

Disentangling vertebrate spatiotemporal responses to anthropogenic disturbances: evidence from a protected area in central Myanmar

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SUPPLEMENTARY TABLE 1 List of wildlife species recorded from camera-trap surveys (September 2017–October 2018) in Shwesettaw Wildlife Sanctuary, Myanmar, their IUCN conservation status, IUCN population trend assessment, number of recorded photos, relative abundance index (RAI) and naïve occupancy. LC = Least Concern, EN = Endangered.

| Family Name | Scientific name | Common name | IUCN Conservation Status | IUCN population trend assessment | Number of recorded photos | Relative abundance index (%) | Naïve occupancy |
|-----------------|---------------------------------|-----------------------------|--------------------------|----------------------------------|---------------------------|------------------------------|-----------------|
| Canidae | <i>Canis aureus</i> | Golden jackal | LC | Increasing | 119 | 1.83 | 0.36 |
| Cercopithecidae | <i>Macaca mulatta</i> | Rhesus macaque | LC | Unknown | 171 | 2.62 | 0.28 |
| Cervidae | <i>Muntiacus vaginalis</i> | Northern red muntjac | LC | Decreasing | 2060 | 30.06 | 0.93 |
| Cervidae | <i>Rucervus eldii thamin</i> | Eld's deer | EN | Decreasing | 953 | 13.62 | 0.72 |
| Felidae | <i>Felis chaus</i> | Jungle cat | LC | Decreasing | 8 | 0.12 | 0.11 |
| Felidae | <i>Prionailurus bengalensis</i> | Leopard cat | LC | Stable | 8 | 0.12 | 0.08 |
| Hystricidae | <i>Hystrix brachyura</i> | Malayan porcupine | LC | Decreasing | 10 | 0.15 | 0.06 |
| Leporidae | <i>Lepus peguensis</i> | Burmese hare | LC | Stable | 69 | 1.06 | 0.11 |
| Mustelidae | <i>Martes flavigula</i> | Yellow throated martin | LC | Decreasing | 1 | 0.01 | 0.02 |
| Mustelidae | <i>Melogale personata</i> | Large-toothed ferret badger | LC | Unknown | 5 | 0.08 | 0.06 |
| Phasianidae | <i>Gallus gallus</i> | Red jungle fowl | LC | Decreasing | 101 | 1.55 | 0.32 |

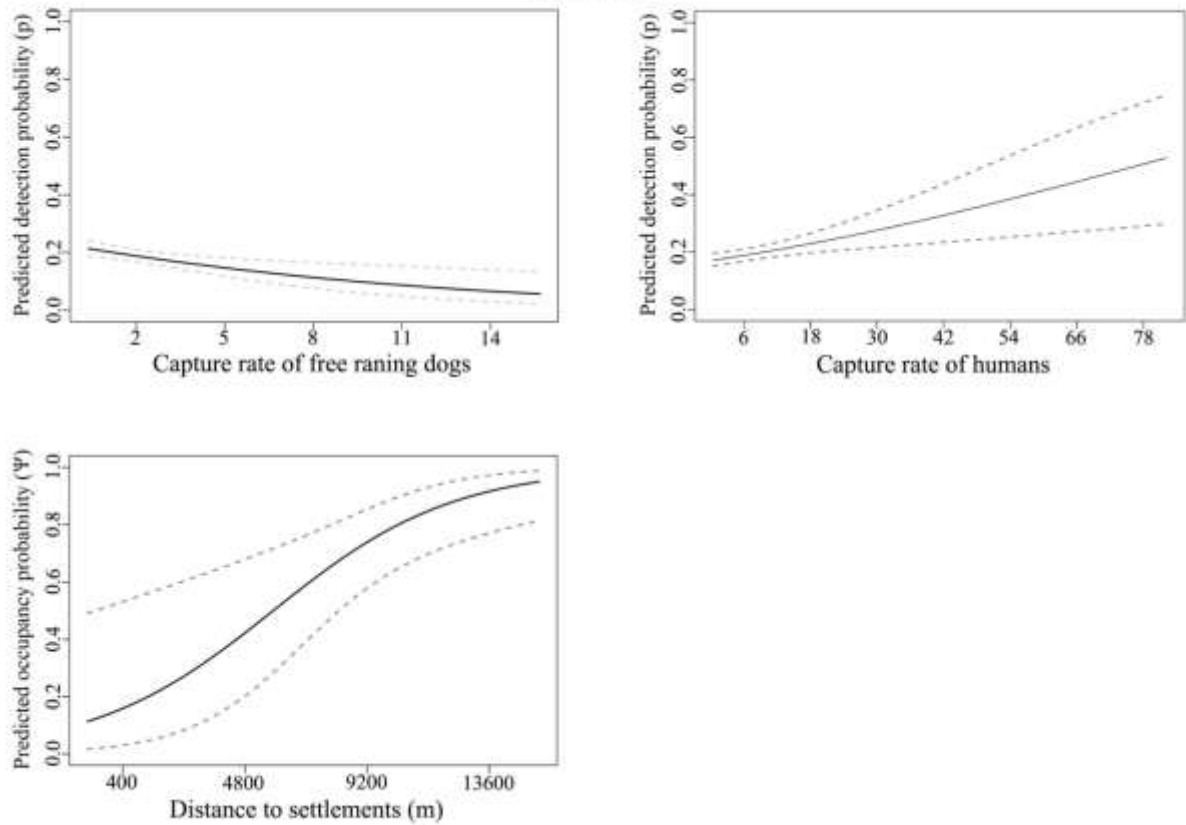
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|-------------|-----------------------------------|--------------------|----|------------|-----|------|------|
| Phasianidae | <i>Pavo muticus</i> | Green peafowl | EN | Decreasing | 3 | 0.05 | 0.06 |
| Sciuridae | <i>Callosciurus pygerythrus</i> | Irrawaddy squirrel | LC | Stable | 43 | 0.66 | 0.09 |
| Suidae | <i>Sus scrofa</i> | Wild boar | LC | Unknown | 421 | 6.46 | 0.79 |
| Viverridae | <i>Paradoxurus hermaphroditus</i> | Common palm civet | LC | Decreasing | 40 | 0.61 | 0.3 |
| Viverridae | <i>Viverricula indica</i> | Small Indian civet | LC | Stable | 33 | 0.51 | 0.25 |

