

Recommended Survey Guidelines for the Nightingale Reed-Warbler

Introduction:

The following guidelines are suggested for surveying the federally endangered nightingale reed-warbler (*Acrocephalus luscini*). The purpose of these surveys is to estimate the density of birds that may be impacted by the proposed project.

Appropriate survey methodology is dependent on several factors, including the number of individuals likely present in the area to be surveyed, the ecology of the species, and the size of the area to be surveyed. For this project, surveys should be conducted following the territory or spot mapping method (Bibby *et al.* 2000, USGS 2007). The objective of this methodology is to estimate population densities for species present in a surveyed plot of land. The locations of observed individuals are mapped in the field on replicas of the study plot during a series of visits and then transcribed separately for each species to identify territory boundaries (USGS 2007). These surveys should be conducted by a biologist that can identify nightingale reed-warbler by sight and vocalizations, has knowledge of suitable habitat and habitat use and experience implementing this survey methodology.

The study area should be divided into a series of marked transects spaced 100 m apart to assist with mapping efforts. If transects must be cut through forest, a biologist familiar with nesting nightingale reed-warbler must cut the transects to ensure that nests are not disturbed. Station markers should be placed along each transect (at 50-m intervals) to facilitate identifying position along the transect. Each transect will be walked at a slow, uniform pace. Each bird observed (seen or heard) during each survey needs to be mapped as accurately as possible on paper replicas of the study area, using the marked stations, as well as prominent landmarks, and GPS to identify the position of a bird.

A minimum of ten complete surveys should be conducted in appropriate survey conditions from sunrise to around 1000 hours and during the last 2 hours before sunset. If territories are not distinguishable after ten surveys, additional surveys will be necessary (You may provide your territory maps to our office after six surveys to determine if additional surveys are needed). Starting and ending location should be randomized across the total number of surveys to reduce bias that may occur from visiting transects and birds at the same time during each survey. Surveys should be spread out fairly uniformly, (Bibby *et al.* (2000) suggest these occur at about weekly intervals) during the peak breeding season(s) for the nightingale reed-warbler. The peak breeding seasons of the NIRW occur between January through March and July through September (Mosher and Fancy 2002).

Bibby *et al.* (2000, chapter 3) includes figures and advice on mapping and recording data to estimate bird density using this methodology (a copy is available on request). It is important that the study plot is adequately mapped and that the bird locations are mapped accurately. Start and end times should be recorded (Bibby *et al.* 2000). In addition, data sheets should include space for recording basic information such as weather conditions,

date, name of observer, etc. The vegetation cover (*e.g.*, native, tangantangan, secondary forest, etc.) in the area should be mapped as well. If time is available, birds can also be captured and individually marked to increase the accuracy of the mapping effort, if the project biologist holds the appropriate permits for work with endangered species in the CNMI.

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References

- Bibby, C.J., N.D. Burgess, D.A. Hill, and S.H. Mustoe. 2000. Bird census techniques, second edition. London: Academic Press, Inc.
- Mosher, S.M. and S.G. Fancy. 2002. Description of nests, eggs, and nestlings of the endangered nightingale reed-warbler on Saipan, Micronesia. *Wilson Bulletin* 144:1-10.
- U.S. Geological Survey (USGS). 2007. Managers' monitoring manual. www.pwrc.usgs.gov/monmanual/techniques/territorymapping.htm.