

## **Recommendations for the Rockwood CBC**

CBCs were not conceived in 1900 with statistical analyses of population trends in mind. Yet the value of this dataset, which in 2005 included over 2,000 count circles with over 50,000 participants tallying nearly 70 million birds (LeBaron 2005), has long been considered a gold mine, if only there were a practical and accurate way to mine it. Recognizing the need to maximize the value of the existing data set, rather than trying to modify the CBC methodology (thereby risking a decrease in participation and essentially creating an entirely new survey), several authors have made recommendations for improving the scientific value of CBC data. The recommendations to improve the Rockwood CBC that follow are based on these works (Arbib 1981, Francis et al. 2004, Dunn 2005).

### **ADHERE TO THE BOUNDARIES OF THE COUNT CIRCLE**

In order for analyses of count data to be meaningful and accurate, especially when comparing different count circles, it is essential that each count unit is the same size and mutually exclusive (Drennan 1981). Birds must be counted only within the 15-mile-diameter circle. This rule is emphasized in the official CBC compiler's manual (NAS 2004a) and in the guidelines for selection of new circles (NAS 2004b).

Traditionally, all of Grosse Ile is counted in the Rockwood CBC, but only about half of the island is actually within the circle (Figure 1). Since over 30 years of data include the entire island, it is probably prudent to continue counting the entire island in order to not destroy the link between past and current data (Francis et al. 2004). However, data from outside the official count circle – including measures of effort – should be recorded separately so that future analyses that depend on uniform unit sizes can exclude data representing areas counted outside the boundary.

Similarly, there is a rule that **count circles should not overlap nor abut each other** (NAS 2004a,b). This was not an issue until winter 2005-2006, when a new count circle was initiated in Ontario, centered in Amherstburg, that substantially overlaps both the Rockwood CBC and the Cedar Creek, Ontario circles, and touches the Detroit River CBC circle (Figure 11); it includes all of Grosse Ile. Currently, National Audubon Society is working to resolve this issue (G. LeBaron, pers. comm.).

### **ACCURATE REPORTING OF EFFORT**

CBC data are often analyzed with standardization to some measure of effort, because there is agreement that there is some association between effort and counts (Sauer and Link 2002). It has been determined that there are species-specific relationships of the number of birds counted and different measures of effort (Sauer and Link 2002, Sauer et al. 2004). Effort metrics that are required for each count include number of parties, number of observers, number of party-hours, party miles (on foot, by car, and by other means of transportation), hours and distance for nocturnal birding (“owling”), and hours spent at feeders by feeder watchers (NAS 2004a).

There is ample room for error in these calculations. Participants need to keep accurate records of their efforts. Estimating distance on foot, in particular, is prone to error, but the recent availability of portable GPS units makes keeping track of time and distance both easy and accurate. Participants should be encouraged to utilize these devices on the count.

It is difficult to gauge how accurate measures of effort have been historically on the Rockwood CBC. Peterson (1995) pointed out a sometimes-detectable error in reporting party-hours, where the number of party-hours exceeds the number of parties times the length of day. For instance, on the 2002 Rockwood CBC, the recorded number parties was 11, with 123.25 party-hours, or 11.2 party-hours per party. This exceeds the day length of 9 hours 5 minutes, and even the hours of visible light, 10 hours 9 minutes, for that date. This type of error might occur due to clerical error, the compiler or participants calculating observer hours rather than party-hours, adding nocturnal birding hours to total hours, or just an overestimation of time spent in the field. It emphasizes the need to inform participants of the importance of keeping accurate records of actual measures of effort.

#### **SEPARATE RECORDING OF DIFFERENT TYPES OF EFFORT**

It has been recommended that data from various specialized counts (owling, roost counts, and feeder counts) be recorded separately (Arbib 1981, Francis et al. 2004, Dunn et al. 2005). This is especially important for totals from home-based “feeder watchers.” Dunn (1995) found that high levels of feeder-watching effort could introduce a bias in results for some species, and that large changes in feeder-watching effort over time could produce spurious trends in population indices. While the average number of feeder watchers on the Rockwood CBC is not high, the index of feeder-watching effort (party-hours/feeder-hours) is on the high side (mean 0.20) and exceeds 0.25 in twelve of the 30 years. This is the level at which 17% of species totals were inflated by >10% in Dunn’s (1995) study.

