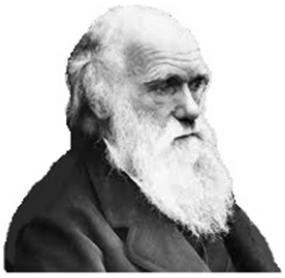
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Multi-Crop Utilisation and Aggregation Patterns of Indian Peafowl (*Pavo cristatus* Linnaeus, 1758) in Smallholder Agro-Ecosystems of Matale District, Sri Lanka

Nalini Udayakumaran[1], Danushka S. Weerasekera[2,*], Kithsiri B. Ranawana[3], Ashoka Dangolla[4], Saminda Fernando[5]

[1] Centre for Environmental Studies and Sustainable Development, Open University of Sri Lanka, Nawala, Nugegoda, Sri Lanka

[2] Postgraduate Institute of Science, University of Peradeniya, P.O. Box 25 Peradeniya, Sri Lanka

[3] Department of Zoology, Faculty of Science, University of Peradeniya, Peradeniya, Sri Lanka

[4] Department of Veterinary Clinical Science, Faculty of Veterinary Medicine & Animal Science, University of Peradeniya, Peradeniya, Sri Lanka

[5] Department of Zoology, Faculty of Natural Sciences, Open University of Sri Lanka, Nawala, Nugegoda, Sri Lanka

*E-mail address: danushw2@gmail.com

ABSTRACT

Human–wildlife conflict in agricultural landscapes can threaten both farmers' livelihoods and wildlife conservation. This study investigated crop utilisation, flock size, aggregation patterns, and demographic composition of Indian Peafowl (*Pavo cristatus* Linnaeus, 1758) in smallholder agro-ecosystems in the Matale District, Sri Lanka. Field surveys conducted from September 2023 to May 2024 across Palapathwela, Galewela, and Naula recorded 298 sighting events involving 2,449 birds across 14 crop types. Tomato fields accounted for the highest number of sightings (20.8%), followed by paddy (17.8%) and chilli (8.7%). Mean flock size was highest in groundnut (9.28 ± 3.32) and cabbage (9.25 ± 2.77) fields, while eggplant had the highest proportion of large-flock observations (56.2%). However, statistical analyses detected no significant differences in flock size or large-flock occurrence among crop types ($p > 0.05$). Males predominated in most crop-associated flocks, and chicks were

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observed across several crop types. These findings demonstrate that Indian Peafowl utilise a diverse range of cultivated crops, without statistically significant crop-specific differences in flock aggregation. The frequent sightings in tomato and paddy fields highlight the importance of further research and targeted conflict mitigation to promote coexistence between farmers and wildlife.

Keywords: Indian Peafowl, *Pavo cristatus*, human–wildlife conflict, crop utilization, flock size, smallholder agriculture, Sri Lanka

1. INTRODUCTION

Human–wildlife conflict (HWC) in agricultural landscapes is a major challenge for wildlife management, particularly in tropical regions where natural habitats and smallholder farms are closely interspersed (Bruggers et al., 2002). As land-use change continues to reduce and fragment natural habitats, many wildlife species increasingly utilise agricultural lands as alternative food sources (Mullu, 2016).

This overlap often results in crop damage, economic losses for farmers, and negative attitudes toward wildlife (Sara et al., 2017). In biodiversity-rich countries such as Sri Lanka, where agricultural land comprises a substantial proportion of the total land area and is embedded within wildlife-rich dry and intermediate zones, such conflicts are especially frequent (Pethiyagoda, 2012). Among the species commonly implicated in crop damage in these regions is the Indian Peafowl, a conspicuous and adaptable ground-foraging bird widely distributed across the island (Chandrasekara, 2021).

The Indian Peafowl inhabits dry forests, scrublands, and human-modified environments, including farmland adjacent to settlements (Chandrasekara, 2021). As an omnivorous and behaviourally flexible species, it feeds on grains, seeds, insects, and small vertebrates, enabling it to thrive in agricultural mosaics (de Silva et al., 1996). In Sri Lanka, the species is legally protected under the Fauna and Flora Protection Ordinance, and lethal control is not permitted. Nevertheless, farmer perceptions toward peafowl are often negative due to reported damage to crops such as paddy, maize, vegetables, and legumes (Wickramagamage, 1998).

Although peafowl are widely regarded as agricultural pests across South Asia, there remains limited quantitative evidence identifying which crop types are most intensively used or whether flock size and group composition vary systematically among different crops (Chandrasekara, 2021).

Understanding crop-type associations is essential for developing targeted and evidence-based mitigation strategies. If peafowl preferentially utilise particular crops due to factors such as nutritional value, crop structure, or seasonal availability, management interventions can be spatially and temporally focused to reduce conflict more effectively (Askew, 2014; Chandrasekara, 2021). However, most existing studies are anecdotal, crop-specific, or lack systematic comparisons across multiple co-occurring crop types within the same landscape. In the Sri Lankan context, there is a notable absence of studies that quantify peafowl flock size, sex and age composition, and the probability of large flock occurrences across diverse crop types over an extended survey period (de Silva et al., 1996).

