

# The effect of burning abandoned reclaimed land in early spring on the distribution of an endangered grassland bird species – the Japanese Marsh Warbler

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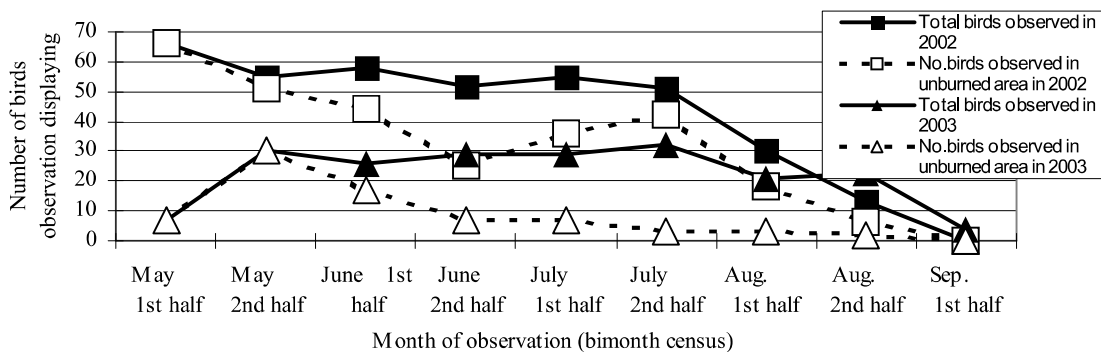
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**Introduction** The Japanese Red Data Book of Birds lists the Japanese Marsh Warbler (*Locustella pryeri pryeri*) as an endangered species. It feeds and breeds in-reed dominated (*Phragmites australis* (Cav.) Trin.ex.Steud.) grassland in N Japan. Expanses of reclaimed land (Hotokenuma) are its largest breeding grounds. Each April, fire management is used to rid the area of the dead reed material amassed from the previous year. Circa 1 month after burning, the species returns to the area to inhabit and breed in the unburned areas. Fire use to manage grasslands is an important tool for the conservation and management of bird habitat (Pon *et al.*, 2003, Kirkpatrick *et al.*, 2002). We investigated the size and distribution of the unburned areas and the monthly changes in the number of the courtship displays observed in breeding season. This study aimed to draft recommendations for use to conserve the microhabitat of this species from the results.

**Materials and methods** The site was 24ha of the densest area of the species in Hotokenuma. We divided the site into 4 x 6ha sites and the size and distribution of the burned and unburned area were recorded immediately after the fire in 2002 and 2003, respectively. The locations of courtship displays in the Japanese Marsh Warbler were documented every 2 weeks over a 20-week period from early May to early September in 2002 and 2003.

**Results** The unburned areas in early April were 2.98±1.86ha in 2002 and 0.74±0.37ha in 2003, respectively. The number of individual courtship displays by Japanese Marsh Warblers in the 24ha from June to July was 54.2±2.8 in 2002 and 29.2±2.2 in 2003, respectively. The number of birds began to decrease in August and the warblers had disappeared by September. Upon arrival at Hotokenuma, the birds congregated in the burned area for a few days. However, they moved toward the remaining mature stands of common reed. Correlation between the area of unburned reeds and the number of birds in June in 2002 and 2003 was significant ( $p < 0.05$ ).

**Conclusion** Japanese Marsh Warbler displays were seen in the areas of common reed that remained unburned in the early breeding season. They then moved to the burned areas where regrowth of vegetation had begun. The size of the unburned area in early spring affected the number of the birds at the site. Considerable care is needed when undertaking controlled burns because these activities impact markedly on bird numbers and breeding activities at a site. This in turn has important implications for bird conservation.



**Figure 1** Number of birds observed displaying in burned and remained areas

## References

- Pons P., B. Lambert, E. Rigolot & R. Prodon (2003). The effects of grassland management using fire on habitat occupancy and conservation of birds in a mosaic landscape. *Biodiversity and Conservation*, 12(9), 1843-1860.
- Kirkpatrick C., S. DeStefano, R. W. Mannan & J. Lloyd (2002). Trends in abundance of grassland birds following a spring prescribed burn in southern Arizona. *Southwestern Naturalist*, 47(2), 282-292.