SUPPLEMENTARY TABLE 2 Summary of the model selection outcome for predictions of occupancy (Ψ) and detection (p) probability of each species in Shweseetaw Wildlife Sanctuary of Myanmar. Top-ranked models are shown ($\Delta AIC < 2$) followed by the null model ($\Psi(\cdot)p(\cdot)$). Change in Akaike information criterion (ΔAIC) is the difference in AIC values between each model with the lowest AIC model.

| Species | Model | Number of parameters | AIC | ΔAIC | AIC weight | Cumulative weight |
|----------------------|---|----------------------|----------|--------------|------------|-------------------|
| Northern red muntjac | $\Psi(\sim\text{road}+\text{sett})p(\sim\text{dog}+\text{man}+\text{road}+\text{sett})$ | 8 | 2,250.30 | 0.00 | 0.50 | 0.50 |
| | $\Psi(\cdot)p(\sim\text{dog}+\text{road}+\text{sett})$ | 5 | 2,250.31 | 0.01 | 0.50 | 1.00 |
| Wild boar | $\Psi(\cdot)p(\cdot)$ | 2 | 2,339.87 | 89.57 | 0.00 | 1.00 |
| | $\Psi(\sim\text{road})p(\sim\text{dog}+\text{man}+\text{road}+\text{sett})$ | 7 | 1,114.23 | 0.00 | 0.29 | 0.29 |
| | $\Psi(\sim\text{dog}+\text{road})p(\sim\text{dog}+\text{man}+\text{road}+\text{sett})$ | 8 | 1,114.91 | 0.69 | 0.21 | 0.49 |
| | $\Psi(\sim\text{road})p(\sim\text{man}+\text{road}+\text{sett})$ | 6 | 1,115.17 | 0.94 | 0.18 | 0.67 |
| | $\Psi(\cdot)p(\cdot)$ | 2 | 1,196.37 | 82.14 | 0.00 | 1.00 |
| Rhesus macaque | $\Psi(\sim\text{man}+\text{road}+\text{sett})p(\sim\text{sett})$ | 6 | 334.53 | 0.00 | 0.31 | 0.31 |
| | $\Psi(\sim\text{man}+\text{road})p(\sim\text{sett})$ | 5 | 335.36 | 0.82 | 0.20 | 0.51 |
| | $\Psi(\sim\text{dog}+\text{man}+\text{road}+\text{sett})p(\sim\text{road}+\text{sett})$ | 8 | 335.98 | 1.45 | 0.15 | 0.66 |
| | $\Psi(\cdot)p(\cdot)$ | 2 | 376.79 | 42.26 | 0.00 | 1.00 |
| Eld's deer | $\Psi(\sim\text{road}+\text{sett})p(\sim\text{dog}+\text{man})$ | 6 | 1,376.87 | 0.00 | 0.34 | 0.34 |
| | $\Psi(\sim\text{sett})p(\sim\text{dog}+\text{man})$ | 5 | 1,378.33 | 1.46 | 0.16 | 0.51 |
| | $\Psi(\cdot)p(\cdot)$ | 2 | 1,519.56 | 142.70 | 0.00 | 1.00 |
| Common palm civet | $\Psi(\sim\text{dog}+\text{man}+\text{road}+\text{sett})p(\sim\text{road}+\text{sett})$ | 8 | 298.11 | 0.00 | 0.24 | 0.24 |
| | $\Psi(\sim\text{dog}+\text{man}+\text{road}+\text{sett})p(\sim\text{dog}+\text{road}+\text{sett})$ | 9 | 299.04 | 0.94 | 0.15 | 0.39 |
| | $\Psi(\sim\text{dog}+\text{road}+\text{sett})p(\sim\text{road}+\text{sett})$ | 7 | 299.20 | 1.09 | 0.14 | 0.53 |
| | $\Psi(\cdot)p(\cdot)$ | 2 | 345.26 | 47.15 | 0.00 | 1.00 |
| Small Indian civet | $\Psi(\sim\text{dog}+\text{road})p(\sim\text{sett})$ | 5 | 288.34 | 0.00 | 0.27 | 0.27 |
| | $\Psi(\sim\text{dog}+\text{man}+\text{road})p(\sim\text{sett})$ | 6 | 229.99 | 1.65 | 0.12 | 0.53 |
| | $\Psi(\sim\text{dog}+\text{road})p(\sim\text{man}+\text{sett})$ | 6 | 230.01 | 1.67 | 0.12 | 0.64 |
| | $\Psi(\sim\text{dog}+\text{road}+\text{sett})p(\sim\text{sett})$ | 6 | 230.29 | 1.95 | 0.10 | 0.74 |
| | $\Psi(\cdot)p(\cdot)$ | 2 | 248.09 | 19.75 | 0.00 | 1.00 |
| Golden jackal | $\Psi(\sim\text{dog}+\text{man}+\text{road}+\text{sett})p(\sim\text{dog}+\text{man}+\text{road}+\text{sett})$ | 10 | 450.92 | 0.00 | 0.40 | 0.40 |
| | $\Psi(\sim\text{dog}+\text{road})p(\sim\text{dog}+\text{man}+\text{road}+\text{sett})$ | 8 | 451.06 | 0.15 | 0.38 | 0.78 |
| | $\Psi(\sim\text{dog}+\text{road}+\text{sett})p(\sim\text{dog}+\text{man}+\text{road}+\text{sett})$ | 9 | 452.72 | 1.80 | 0.16 | 0.94 |

