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ABSTRACT VOLUME

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Impala - An African species of ruminants in which males retract the larynx for rutting call production

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Impala is a sexually dimorphic polygynous species of ruminants in Africa. During the rut, impala males defend territories and harems of several females against rival males. Impala male rutting behaviour involves impressive loud, low frequency and noisy rutting calls, regularly emitted during the rutting period. Rutting activity is highest in late afternoon and early morning. We investigated the introduced common impala (*Aepyceros melampus melampus*) on Okambara farm, Namibia. Impala males produce their rutting calls in a low-stretch posture: head and neck are extended and kept in a low, horizontal position and frequently the tongue is protruded. Rutting calls consist of series of pant-roars, produced during rapidly alternating ex- and inhalations, with intercalated pure exhalatory roars and alarm snort-like explosive exhalations. Males also emit separate pant-roars while guarding their territory. Production of the pant-roars and roars is visibly accompanied by restricted larynx retraction down to a transient mid-neck position. Thus, impala, as some cervids and bovids, is another bovid species capable of larynx retraction in males. Impala males have a resilient thyrohyoid ligament allowing for larynx retraction during rutting call production. In contrast to goitred and Mongolian gazelle, the larynx of male impala is not obviously enlarged. However, corresponding with the low call frequencies, the vocal folds of male impalas are unusually large-sized and massive. Apparently, larynx retraction in male impala is achieved by muscles homologous to those in other larynx retracting ruminant species. Restricted larynx retraction elongates the vocal tract and thereby lowers the formants of the pant-roars and roars of impala rutting calls. Formant lowering serves to acoustically announce larger than actual body size to both rival males and potential female mating partners. The phylogenetic distance between impala and other larynx retracting species implies independent evolution of larynx retraction in male impala.