

Damage to paddy *Oryza sativa* by Indian Peafowl *Pavo cristatus* near Chulannur Peafowl Sanctuary, Kerala, India

Suresh K. Govind & E. A. Jayson

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Suresh K. Govind, Assistant Professor, Department of Psychology, Christ College, Irinjalakuda, Thrissur 680125, Kerala, India.

E-mail: sureshavinissery@gmail.com [Corresponding author]

Jayson E. A., Head of Department Wildlife, Kerala Forest Research Institute, Peechi, Thrissur 680653, Kerala, India. E-mail: jayson.58@gmail.com

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Introduction

India's national bird, the Indian Peafowl *Pavo cristatus* (*henceforth*, peafowl), is listed under Schedule I of the Indian Wildlife (Protection) Act, 1972, and in Appendix I of the CITES treaty. It is omnivorous and gregarious, and is seen in open, and deciduous forests, different types of plantations, and human habitations (Ali & Ripley 1980; Grimmett *et al.* 2011). It faces the threats of poaching for its meat, feathers, and for use in traditional medicines. Accidental poisoning is another major threat (Alexander 1983; del Hoyo *et al.* 1994; Chakkaravarthy 2002; Ramesh & McGowan 2009). Crop depredation by peafowl is a serious issue, and has been reported from some areas in India (Johnsingh & Murali 1980; Veeramani & Jayson 1995; Ogra & Badola 2008; Karanth *et al.* 2012; Pradhan *et al.* 2012). As the actual economic loss was not estimated in these studies, farmers could not claim ex-gratia payment from the wildlife authorities. The situation will be exacerbated when the wildlife authorities prioritise the needs of wild animals above the needs of humans (Madden 2004). Quantifying the damage, and immediately disbursing sufficient ex-gratia to the victims could ameliorate the human-animal conflict (Nyhus *et al.* 2003). In India, as mentioned above, no studies have been conducted to measure the extent of crops that peafowl damage. In this paper, an attempt has been made to study the human-peafowl conflict, with the objective of estimating the extent of paddy *Oryza sativa* damaged, by peafowl, near the Chulannur Peafowl Sanctuary, Kerala, India.

Study area

The Chulannur Peafowl Sanctuary (10.70°–10.73°N, 76.45°–76.48°E; *henceforth*, CPS) is located near Thiruvillamala village, and comprises 3.42 km² of forests spread over the districts of Thrissur, and Palakkad (Fig. 1). The area was declared a sanctuary in 2007. Its deciduous forest, with open areas and rocky patches, offers an ideal habitat for peafowl.

Methods

We assessed the consumption of paddy, by peafowl, using the enclosure experiment of Wilson *et al.* (2009), which we conducted in the paddy fields adjacent to CPS. This was part of a detailed study on human–wildlife conflict in central Kerala, from