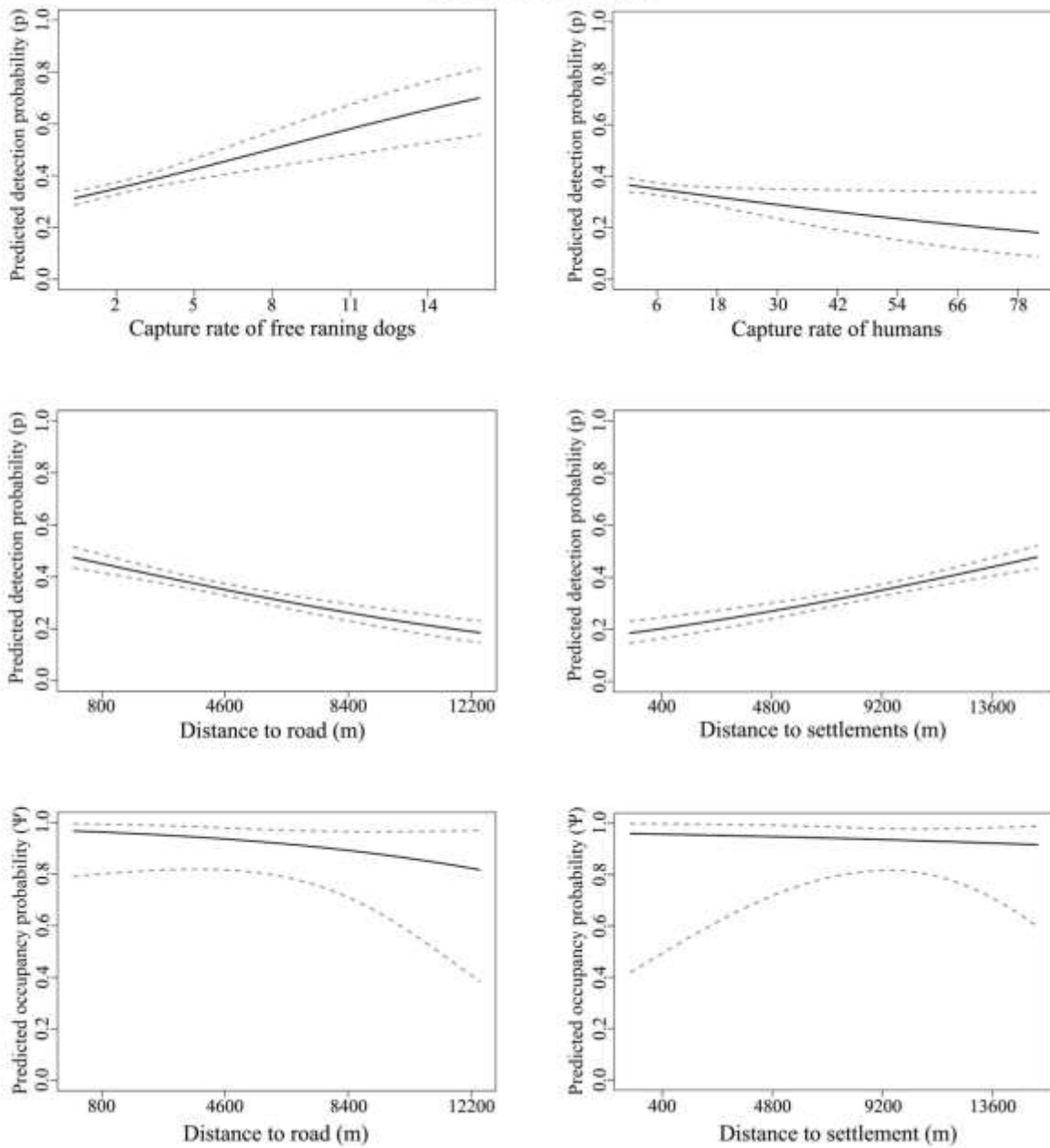
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|--------------------|--|---|--------|-------|------|------|
| | $\Psi(\cdot)p(\cdot)$ | 2 | 495.09 | 44.17 | 0.00 | 1.00 |
| Burmese hare | $\Psi(\sim\text{man})p(\sim\text{man}+\text{sett})$ | 5 | 193.88 | 0.00 | 0.33 | 0.33 |
| | $\Psi(\sim\text{man}+\text{road})p(\sim\text{man}+\text{sett})$ | 6 | 195.63 | 1.75 | 0.14 | 0.47 |
| | $\Psi(\cdot)p(\cdot)$ | 2 | 217.26 | 23.28 | 0.00 | 1.00 |
| Irrawaddy squirrel | $\Psi(\sim\text{road}+\text{sett})p(\sim\text{dog}+\text{man}+\text{road}+\text{sett})$ | 8 | 119.32 | 0.00 | 0.67 | 0.67 |
| | $\Psi(\sim\text{dog}+\text{road}+\text{sett})p(\sim\text{dog}+\text{man}+\text{road}+\text{sett})$ | 9 | 121.29 | 1.96 | 0.25 | 0.92 |
| | $\Psi(\cdot)p(\cdot)$ | 2 | 139.90 | 20.57 | 0.00 | 1.00 |
| Red jungle fowl | $\Psi(\sim\text{man}+\text{road})p(\sim\text{dog}+\text{man}+\text{road}+\text{sett})$ | 8 | 404.48 | 0.00 | 0.47 | 0.47 |
| | $\Psi(\sim\text{dog}+\text{man}+\text{road})p(\sim\text{dog}+\text{man}+\text{road}+\text{sett})$ | 9 | 405.81 | 1.32 | 0.24 | 0.71 |
| | $\Psi(\sim\text{dog}+\text{man}+\text{road})p(\sim\text{man}+\text{road}+\text{sett})$ | 9 | 406.45 | 1.97 | 0.18 | 0.89 |
| | $\Psi(\cdot)p(\cdot)$ | 2 | 439.97 | 35.49 | 0.00 | 1.00 |

