

STATUS OF BREEDING WILSON'S PLOVERS (*CHARADRIUS WILSONIA*) ON ST. KITTS, WEST INDIES

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Abstract: We report observations from waterbird surveys completed in 2004 and 2009 that detected breeding Wilson's Plovers (*Charadrius wilsonia*) on the southeast peninsula of St. Kitts in the Lesser Antilles. Our comparison of surveys indicates a slight decrease in activity island-wide, with eight nests in 2004 and seven nests in 2009. The breeding activity at each wetland differed between years, perhaps in response to increased development at historic nesting sites.

Key words: *Charadrius wilsonia*, development, nesting, St. Kitts, West Indies, Wilson's Plover

Resumen: ESTADO DE INDIVIDUOS REPRODUCTORES DE *CHARADRIUS WILSONIA* EN SAN KITTS, CARIBE INSULAR. Reportamos las observaciones que detectaron individuos reproductores de *Charadrius wilsonia* a partir de muestreos de aves acuáticas completados en 2004 y 2009 en la península Sudeste de San Kitts, en las Antillas Menores. La comparación de nuestros muestreos indica una ligera disminución en la actividad en toda la isla, con ocho nidos en 2004 y siete en 2009. La actividad de cría en cada humedal difiere entre años, probablemente como respuesta a un incremento de la urbanización en los sitios históricos de cría.

Palabras clave: Caribe Insular, *Charadrius wilsonia*, nidificación, San Kitts, urbanización

Résumé : STATUT DU PLUVIER DE WILSON (*CHARADRIUS WILSONIA*) NICHEUR SUR SAINT-KITTS, ANTILLES. Le suivi des oiseaux d'eau réalisé en 2004 et 2009 sur la péninsule sud-est de Saint-Kitts dans les Petites Antilles a permis d'observer la reproduction du Pluvier de Wilson (*Charadrius wilsonia*). La comparaison des relevés indique une légère diminution de l'activité sur toute l'île, avec huit nids en 2004 et sept nids en 2009. L'activité de reproduction sur chaque zone humide diffère entre les années, peut-être en réponse à l'augmentation du développement sur les sites de nidification historiques.

Mots clés : Antilles, *Charadrius wilsonia*, développement, nidification, Pluvier de Wilson, Saint-Kitts

Wilson's Plover (*Charadrius wilsonia*) occurs in coastal areas throughout southern North America and much of South America as well as the Caribbean (Hoogerwerf 1977, Collazo *et al.* 1995, Raffaele *et al.* 1998, Smith and Smith 1999). Wilson's Plovers nest somewhat clustered in sparsely vegetated locations on beaches and salt flats (Bergstrom 1988). In the Caribbean, breeding populations have been documented on Hispaniola, Puerto Rico, Bahamas, Virgin Islands, St. Martin, St. Barthelemy, St. Kitts, Antigua, Barbuda, Guadeloupe, the Grenadines, Grenada, Trinidad, and the Netherlands Antilles (Hoogerwerf 1977, Steadman *et al.* 1997, Raffaele *et al.* 1998, Smith and Smith 1999, Elliott-Smith *et al.* 2004, Buckley *et al.* 2009). Especially on the latter islands, less is known regarding Wilson's Plover breeding biology as the majority of observations have focused on over-wintering populations (Gorman and Haig 2002, Elliott-Smith *et al.* 2004).

North American shorebirds have declined dramatically in recent years (Zöckler *et al.* 2003, Hunter *et al.* 2002, Brown *et al.* 2001, Morrison and Hicklin

2001). Causes of these declines have been attributed to both the development of key shorebird habitat and human-caused disturbances within breeding areas (Brown *et al.* 2001). Among this group of birds, Wilson's Plover has also shown a decline, most notably in northern parts of its range, specifically the United States, whereas less is known regarding breeding populations in the Caribbean (Morrier and McNeil 1991, Corbat and Bergstrom 2000, Brown *et al.* 2001, Elliott-Smith *et al.* 2004).

