

Observations from a long term White Wagtail *Motacilla alba alba* roost in Valletta, Malta.

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Abstract

Data is presented on a long-term roost site used by wintering White Wagtails *Motacilla alba alba* in Valletta, Malta. Historical data shows that this site has been in regular usage since at least 1967 and is the main roost site for this species in Malta. For this reason the site is designated as a national Important Bird Area. The maximum count for this roost was made in 2009 of 7,761 individuals. Since 2001 when standardised counts began, on average $5,007 \pm 626$ individuals have been recorded annually using the roost. Birds predominantly come into the roosting area in a fifteen minute period between five minutes before sunset and ten minutes after sunset, with an average of 73.4% of birds coming in to roost during this time period alone. The majority of birds come from a west, south-west and southerly direction, suggesting that key feeding areas lie in this direction. Significantly fewer birds came from the south-east and easterly direction. A consideration of ring recovery data showed that birds wintering in Malta come from at least five countries; Czech Republic, Hungary, Poland, Denmark and Sweden. Despite the importance of the Valletta roost site for this species, in May 2010 the roost site was severely pruned by the Environment Landscape Consortium (ELC) and the canopy of the trees almost completely removed. This action will almost certainly have a serious detrimental effect on White Wagtails attempting to roost in the area in the winter of 2010 and beyond.

Introduction

The White Wagtail *Motacilla alba alba* is a common autumn migrant and winter visitor to Malta, arriving in late September and departing in April with most birds being present from October to February (Sultana & Gauci 1982). During the day the species is found in singles and small groups in a wide range of habitats, from urban areas to agricultural land. However, at night birds aggregate into communal roosts, of which the Valletta roost is known to be the main roost site for all wintering White Wagtails in Malta. Communal roosting behaviour is found in many bird species and is thought to have developed to reduce thermoregulation costs, reduce the risk of predation, or increase foraging efficiency among roost members (Ydenberg & Prins 1984), although the true function of roosts is still open to debate (Richner & Hebb 1996, Beauchamp 1999). Large roosts of *Motacilla alba* are commonly recorded in winter in Europe (eg. Broom *et al.* 1976, Davies 1976, Fleming 1981).

This paper considers the main roost site for this species in Malta, which is located in several large *Ficus* trees in the Great Siege Square in Valletta, Malta's capital city. Records of this roost date back at least as far as 1967 (Gauci & Sultana 1971). A secondary roost site has developed in recent years adjacent to these trees along the side of St John's Co-cathedral. Due to the large number of White Wagtails using the site, and its importance to this species on a national level, the site is designated as a national Important Bird Area (Borg & Sultana 2004).

Methods

Counts for the White Wagtail roost have been undertaken as far back as December 1973, although data collection has been intermittent. Since 2001 however the White Wagtail roost in the Great Siege Square has been monitored on a near-annual basis by BirdLife Malta using a standardised five-minute count methodology. In total, nine roost counts have been undertaken since 2001. Counts are always held between the 12th and 23rd of January to ensure that the counts cover the same general time period.

Observers are placed in one of up to 19 different point count sites. These sites are arrayed on the bastions around Valletta and are positioned so that they cover all possible entry routes into the core of the city. All observers are in position at count sites by 16:25 and counts continue until 17:35. The number of birds passing over the count site is recorded during every five-minute interval. To prevent double counting of birds each count site has pre-defined boundaries. Birds passing outside these boundaries, and thus in a different section, are ignored by the observer. Data is recorded onto standard data sheets.

To assess the origin of White Wagtails in Malta, ring recovery data was also considered from the ringing database of the Valletta Ringing Scheme, run by BirdLife Malta as the Maltese EURING representative. Scientific bird ringing studies have been carried out in Malta since 1965.

Results

Ring recovery data : There are nine international White Wagtail ring recoveries in the BirdLife Malta database (Table 1). Of these, two were ringed in Malta and recovered overseas (one from the Czech Republic and one from Denmark) and the rest ringed overseas and recovered in Malta. White Wagtails from five countries have been recorded in Malta, with birds from the Czech Republic being the most frequent recovery.