Eld's deer



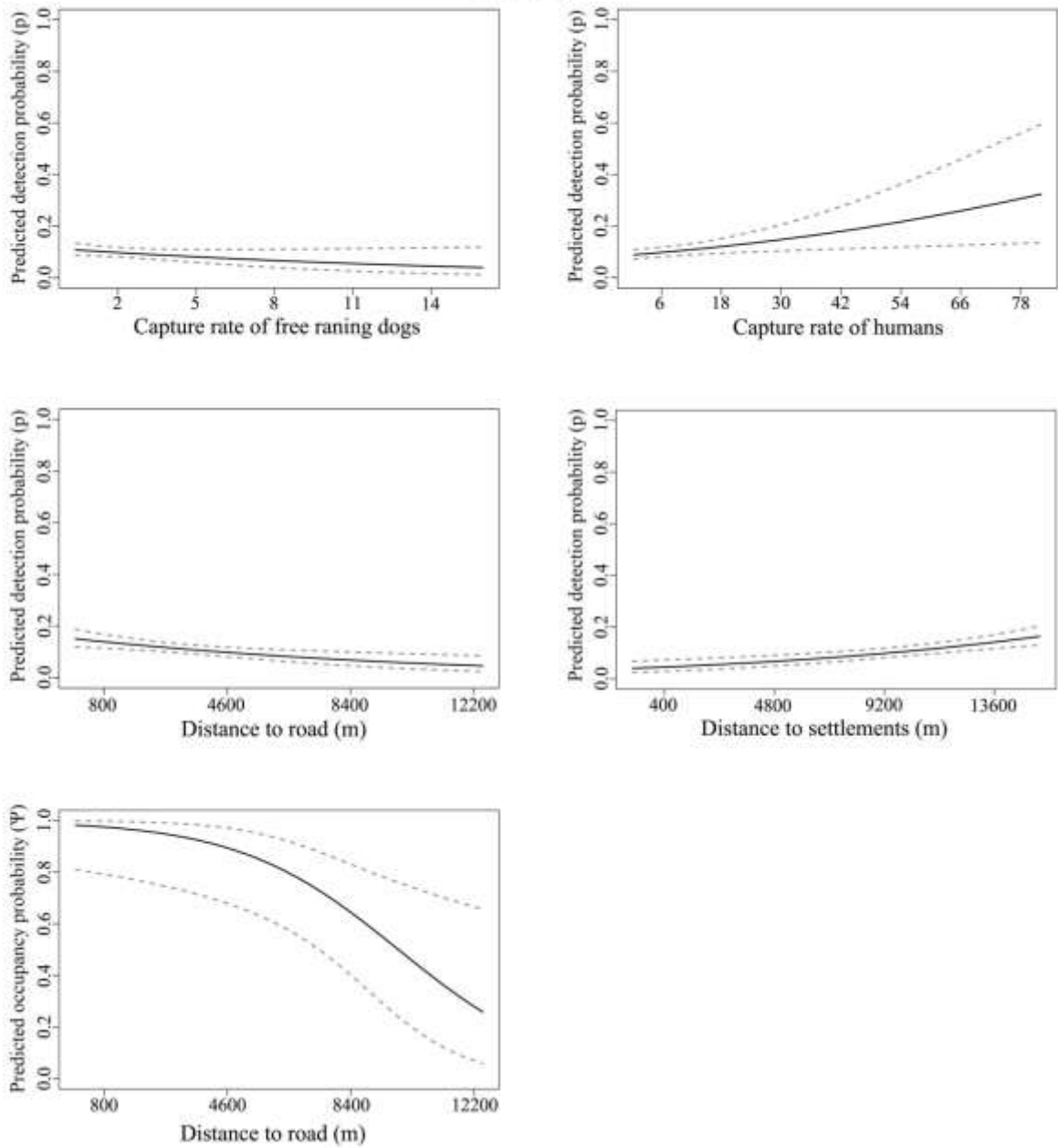
SUPPLEMENTARY FIG. 1 Graphs showing the influence of significant covariates on the occupancy and detection of Eld's deer *Rucervus eldii thamin* in Shwesettaw Wildlife Sanctuary, Myanmar.