St. Kitts has a unique series of shallow, hypersaline wetlands scattered across a long, thin, and hilly southeast peninsula and at the base of the northern mountains. Seasonal drying of these shallow wetlands exposes large areas of salt flats, thereby providing ideal habitat for Wilson's Plovers, where their preferred food is fiddler crabs which are abundant on exposed salt flats (Corbat and Bergstrom 2000). There are no published breeding records for Wilson's Plovers from St. Kitts; however, it is likely that the species has previously bred on the island. There are non-breeding records of Wilson's Plovers on St. Kitts from April 1922 ($n = 3$), June

1935 ($n = 1$), April 1962 ($n = 1$), February 1982 ($n = 9$), July 1985 ($n = 20$), and September 1988 ($n = 3$) (Steadman *et al.* 1997).

This paper attempts to expand the extent of information on Wilson's Plover by providing a record of their breeding status on St. Kitts, with observations from 2004, and then 5 yr later in 2009. We discuss several of the probable factors surrounding changes in their distribution during the 5 yr between surveys.

METHODS

Surveys for waterbirds were conducted at 10 wetlands on St. Kitts on 24 May 2004 and 21 April 2009 (Fig. 1). In addition, Mosquito Bay and Cockleshell Bay were surveyed once daily during 18–20 April 2009 and discovered nests were monitored. Wetlands were surveyed in their entirety and accessible shoreline was traversed on foot. The total number of birds by species was recorded at each wetland and special attention was given to breeding status. In particular, cues such as birds giving alarm

calls, leaving areas in hunched-over positions, doing broken-wing displays, and dive bombing observers' heads helped biologists locate nests. Subsequent observations were made on nest condition, location, and clutch size as well as on family groups with chicks.

RESULTS

We observed a total among the two survey years of 15 instances of breeding behavior for Wilson's Plover: specifically, 13 nests with eggs and two pairs with chicks. We located a total of 37 adults among the two survey years: 16 breeding in 2004, and 14 breeding and seven non-breeding in 2009.

During the 2004 survey, we located eight pairs of Wilson's Plover (16 adults) between three wetlands: Great Salt Pond ($n = 4$ pairs), Mosquito Bay ($n = 2$), Cockleshell Bay ($n = 2$). Each nest contained three eggs and was tended by two adults. No additional Wilson's Plover adults or chicks were observed. At the time of survey, the three wetlands were partially

