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with often imprecise locality data has rarely been tested. We evaluated MaxEnt's performance in predicting the potential distribution of 40 randomly selected resident bird species in Bolivia ( $73.2 \pm 63.9$  locality records per species, range 9-297) using standard procedures. Environmental data included WorldClim climatic layers, NASA's 90x90 m digital elevation model and an ecological systems atlas of Bolivia. Each species' inductively modeled distribution was subjected to conservative expert review and deductive adjustments based on known elevational limits and habitat requirements; known and expected distribution by ecoregion and vegetation series; known distribution in neighboring countries; reliable absence data. For 30 species (75%) inductively modeled distributions were 4.5-732.1% larger than deductively modeled distributions (mean  $\pm$  SD:  $70.4 \pm 132.6\%$ ). For 10 species (25%) inductively modeled distributions were 2.1-33.9% smaller than deductively modeled distributions ( $17.5 \pm 12.0\%$ ). Percent over/underestimation by the inductive model was not related to the number of records per species ( $r=-0.20$ ) or deductive distribution area ( $r=-0.22$ ). We consider the overall performance of MaxEnt poor and discuss sources of error. Evaluation of modeled distributions by local experts with considerable knowledge about the study species and region is crucial for obtaining reliable results.

#### **POPULATION VIABILITY ANALYSIS OF LEAR'S MACAW *Anodorhynchus leari***

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Lear's Macaw, *Anodorhynchus leari*, is an endangered species endemic of the Brazilian 'Caatinga' biome and has a restricted range at 'Raso da Catarina', Bahia State. Its population is around 1,100 individuals in nature. In this study, we used population viability analysis (PVA) to investigate the effects of deterministic forces and stochastic events on the dynamics and the extinction risk for Lear's Macaw. We used biological and ecological parameters discussed in a workshop in October 2010. All the simulations were performed with Vortex (version 9.99b). Baseline scenario was constructed with data obtained by long-term monitoring studies in the field and in captivity or inferred from closely related species. The simulations considered 100 years and 1000 iterations. We tested many input values to evaluate their consequences on the simulated populations, and compared these results with those from the baseline. The simulated population presented a strong growth tendency ( $r$  stochastic=0.067 -SD 0.034- and  $r$  deterministic = 0.072), achieved the mean of 3,600 individuals before 20 years and stabilized. This is the estimated maximum number of individuals that the current environment can hold (carrying capacity) and there was zero probability of extinction (PE) in 100 years. Only the simulated scenario of 100 individuals removed per year showed an extinction probability of 5% in 100 years (PE=0.05). The most sensitive parameters were: annual removal, mortality (from age 0 to 1 year old), and reproductive female rate. It is important to estimate these parameters

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more precisely. This data suggest that carrying capacity is possibly the major limiting factor for the survival of the Lear's Macaw population. Thus, it is important to conserve the natural habitat of this species, specially, its main food item, 'licuri' palm (*Syagrus coronata*). More accurate biological and ecological data are still needed to allow us to model future scenarios more precisely.

## **PÁRAMOS Y BOSQUES NUBLADOS DE PIURA: UN CORREDOR PARA LA CONSERVACIÓN DE AVIFAUNA EN LOS ANDES DEL NORTE PERUANO.**

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La zona ubicada sobre la cordillera andina entre el extremo sur de Ecuador y el Santuario Nacional Tabaconas Namballe (Cajamarca) es parte de un corredor biológico que abarca las ecoregiones de páramo, bosques montanos occidentales de los Andes del Norte y bosques montanos de la Cordillera Real Oriental. Esta zona alberga sitios ornitológicamente históricos e importantes, como el Cerro Chinguela, Cruz Blanca, Huamba y El Toldo; y otros recientemente visitados, como Alto Samaniego, Lagunas de Chames, Chin-Chin, Ramos y Yanta. En el área se han reportado alrededor de 305 especies de aves, incluyendo especies amenazadas según la legislación peruana como *Penelope barbata* (EN), *Vultur gryphus* (EN); *Hapalopsittaca pyrrhops* (VU) y *Buthraupis wetmorei* (VU). Asimismo, en el área están registradas 3 especies endémicas para Perú (*Zimmerius viridiflavus*, *Scytalopus unicolor*, y *Scytalopus femoralis*); 5 especies endémicas de los Andes Centrales del Sur (*Penelope barbata*, *Hapalopsittaca pyrrhops*, *Coeligena iris*, *Heliangelus viola*, y *Nephelomyias lintoni*); 4 de los Páramos de los Andes Centrales (*Anas andium*, *Metallura odomae*, *Schizoeaca griseomurina*, y *Buthraupis wetmorei*) 3 de los Andes Orientales de Ecuador y Perú (*Xenerpestes singularis*, *Grallaricula peruviana* y *Pipreola lubomirskii*) y 3 endémicas tumbesinas (*Turdus reevei*, *Saltator nigriceps* y *Basileuterus trifasciatus*). La presencia de avifauna de interés global y nacional para la conservación sobre un área donde confluyen regiones biogeográficas de endemismo, así como la conectividad y amenazas crecientes sobre el hábitat, establece una prioridad y urgencia para desarrollar acciones de conservación en el extremo norte de los andes de Perú.

## **RAPID SPECIES ABUNDANCE MONITORING AND SPECIES RICHNESS ESTIMATION FOR AVIAN BIODIVERSITY CONSERVATION**

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Effective conservation requires information on spatial and temporal variation in species richness and species abundance. As resources are limited monitoring methods are required that enable rapid and cost effective data collection. Traditional avian sampling techniques, such as territory mapping and distance sampling, can yield this information.