Northern red muntjac



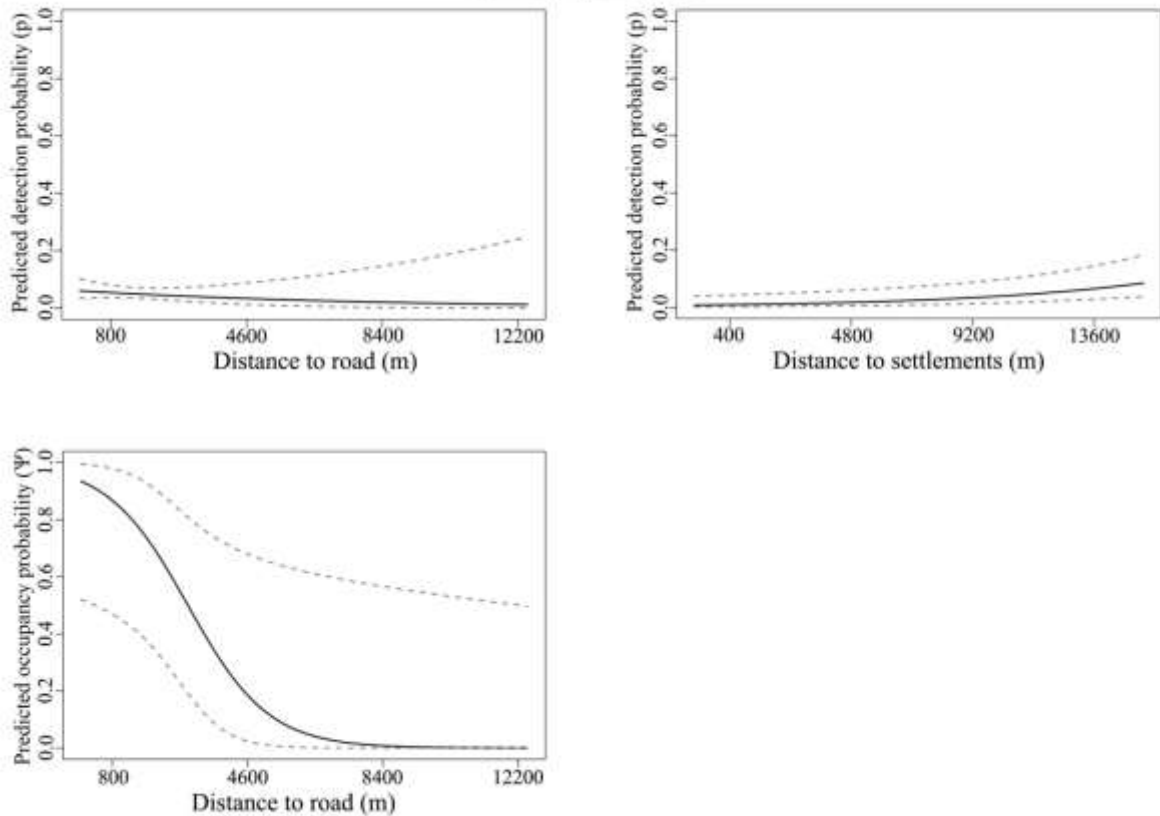
SUPPLEMENTARY FIG. 2 Graphs showing the influence of significant covariates on the occupancy and detection probability of northern red muntjac *Muntiacus vaginalis* in Shwesettaw Wildlife Sanctuary, Myanmar.

Wild boar



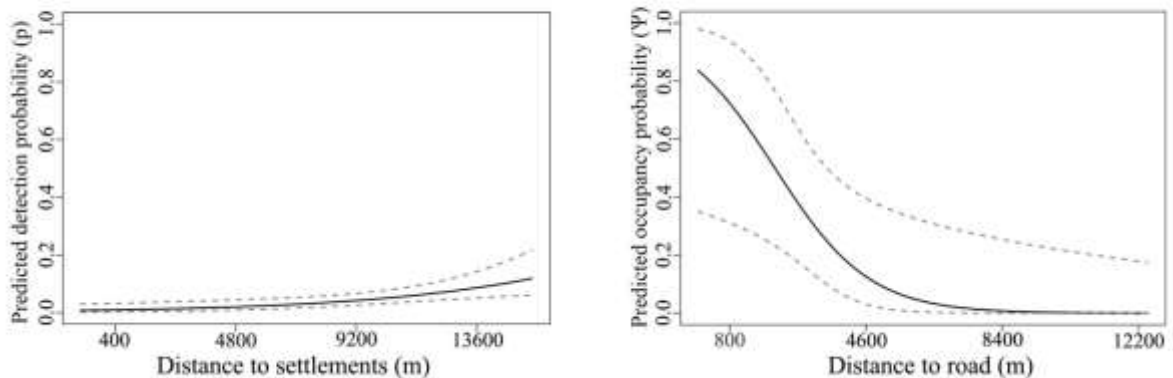
SUPPLEMENTARY FIG. 3 Graphs showing the influence of significant covariates on the occupancy and detection probability of wild boar *Sus scrofa* in Shwesettaw Wildlife Sanctuary, Myanmar.

