

Seasonal movements of Matuku in the Hawkes Bay

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Behaviours and home range sizes of the Nationally critical Matuku, or Australasian bittern, are still not well understood. For the past three years, Birds NZ Research funds have been used to help collect locational data to show the seasonal movements of ten male bitterns in the Hawkes Bay region. All ten bitterns were captured on one lake (Lake Whatumā), located near Waipukurau, during two breeding seasons (September to November, 2014 and 2015). Results so far, have shown that male bitterns utilise a complex network of wetlands, mostly within a 15-km radius of their breeding site. These data are still being collected and analysed. However, key observations and findings can be summarised as follows:

A total of > 754 locational points of 10 bitterns have been collected as part of the whole research project. Number of fixes-per-bird varies based on how long birds survived, duration of transmitter batteries and how easy the bird was to re-find once it went missing. Currently fixes-per-bird averages > 74.6 points per bird.

Results to date show that:

- **Bitterns have high site fidelity and predictable movement patterns.** So far, individual marked birds have consistently return to the same sites to breed and feed seasonally.
- **Territory size differs seasonally.** During the breeding season, average territory sizes on Lake Whatumā were 12.46 ha, inside which males concentrate their booming within a 0.84 ha area. However, as soon as breeding is over, male bitterns leave the lake to roam across other wetlands in central Hawkes Bay.
- **Survival of adult male bitterns is high.** Four of the ten bitterns followed to date have survived beyond the battery-life of the transmitters they carry. Two bitterns have died: one from starvation, and the other from causes currently being investigated. Another bird recently went missing during the duck hunting season. The remaining three bitterns are still alive and being followed.
- **Bittern movements are driven by limited and variable resources.** Variability in bittern movements

suggest home range size and the timing of movements may be resource related. In particular, water-level changes appear to dictate when bitterns arrive/leave Lake Whatuma and the onset/completion of breeding.

Overall, this study has been able to push the boundaries of what is currently known about bitterns in the Hawkes Bay, as well as nationally. BNZRF have contributed substantially by supplementing the fuel costs of local BirdsNZ members (and some non-members who were interested in joining), providing an opportunity for members to actively participate in this research. Results have so far enabled us to identify additional areas of suitable habitat and sites that are of key importance for bitterns within the Hawkes Bay region. Perhaps more significantly though, these results have changed our approach of the management of bittern populations. Movements from this study suggest wetlands should be managed for bitterns on a catchment level, rather than by concentrating on single sites. Also, pockets of habitat, such as spring-fed creeks, small raupō-fringed ponds and areas of rank grass along farmland/creek edges, may appear small but are still valuable for bitterns (and therefore worthy of protection). These sites become particularly important if bitterns don't have many wetlands nearby that they can visit should resources at their main site change.