Vicuña (*Vicugna v. mensalis*) herds modify their behaviour after being captured and sheared: implications on conservation and management

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CONCLUSION

After shearing vicuñas are prone to increase their daily foraging rate due to energy demands; this affecting their guarding rate and in turn their vulnerability to predators and potential poaching.

INTRODUCTION

In Peru, vicuña populations are managed for more than 15 years in permanent fencing of variable length, ranging from 500 to 1000 ha. Every one or two years vicuñas are captured through a pre-hispanic technique called *chaku*, similar to a corridor fence employed for livestock management, in order to shearing the wool. Little is known about the effects of capture and shearing on the behavior of vicuñas. The aim of this study was to determine whether the guarding behavior and habitat selection are influenced by the effect of shearing.

Vicuñas in Sacsalla valley

MATERIAL AND METHODS

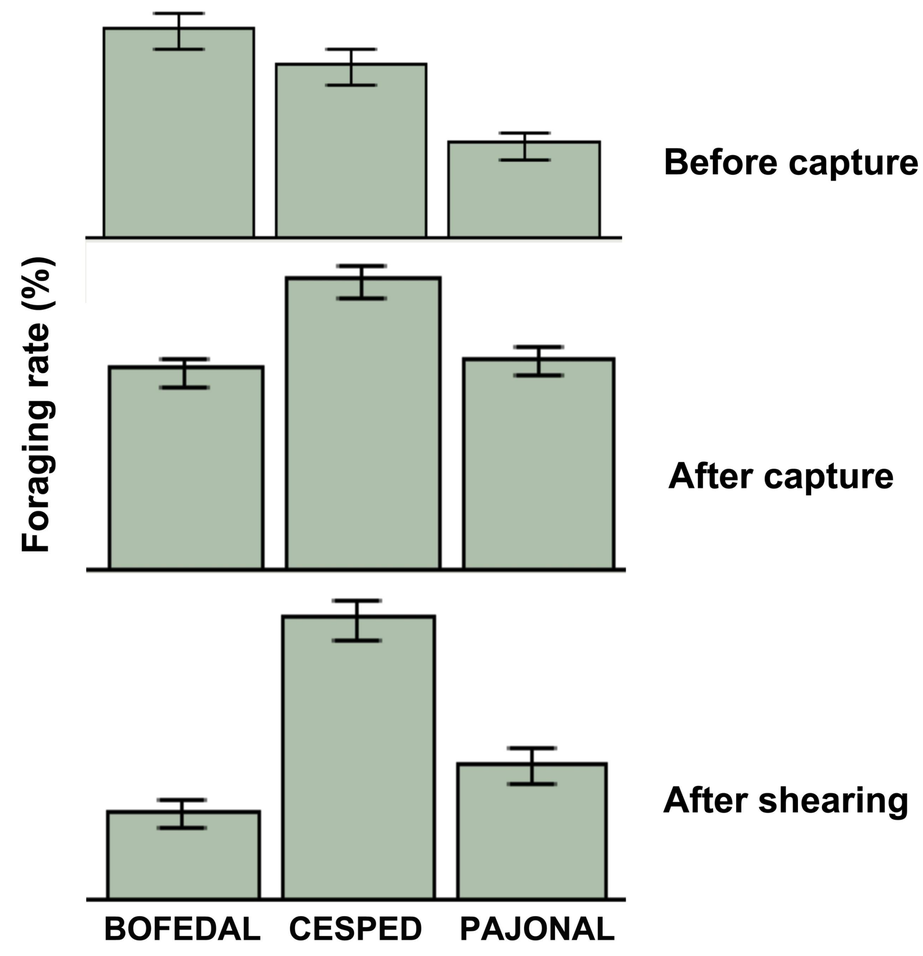
The study was conducted from March to December 2011, in Sacsalla valley at 4,500 to 5,000m a.s.l., in Central Andes, Peru. We recorded behaviour of a vicuña population made up of ca. 300 individuals, living in semi-captive conditions and captured once a year for shearing. We registered foraging and guarding rates of adult males and females as well as calves, and distinguished three periods: before being captured, after being captured for marking and after being captured for shearing. Three habitats were also distinguished: high mountain wetland (*bofedal*), short pasture (*cesped*) and grassland dominated by perennial bunchgrasses (*pajonal*). Standard least square analyses were made for guarding and foraging as response variables and the following independent variables: management, habitat, age/sex class, group size, and their interactions.

RESULTS AND DISCUSSION

The statistical model for guarding was highly significant ($F(30,890)=9.89$, $p<0.0001$). This behaviour is predominantly made by males, negatively related to group size, as predicted by theory, and varies according to the habitat and management period, decreasing significantly after shearing.

The model for foraging was also significant ($F(30,888)=6.86$, $p<0.0001$). Its rate is higher in females than in males and lambs, which may be related to differing nutritional requirements, significantly increases for all individuals after capture and shearing, and it is positively related to group size.

Before capture, guarding is lower (and foraging is higher) in *bofedal* than *cesped* and *pajonal*. After shearing guarding behaviour decreases in *cesped* and *pajonal* in comparison with *bofedal*, and the opposite happens with the foraging behaviour. Further analyses are needed to understand this habitat related behaviour.



Capture of vicuñas (*chaku*)

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