recovery Plan

https://dx.doi.org/10.2305/IUCN.UK.2021-3.RLTS.T12420A164578992.en

Research Needed
3. Monitoring -> 3.1. Population trends
3. Monitoring -> 3.4. Habitat trends

Additional Data Fields

Distribution
Continuing decline in area of occupancy (AOO): Yes
Continuing decline in extent of occurrence (EOO): Unknown
Lower elevation limit (m): 0
Upper elevation limit (m): 2,500
Population
Continuing decline of mature individuals: Yes
Habitats and Ecology
Continuing decline in area, extent and/or quality of habitat: Yes
Generation Length (years): 7.5
Movement patterns: Not a Migrant

https://dx.doi.org/10.2305/IUCN.UK.2021-3.RLTS.T12420A164578992.en

The IUCN Red List Partnership

The IUCN Red List of Threatened Species™ is produced and managed by the IUCN Global Species Programme, the IUCN Species Survival Commission (SSC) and The IUCN Red List Partnership.

The IUCN Red List Partners are: ABQ BioPark; Arizona State University; BirdLife International; Botanic Gardens Conservation International; Conservation International; Missouri Botanical Garden; NatureServe; Re:wild; Royal Botanic Gardens, Kew; Sapienza University of Rome; Texas A&M University; and Zoological Society of London.