This study therefore examined the habitat and crop-type associations of Indian Peafowl in agricultural landscapes of the Matale District over a nine-month period encompassing both major cultivation seasons. It quantified sighting frequency and total birds observed across

fourteen crop types, assessed variation in flock size and demographic composition, tested whether flock size and large aggregations were associated with specific crops, and identified crop types posing the highest conflict risk. The findings provide an empirical basis for crop-specific peafowl management strategies in the Matale District and contribute to a broader understanding of peafowl ecology in Sri Lanka's agricultural landscapes.

2. MATERIALS AND METHODS

2. 1. Study Area

The study was conducted in the Matale District (7°28′–8°02′N, 80°31′–81°00′E) in the Central Province of Sri Lanka. The district covers approximately 1,993 km^2 and represents a transitional zone between the wet and dry climatic regions. Three agricultural localities—Palapathwela, Galewela, and Naula—were selected based on the prevalence of smallholder farming and reported peafowl-related crop damage.[2]

The landscape consists predominantly of small agricultural plots (0.2–1.5 ha) interspersed with scrubland, home gardens, irrigation canals, and secondary forest patches. The region experiences a bimodal rainfall pattern associated with the Maha (October–March) and Yala (April–September) cultivation seasons. Mean monthly temperatures range from 24–30 °C.

2. 2. Study Species

The focal species was the Indian Peafowl, a large, sexually dimorphic, ground-foraging bird widely distributed in Sri Lanka's dry and intermediate zones. Adult males, females, and chicks were distinguished in the field based on body size and plumage characteristics, allowing reliable classification of sex and age groups during observations.

2. 3. Survey Design and Data Collection

Field surveys were conducted from 4th September 2023 to 9th May 2024, encompassing portions of both the Maha and Yala cultivation seasons. Observations were carried out across four daily time periods (05:00–09:00 h, 09:00–13:00 h, 13:00–17:00 h, and 17:00–20:00 h) to capture variation in daily activity. Surveys involved slow transect walks along field margins and fixed-point observations from elevated vantage points. All observations were conducted by the same trained observer to ensure methodological consistency (Chandrasekara, 2021).

A sighting event was defined as the detection of one or more peafowl within or immediately adjacent (≤20 m) to a cultivated field. Observations separated by at least 30 minutes at the same location were treated as independent events to minimise pseudo-replication. For each sighting, date, time, site, crop type, total flock size, and the number of adult males, females, and chicks were recorded (Kang, 2013). Direct count methods were used to estimate flock size, with repeated counts for larger groups to improve accuracy.

2. 4. Crop Classification and Data Preparation

Crop types associated with each sighting were identified through direct field observation. When birds were observed between two adjacent crops, the primary crop used for active foraging was recorded. Crop names were standardised during data cleaning, and non-agricultural records were excluded. Fourteen crop types were retained for analysis.

Field data were entered into Microsoft Excel and subsequently analysed using R (version 4.x). A binary variable was created to classify large flocks (≥10 individuals) and small flocks (<10 individuals).

2. 5. Statistical Analysis

Descriptive statistics (mean, median, standard deviation, minimum, and maximum) were calculated for flock size across crop types. Differences in flock size among crop types were tested using a Kruskal–Wallis rank-sum test due to the non-normal distribution of count data (Ranaweerage et al., 2015). A chi-square test of independence with Monte Carlo simulation (9,999 permutations) was used to assess the association between crop type and the occurrence of large flocks (Roc & Gonz, 2024). Additionally, a binary logistic regression model was fitted to evaluate the influence of crop type on the probability of large flock occurrence, with paddy designated as the reference category. Statistical significance was set at $\alpha = 0.05$.

3. RESULTS

3. 1. Overview of Sightings and Crop Association

A total of 298 peacock sighting events were recorded across three study locations (Palapathwela, Galewela, and Naula) between September 2023 and May 2024, yielding 2,449 individual bird observations. Peacocks were recorded in association with 14 distinct crop types. Tomato fields accounted for the greatest number of sighting events (n = 62, 20.8% of all records), followed by Paddy (n = 53, 17.8%) and Chilies (n = 26, 8.7%). In contrast, Pumpkin (n = 3), Banana plants (n = 2), and Cucumber (n = 6) had the fewest recorded sightings, reflecting either low crop availability or lower peacock utilisation relative to other crop types.

3. 2. Descriptive Statistics of Flock Size by Crop Type

Groupsize of the Indian Peafowl varied among crop types (Table 1; Figure 1). Across all 298 sighting events, the overall mean group size was 8.22 birds (SD = 3.18). Banana (*Musa spp.)* showed the highest mean flock size (mean = 9.50, SD = 2.12); however, this estimate is based on only two sighting events and should therefore be interpreted cautiously.

