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BIRD ON A WIRE **LUDWIG'S BUSTARD**

More bustard species occur in Africa than anywhere else in the world: southern Africa alone is home to 11 of the word's 25 bustard species. Alarmingly, six of these 11 species are listed in the international Red Data Book.

Ludwig's Bustard *Neotis ludwigii* is confined to the semi-desert and desert regions of South Africa and Namibia, where it is nomadic, possibly following rain events. It is the largest endemic bustard of the region and, once airborne, is not very manoeuvrable. Recent studies have found that large numbers of Ludwig's Bustards are killed after they collide with overhead power lines. In one area, collisions kill on average two birds per kilometre of power cables per year, and Ludwig's Bustards make up 10% of all the birds killed in collisions with power lines in the arid areas of South Africa. There are already 8 000 km of medium- and high-voltage power lines in the arid Karoo and, as South Africa continues to develop, the size of this power grid will only increase.

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In the late 1980s the population of Ludwig's Bustards was estimated to be around 80 000 birds but there is no recent estimate to assess population trends. In the absence of powerlines, Ludwig's Bustards are long-lived and reproduce slowly, so scientists and conservationists are very concerned that the mortality caused by power lines is unsustainable. To assess the seriousness of the situation and investigate possible means of reducing mortality rates, scientists at the Percy FitzPatrick Institute are planning to answer the following questions:

- **What is the current world population and distribution of Ludwig's Bustard, and how does this compare with the population surveyed by the FitzPatrick Institute 20 years ago?** This will require extensive aerial and road-based surveys.

- **What are the real collision rates across the Karoo?** This will require repeated surveys of selected sections of power lines, amounting to hundreds of kilometres of line surveys.

- **What mitigation measures are possible and how effective and affordable are they?** Fitting conspicuous objects to power lines to reduce bird deaths is not a new idea, but have not been thorougly tested for their

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Power-line collisions by Ludwig's Bustards are frequent and deemed a real threat to the species' survival.

success. We will first measure the visual abilities of Ludwig's Bustards to assess how best to make lines more visible. Then we shall experiment in areas where we already have information about collision rates to assess the effectiveness of different designs.

- **How do Ludwig's Bustards move across the landscape?** We don't have a good understanding of how or why bustards move within their range. This information is crucial to understand the nature of the risk posed by power lines and to identify 'hotspots' of activity and movement which will be the priority sites for applying mitigation measures. Because the species' range covers some 400 000 km2, we will need to track birds using satellite transmitters.

A student has already been trained in the techniques needed to undertake this study, but the costs of the study will be high. Manpower costs are estimated at $20 000 p.a., survey and travel costs at $40 000 p.a., and satellite tracking (10 birds) at $50 000 p.a. This brings the total cost of the study to $330 000 over three years. We hope that multiple sponsors will be attracted to support this important and urgent project. As a direct spin-off from the project, we will also assess the impacts of power lines on other bird species, such as the smaller bustards, Blue Cranes Anthropoides paradiseus (South Africa's national bird) and White Storks Ciconia ciconia. We shall also assess the extent to which mitigation measures put in place for Ludwig's Bustards benefit these other species.

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