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# Appearance of Senescence and Life Expectation in Bugio (Alouatta spp.) in Captivity

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## Abstract

The number of non-human primates aging in captivity has increased in recent years. More animals are visible in captivity than in the wild due to changes that have occurred with globalization and technological evolution. For this study, data was collected regarding the age of studies that mention senescent howler monkeys. The nominal qualitative variable in discrete quantitative variable infers the need for aspects to be considered to categorize this species as senile.

**Keywords:** Aging; *Alouatta caraya; Alouatta guariba*; Howling monkey; Primate, Senior

## Introduction

Networks of aging characteristics include cellular exhaustion, altered intercellular communication, genomic instability, telomere wasting, epigenetic changes, loss of proteostasis, dysregulated nutrient sensing, mitochondrial dysfunction, and cellular senescence [1]. Characteristics related to metabolic aging, macromolecular damage, epigenetics, inflammation, stress influence the progression of age-related diseases [2].

Fundamentals in the stages of longevity can monitor the senescence process towards the evolution of the species [3].

The life expectancy of non-human primates is related to the same mechanism of knowledge that they already have [4]. The reality in captivity is sparse [5] and the controlled environment creates selectivity for the most robust and healthy animals, an evolution similar to the artificial selection of howler monkeys with a prolonged lifespan. Therefore, this study raises data on senility to discuss the reality of captive senile howler monkeys.

## Methodology

### Senescence and Life expectancy in *Alouatta* spp.

Raño, et al. [6] defined senescence between 18 and 20 years of age in female black and golden howler monkeys (*Alouatta caraya*) of free life, with aspects of reproductive alterations to the aging factor.

For Silva, et al. [7] the average life expectancy of captive *Alouatta caraya* was 26 years and this is the most recent study describing age-related changes in the species.

The pathological nature is exponential due to longevity in captivity. One of the challenges encountered is the

nutrition of these animals that have specific personality and requirements [8]. The difficulty in adapting the species to controlled feeding in captivity, can become a predisposing factor to the drift of gastrointestinal disorders, inferring its characteristics from age to/with senility, reducing its life expectancy [9]. As well as predators and other sources of intraspecific aggression, parasites and contagious diseases [10].

## Discussion

Courses of life events distinguishes social conditions from social efforts, seeking skills and knowledge to achieve the well-being of captive animals. Intentionality includes plans and strategies in prospecting acts [11].

Observational learning points to the importance of plasticity in senile *Alouatta* for young or newly arrived howler monkeys, favoring the process of adapting to captive life.

The life expectancy of howler monkeys is approximately 10 to 18 years in the wild. The population was modeled for 100 years (approximately 15 generations) so that long-term population trends could be observed [12].

The average adult lifespan in Alouatta palliata is 16.6 years for males and 15.5 for females. The maximum service life is more than 20 years [13].

In this regard, longevity can be defined as the maximum age of reproduction. In captivity, a maximum of 20 years, but in the wild females of *A. caraya* are recorded breeding at 16 years of age [8].

The active process of age coalition and kin selection, in which peripheral male cohorts from the same natal troop have greater survival and social success than solitary animals [13].

One hundred years is far enough into the future to lessen the chances of omitting an as-yet-unknown event, but it is also not too short to overlook a slowly developing event [12].

Stop always relying on direct learning, fortunately develops the cognitive capacity of learning in the observation of what other primates do plasticity is the essence of the nature of neurological mechanisms to interpret the dose of flexibility in tracing future pathways.

## Conclusion

The purpose of this study goes beyond the debate about the methodology that makes it possible to bring the historical dimension of senescence in howler monkeys from the history of the referred species. It is concluded that there is a lack of aspects to the debate of this species as senile.

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