Among crop types with comparatively adequate sample sizes (n ≥ 10), Ground Nuts (*Arachis hypogaea)* recorded the largest mean flock size (mean = 9.28, SD = 3.32, n = 25), followed closely by Cabbage (mean = 9.25, SD = 2.77, n = 24) and Paddy (*Oryza sativa)* (mean = 8.58, SD = 2.95, n = 53). In contrast, Pumpkin (*Cucurbita moschata)* fields exhibited the lowest mean flock size (mean = 6.67, SD = 2.52, n = 3), and no large flock events (≥10 birds) were recorded in this crop category.

The proportion of large flock events (≥10 individuals) also differed across crop types. Eggplant (*Solanum melongena*) displayed the highest proportion of large fgroups occurrences (56.2%), followed by Cabbage (54.2%) and Banana (50.0%).

Ground Nuts (*Arachis hypogaea)* (48.0%) and Paddy (43.4%) also showed relatively high frequencies of large aggregations. Among crop types with moderate to high sample sizes, Ladys' Fingers (*Abelmoschus esculentus)* exhibited the lowest proportion of large flocks (25.0%), suggesting comparatively smaller group foraging within this crop field. Overall, although variation in mean flock size and aggregation frequency was evident among crops, these patterns should be interpreted in light of uneven sample sizes across categories.

Table 1. Descriptive statistics of peacock flock size by crop type, ordered by mean flock size.

Crop Type	n	Total Birds	Mean	Median	SD	SE	Min	Max	% Large (≥10)
Musa spp. (Banana)	2	19	9.50	9.5	2.12	1.50	8	11	50.0
Arachis hypogaea (Ground Nuts)	25	232	9.28	9	3.32	0.66	2	20	48.0
Brassica oleracea (Cabbage)	24	222	9.25	10	2.77	0.57	2	13	54.2
Vigna unguiculata (Long Beans)	17	146	8.59	9	2.50	0.61	4	12	29.4
Oryza sativa (Paddy)	53	455	8.58	9	2.95	0.41	1	13	43.4
Solanum melongena (Eggplant)	16	136	8.50	10	3.52	0.88	4	13	56.2
Cucumis sativus (Cucumber)	6	50	8.33	8	2.34	0.95	5	11	33.3
Brassica oleracea (Kohlrabi)	14	112	8.00	8	3.28	0.88	2	12	28.6
Capsicum annuum (Chillies)	26	205	7.88	8	3.08	0.60	1	12	30.8
Abelmoschus esculentus (Ladys' Fingers)	20	155	7.75	8	2.94	0.66	2	12	25.0
Phaseolus vulgaris (Beans)	19	145	7.63	8	3.09	0.71	2	12	36.8
Solanum lycopersicum (Tomato)	62	473	7.63	8	3.66	0.46	1	13	35.5
Zea mays (Maize)	11	79	7.18	8	4.40	1.33	1	13	36.4
Cucurbita moschata (Pumpkin)	3	20	6.67	7	2.52	1.45	4	9	0.0

n = number of sighting events; SD = standard deviation; SE = standard error;
% Large = percentage of sightings with ≥10 birds.