Country of origin	No. of recoveries	% of total recoveries
Czech Republic	3	33.3
Hungary	2	22.2
Poland	2	22.2
Denmark	1	11.1
Sweden	1	11.1

Table 1. Ring recoveries of White Wagtails either ringed in Malta and recovered overseas, or ringed overseas and recovered in Malta.

Roost counts : Roost count data exists from 1973 to 2010, although data collected prior to 2001 was carried out in a sporadic fashion. The roost site was counted in 16 years during this period (Figure 1).

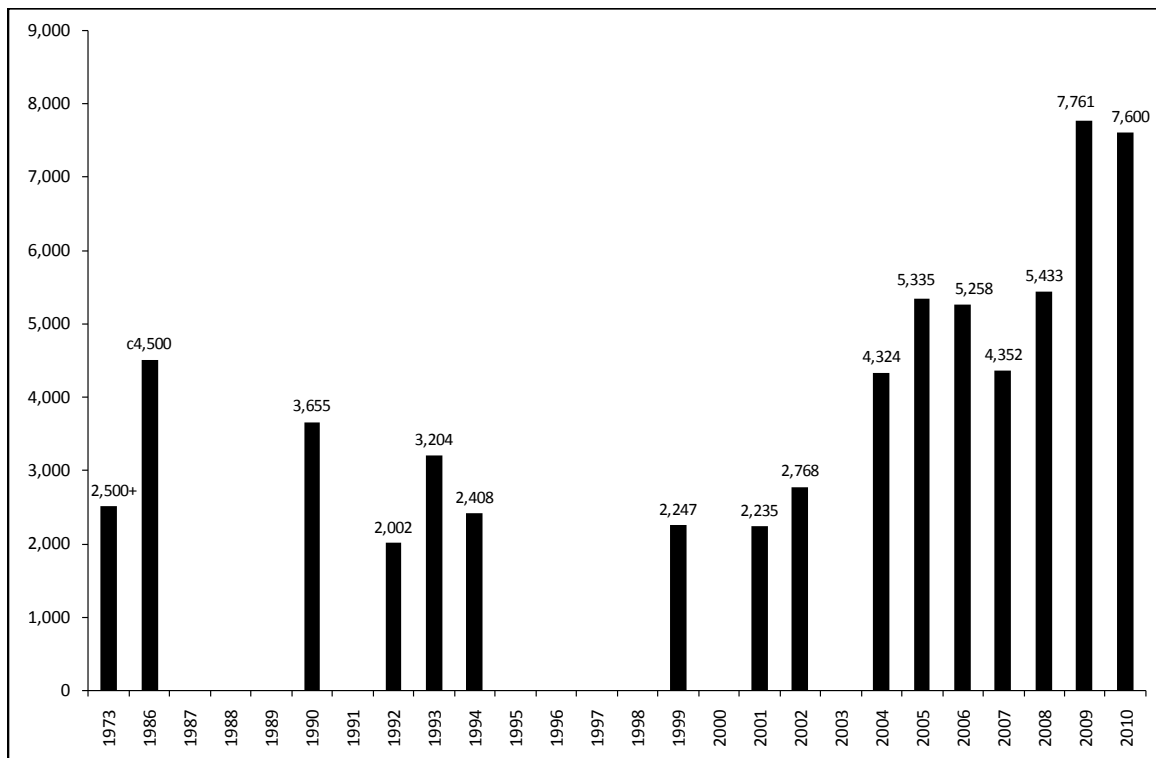


Figure 1. Yearly roost counts of White Wagtails using the long-established roost site in Great Siege Square, Valletta. An estimate was made of birds using the roost in December 1973. This has been included in this figure to show the longevity of this roost site (which was active as early as 1967).

A total of nine roost counts have been carried out by BirdLife Malta since 2001 on a near-yearly basis using the standardised count methodology (Figure 1). During this period, the maximum roost count, of 7,761 individuals, was recorded on the 14th of January 2009. The minimum count, of 2,235 individuals, was recorded on 13th of January 2001. On average (\pm SE), 5,007 \pm 626 individuals have been recorded using the roost each year.

