

## THE USE OF LARKS *ALUADIDAE* AS A BIO-INDICATOR OF HABITAT QUALITY IN KUWAIT

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### ABSTRACT

Protected areas are generally designed with the aim of providing improved habitat for species that live and breed in them. The aim of this study was to examine the extent to which habitat protection is influencing the Kuwait avifauna, and to assess the conservation benefits. Using the lark species as a measurable indicator of habitat quality, we compared species richness and density between protected and non-protected areas. We found significant differences between lark density and species richness in protected, non-protected and arable lands. Density of larks was very low in non-protected areas, being about one individual km<sup>-2</sup>. Skylark density in protected areas was up to 200 times that in the comparable adjacent non-protected areas where lands are used for camping, grazing and hunting. In the semi protected arable area, the Pivot farm, crested lark density was 80 individuals km<sup>-2</sup>, which is 3 times their density in fully protected areas. Arable lands can form important alternative habitats for breeding larks, especially in more arid years.

The results showed a remarkable impact of human activities on non-protected areas. A national action plan is highly recommended to preserve natural habitats and rehabilitate ecosystems by reviewing and controlling hunting, grazing, camping, and land use. Greater hoopoe larks and bar-tailed larks are becoming threatened species in Kuwait and the previous categorization as 'low concern species' according to IUCN is now not compatible with their current scarcity. The decline in lark numbers indicates the requirement for an action plan to safeguard and secure their natural habitats.

**KEYWORDS:** Lark Species, Distribution, Habitat, Abundance, Density, Protected Area