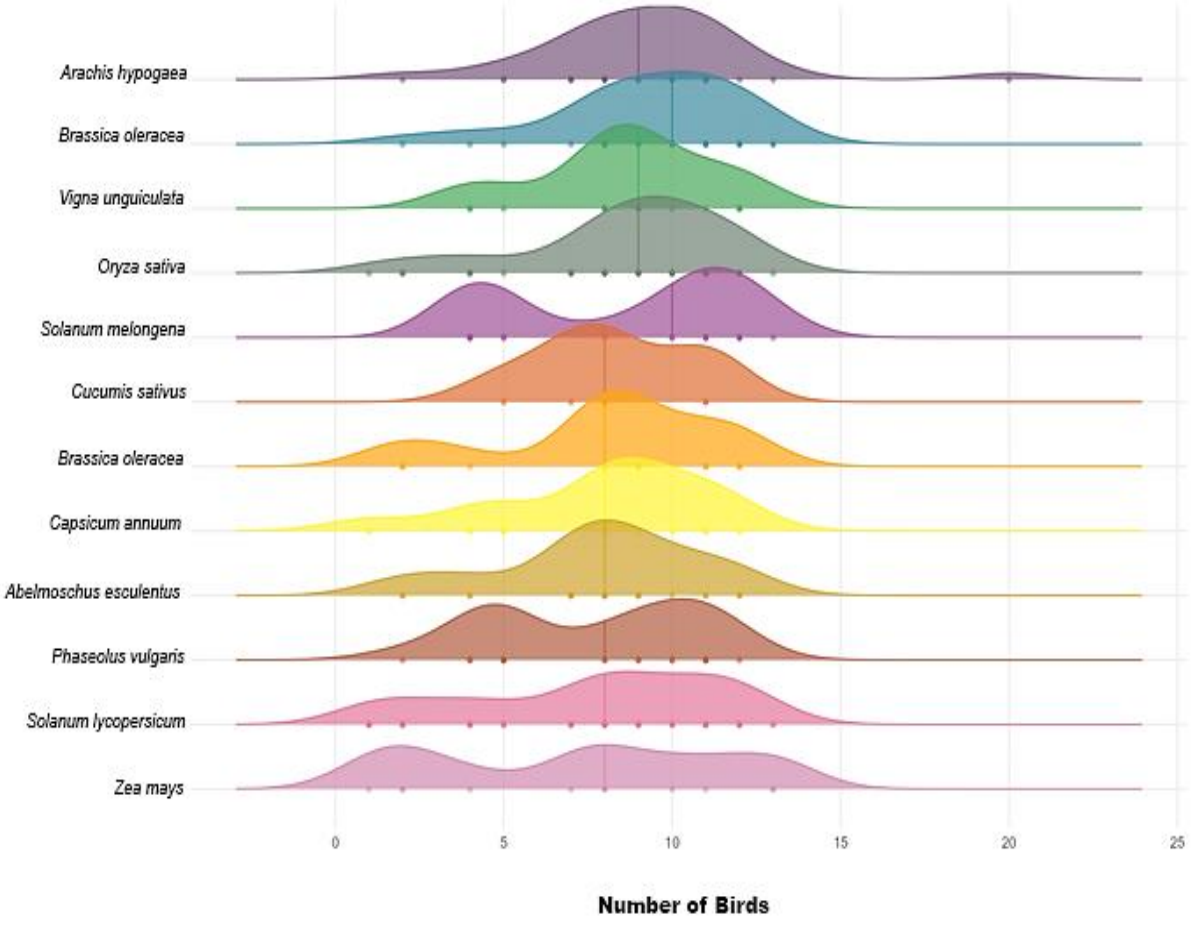


Figure 1. Ridgeline density plot showing the distribution of peacock flock sizes by crop type (crops with ≥5 sighting events). Vertical line within each ridge = median; dots = individual sighting events.

3. 3. Kruskal–Wallis Test: Differences in Flock Size Across Crop Types

A Kruskal–Wallis rank-sum test was conducted to evaluate whether flock size of the Indian Peafowl differed among crop types. This non-parametric test was selected due to the non-normal distribution of count data. The analysis revealed no statistically significant differences in flock size across the 14 crop categories ($H(13) = 9.95$, $p = 0.698$). Although descriptive statistics indicated some variation in mean flock size among crops, these differences were not statistically significant at the $\alpha = 0.05$ level. The results therefore suggest that flock size did not vary systematically with crop type, and that peafowl formed broadly similar group sizes across different agricultural habitats within the study area.

3. 4. Chi-Square Test: Association Between Crop Type and Large Flock Occurrence

To assess whether the occurrence of large flocks (≥10 individuals) was associated with crop type, a chi-square test of independence was performed. As peafowl were recorded in all sighting events (i.e., no absence data were available), the analysis focused on variation in

aggregation size rather than presence–absence patterns. Monte Carlo simulation (9,999 permutations) was applied to account for low expected frequencies in some crop categories.

The test did not detect a statistically significant association between crop type and the occurrence of large flocks ($\chi^2 = 9.95$, $p = 0.699$). These findings indicate that the probability of observing a large aggregation did not differ significantly among crop types. Nevertheless, descriptive trends showed comparatively higher proportions of large group events in Eggplant, Cabbage (*Brassica oleracea*), and Ground Nuts, suggesting that further investigation with more balanced sample sizes may help clarify potential crop-related aggregation patterns (Figure 2).