The majority of birds come in to the roost in a fifteen minute period between five minutes before sunset and ten minutes after sunset, with an average of 73.4% of birds coming in to roost during this time period alone (Figure 2).

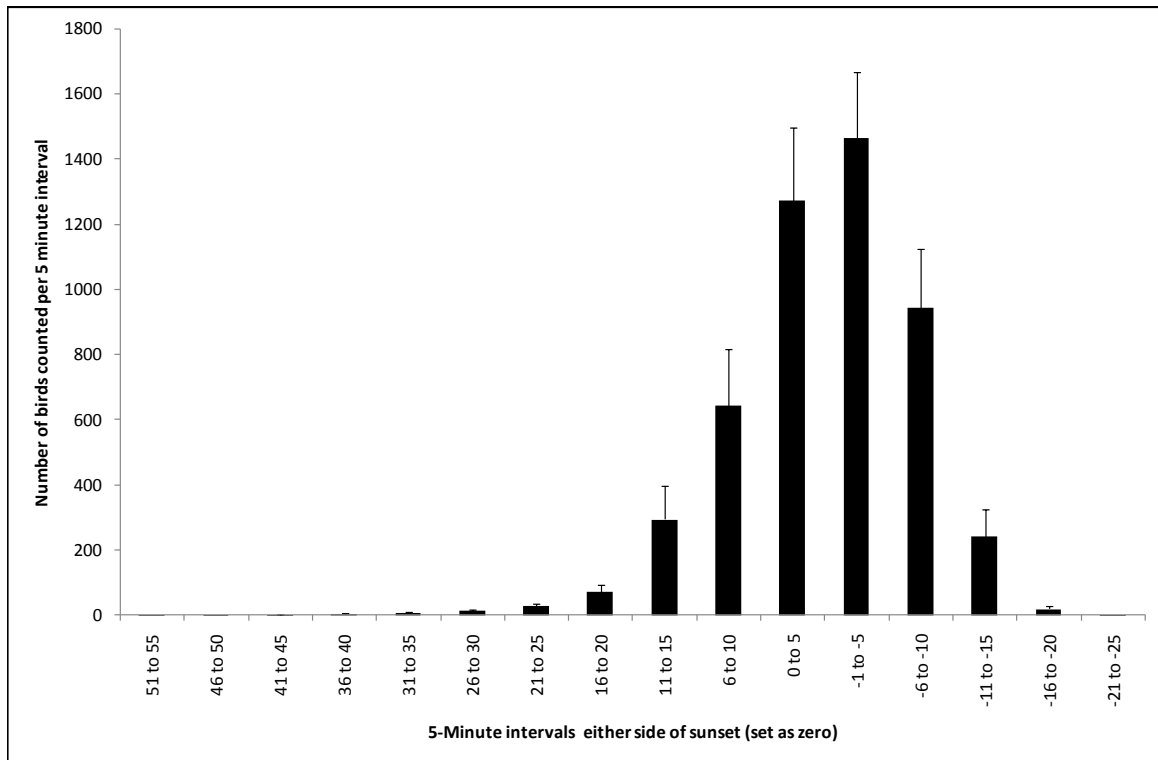


Figure 2. Total number (with standard error bars) of White Wagtails recorded in each five-minute interval before (+) and after (-) that year’s sunset (set as zero). Data from 2001 onwards.

Direction of travel: The direction of travel was also considered for White Wagtails coming in to roost to ascertain if birds were coming in from specific directions. The 19 point count locations were divided into six equal sized sections, A through F. Two sections, E & F, were not covered by observers every year, and were thus excluded from the analysis. The total count of birds passing over each section was considered using a Chi-squared test. It was found that significantly (χ^2 , $p < 0.001$) more birds were coming in over sections B and C, while significantly fewer birds were found coming into the roost over D (Figure 3).