The index of feeder-watching effort may not be accurate for the Rockwood CBC, as currently the compiler records feeder effort as number of feeder watchers times two, rather than requiring feeder watchers to accurately record their time. In order to eliminate bias for some species due to high levels of feeder-watching effort and to improve the quality of data that can be used to detect population trends for common feeder birds, **feeder-watching effort should be accurately recorded**, and the birds recorded by feeder watchers should also be recorded separately.

Because the Rockwood CBC includes a portion of the lower Detroit River, designated an Important Bird Area (IBA) by BirdLife International’s Canadian partners in part for its globally significant concentrations of wintering waterfowl (IBAC 2004), waterfowl counts are especially important. **Effort and counts of waterfowl should be recorded separately.** Further, to avoid double-counting due to waterfowl movements, it is recommended that the leaders of each sector that includes water coordinate the time and location of waterfowl counting, making an attempt to simultaneously count waterfowl from different, non-overlapping areas. Doing this count first thing in the morning, before birds disperse, would be preferable. This would also help improve counts of gulls, which roost in the vicinity of the river before moving inland early in morning to feeding areas.

Roost counts are another type of count that has been recommended for segregation (Francis et al. 2004, Dunn et al. 2005). It is recommended that a **special effort be made to locate roosts** of species such as crows and blackbirds, and that they be counted by observers experienced in estimating large numbers of birds and skilled in identifying blackbirds. One species that has been sporadically detected on the Rockwood CBC is the Rusty Blackbird, a boreal-nesting species that has undergone a steep and precipitous decline based on continentwide CBC data for 1965-2002 (Niven et al. 2004). Due to the remoteness of Rusty Blackbird nesting areas, the CBC is one of

the only ways to monitor population trends for this species. Areas within the Rockwood CBC circle, such as Pointe Mouillee SGA, provide good habitat for winter blackbird roosts, and targeted roost counts, along with separate data collection, should be encouraged.

#### **MORE COMPLETE HABITAT ANALYSIS.**

When a CBC circle is established, the compiler is requested to provide the percentages of habitat types in the circle, with an indication of the vegetation in each habitat (NAS 2004b). With the introduction of mapping tools such as Virtual Earth or Google Earth, assessing habitat percentages is much easier than it has been in the past. This information, if updated on a regular basis, could be very useful in tracking habitat changes in a circle over time. Further, if participants noted the habitats actually covered annually, there is the potential for analyses of correlations between habitat changes and bird counts (Arbib 1981). A more complete accounting of habitat types for the Rockwood CBC is recommended,

#### **THOROUGH REPORTING OF WEATHER AND CLIMATIC VARIABLES.**

Compilers are required to record various weather and climatic variables on count day: temperature, wind direction and velocity, cloud cover and precipitations (AM and PM), snow depth, and ice coverage of both still and moving water (NAS 2004a). Some of these conditions have strong influences on bird presence and detectability and observer effort (Arbib 1981). In addition to keeping careful track of these variables, it would also be helpful to record weather averages for the week and month preceding count day, factors which would especially impact waterfowl counts.

#### **GENERAL RECOMMENDATIONS**

– The amount of time spent on the Rockwood CBC is rather evenly divided between time in a car and time on foot. With so many large areas of habitat, including the three Metroparks, the Humbug Marsh Unit of the Detroit River International Wildlife Refuge, and Pointe Mouillee SGA, it would be of great benefit to have participants **spend more time on foot**. For adequate coverage, this would likely entail **recruiting more participants**.

– Grosse Ile is often covered by a group consisting of members of the public led on a bird walk by a member of the Detroit Audubon Society. This is an excellent means of outreach and should continue, but it is not an efficient way to conduct a thorough count. **Grosse Ile should be covered by a dedicated team**, including a person experienced in counting waterfowl.

– Feeder watchers can make a worthwhile contribution to CBCs, especially for monitoring species that frequent feeders, such as American Tree Sparrows. It would be worthwhile to **recruit more feeder watchers** for the Rockwood CBC.

– In keeping with the recommendation for segregation of special counts, **field parties and feeder watchers should be provided with data sheets** that include clear instructions and prompt accurate and complete reporting of effort and special counts. Currently, field party leaders are not provided with instructions and are given only a basic compilation sheet after the count.

– **Feeder watchers should be given supplementary materials** that would aid in identification of easily confused species.

– Finally, it is recommended **that this report be posted** on the web sites of the Detroit River International Wildlife Refuge and Rouge River Bird Observatory to help promote education and outreach. Further, it is recommended that the Rockwood CBC **trends be updated every five years** in order to promote timely and accurate bird data for comprehensive management.