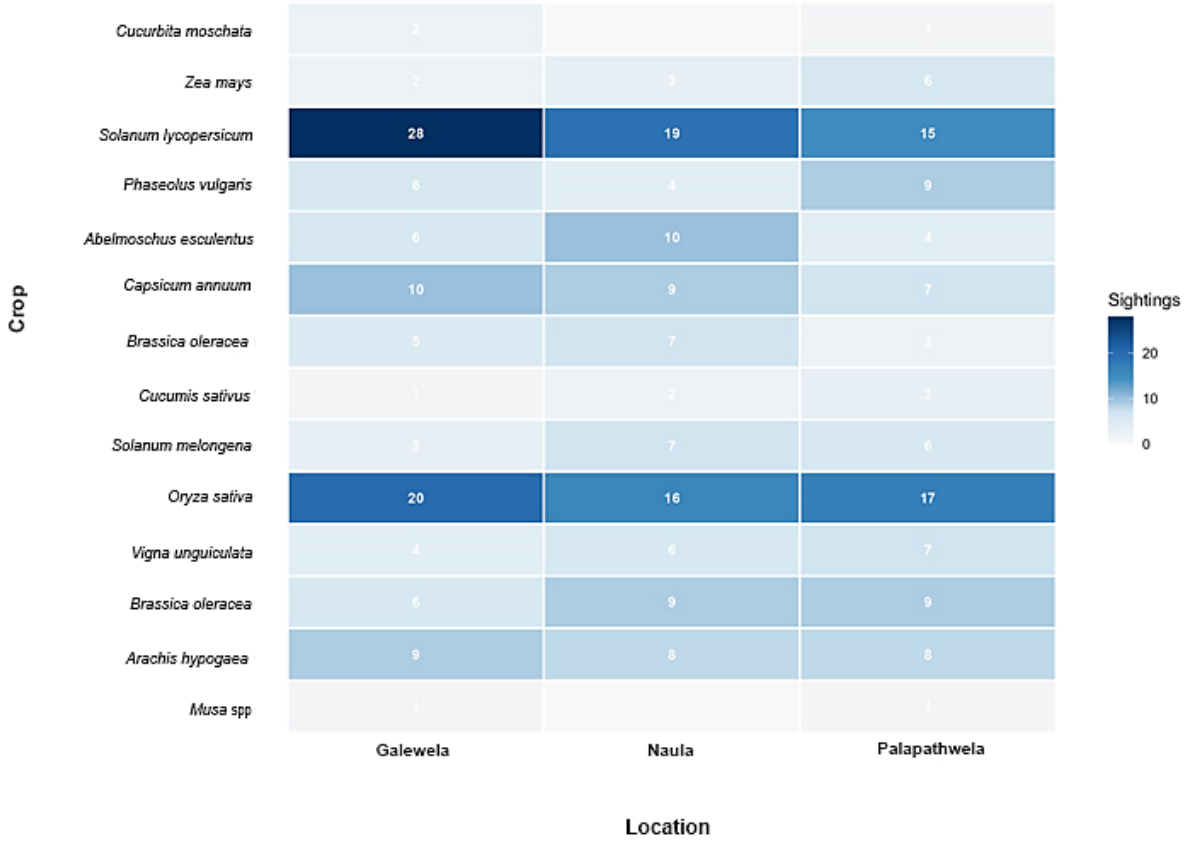


Figure 2. Heatmap showing the frequency of peacock sighting events by crop type and study location. Numbers within cells indicate the count of sighting events; shading intensity reflects sighting frequency.

3. 5. Logistic Regression: Predictors of Large Flock Occurrence

A binary logistic regression model was fitted to estimate the probability of a large flock event (≥10 individuals) of the Indian Peafowl as a function of crop type, using Paddy as the reference category. The overall model was not statistically significant (Likelihood Ratio Test: $\chi^2(12) = 9.89$, $p = 0.625$), and McFadden's pseudo-R^2 value was low (0.025), indicating that crop type alone explained only a small proportion of the variation in large flock occurrence.

Although the model was not significant overall, the direction and magnitude of the odds ratios provide useful ecological insight. Relative to Paddy fields, Eggplant (OR = 1.68, 95%

CI: 0.55–5.35), Cabbage (OR = 1.54, 95% CI: 0.59–4.13), and Ground Nuts (OR = 1.20, 95% CI: 0.46–3.14) were associated with higher — but statistically non-significant — odds of large flock formation. In contrast, Ladys' Fingers (OR = 0.44, 95% CI: 0.13–1.31), Kohlrabi (OR = 0.52, 95% CI: 0.13–1.78), and Long Beans (OR = 0.54, 95% CI: 0.16–1.69) showed reduced odds of large flock occurrence, suggesting a tendency toward smaller group sizes in these crop types. The wide confidence intervals observed across all crop categories indicate substantial uncertainty in the estimates, likely due to limited and uneven sample sizes. Overall, the results reinforce the conclusion that crop type, when considered independently, is not a strong predictor of large group formation within the agricultural landscape studied.

3. 6. Spatial Distribution of Sightings Across Locations and Crop Types

Analysis of the spatial distribution of sightings of the Indian Peafowl across the three study locations in the Matale District revealed clear variation in crop associations among sites. Paddy was the most frequently recorded crop type at all locations, indicating its widespread availability and consistent use by peafowl. Tomato (*Solanum lycopersicum)* was the dominant crop association at both Galewela and Naula, whereas Ground Nuts and Cabbage cultivations were more evenly distributed across the study sites.

