The State of Canada's Secretive Marsh Birds

BIRD STUDIES
ÉTUDES D'OISEAUX CANADA

by Dr. Doug Tozer

I n 2012, the North American Bird Conservation Initiative (NABCI), under the leadership of a number of partners including Bird Studies Canada, released the *State of Canada's Birds* report. This impressive synthesis brought together huge volumes of data to illustrate bird population trends since 1970, and provided an overview of threats and solutions relevant to declining species. The report was a broad-scale, long-term overview, so population trends were illustrated for selected groups of species, based largely on long-term results from the North American Breeding Bird Survey.

Secretive marsh birds, such as bitterns, grebes, and rails, were not one of the groups highlighted in the *State of Canada's Birds* report. Instead, the population information for these species was lumped with other water-associated birds like loons and gulls. Because so many of those species are experiencing population increases, the typically negative population trends for secretive marsh birds are not noticeable within that grouping. Furthermore, the Breeding Bird Survey, a one-time roadside count made each summer, does not reliably track population trends of secretive marsh-dependent species.

In collaboration with Environment Canada and other partners, Bird Studies Canada's Marsh Monitoring Program (MMP) has surveyed marsh birds and frogs across the Great Lakes Basin since 1995, and birds more recently in the southern Prairies (since 2008), southern Québec (since 2004), and the Atlantic Provinces (piloted in 2012). To date, nearly 2000 participants have conducted tens

of thousands of surveys in thousands of wetlands. This coordinated and growing effort is well on its way to supplying reliable long-term population data for marsh bird species across all of Canada. This article provides an overview of the MMP, and a first look at what the program tells us about the state of Canada's secretive marsh birds.

Although each region's MMP has its own program direction, they all monitor birds with the following goals: assessing population status and change at various scales; investigating habitat associations; contributing to conservation management and planning; and increasing public awareness of the importance of wetlands.

Marshes are chosen by volunteers or randomly selected. Surveys are conducted within circular or semi-circular 100 m-radius stations. Each station is visited two to three times during the breeding season each year. Surveys are

Pied-billed Grebe/Grèbe à bec bigarré Photo: Nick Saunders

timed to maximize the chances of detecting as many species as possible, and include gathering information for calculating detection probabilities (important for adjusting differences in trend estimates due to highly variable conditions across the large study area).

Call broadcasts are played to entice secretive species to reveal their presence by vocally challenging the supposed 'intruder'/ surveyor in their breeding territory. Habitat information is collected annually at each station. Most stations are located on shore and are placed to avoid double-counting individuals between stations.

Multiple visits are especially important for tracking populations of secretive marsh birds. Our experience in Ontario suggests that two or three visits spread over the course of the breeding season detect two to three more marsh bird species per station than a single visit. Multiple visits also

raise the likelihood of detecting particular secretive marsh species – from about 60% to roughly 85%. All and all, good value added for the effort.

Call broadcasts are also very important. When an individual of a secretive marsh bird species is present and detectable at a survey station (i.e., the bird can be seen or heard), there is, depending on the species, a 5-15% chance of detecting it during any one-minute interval with passive surveys. The chances increase dramatically to 40-60% when call broadcasts are used. Increased and more consistent detection results in more accurate and precise estimates of numbers of birds across stations and regions, which makes population trend estimates more reliable.

Some secretive species, however, do not respond particularly well to broadcasts of their calls – especially Least Bitterns and Yellow Rails. For these species, we are testing the utility of automated recording devices, which can be left in the field and programmed to record at various times of day for an entire season. Once retrieved, the high-quality recordings can be interpreted later – as if the surveyor was actually at the station! Preliminary results from the Prairies suggest that for some species, detection by recorders is just as good as or better than detections by humans. Do not be alarmed if you are an MMP volunteer, though; you are not about to be replaced by these units. The recorders do not work as well for species that are mostly detected visually. Still, automated recorders do appear to be especially useful for surveying remote areas where there are no available volunteers, and may be quite useful for filling in gaps in coverage.

