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VOCAL TRACT MORPHOLOGY SHAPES VOCAL COMMUNICATION IN LEMURS

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The lemurs of Madagascar represent a unique case of primate radiation showing an impressive ecological, behavioural and morphological diversity. All lemur species are conspicuously vocal and congeneric species usually exhibit relatively similar vocalizations. In this study, we examined the potential of vocal tract resonance in generating genus-typical cues in nasal vocalizations, the grunts. We applied an innovative technique, vocal tract computational modelling, which allowed evaluating whether vocal tract morphology can affect the acoustic structure or not. This contribution presents morphological studies of the nasal passages of the ring-tailed lemur (*Lemur catta*), the gentle lemurs (*Hapalemur* spp.), the greater bamboo lemur (*Prolemur simus*), the true lemurs (*Eulemur* spp.), the ruffed lemurs (*Varecia* spp.) and the sifakas (*Propithecus* spp.). A population of 10 randomly shaped nasal tract models were built within species-specific variation for each *taxon* and the fitness of each model was tested with respect to species' target formants. Results showed upper nasal airways are more important in generating species-typical vocal tract resonance cues than laryngeal morphology.