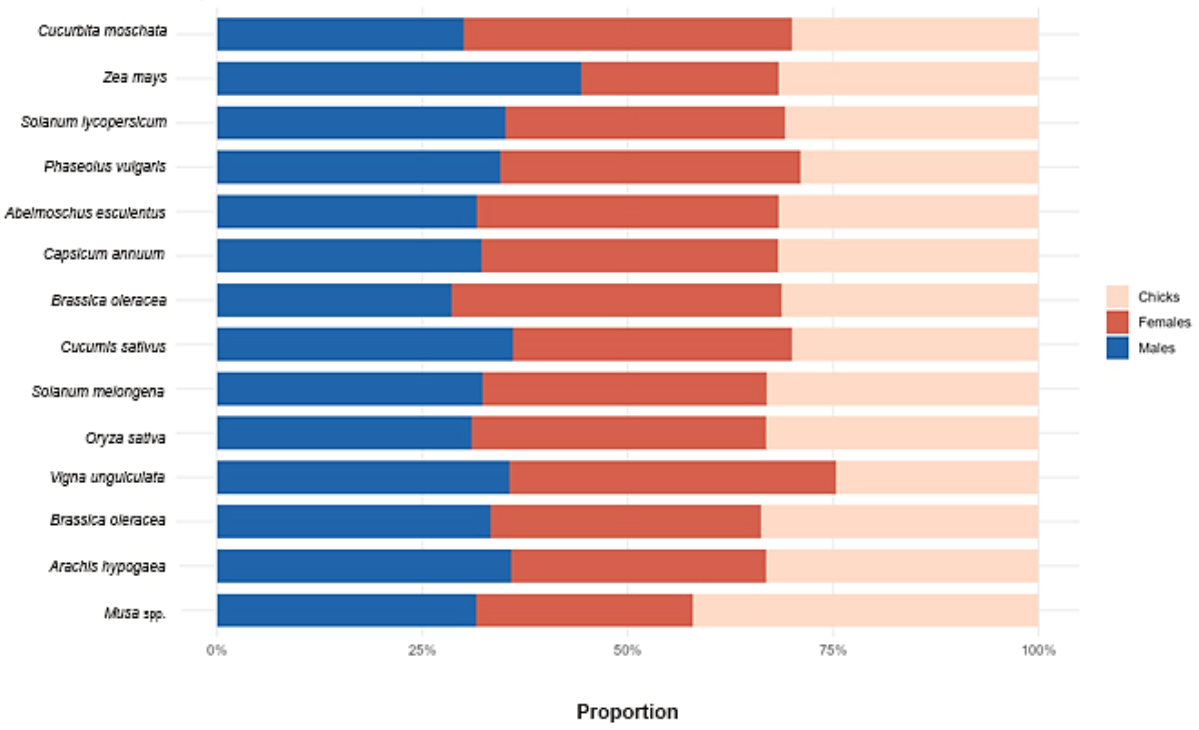


Figure 3. Proportional composition of peacock flocks by sex and age class (males, females, and chicks) across 14 crop types. Bars represent the percentage of total observed individuals in each demographic category.

Certain crop types exhibited location-specific clustering. For example, Kohlrabi (*Brassica oleracea)* cultivations were largely concentrated in Galewela and Naula, while

Eggplant was recorded at all three locations but occurred most frequently at Palapathwela. These spatial patterns likely reflect differences in local agricultural land-use composition and crop availability among sites, rather than clear evidence of active crop preference. Therefore, interpretation of these distributional trends should be made cautiously and ideally in conjunction with quantitative data on crop extent and seasonal availability within each study area.

3. 7. Flock Composition by Crop Type

Across all crop types, males of the Indian Peafowl constituted the largest proportion of observed individuals in most habitats. This pattern was particularly pronounced in Maize (*Zea mays)* fields, where males comprised a notably high proportion of flock composition (mean = 58.0%). Chick representation varied among crop types, with relatively higher proportions recorded in Paddy, Maize, and Cabbage fields. This pattern may indicate the use of these crops by family groups during the post-breeding season, when females are accompanied by dependent young.

The elevated proportion of males observed in Maize fields could suggest differential habitat use by males outside the peak breeding period, possibly for supplementary foraging. However, the relatively small sample size for Maize (n = 11 sighting events) limits the strength of this interpretation and warrants cautious inference (Figure 3).

4. DISCUSSION

4. 1. Patterns of Crop Utilisation

The results of this study demonstrate that Indian Peafowl in the Matale District utilise a broad and diverse range of agricultural crop types, with sightings recorded across all 14 crops included in the analysis. Tomato fields accounted for the greatest number of sighting events (n = 62, 20.8%), followed by Paddy (n = 53, 17.8%) and Chilies (n = 26, 8.7%). The high frequency of sightings in Tomato and Paddy fields is broadly consistent with reports from India, where paddy and horticultural crops are among the most commonly damaged crop types (Chandrasekara, 2021). Paddy in particular represents a high-energy grain resource that is widely exploited by peafowl during the ripening stage, when kernels are most accessible (Ranjith & Jose, 2016). However, it should be noted that the high sighting frequency in Tomato and Paddy fields may partly reflect the greater spatial extent and temporal availability of these crops across the three study sites rather than active preference per se.

