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Annual variations in sexual hormones and births' frequency in female stump-tailed macaques (*Macaca arctoides*)

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1 **Annual variations in sexual hormones and births' frequency in female stump-tailed**
2 **macaques (*Macaca arctoides*)**

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14
15 **Abstract**

16 Although the breeding seasonality in *Macaca arctoides* have been studied over a long
17 period of time, it is still controversial whether reproduction in this primate tend to increase
18 during certain months of the year as it happens in most of the macaque species. Many
19 authors have classified *Macaca arctoides* as not being seasonal species. Nonetheless, there
20 were no reports, about seasonal variations of female sexual hormones to demonstrate that
21 asseveration. Therefore, in the present study we collect 1611 fecal samples from June 2009
22 to November 2010 from 10 female stump-tailed macaques to measure 17 β -estradiol and
23 progesterone concentrations. Also, we included the birth frequency per year, in order to
24 identify if sexual hormones peaked at a certain period of the year, thus, births would be
25 occurring six months later according to the gestation length of stump-tailed macaques. Our
26 results indicate two mating seasons per year in stump-tailed macaques: one in July-August
27 and a second one in November. The distribution of the birth frequency, throughout the year
28 support these results. We conclude that stump-tail macaques have a discrete seasonality no
29 different than most of macaques' species.

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