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Pygmy lorises (*Nycticebus pygmaeus*) without sublingua

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Summary

Since establishment of the Endangered Primate Rescue Center (EPRC) in 1993 the center received a total of 89 pygmy lorises (*Nycticebus pygmaeus*) and 9 northern slow lorises (*Nycticebus bengalensis*). The animals are mostly confiscated from Forest Protection Departments in cooperation with the EPRC or through activities of the organization Education for Nature Vietnam (ENV). Some animals also donated from private persons after they realize that it is illegal to keep the lorises, or they are donated from tourists which bought the animals from hunters, traders or in an illegal market with the intention to rescue the animals but unaware that buying protecting animals is an illegal and criminal act.

On arrival at the EPRC all animals undergo a health check and are quarantined for a six week period. During these routine health checks, we accidentally discovered that two pygmy lorises did not have a sublingua, which is a special morphological feature of some mammals, including lorises. We have only just started to look systematically for this feature and can to date not determine how many of the pygmy lorises kept at the EPRC do lack a sublinga and it what the ecological implications of the lack of this feature are.

Về những các thể cu li nhỏ (*Nycticebus pygmaeus*) không có lưỡi thứ cấp

Tóm tắt

Từ khi xây dựng trung tâm cứu hộ thú linh trưởng (EPRC) năm 1993, trung tâm đã tiếp nhận 89 cá thể cu li nhỏ (*Nycticebus pygmaeus*) và 9 cá thể cu li lớn (*Nycticebus bengalensis*). Những cá thể này phần lớn được tịch thu và chuyển giao từ các chi cục kiểm lâm, kết quả hợp tác cùng với trung tâm cứu hộ EPRC và tổ chức giáo dục thiên nhiên Việt Nam (ENV). Một số cá thể khác được tự nguyện giao nộp từ những cá nhân đã nuôi loài cu li làm vật cảnh, hoặc do khách du lịch mua lại từ thợ săn, người mua bán động vật hoang dã với mục đích cứu hộ. Những người giao nộp không nhận thức được việc mua bán các động vật hoang dã là vi phạm pháp luật. Sau khi đến trung tâm cứu hộ, các cá thể này được kiểm tra sức khỏe và cách ly kiểm dịch trong vòng 6 tuần. Trong quá trình kiểm tra sức khỏe, chúng tôi đã tình cờ phát hiện hai cá thể loài cu li nhỏ không có lưỡi thứ cấp. Lưỡi thứ cấp là một đặc điểm hình thái đặc trưng của một vài loài thú bao gồm cả loài cu li. Chúng tôi đã bắt đầu việc quan sát một cách có hệ thống về đặc điểm này, tuy nhiên hiện nay vẫn chưa xác định được bao nhiêu cá thể cu li ở EPRC không có lưỡi thứ cấp và ý nghĩa của đặc điểm này với sinh thái học.

Introduction

Some prosimians possess below the tongue a special structure, the sublingua, or "under-tongue" (Fig. 1). A similar structure can be also found in several other groups of primitive mammals, like marsupials, treeshrews and colugos (Ankel-Simons, 2000).

Lorises lower incisors and canines form the "toothcomb", which lorises use to gouge holes into trees to lick the excreted gum (Streicher 2009; Streicher et al. 2013). The toothcomb is also assumed to play a role in grooming. However the very narrow position of the teeth in the toothcomb makes it prone to accumulation of food remains or hair

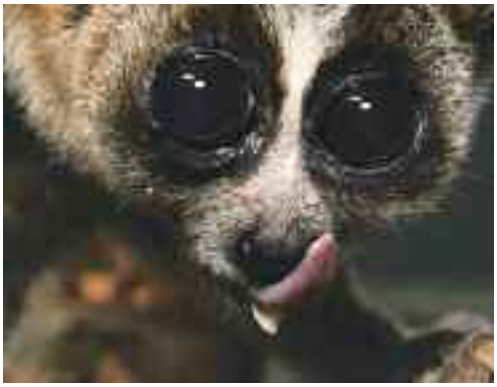

Fig.1. Pygmy loris shows the sublingua, the "under-tongue". Photo: Duke Lemur Center.

