



Bundled for warmth, these wintertime birders scout for some rare avian finds. Scenes like this are common during annual Christmas Bird Counts. Photo by Annalee Fjellberg.

vey must recognize bird calls and nesting behavior as well as distinguish breeders from transients. But because the BBS is usually done in June, it often misses birds including raptors, coastal, and wetlands species which breed before the BBS is done¹ (Butcher 1990). Thus, the CBC is useful for the mere fact that it covers a different time period than the BBS.

Trends in population changes can be compared using the two surveys. The BBS is generally regarded as the sounder of the two surveys from a methodological perspective, but in a study done comparing population changes of seven species, six of the seven showed the same pattern in both of the surveys (Butcher and Fuller 1986). Both sources, for example, confirm the decline of Black Ducks in eastern United States for the past 30 years (Butcher 1994). Thus, notwithstanding alleged defects of the CBC as a measure of population dynamics, the CBC and the BBS tend to support each other.

CBC data has been depended upon in several critical ways. For example, CBCs have been extremely useful in longitudinal studies of population shifts; the inexorable westward move-

ment of the House Finch was identified from CBC data (Budlinger 1986). Moreover, the large-scale nature of the CBC, with its thousands of volunteer investigators, is frankly the only way we can get a sense of the patterns of movements and numbers of species and the impact of a variable such as weather (Root 1988). The availability of such long-term and large-scale data allowed Terry Root to go well beyond anecdotal speculations about changes

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in winter bird populations and compile an impressive picture of the distribution of wintering birds in North America (Root 1988). No investigator

could possibly have had the research funds to assemble the data that are available at (virtually) zero cost. Collecting these data is justified if only because it permits those who make environmental policy to know where birds are concentrated and where they exist in small numbers.

The most serious charge against the CBC is that it lacks the standardization associated with "good science." In particular, routes covered and the intensity of effort to count birds vary annually for the same location and between locations for the same year. Birders may, for example, cover the same area differently depending on the weather. Climatic conditions also affect the number of birds present in any given area. The evidence is that for a number of species there is an inverse relationship between the number of birds counted and wind speed, while there is no correlation between temperature and bird totals. The data are not normalized to take account of this (Raynor 1975).

Lack of standardization exists regarding the competence of both the counters and the equipment they use. Participants are not screened; they do not have to pass a test demonstrating