Preliminary results on sexual dimorphism in the Mediterranean chameleon (*Chamaeleo chamaeleon*) on Samos Island, East Aegean

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Introduction

Chamaeleo chamaeleon is distributed in Africa and Europe and is protected under the Convention of International Trade in Endangered Species (CITES). Samos island in the eastern Aegean Sea has the largest population of this species in Greece[5] and is one of the last island refuges of the species in the Mediterranean[3,4]. Reports on Northern African and Iberian populations have shown sexual dimorphism, with females noted as larger than males[1], but to date there is a lack of research published on the Samos population.

Aim of the study: Investigation of sexual dimorphism in the Samos population of *Chamaeleo chamaeleon*

Methods

Surveys were conducted in 2010 and 2011, one hour after sunset, and were carried out 2 to 3 times a week, except during winter months. Study transects took place along two, half a kilometre long, man-made drainage ditches, in the village of Ormos Marathokampou, Samos Island. The vegetation along these ditches included species such as *Platanus orientalis, Olea europaea, Capparis spinosa,* and *Asparagus acutifolius.*

A visual census was carried out along the ditches using 9V torches. Once detected, chameleon's were captured and the following body measurements were taken: snout-vent length (SVL), body width (BW), head height (HH), head length (HL), crown width (CW), crown height (CH), mouth length (ML), front leg length (FLL), hind leg length (HLL), front foot length (FFL), hind foot length (HFL) and eye length (EYE). Age and sex were also noted (Figure 1). After measurements were recorded, individuals were released in the same location in which they were found.

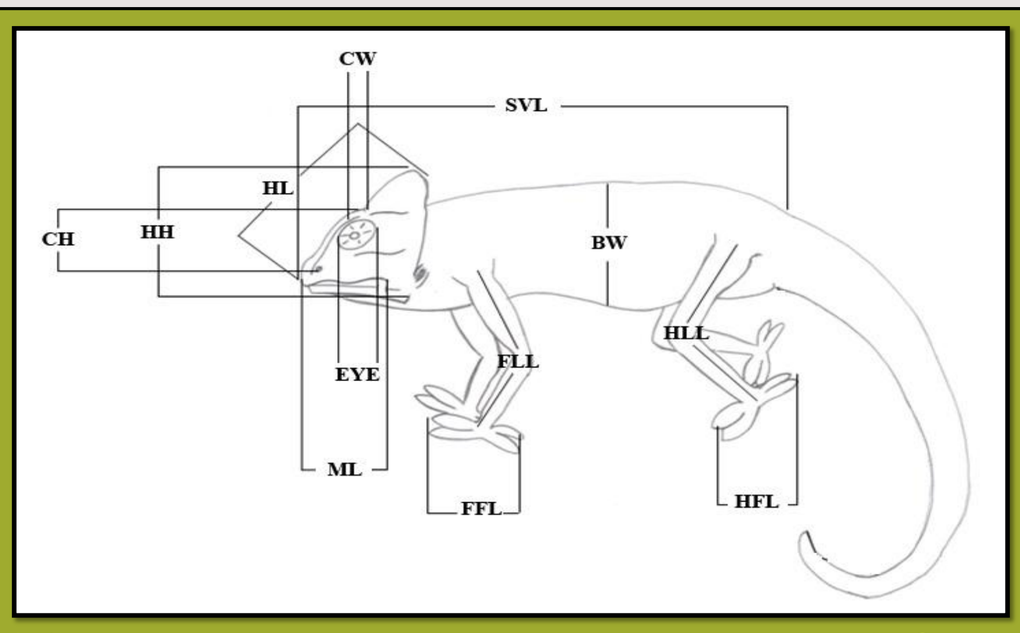

Figure 1. Diagram showing the measurements taken when conducting surveys on the Samos chameleon population. Measurements include: snout-vent length (SVL), body width (BW), head height (HH), head length (HL), crown width (CW), crown height (CH), mouth length (ML), front leg length (FLL), hind leg length (HLL), front foot length (FFL), hind foot length (HFL) and eye length (EYE).

Results

This study reports the measurements of 12 morphometric features of 194 individuals. It is suggested that sexual dimorphism exists within this population as females have significantly larger mean HL ($p=0.019$), CW ($p=0.046$), EYE ($p=0.037$) and FFL ($p=0.031$) than males (Figure 2). Correlation between male CH and all the other characters proved to be statistically significant; but this wasn't the case for females (SVL, ML, EYE, HLL, FLL and HFL did not correlate). The population does not show gender bias (Mean Adult-Sex Ratio [ASR] = 49% males) and both genders show a positive correlation between morphometrics and season; larger individuals being recorded in the warmer months.