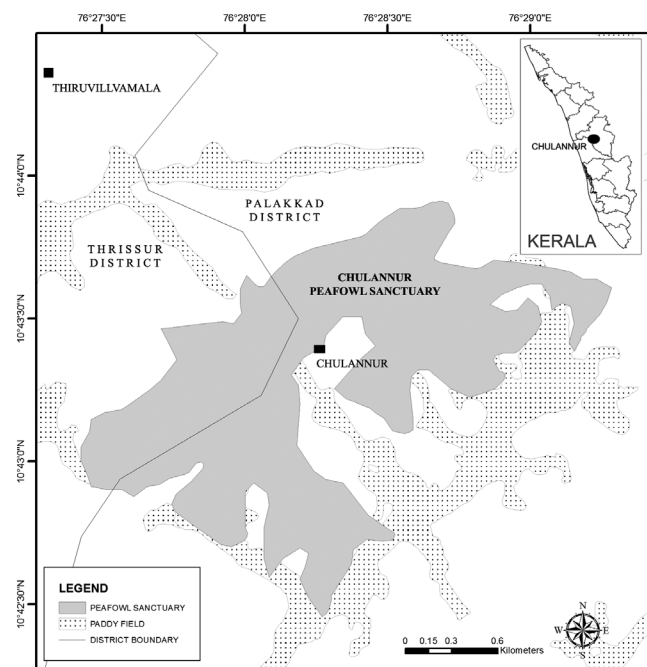


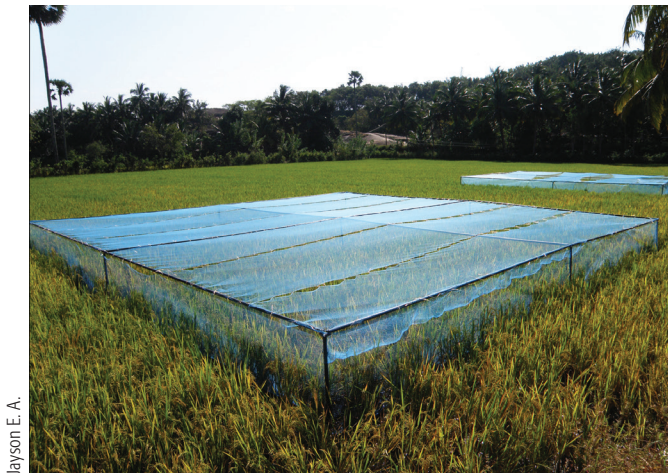
Fig. 1. Chulannur Peafowl Sanctuary, Central Kerala, India

April 2009 to March 2012.

Plots of paddy were enclosed within net-covered metallic frames (10 m x 10 m) to protect them from damage [166]. They functioned as our control plots. Paddy depredation was quantified by comparing the yield of paddy from the control plots, with that of the open plots (10 m x 10 m). Two control plots, and two open plots were monitored in four trials in December 2009, September 2010, December 2010, and September 2011, at different locations of CPS. The mean distance from the forest boundary to the area of experiment was 112.5 ± 47.87 m.

Results

Peafowl were observed feeding on paddy at dawn (0600–0900 hrs), and dusk (1600–1900 hrs), over a total time of observation of 395 hours. The birds consumed the paddy by stripping off the grain from the panicle with their beaks. The mean daily



166. Enclosure experiment conducted in the paddy field near Chulannur Peafowl Sanctuary.

number of peafowl visiting the experimental area was 4.3 ± 1.1 . In the enclosure experiment, the yield of paddy from the control, and open plots was 32.09 ± 3.26 kg/100 m², and 17.42 ± 5.46 kg/100 m² respectively (independent sample *t*-test, $t = 11.86$, $n=4$, $P < 0.05$) (Fig. 2). On an average, the birds were depredated upon 46% of the paddy resulting in a mean loss of 1466.5 ± 247.31 kg/ha. The economic loss of these depredatees was calculated by multiplying the quantity of paddy lost, with its market price @ Rs. 11.33 \pm 3.03/- per kg, which was estimated as Rs 16,615.45/- per ha.

Other bird species that consumed paddy, in the experimental area, were Rose-ringed Parakeet *Psittacula krameri* and Spotted Dove *Streptopelia chinensis*. They were active during the noon hours (12.00 to 13.00 hrs, both species spent less than 15 minutes per day in the experimental area). The mean number of Rose-ringed Parakeets visiting the experimental area per day was 0.40, whereas, for Spotted Doves it was 0.33. Watch-and-ward was the only control measure executed by the farmers to deter these birds. Due to the wildlife authority's strict enforcement of the law, local people do not take any negative precautions against the peafowl. Our study indicates that peafowl contribute to high economic losses of paddy near CPS.

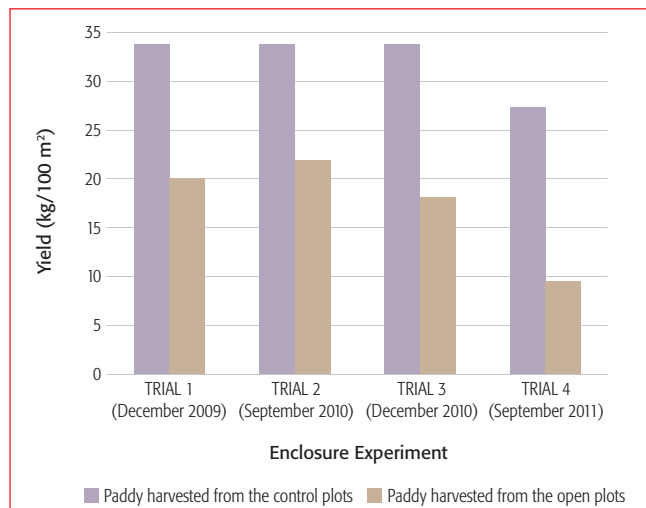


Fig. 2. Consumption of paddy by Indian Peafowl and other birds near Chulannur Peafowl Sanctuary, Kerala

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