

## Illegal Anthropogenic Activity Drives Large Mammal Population Declines in an African Protected Area

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**Abstract :** High levels of anthropogenic activity such as habitat destruction, poaching and encroachment into natural habitat have resulted in significant global wildlife declines. In order to protect wildlife, many protected areas such as national parks have been created. However, it is argued that many protected areas are only protected in name and are often exposed to continued, and often illegal, anthropogenic pressure. In West African protected areas, declines of large mammals have been documented between 1962 and 2008. This study aimed to produce occupancy estimates of the remaining large mammal fauna in the third largest National Park in Nigeria, Old Oyo, and to compare the estimates with historic estimates while also attempting to quantify levels of illegal anthropogenic activity using a multi-disciplinary approach. Large mammal populations and levels of illegal anthropogenic activity were assessed using empirical field data (camera trapping and transect surveys) in combination with data from questionnaires completed by local villagers and park rangers. Four of the historically recorded species in the park, lion (*Panthera leo*), hunting dog (*Lycaon pictus*), elephant (*Loxodonta africana*) and buffalo (*Syncerus caffer*) were not detected during field studies nor were they reported by respondents. In addition, occupancy estimates of hunters and illegal grazers were higher than the majority of large mammal species inside the park. This finding was reinforced by responses from the villagers and rangers who's perception was that large mammal densities in the park were declining, and that a large proportion of the local people were entering the park to hunt wild animals and graze their domestic livestock. Our findings also suggest that widespread poverty and a lack of alternative livelihood opportunities, culture of consuming bushmeat, lack of education and awareness of the value of protected areas, and weak law enforcement are some of the reasons for the illegal activity. Law enforcement authorities were often constrained by insufficient on-site personnel and a lack of modern equipment and infrastructure to deter illegal activities. We conclude that there is a need to address the issue of illegal hunting and livestock grazing, via provision of alternative livelihoods, in combination with community outreach programmes that aim to improve conservation education and awareness and develop the capacity of the conservation authorities in order to achieve conservation goals. Our findings have implications for the conservation management of all protected areas that are available for exploitation by local communities.

**Keywords :** camera trapping, conservation, extirpation, illegal grazing, large mammals, national park, occupancy estimates, poaching

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