

## Multi-Scale Modeling of Foraging Habitat Suitability for Egyptian Vulture in Arasbaran Protected Area, Iran

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### Abstract

The study aim was to predict foraging habitat suitability for Egyptian vulture as an endangered species in Arasbaran protected area. We studied the effects of 12 environmental covariates measured at seven spatial extents (0.5 -15 km) and two non-scalar environmental variables on foraging habitat of Egyptian vulture. A univariate model was applied to discern at which scale the variables show their best performance. Multi-scale model, combining variables measured at their best performing spatial scales, was used to predict feeding habitat suitability. The modeling was performed using 25 feeding sites compiled through 2001 to 2015 based on ensemble forecasting approach. The result indicated that distance to settlements and the proportion of mosaic cropland /natural vegetation at the 8-km radii buffer extent were the most important feeding habitat components. The probability of foraging areas increased in the vicinity of settlements where contain low cover of mosaic cropland /natural vegetation within 8-km radii extent. The preference of Egyptian vulture to selecting the feeding sites in areas in equivalent size of the species home range, which includes mosaics of natural vegetation and agriculture, indicates the importance of juxtaposition of different natural and human habitats in this range to enhance foraging habitat suitability.

**Keywords:** Ensemble model, Extent, *Neophron percnopterus*, SAHM-VisTrails.

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