Methods for Bird Point Counts from Downtown Minneapolis, 2016 Breeding Season

Study area

Minneapolis, Minnesota is a mid-continental North American city with a temperate climate and over 400,000 human residents (U.S. Census 2010). This study focused on a small geographic area (12.57 ha, **Figure 1**) where land-use is categorized as business district (*sensu* Blair 2001). The site is intensely built-up: vegetation is restricted to ~5% of land area and remaining areas are impervious surfaces and built structures (Anderson & McLachlan 2018).

Ethics statement

No birds were knowingly harmed or disturbed during this study. Detailed field methods were reviewed and approved by the University of Minnesota's Institutional Care and Use Committee (IACUC) (**Protocol Number 1610-34217A**). All encounters between field personnel (AA) and birds were passive observations from distances ≥5 meters.

Point count protocol

I used point counts with a 50-meter fixed radius (Bibby et al. 2000) to collect species richness and abundance data on the local breeding bird community. I sampled the study area using 16 locations (**Figure 1**) sited at street intersections in order to minimize visual obstruction and acoustic masking. I randomly selected these 16 points from 22 available intersections along a pre-determined route. Additionally, I randomly selected one cardinal direction per point to fix a corner on which I stood during observation periods. I used ArcMap 10.4 (ESRI, Redlands, California, USA) to check that all points were >100 m apart.

Point count observation periods were 6 minutes in duration. I was the sole data collector (AA) and collected all data between 1 June and 5 July 2016. To facilitate statistical approaches such as those in Farnsworth et al. (2005), I recorded time of detection (0:00 to 5:59) and distance (using 5-meter bins) for all birds. However, distances were not recorded for flyover detections. I completed 160 observation periods, 10 per location. I conducted observations between sunrise and 220 minutes after sunrise and I varied visit sequence so that observations were not biased by consistently visiting some points earlier or later than others (Ralph et al. 1995). Furthermore, I did not conduct point counts during adverse conditions such as rain, excessive traffic noise or foot traffic. I recorded observation conditions using an ordinal categories for cloud cover (0, 25%, 50%, 75%, or 100%) and wind conditions (none, slight, moderate, or strong).

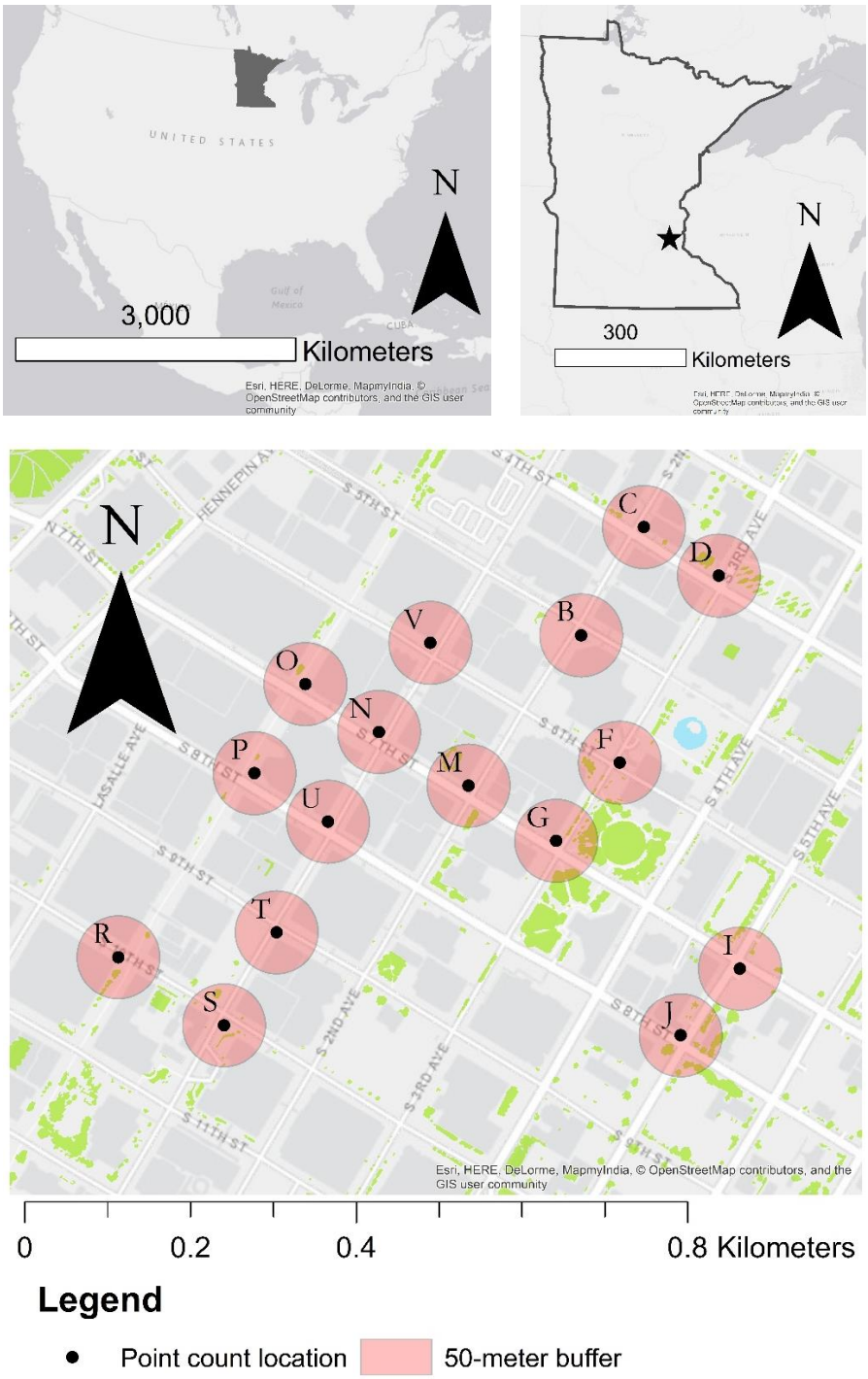

Figure 1

Geographic context for data collection. Basemap by OpenStreetMap (OpenStreetMap contributors 2015) with vegetation as a thematic layer.

Bibliography

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