Mean flock sizes were highest in Ground Nuts ($\bar{x}$ = 9.28), Cabbage ($\bar{x}$ = 9.25), and Paddy ($\bar{x}$ = 8.58), suggesting that these crops attract larger foraging aggregations. The concentration of large groups in Ground Nut fields is ecologically plausible, as groundnuts are a highly calorie-dense seed crop that may offer a superior nutritional reward relative to other crop types, incentivising the formation of larger, more competitive foraging groups (Narayana et al., 2016). Similarly, Eggplant recorded the highest proportion of large flock events (56.2%), despite a moderate mean flock size, suggesting that when peacocks do exploit Eggplant fields they tend to do so in larger groups.

These findings are of direct conservation relevance because larger flocks are likely to cause disproportionately greater crop damage and are more visible to farmers, potentially intensifying conflict perception (Chandrasekara, 2021).

4. 2. Absence of a Statistically Significant Crop Preference

Despite descriptive variation in flock sizes across crop types, the Kruskal–Wallis test did not detect a statistically significant difference in flock sizes among crop types ($H(13) = 9.95$, $p = 0.698$). Similarly, neither the chi-square test ($\chi^2 = 9.95$, $p = 0.699$) nor the logistic regression model (LRT: $\chi^2(12) = 9.89$, $p = 0.625$; McFadden's pseudo-$R^2 = 0.025$) identified a significant association between crop type and the probability of large flock occurrence. These results indicate that, at the statistical level, peafowl in this landscape are not strongly selective in their crop associations when measured by flock size alone.

There are several plausible explanations for this finding. First, the relatively small and unequal sample sizes across many crop types — particularly Pumpkin (n = 3), Banana Trees (n = 2), and Cucumber (n = 6) — substantially reduce statistical power and inflate confidence intervals, making it difficult to detect moderate effect sizes even if true differences exist. Second, peafowl are behaviourally opportunistic and generalist foragers; it is possible that their crop utilisation in this landscape is governed more by crop availability, landscape configuration, and proximity to water and shelter than by innate crop preferences (Chandrasekara, 2021).

Third, the study was conducted across multiple seasons during which crop availability shifted considerably; seasonal confounding may therefore have obscured crop-type effects that might be detectable within a single season. Future studies with balanced sampling across crop types and seasons, ideally incorporating crop availability data, would be better positioned to disentangle these effects.

4. 3. Sex and Age Composition Across Crop Types

Males constituted the dominant demographic across most crop types, which is consistent with the greater conspicuousness of adult males and the tendency for peahens to be more cryptic and wary in open agricultural settings (Sridhara, 2006).

The notably elevated proportion of males in Maize fields (mean = 58.0%) may reflect seasonal use of this crop by adult males outside the breeding period for supplementary energy acquisition, given that maize grain is a high-energy food resource (Askew, 2014). The presence of chicks across multiple crop types — particularly Paddy, Maize, and Cabbage — suggests that these habitats are used by family groups, which may increase the vulnerability of chicks to agricultural machinery, pesticide exposure, and predation at field margins (Chandrasekara, 2021).

The occurrence of chicks in agricultural fields also carries broader conservation implications. Family groups foraging in crops are particularly subject to retaliatory harm if conflict levels are high, and the presence of dependent young could influence the movement ecology and habitat selection of adult females (Takahashi et al., 2008). Documentation of chick presence in various crop types therefore contributes valuable baseline data for population monitoring programmes.

4. 4. Spatial Variation and Implications for Conflict Management

The spatial distribution of sightings across the three study sites revealed that Tomato and Paddy were consistently utilised across Palapathwela, Galewela, and Naula, while certain crop types (e.g., Kohlrabi at Galewela and Naula) showed a more localised distribution that likely reflects site-specific cultivation patterns.

This spatial heterogeneity in crop utilisation suggests that conflict management strategies may need to be geographically tailored: for example, Paddy-focused interventions may be appropriate across all three sites, while Tomato and Kohlrabi deterrence measures may be particularly relevant at Galewela. Such spatially targeted approaches are generally more cost-effective than blanket deterrence programmes (Chandrasekara, 2021).

Practical mitigation measures that warrant consideration in light of these findings include the installation of physical barriers (netting, wire fencing) around high-value crops such as Ground Nuts and Eggplant that showed a high frequency of large flock events; the use of auditory or visual deterrents at field margins during peak foraging periods (early morning and late afternoon); and the maintenance of natural vegetation buffers between forest patches and agricultural fields to reduce edge effects that facilitate access (Sridhara, 2006). Community-based compensation or crop insurance schemes may also help to reduce retaliatory attitudes towards peafowl in high-conflict areas (Borchers, 2012).

5. CONCLUSIONS

This study provides the first systematic, multi-crop quantitative assessment of flock size, demographic composition, and crop association of the Indian Peafowl in the Matale District of Sri Lanka, based on a nine-month field survey comprising 298 sighting events across 14 crop types at three study sites and totaling 2,449 individual observations.

