

Side note about 'Parallel Structure'

Let's say you have 3 major results...

- ▶ Organize them into a logical order
- ▶ Use this same organisation for other sections!

(Methods)

Data collection for test #1

Data collection for test #2

Data collection for test #3

(Methods)

Statistical analysis of test #1

Statistical analysis of test #2

Statistical analysis of test #3

(Results)

Result #1

Result #3

Result #2

(Discussion)

Discussion of result #1

Discussion of result #2

Discussion of result #3

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(Methods)

After the smoke has cleared: Extended low fruit productivity...

are coupled with significant physiological changes, including the catabolism of muscle tissue (O’Connell et al. 2021). These behavioural and physiological changes underlie the significant changes in their socio-ecology which occurred during this period of uncharacteristically long fruit scarcity.

We observed that mothers and their weaned immatures were less likely to spend time in association and in proximity with each other during the post-fire period when fruit was scarce. When associations did still occur, the duration of time spent in association was not reduced, but the rate of agonism from mothers towards their weaned offspring trended towards being higher, especially when FAI was particularly low. Where association did occur and mothers and their weaned immatures co-foraged, the time spent co-foraging was actually highest during the extreme scarcity period. This suggests that the reduced probability of association between mothers and their weaned immature offspring during prolonged scarcity may be driven by passive avoidance resulting from the distribution of food sources, with only minimal active social intolerance.

This reduction in time spent in association with their mothers could have lasting effects on weaned immature orangutans. Among chimpanzees, weaned immatures who experience maternal loss suffer various adverse effects, including hampered physical development, later age at first reproduction, lower overall reproductive success, higher risk of mortality, and/or lower overall survival (Samuni et al. 2020; Crockett et al. 2020; Stanton et al. 2020). Similar effects of maternal loss post weaning, but prior to the onset of sexual maturity, have been observed in red deer (Cervus elaphus; Andrews et al. 2013), baboons (Papio cynocephalus; Tung et al. 2016), and hyenas (Crocuta crocuta; Watts et al. 2009). These studies suggest that maternal presence, and thus, maternal association — even in the absence of direct maternal investment — clearly serves some vital functions) for weaned offspring. These long-term effects may be driven by deficits experienced by weaned immatures who do not have (access to) their mothers, i.e., that have fewer opportunities for learning and information transfer, reduced social and physical support against conspecifics and predators, and the absence of any post-weaning food-sharing or tolerated suckling from their mothers (van Noordwijk 2012). It is therefore possible that the reduction in time spent in association with their mothers during the post-fire period could have lasting effects on their development and survival.

Among related adult females (and, thus, their dependent offspring), there was a reduced probability of association and proximity with each other during the post-fire period when fruit was scarce, but this was not the case for unrelated adult females. Extended low fruit availability increased the time spent in association and proximity between related adult females during the post-fire low FAI they were not shorter in duration, nor did they have lower levels of social tolerance. Indeed, the time spent in association, in proximity, and co-foraging was not significantly reduced during the post-fire period, even when fruit was extremely scarce, and the probability of agonism was not higher. This suggests that the reduced probability of sociality between related females during this same time may be driven by general avoidance mechanisms, including the reduction in daily travel, likely resulting from the distribution of food resources, rather than active social intolerance. Notably, the probability of association and proximity among

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(Methods)

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Statistical analysis of test #1

Statistical analysis of test #2

Statistical analysis of test #3

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(Results)

After the smoke has cleared: Extended low fruit productivity...

Result #1

Result #2

Result #3

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(Discussion)

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Discussion of result #1 & 2

Discussion of result #3

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