Common palm civet



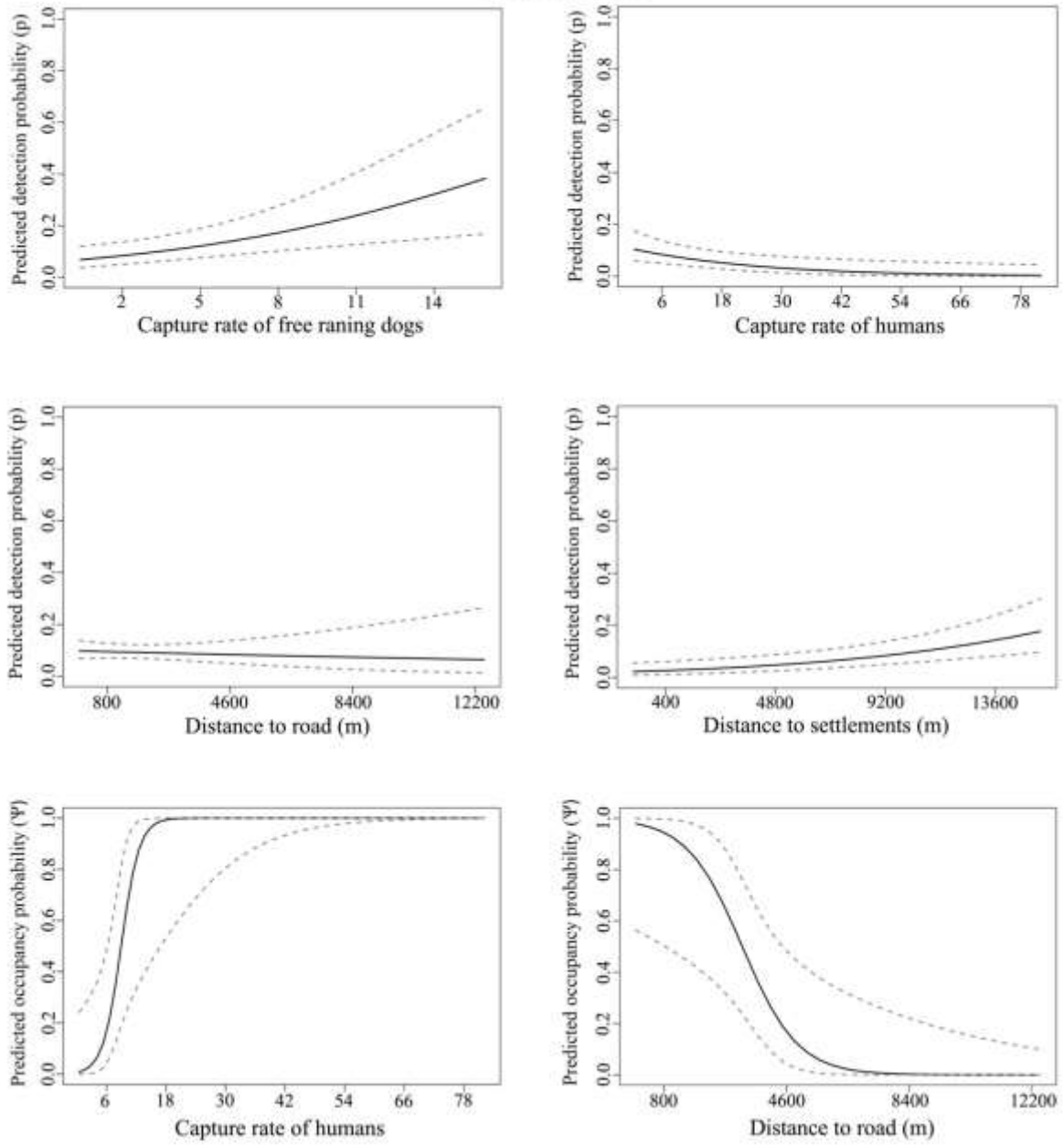
SUPPLEMENTARY FIG. 4 Graphs showing the influence of significant covariates on the occupancy and detection probability of common palm civet *Paradoxurus hermaphroditus* in Shwesettaw Wildlife Sanctuary, Myanmar.

