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Wild Bornean Orangutans (*Pongo pygmaeus wurmbii*) Navigate to Non-Fruit Foods

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Wild primates have foraging goals beyond energy maximization. These foraging goals are often met by less energy dense, and more reliable, non-fruit foods. Are they able to meet these goals by navigating to high-energy fruit resources and consuming non-fruit (lower-energy) foods along the way, or do they navigate to non-fruit foods as well? Here we address this question in wild Bornean orangutans, a species known for consuming ripe fruit when it is available. Our research suggests that orangutans maintain a ratio of non-protein energy to protein and choose to consume non-fruit foods when in proximity to fruit foods. Using the movement ecology paradigm, we examine sequences of feeding bouts where an orangutan travels from one fruit patch to another, stopping at one or two non-fruit foods along the way (n = 54). By asking whether the direct path length between the two fruit patches is the same as, or less than, the actual travelled path length, we can determine whether the orangutans deviate from a fruit-to-fruit path and navigate to non-fruit foods. We find that orangutans do deviate from the direct fruit-to-fruit path by an average additional 18% of path length (range 8% - 84%; $p = 6.819e-07$). This is not impacted by fruit availability. This research suggests that orangutans are navigating to more constant non-fruit foods as well as the temporally and spatially patchy fruit resources. We discuss this in terms of which types of foods orangutans are navigating toward.

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