

Subtle evidence of the climatic effects and strong sexual selection in the Painted Stork (*Mycteria leucocephala*) population; confirms Machine Learning

Mylswamy Mahendiran¹ and Parthiban Mylswamy²

¹Salim Ali Center for Ornithology and Natural History

²Affiliation not available

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Abstract

Research communities show interest in in-situ measurements using digital photography. We measured the body parts of Painted Storks, through a non-invasive method, with their digital images taken under field conditions at two different biogeographic regions of India to test the Ecogeographic rules and sexual dimorphism. Our results show a significant difference in the morphological measurements between the sexes. The Nested ANOVA of the principal component scores indicated an apparent sexual dimorphism with a substantial variation in the leg morphology of the Painted Storks. Further, we have classified and predicted the Painted Storks' sexes and the region from the independent morphological variables through Machine Learning algorithms. Without the non-invasive method, it would be almost impossible to collect morphological measurements at a large scale from live Painted Storks under field conditions. Besides, the non-invasive sex identification of birds under field conditions assumes importance from animal welfare and conservation perspective.

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MS Painted Stork Final.doc available at <https://authorea.com/users/300177/articles/710162-subtle-evidence-of-the-climatic-effects-and-strong-sexual-selection-in-the-painted-stork-mycteria-leucocephala-population-confirms-machine-learning>