Small Indian civet



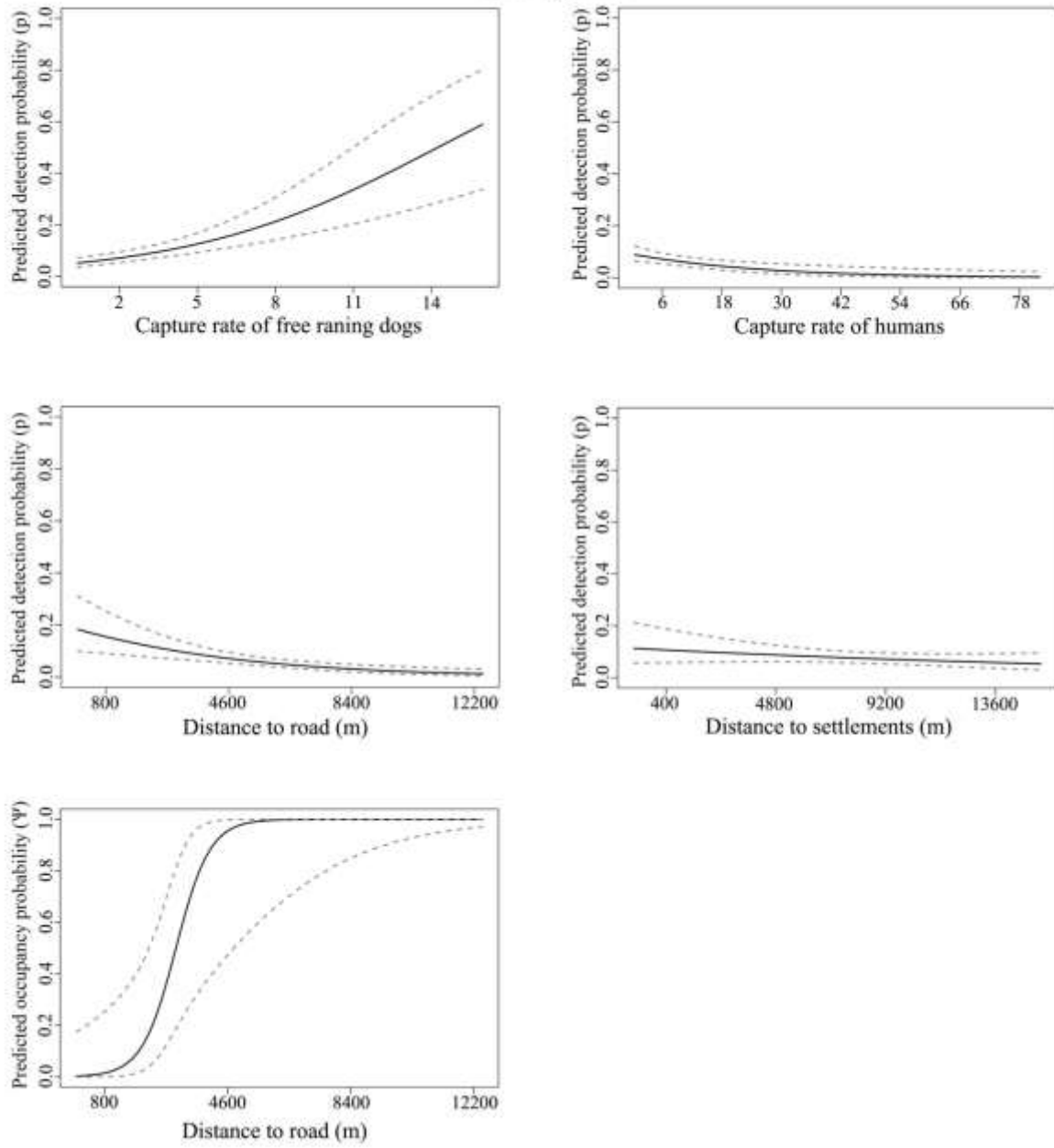
SUPPLEMENTARY FIG. 5 Graphs showing the influence of significant covariates on the occupancy and detection probability of small Indian civet *Viverricula indica* in Shwesettaw Wildlife Sanctuary, Myanmar.

Red jungle fowl



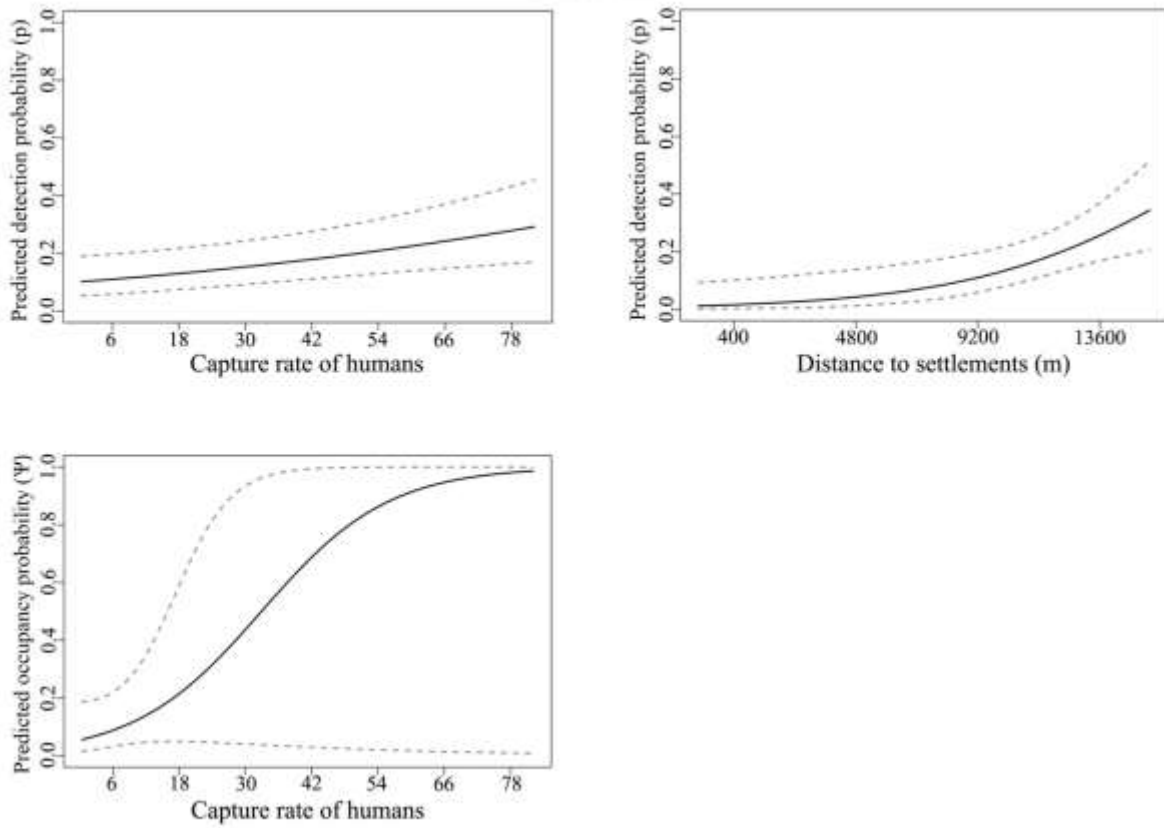
SUPPLEMENTARY FIG. 6 Graphs showing the influence of significant covariates on the occupancy and detection probability of red jungle fowl *Gallus gallus* in Shwesettaw Wildlife Sanctuary, Myanmar.

