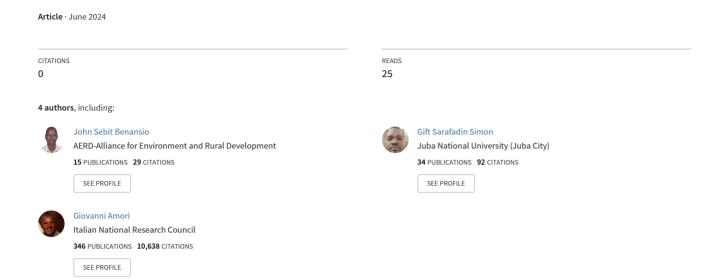
Climate change intensifies human-crocodile conflicts in war-torn South Sudan 1 2



1 Climate change intensifies human-crocodile conflicts in war-torn South Sudan 2 Luca Luiselli¹, John Sebit Benansio², Gift Simon Demaya³, Giovanni Amori⁴ 3 4 5 1 Institute for Development Ecology Conservation and Cooperation, via G.Tomasi di Lampedusa 6 33,00144 Rome, Italy. Emails: l.luiselli@ideccngo.org 7 2 AERD – Alliance for Environment and Rural Development P.O.Box 445, Juba South Sudan; 8 Email: sebitbenansio@yahoo.co.uk 9 3 Department of Fisheries Science, University of Juba, P.O.Box 82, Juba, South Sudan; Email: 10 gftsimon@yahoo.co.uk 4 National Research Council (CNR), Institute of Research on Terrestrial Ecosystems, Rome, Italy; 11 12 Email: Giovanni.amori@cnr.it 13 14 15 South Sudan's biodiversity is threatened because of a plethora of reasons ranging from weak environmental regulation, poor development planning, overexploitation of wildlife, livestock and 16 17 agricultural land expansion, climate change, political and armed conflict [1]. Climate change has 18 already caused substantial ecological issues in the country, including drier weather, increased 19 incidence of droughts and flooding, and even a reduction of annual maximum flooded areas since 20 the 1960s, with some permanent rivers that have become seasonal in the last two decades. These 21 changes have affected people severely, e.g., by crop and livestock losses and displacement of 22 people, with a predicted increase in the desertification process, delayed and shorter rainy seasons, 23 and increasingly intensified frequencies of floods and droughts [1], especially because about 80 per 24 cent of the human population lives of smallholder agriculture, farming and fishing [1]. A recent 25 "Perspective" in Science magazine has emphasized that human-wildlife conflicts will increase 26 under climatic change scenarios, reporting a few noteworthy cases [2]. Here we report an additional 27 case that, because of the very fragile human condition in war-torn South Sudan, is particularly 28 noteworthy. In a previous study, we demonstrated that Nile crocodile (*Crocodylus niloticus*) 29 represent a significant threat for both humans and livestock along the White Nile river course in 30 South Sudan, and that most of the attacks (almost 100% lethal when made against humans) 31 occurred by dry season, when shepherds are forced to push their livestock nearby the riverine 32 waters because of the hotter and drier dry seasons [3]. This trend is increasing year-by-year, and the 33 number of attacks is also likely increasing (we estimated it at an annual rate of >5% in the last five 34 years), whereas also the negative perception of people towards crocodiles is also growing (despite

- 35 the legal protection that these reptiles enjoy from the government). Therefore, it is essential to
- 36 invest funds and efforts on enhancing the awareness of people concerning crocodiles, climate
- 37 change and the resulting growing threats due to human-wildlife conflicts.

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REFERENCES AND NOTES

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- 41 [1] Government of South Sudan. Initial National Communication to the United Nations Framework
- 42 Convention on Climate Change. Government of South Sudan, Ministry of Environment and
- 43 Forestry, Juba, South Sudan (2018).
- 44 [2] Abrahms, B. Science **373**, 6554, 484-485 (2021).
- 45 [3] Benansio, J.S. et al., *Russ. J. Herp.*, in press (2021).