

A Survey of Avifauna at Wildcliff Nature Reserve

Research Proposal

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Introduction

Wildcliff Nature Reserve is located in the Langeberg Mountain range of South Africa's Western Cape Province. Afromontane forest and fynbos are the dominant vegetation types. One of Wildcliff's main goals is to "improve understanding of the region's flora and fauna" (www.wildcliff.org). To achieve this goal it is imperative to document the abundance, distribution and ecology of the plants and animals that inhabit Wildcliff. Having catalogued the wildlife present on the Reserve, effective and informed decisions can then be made to attain another goal of Wildcliff, which is to "contribute to the preservation and restoration of an important part of the Cape Floral Kingdom" (www.wildcliff.org).

I propose to conduct variable-radius avian point-counts throughout the Reserve. Point-count monitoring is a common way to monitor bird populations. It is characterized by tallying all birds observed at a fixed location during specific, repeated observation periods. It provides the relative abundance of all bird species and, over time, can detect trends in the abundance with a relatively small amount of work compared to other methods.

The point-counts will be stratified by habitat type and will include riparian areas. The primary goal of this survey is to provide a base-line inventory of the birds found at Wildcliff and to help refine knowledge of the flora/fauna relationships on the Reserve and of the Cape Floral Kingdom as a whole. If desired, data gathered during the surveys can be analyzed *post hoc* so comparisons can be made to more common abundance indices such as unlimited- and fixed-radius scenarios (e.g., Hutto et al. 1986).

Methods

Surveys will generally follow the approach of variable-radius point-count methodology as outlined in Ralph et al. (1995). Points will be randomly selected from potential locations and stratified to ensure even sampling between habitats.

Point-count surveys shall be conducted between sunrise and four hours after sunrise. Surveys will cease, however, if the temperature rises above 35°C, if wind speed is greater than 4 on the Beaufort Scale (or 29 km/hr) or if precipitation becomes heavier than a light drizzle. Surveys will be 10 minutes in length and a minimum of five counts will be attempted each day.

As a survey point is approached all relevant data should be recorded on the datasheet for birds that flush upon approach ("UA"). For birds flushed before the commencement of the survey, "UA" will be recorded in the "Time Encountered" column on the datasheet. If these birds are re-observed during the survey, they should be re-recorded and the original "UA" observation should be crossed out.

At the first observation of a bird, following commencement of a point-count, the species, age, sex, cues, time and distance from observer should be recorded in corresponding columns on the datasheet. Only the first observation for each species shall be recorded, with the exception of: Victorin's Warbler (*Bradypterus victorini*), Forest Canary (*Serinus scotops*), Cape Rock-

jumper (*Chaetops frenatus*), Orange-breasted Sunbird (*Anthobaphes violacea*), Cape Sugarbird (*Promerops cafer*) and Cape Siskin (*Psuedochloroptila totta*), of which every individual shall be recorded. Every survey should be exactly 10:00 minutes. Any individual observed at 10:01 and after should be recorded as “in transit.”

Any in transit birds should be recorded at the bottom of the datasheet in the space for notes. These birds are considered new species that are observed while moving between point-count stations. Species recorded as “in transit” should not be used in any analyses but should appear on overall species lists for the Wildcliff Nature Preserve.

One survey round (=all points) will be completed within a 3-4 week period. Subsequent survey periods, with replicate surveys, should follow. Two to three more survey rounds, minimum, are recommended. Whenever possible, during replicate surveys, different observers should be used at each point-count to reduce any effects due to observer bias (Ralph et al. 1995). Repeat visits should also be conducted at different times of the day to minimize any temporal biases that are associated with variations in bird behavior (e.g., singing rate of males [=detection probability] declines from early morning to late morning

Summary

How a bird community is composed in a landscape is reflective of a combination of many co-occurring ecosystem conditions. Landbirds are a suitable “survey group”, or bioindicators, because they are in general highly visible and many species can be surveyed for simultaneously. When the ecosystem conditions are altered, the accumulated effects of such change is often mirrored in how the bird community changes spatially and temporally. Thus, the monitoring of birds, within a specific area and over time, can illustrate changes on a landscape level and indicate the general health of the ecosystems which they inhabit. Not only are birds good indicator species, but the inexpensive nature of many bird surveys (e.g. point counts) make such surveys a rather cost-effective monitoring tool for terrestrial landscapes.

From the data gathered during the point-counts other project designs can be created that add to or complement the baseline data, for example, directing nest searching efforts. Original data can also be analyzed *post hoc* to compare to other, more traditional, abundance indices (e.g., Hutto et al. 1986).

Equipment

GPS handheld	Flagging
Thermometer	Datasheets
Binoculars	Camera
Rangefinder	Maps (Topo and aerial, if possible)
Digital timer	

References

Giddy, I. Wildcliff Nature Reserve. [Online] Available <http://www.wildcliff.org/>, 2008.

Hutto, R. L., S. M. Pletschet, and P. Hendricks. 1986. A fixed-radius point count method for nonbreeding and breeding season use. *The Auk*. 130:593-602.

Ralph, C. J., S. Droege, and J. R. Sauer. 1995. *Managing and Monitoring Birds using Point Counts: Standards and applications*. USDA Forest Service General Technical Report PSW-GTR-149.