Golden jackal

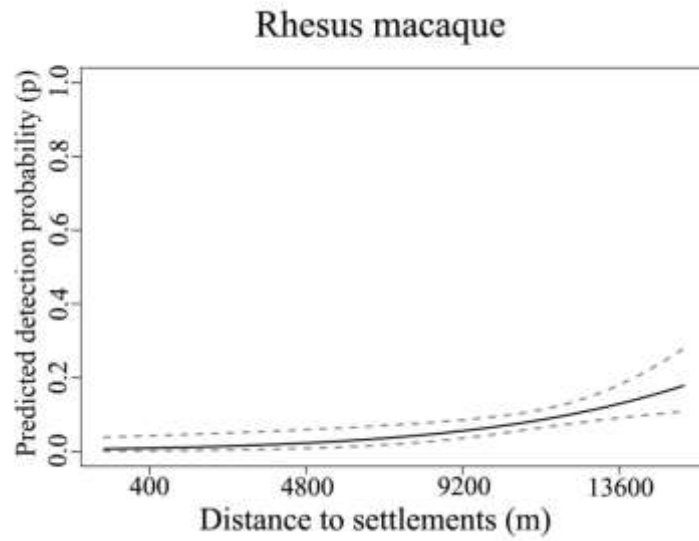


SUPPLEMENTARY FIG. 7 Graphs showing the influence of significant covariates on the occupancy and detection probability of golden jackal *Canis aureus* in Shwesettaw Wildlife Sanctuary, Myanmar.

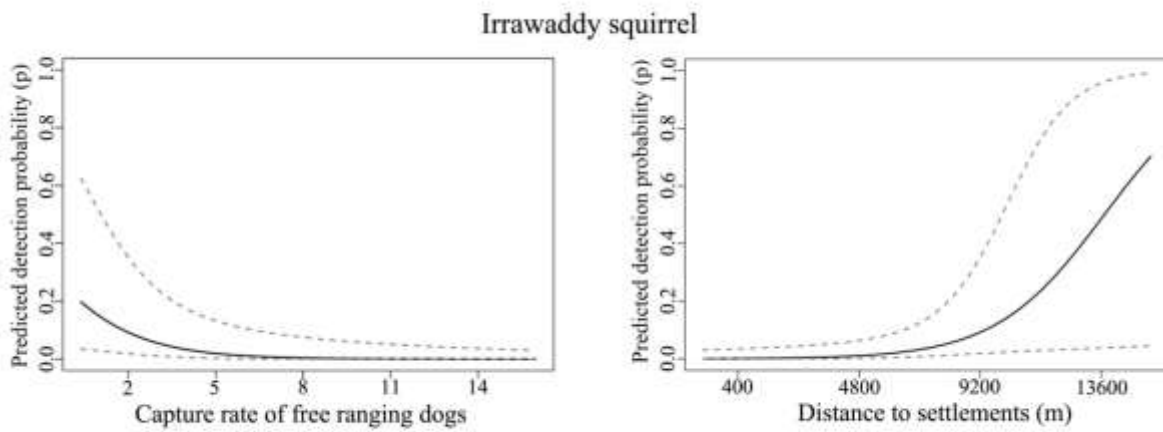
Burmese hare



SUPPLEMENTARY FIG. 8 Graphs showing the influence of significant covariates on the occupancy and detection probability of Burmese hare *Lepus peguensis* in Shwettaw Wildlife Sanctuary, Myanmar.



SUPPLEMENTARY FIG. 9 Graph showing the influence of significant covariate on the detection probability of rhesus macaque *Macaca mulatta* in Shwesettaw Wildlife Sanctuary, Myanmar.



SUPPLEMENTARY FIG. 10 Graphs showing the influence of significant covariates on the detection probability of Irrawaddy squirrel *Callosciurus pygerythrus* in Shwesettaw Wildlife Sanctuary, Myanmar.