

What do vultures and elephants have in common?

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You may think that this is a trick question but the answer leaves us with an interesting story. Large tree nesting birds, such as vultures and raptors commonly use Knob thorn trees (*Acacia nigrescens*) as their nesting sites while elephants favour the bark, leaves and small branches of this woody species when they feed. For the past five years we have been trying to establish whether elephant feeding habits are decreasing the nesting sites of vultures and raptors.

We were given the GPS coordinates of all the vulture and raptor nests that were spotted during the annual aerial census of our study area. We set out on foot to see what effects elephants were having on these trees. For the past seven years we have labelled and monitored approximately 100 trees with nests in terms of impact type, severity and age of elephant impact to see whether elephant effects caused the birds to leave their nests in relation to the rate at which they were being used by elephants. In addition we monitored 200 control trees (those without nests) in the four cardinal directions from a sub-sample of trees with nests. We did this to determine whether the birds were selecting specific trees as nesting sites from the surrounding vegetation. Lastly, we counted and measured all the trees species known to be used as nesting sites within a 20m radius from a central tree with a nest in order to understand the age structure and possible replacement rate of the trees species frequently used as nesting sites by vultures and raptors.

What did we find? We found that the overall elephant impact was low, irrespective of the tree or nest type (i.e. vultures or raptors). There was no difference in elephant impact type and severity between trees with nests and those without nests, although trees with nests were taller and had a lower probability of insect and fungus present. Hence accumulated elephant impact on older trees could render these trees as unusable in the long run because of increased arthropod and fungus attack over time. Bark-stripping was found to be the most prolific elephant impact type for trees used by either vultures or raptors. There was relatively lower elephant impact on trees used by vultures compared to those used by raptors. Vultures generally nest in the upper crown compared to raptors that prefer nesting lower in the tree canopy, consequently vultures may be more sensitive to die-back on smaller branches than raptors because they depend on the buoyancy of these smaller branches to construct their nests.

Large trees were found to die much slower than what nests were disappearing (refer to the figure below). Hence changes in nest survival cannot be attributed to changes in tree survival alone but indicate that other factors are at play and we need to determine at what scale are these other factors influencing the nesting potential of vultures and raptors, be they climatic changes or changes in the survival rate of breeding pairs. On the bright side of the future nesting sites for these valuable large tree nesting birds, our results show that there is a high regeneration or recruitment of nesting sites on which elephants had an overall negligible influence during the study period.