Measuring home-range quality in the frugivorous gibbon (*Hylobates lar*)

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A previous study in the National Park of Khao Yai, Thailand demonstrated that the white-handed gibbon reproductive performances were dependant upon the area of its home range. New-born mortality increased with daily travelling distance owing to deadly falls. In other respects, it was not possible to demonstrate a correlation between home range area and fruit production evaluated over more than one year. Now, access to food is very often the key factor of the primate reproductive success and then the question of differences in home-range area between groups remained.
The first objective of the present study was to examine whether home-range area of the white-handed gibbons was inversely correlated to diversity and abundance of tree species producing edible fruits. Such a result would permit to support the hypothesis that home-range area depend on food production but in the long-term. The second objective was to determine how diversity and density of species producing edible fruits were related to vegetation characteristics (species richness, tree dimension and density).
Using rarefaction curves and non-parametric diversity estimators, we first established that vegetation samplings gave a satisfying knowledge of tree species diversity of each of the home ranges. Then home range species assemblies were compared by clustering and correlation (Spearman rank coefficient). Larger home ranges had a significantly lower food species density but also a higher species diversity. The results confirmed the hypothesis that the home range size depend on the long-term food production. In addition, the density of species producing edible fruit was higher when species diversity was lower.