Although descriptive patterns indicated that Ground Nuts, Cabbage, and Eggplant were associated with relatively larger flocks and higher proportions of large aggregation events, formal statistical analyses—including a Kruskal–Wallis test, chi-square test with Monte Carlo simulation, and binary logistic regression—did not detect a significant relationship between crop type and flock size or the probability of large flocks, likely reflecting unbalanced sample sizes and the species' generalist, opportunistic foraging ecology.

The consistently high frequency of sightings in Tomato and Paddy fields across all sites highlights these crops as priorities for conflict management, while the occurrence of large aggregations in Ground Nut and Eggplant fields suggests elevated localised risk for farmers cultivating these crops.

The presence of chicks and family groups across multiple crop types further emphasizes the need to consider population demographic structure when designing mitigation strategies. Overall, these findings strengthen the evidence base on peafowl ecology in agricultural landscapes and provide a platform for developing targeted, crop-specific conflict management approaches in the Matale District, while underscoring the need for future research incorporating crop availability, detection probability, and GPS-based movement analyses to better understand habitat use and promote long-term coexistence with farming communities in Sri Lanka.

Reference

[1] Askew, G. N. (2014). The elaborate plumage in peacocks is not such a drag. *Journal of Experimental Biology*, 217(18), 3237-3241. https://doi.org/10.1242/jeb.107474

[2] Borchers, D. (2012). A non-technical overview of spatially explicit capture-recapture models. *Journal of Ornithology*, 152(SUPPL. 2), 435-444. https://doi.org/10.1007/s10336-010-0583-z

[3] Bruggers, R. L., Owens, R., & Hoffman, T. (2002). Wildlife damage management research needs: Perceptions of scientists, wildlife managers, and stakeholders of the USDA/Wildlife Services program. *International Biodeterioration and Biodegradation*, 49(2-3), 213-223. https://doi.org/10.1016/S0964-8305(02)00042-2

[4] Chandrasekara, C. M. K. N. K. (2021). A Site Specific Study on Peacock and Human Conflict — A Case Study from Jayanthipura Grama Niladhari Division , Polonnaruwa — Sri Lanka. Department of Geography, University of Colombo, Colombo, Sri Lanka, 211-221

[5] De Silva, Padma K., Santiapillai, C., & Dissanayake, S. (1996). Some aspects of the population ecology of the blue peafowl, Pavo cristatus. *Wildlife Heritage Trust of Sri Lanka*, 2, 113-126

[6] Kang, Kyu-suk. (2013). The Peacock. *Journal of Symbols & Sandplay Therapy* 4(1), 35-43. https://doi.org/10.12964/jsst.130005

[7] Mullu, D. (2016). A Review on the Effect of Habitat Fragmentation on Ecosystem. *Journal of Natural Sciences Research*, 6(15), 1-15.

[8] Narayana, B. L., Rao, V. V., & Pandiyan, J. (2016). Four Insectivorous Birds in Search of Foraging Niche in and Around an Agricultural Ecosystem of Nalgonda District of Telangana, India *Ambient Science*, 03(1), 7-15

[9] Pethiyagoda, R. (2012). Biodiversity conservation in Sri Lanka's novel ecosystems. *Ceylon Journal of Science (Biological Sciences)*, 41(1), 1. https://doi.org/10.4038/cjsbs.v41i1.4532

[10] Ranaweerage, E., Ranjeewa, A. D. G., & Sugimoto, K. (2015). Tourism-induced disturbance of wildlife in protected areas: A case study of free ranging elephants in Sri Lanka. *Global Ecology and Conservation*, 4, 625-631. https://doi.org/10.1016/j.gecco.2015.10.013

[11] Ranjith, V., & Jose, B. (2016). Habitat preference of Indian peafowl (Pavo cristatus) in selected areas of Palakkad district, Kerala, India. *Current Science*, 110(11), 2177-2182

[12] Roc, D., & Gonz, G. (2024). Leveraging spatial data to enrich analytics systems. Universitat Politècnica de Catalunya (UPC) - BarcelonaTech.

[13] Sara M. Kross, Katherine P. Ingram, Rachael F. Long, & Meredith T. Niles. (2017). Farmer Perceptions and Behaviors Related to Wildlife and On-Farm Conservation Actions. *Conservation Letters*, 11(1), 1-9

[14] Sridhara, S. (2006). An Overview of Vertebrate Pests in India. *Proceedings of the Vertebrate Pest Conference* 22(22), 510-521. https://doi.org/10.5070/V422110078

[15] Takahashi, M., Arita, H., Hiraiwa-Hasegawa, M., & Hasegawa, T. (2008). Peahens do not prefer peacocks with more elaborate trains. *Animal Behaviour*, 75(4), 1209-1219. https://doi.org/10.1016/j.anbehav.2007.10.004

[16] Wickramagamage, P. (1998). Large-scale deforestation for plantation agriculture in the hill country of Sri Lanka and its impacts. *Hydrological Processes*, 12(13-14), 2015-2028. https://doi.org/10.1002/(sici)1099-1085(19981030)12:13/14<2015::aid-hyp716>3.0.co;2-3