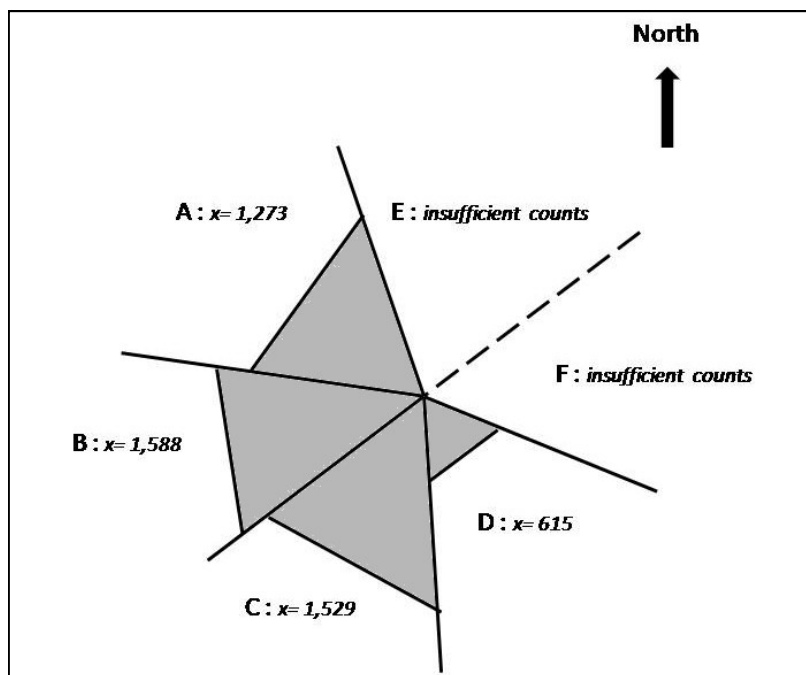


Figure 3. Average count per year of White Wagtails recorded passing over each segment during standardised counts between 2001 and 2010.

Discussion

This study clearly demonstrates the importance of the *Ficus* trees in the Great Siege Square of Valletta for wintering White Wagtails in Malta. The fact that this is the largest known roost site for this species in Malta (with smaller roost sites known from Lunzjata Valley and Victoria in Gozo in recent years) suggests that the majority of wintering White Wagtails in Malta use this roost site to rest during the night. That this could be the case is highlighted by a study of Pied Wagtails (*Motacilla alba yarrellii*) – the subspecies found in Britain and Ireland - showed that birds gathering at an English winter roost site could travel up to 15km to forage during the day (Broom *et al*, 1976). This demonstrates that the birds using the Valletta roost site could conceivably come from all parts of the island. Not only that, but it is evident that some of the birds seen during the day in Gozo could also come from the Valletta roost. A White Wagtail ringed in Lunzjata Gozo was found dead under the Valletta roost the following winter (Sultana & Gauci 1970, 1971). Sultana & Gauci also remarked that small flocks of White Wagtail were regularly seen crossing the Malta-Gozo Channel in the mornings and afternoon, suggesting that these birds were in transit from their roost site in Malta. However, the presence of smaller roosts in Lunzjata and Victoria mean that many of the birds in Gozo roost there overnight rather than continuing on to Valletta. It is also of note that a roost site was identified at Marsa Industrial Estates (in Malta) in the mid-1970s, which contained 1,650 birds in December 1976 (Curmi 1977). However only small intermittent numbers of this species have been recorded at the site in recent years and the roost is no longer active.

Ring recoveries of White Wagtails have been recorded from five different European countries, particularly the Czech Republic, Hungary and Poland. This suggests that the majority of White Wagtails wintering in Malta come from central and eastern Europe. It should be noted that none of these birds were caught or ringed at this roost site. However due to the small size of the Maltese archipelago, there is no reason to assume that the countries indicated by the ring recoveries would not be representative of individuals using the roost site, particularly as already indicated the Valletta roost is the main winter roost site for this species in Malta.

The Valletta roost site is therefore of critical importance to the wintering population of this species in Malta. Despite this, on the 23rd of May 2010 the Environment Landscape Consortium (ELC) severely pruned the *Ficus* trees, completely removing the canopy on which the wagtails depend. This was undertaken without a permit from the Malta Environment and Planning Authority (MEPA). This action has caused severe damage to the roost site and it is doubtful that there will be sufficient re-growth of the canopy in time for the arrival of White Wagtails in the following winter. It remains to be seen what effect this will have on Malta's wintering population of White Wagtails and whether the roost site will ever recover.

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