So what does this well-designed, but evolving, program tell us about the state of Canada's secretive marsh birds? Partly due to large annual fluctuations in numbers, useful population trends of marsh birds need to be based on several years of monitoring. Thus, for this article, we focused on data obtained since 1995 from Ontario and since 2004 from Québec. We found that numbers of secretive marsh birds – American Bittern, Least Bittern, American Coot, Common Gallinule, Pied-billed Grebe, Sora, and Virginia Rail combined – have collectively decreased by about 40% since the MMP began monitoring in those regions (Fig. 1). This finding is quite different from the increasing trend reported in the *State of Canada's Birds 2012* for "other water
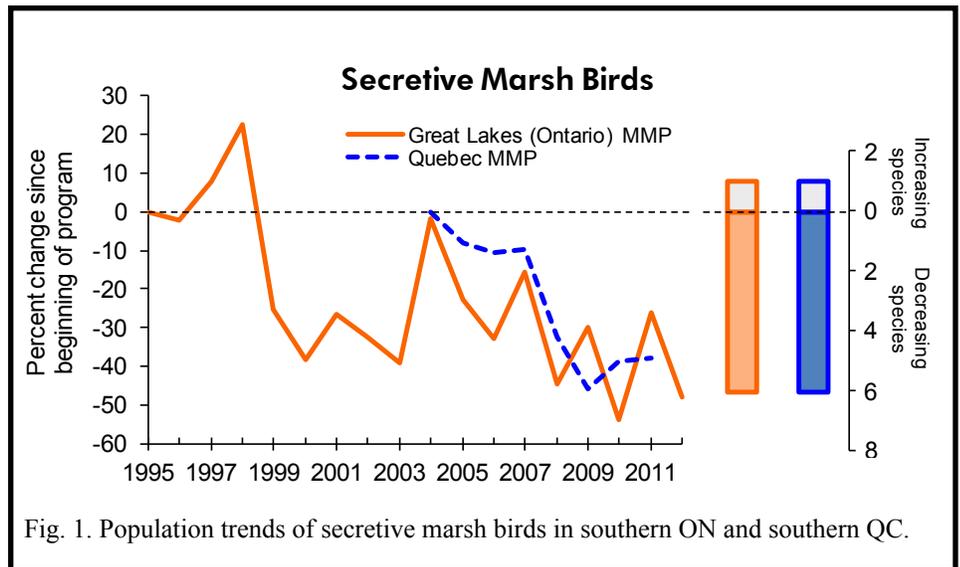

Secretive Marsh Birds

Fig. 1. Population trends of secretive marsh birds in southern ON and southern QC.

American Coot/Foulque d'Amérique Photo: May Haga

birds" in the largely overlapping lower Great Lakes-St. Lawrence region. As we mentioned above, the inclusion of various species with increasing population trends in the "other water birds" group appears to have masked the declining trends of secretive marsh birds.

This example shows that the MMP produces useful and reliable information on marsh bird populations, but who uses it? In the Great Lakes, for example, the data are used to write chapters on bird and frog indicators in the *State of the Great Lakes Ecosystem* report, a requirement every three years under the Canada-U.S. Water Quality Agreement. Data are also used to assess the health of Great Lakes Areas of Concern – geographic areas where restoration and remediation are being used to improve especially degraded environmental conditions.

On the Prairies, data are fed into a decision support system, which allows the effects of various stressors on wetlands to be determined with greater certainty,

ultimately leading to better conservation. Equally important contributions are in store as the program develops in the Atlantic Provinces. There are also scores of requests each year for data from various regions by research scientists and environmental consultants.

So as you can see, Bird Studies Canada's Marsh Monitoring Program has had a grand beginning, with many important accomplishments. As the program continues to grow and evolve, we suspect there will be even bigger and better things to come. Our data suggest that populations of secretive marsh birds are declining in southern Ontario and Québec, and may also be declining in other regions.

Information on this specialized group of birds is vital for effective wetland conservation. Stay tuned, and follow our progress. And if you have the opportunity in your region, volunteer your time to collect valuable data for what is now one of Canada's biggest and most important bird monitoring programs.