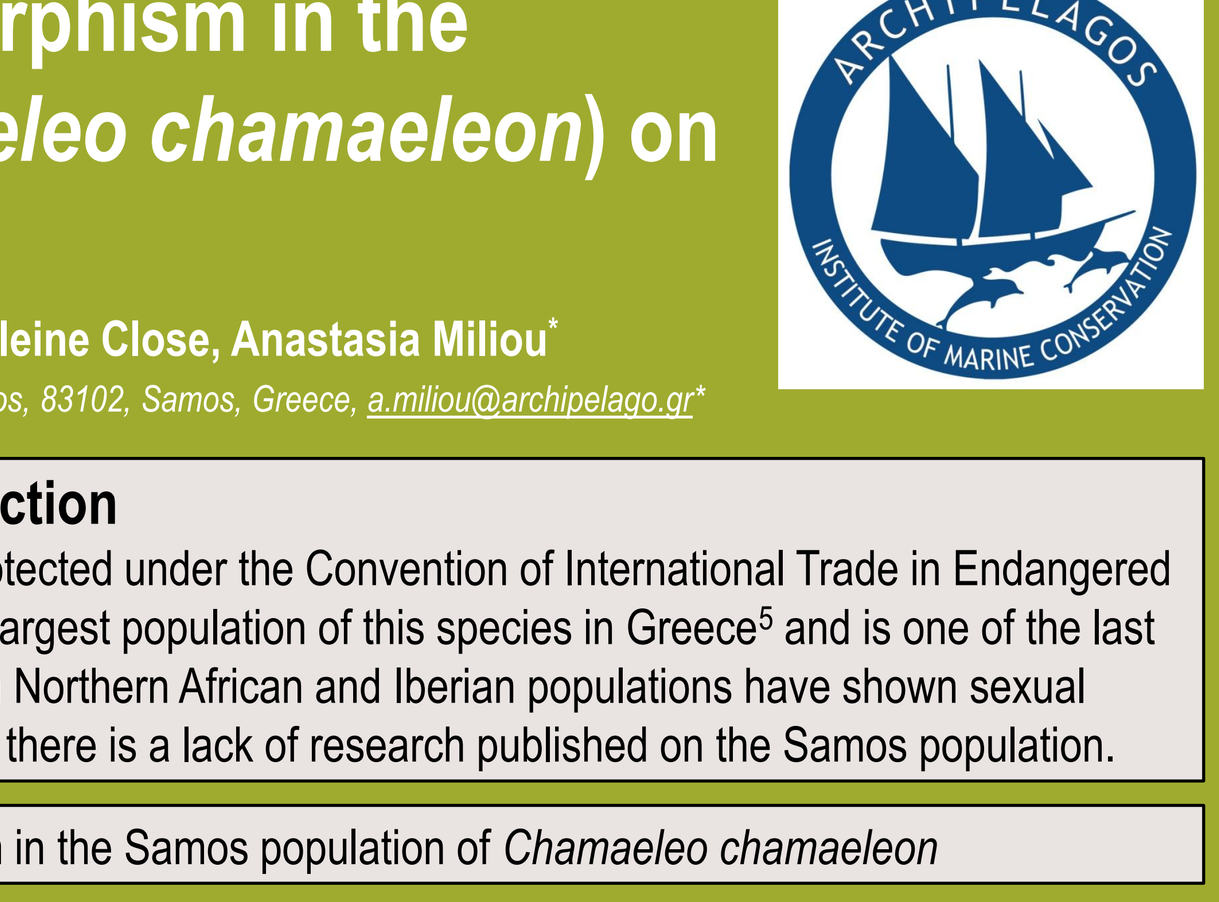

Figure 2. Graph comparing mean head length (HL), crown width (CW), eye length (EYE) and front foot length (FFL) of male and female Samos chameleons. Error bars represent standard deviation of the mean.

Discussion and Conclusions

As expected an equal ratio of males and females were seen and a larger number of juveniles were caught just after the hatching and hibernation periods compared with the warmest months when no juveniles were recorded.

Preliminary results suggest that in Samos' males have a smaller head, crown width, eye diameter and front foot length, which is directly related to other morphological characters. In contrast, females have larger heads, which aren't statistically related to most of the measured characters. This points toward potential sexual dimorphism within this population.

Further research could be carried to identify if relationships exist between female head length and mating success in this population, as female size has been previously correlated with guarding by males[2]. Studies looking at populations in varying habitats on Samos may show differing results as seen with the Cape dwarf chameleon, which showed different ecomorphs in different habitats[6].

Acknowledgements

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