Additions to the knowledge of the natural history of Bothrophthalmus lineatus (Colubridae) from the Port Harcourt region of Nigeria

L. Luiselli1,2, G.C. Akami3, L.D. Otonye4, J.S. Ekanem2,5, D. Capizzi6

1 Environmental Studies Institute DEMETRA. Via dei Cochi 48/B, I-00133 Rome, Italy. Address for reprint requests: via Olona 7, I-00198 Rome, Italy
2 NFS-FIZV (Ecology Research Group), No 4 Adak Uko Street, Calabar, Cross River State, Nigeria
3 Department of Biological Sciences, Chair of Ecology, The Rivers State University of Science and Technology, P.M.B. 5080, Port Harcourt, Rivers State, Nigeria
4 T.S.K.J. Nigeria Ltd., Environmental Office, 142A Aba Road, Port Harcourt, Rivers State, Nigeria
5 Faculty of Sciences, University of Calabar, Eta Agbor Street, Calabar, Cross River State, Nigeria
6 National Wildlife Institute (I.N.F.S.), via Ca’ Fornacetta 9, I-40064 Ozzano Emilia (Bologna), Italy

e-mail: luiselli@earthling.net fax: (39)06-8411964

The red-lined snake, Bothrophthalmus lineatus (Peters, 1863), is an oviparous, medium-sized (to 1.2 m long) Afrotropical snake (Colubridae: Boodontini) with a scattered
distribution ranging from Guinea to Uganda (Schmidt, 1923; Pitman, 1938; Villiers, 1975). It is easily recognizable by its splendid colouration: the dorsal livery is bright brown or black, with one to five yellow to red longitudinal lines, and the ventral livery is entirely pink to red (Villiers, 1975; Meirte, 1992). No quantitative information exists on the natural history of *B. lineatus*, but several anecdotal observations are available (Schmidt, 1923; Pitman, 1938; Villiers, 1975).

Our aims in this paper are to present, for the first time in the international literature, quantitative data on several natural history aspects of this little known snake species, including sexual size dimorphism, habitat preferences, activity patterns, food habits and reproduction.

Searches for snakes were conducted during several field research expeditions from September 1996 to August 1998. We surveyed several localities of southeastern Nigeria, situated in the regions of Yenagoa (Bayelsa State, central axis of the Niger Delta), Port Harcourt (Rivers State, eastern axis of the Niger Delta), Aba (Abia State), Eket and Ikot-Ekpene (Akwa-Ibom State), and Calabar (Cross River State) (Luiselli, 1997; Luiselli and Angelici, 1998; Luiselli et al., 1998a,b; Akani et al., 1999; Luiselli and Akani, 1999).

The climate is typical for a tropical sub-Saharan country, with well-marked dry and wet seasons with relatively modest monthly fluctuations in maximum and minimum temperatures (Griffiths, 1972). The dry season extends from November to April, and the wet season from May to October (with some year-to-year variations). Mean monthly maximum temperatures range between 27 and 34°C, while minima vary between 22 and 24°C.

In general, the study areas are heavily populated, with hundreds of small villages and towns interspersed within a patchy mosaic of cultivated lands, oil palm fields, plantations (banana, plantain, coconut, pineapple, sugar cane, yam, cassava, etc), open lands used for oil extraction platforms, forests, bush, and water bodies (Singh et al., 1995). Mangroves (dominant species are *Avicennia* spp. and *Rhizophora racemosa*) are found along the brackish water river tracts, and form enormous extensions along the coast. In the eastern Niger Delta region, the widest portions of rainforest are found along the banks of the Orashi river (Luiselli and Politano, 1998), where a natural park has recently been established (“Upper Orashi Forest Reserve”, see Powell, 1993, 1994). Rainforest patches may have dry soil (lowland dryland forest) or may be seasonally inundated swamp forests. Swamp forests are dominated by *Raphia vinifera* and *Raphia hookeri*, and other common plant species are *Uapaca staudtii*, *Serculia oblonga*, *Ceiba pentandra*, *Pandanus* sp., and *Pterocarpus santalinoides*; typical tree species include *Terminalia superba*, *Piptadeniastrum africanum*, and *Lophira alata*.

In the Niger Delta region, 52 localities were accurately surveyed for snakes, where the main macro-environmental parameters eventually present were recorded according to standard procedures (Politano, 1997). We defined the following eight categories of macro-environmental parameters: (1) primary dryland forest; (2) secondary dryland forest; (3) shrubland; (4) primary swamp-forest; (5) secondary swamp-forest; (6) mangroves;