The sublingua, the "under-tongue" of the pygmy lorises and northern slow lorises is a muscular structure below the tongue (Hershkovitz, 1977, Jones, 1918), about 10 mm long and 5 mm wide on the base (Fig. 2, 3 and 4). The front of the sublingua ends in mostly 13 keratinized serrations - "denticles" (Osman Hill, 1953) (Fig. 5). These denticles correspond with the narrow gaps between the teeth in the tooth comb and the sublingua is assumed to serve to remove remains of bark or food items from the toothcomb (Jones, 1918; Osman Hill, 1953, Sonntag 1921).

Fig.2. The sublingua, or "under-tongue", is a secondary tongue located below the primary tongue. Photo: Tilo Nadler.

Fig.3. The front edge of the sublingua is lined with keratinized serrations. Photo: Tilo Nadler.

Fig.4. The sublingual in pygmy lorises is about 10 mm long and 5 mm wide. Photo: Tilo Nadler.

Fig.5. There are an uneven number of serrations, mostly 13, on the tip of the sublingua. Photo: Tilo Nadler.

Material

Since 1993 the Endangered Primate Rescue Center received 89 pygmy lorises (*Nycticebus pygmaeus*) and 9 northern slow lorises (*N. bengalensis*). Two northern slow lorises and 31 pygmy lorises were born at the center, all other animals are victims of poaching and illegal wildlife trade and were confiscated country wide.

On arrival at the EPRC all animals undergo a comprehensive health check before they are quarantined for a six week period. During these routine health checks we accidentally found that two pygmy lorises were missing a sublingua (Fig. 6). We have only just started to look systematically for this feature and can to date not determine how many of the pygmy lorises kept in the past at the EPRC do lack a sublingua and it what the ecological implications of the lack of this feature are.

The northern slow lorises, which we examined, all show the same morphological feature (Fig. 7).

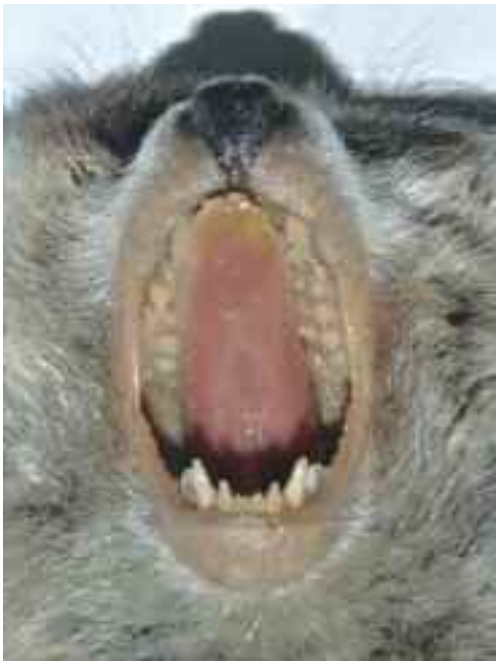

Fig.6. Pygmy loris with missing sublingua. Photo: Tilo Nadler.

Fig.7. Northern slow loris with sublingua. Photo: Tilo Nadler.

Discussion

The sublingua is assumed to be important to clean food remains of the toothcomb and thus maintain dental health. However the two individuals found at the EPRC without sublingua were adult and in good condition. They arrived at the EPRC as adult individuals without any signs of malnutrition or insufficient care of the fur. The question arises, if the sublingua has functions other than only the cleaning of the tooth comb, as animals appear to be able to clean their teeth and maintain dental health as well when the sublingua is missing,

The discovery that the sublingual is missing was rather accidental. During the routine health check only the teeth are checked. We have only just started to look systematically for this feature and can to date not determine how many of the pygmy lorises lack the sublingua.

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