**Supplementary Material**

Priority areas for vulture conservation in the Horn of Africa largely fall outside the protected area network

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Table S1.Niche overlap values as measured by Hellinger’s *I* statistic of the top species distribution models by data type. Hellinger’s *I* value’s range from 0 (no overlap) to 1 (complete overlap). There were no models based on satellite telemetry for bearded or Ruppell’s vultures and only one informative model for white-backed vultures, thus precluding niche comparison for this species.



Table S2.Summary of the core distributions (top 30% of predicted distribution) of each species, with the number (*n*), area (in km2), and percentage coverage by protected areas (PAs) and Important Bird and Biodiversity Areas (IBAs).



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Figure S1. Overview of sampling extent from three sources: a) GPS-telemetry, b) expert road-count surveys, c) eBird citizen science records, overlaid on an elevation map of Ethiopia. For the telemetry plot, colors indicate species (green = Egyptian vulture, pink = hooded vulture, orange = white-backed vulture, blue = Ruppell’s vulture, and yellow = lappet-faced vulture) and black dots indicate tagging locations.

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Figure S2.Summary ofthe timing of GPS locations after censoring the data to one point per individual per day. The algorithm selected for the first point per day, such that most locations occurred during the early morning hours, and thus selected for presumed roosting locations.



Figure S3. Environmental covariates used in Maxent species distribution models.



Figure S4.Maps of model prediction uncertainty. Prediction uncertainty was calculated as the standard deviation of the predictions made from 10 models fitted to bootstrap samples of the training datasets. Separate predictions were made for each species and data type combination. To obtain an overall map of prediction uncertainty for each species, we calculated the average of the standard deviation values.



Figure S5.Vulture conservation priority areas using three different computations accounting for uncertainty in the model predictions using no uncertainty discounting (SD = 0), uncertainty discounting of 0.5 standard deviations (SD = 0.5), and uncertainty discounting of 1 standard deviation (SD = 1). All three conservation solutions show similar results, with the core priority areas largely unchanged. We used the 0.5 standard deviation output to compute the final vulture conservation priority area statistics, as presented in Fig. 1 of the main text.