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Mother-offspring proximity maintenance in wild Bornean orangutans (*Pongo pygmaeus wurmbii*) in Gunung Palung National Park

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Our previous research showed that the distance between an orangutan mother-offspring dyad decreases when males are present. This change in proximity has been argued to be one aspect of a suite of female infanticide avoidance strategies. Therefore, we hypothesized that mothers are responsible for proximity maintenance in the presence of male conspecifics. In order to investigate this hypothesis, we examined Hinde Indices and Brown-modified Hinde Indices during full day follows of mother-offspring orangutans in Gunung Palung National Park, West Kalimantan, Indonesia, from May 2018-April 2019. We found that 91% of days (N=34) had a Hinde Index indicating offspring control of proximity and 88% of days (N=34) had a Brown-modified Hinde Index indicating greater offspring responsibility for proximity changes than mother responsibility. There was no difference in the Hinde Index (Nmale absent=32, Nmale present=14, $t=0.979$, $df=19.122$, $p=0.334$) or Brown-modified Hinde Index (Nmale absent=32, Nmale present=14, $t=0.216$, $df=22.424$, $p=0.831$) when males were present compared to when males were absent. Counter to our hypothesis, offspring, not mothers, were still responsible for proximity maintenance in the presence of males. However, controlling for variation by analyzing the data on a per follow basis, we found that Hinde Indices shifted towards becoming more mother-maintained when males were present for 70% of the follows, but this difference was not significant (N=10, $t=1.050$, $df=9$, $p=0.321$). One limitation in interpreting these results is that all offspring included in our study were over three years old and past the age at which they are most vulnerable to infanticide.

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