GENETICS DIVERSITY OF CAPTIVE AND SEMI-WILD ORANGUTAN IN MALAYSIA

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Orangutan is known to be genetically diverse than any other primates in the world. There are three species of Orangutan namely *Pongo abelii*, *Pongo tapanuliensis* and *Pongo pygmaeus*. The Bornean Orangutan, P. pygmaeus were further diverged into three subspecies, namely *P. p. pygmaeus, P. p. wurmbii* and *P. p. morio*. The wild populations are highly endangered due to habitat loss and hunting. As a result, all the species and subspecies of Orangutan were declared as critically endangered. Orangutans are also being kept in numerous captive and semi-wild centres around the world. However, not much data is available in term of genetic diversity of these Orangutan in captive and semi-wild facilities in Malaysia which is important for its management. This is because, each species as well as subspecies of Orangutan are geographically isolated in the wild. Further, studies have shown significant genetic differences among them. Therefore, it is critical to genetically assess all Orangutan in captive to maintain their species/subspecies genetic integrity. We used non-invasive samples from five captive and two semi-wild centres in Malaysia. The genetic diversity of Orangutan was determined using both mitochondrial protein coding (NADH Dehydrogenase Subunit 5) and non-coding (Hypervariable Region 1) DNA. Results revealed high genetic diversity among all the Orangutan in captive and semi-wild centres in Malaysia. Several misclassifications of Orangutan species and subspecies were also detected. However, all those misclassifications were resolved through our phylogenetic data with high confidence. Moreover, we have provided reliable species and subspecies information for all the Orangutans involved in this study.

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Hair samples collection from decayed nest of Orangutan

Searching feces samples beneath of fallen Orangutan's nest