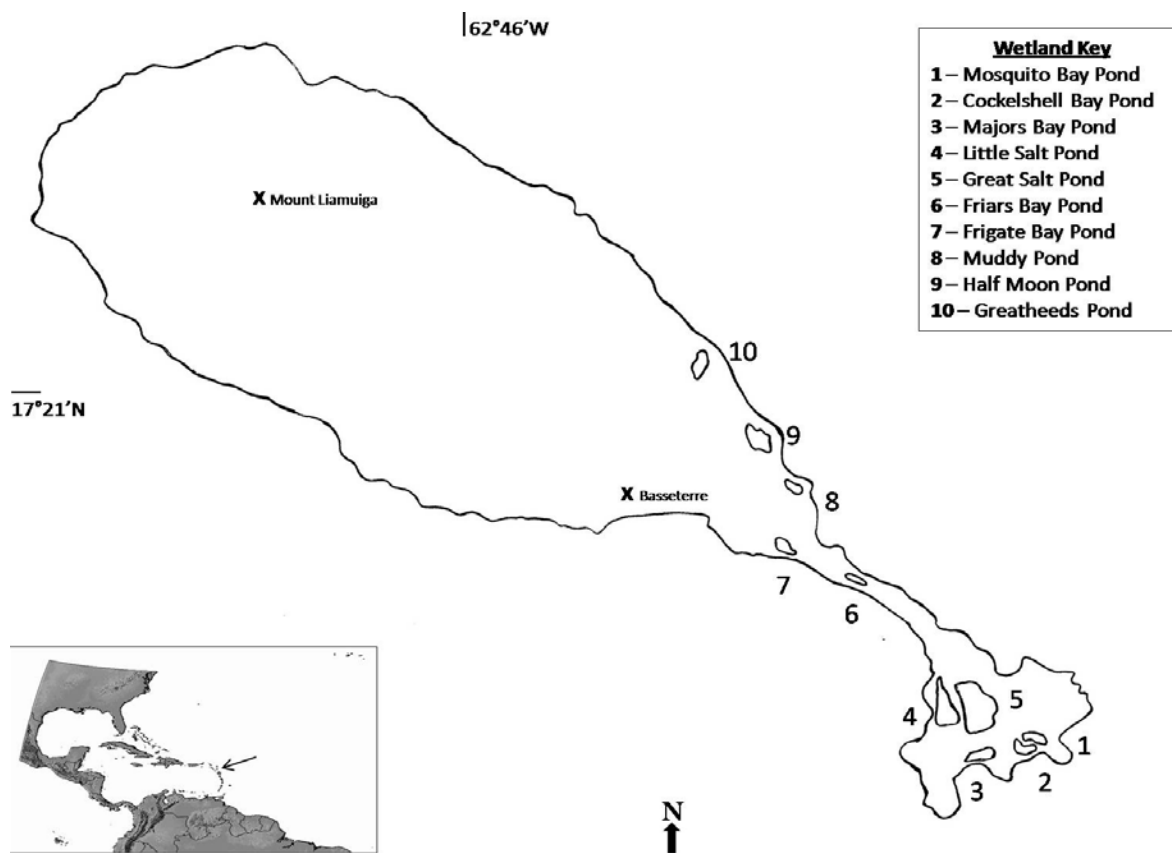


Fig. 1. Map of lowland wetlands on St. Kitts, Lesser Antilles.

drawn down, exposing 10–50 m of salt flats along the outer margin of each wetland. Each of the eight nests located on these salt flats was at least 10 m from any vegetation. Nesting Least Terns (*Sternula antillarum*) were observed at both Mosquito Bay ($n = 5$ nests) and Great Salt Pond ($n = 5$ nests) during the 2004 survey and the Wilson's Plover nests at these sites were located within the tern colonies.

During the 2009 survey, seven Wilson's Plover pairs (14 adults) were split between two wetlands: Mosquito Bay ($n = 2$ pairs) and Cockleshell Bay ($n = 5$). At Mosquito Bay we located one plover pair with a nest and one pair with an older chick, and at Cockleshell Bay we located four pairs with nests and one pair with three chicks. On 20 April 2009 the number of eggs increased by one in two of the monitored nests. The mean number of eggs on the last day of monitoring was 2.6. Two presumably non-breeding adults were observed at Cockleshell Bay and additional non-breeders were observed at Major's Bay ($n = 3$) and Half-Moon Bay ($n = 4$). Least Terns were not observed during the wetland survey in 2009.

DISCUSSION

There appears to be a stable breeding population of Wilson's Plover on St. Kitts. While the time of year was different for the surveys, making a direct comparison complex, the overall numbers of breeding pairs recorded in 2009 was similar to the numbers recorded in 2004. However, there was a slight decrease in breeding pairs over the five-year period, from eight to seven and the total number of breeding adults decreased from 16 to 14. This decrease and the abandonment of Great Salt Pond in 2009 were potentially due to differences in the timing of the two surveys, fluctuations in wetland conditions, and development of southeast peninsula wetlands.

The onset of breeding for Wilson's Plovers on St. Kitts is perhaps influenced by environmental cues such as the exposure of salt flats, although more study is needed on this dynamic in the Caribbean region. The breeding behavior observed on our two years of surveys corresponded well with observations on breeding timing in North America. For instance, egg laying on St. Kitts during 19–21 April 2009 corresponded to peaks observed 21–23 and 25–29 April in Texas (Bergstrom 1988). Likewise, the nests observed on 24 May 2004 on St. Kitts corresponded to renesting periods observed in late May and early June in Texas (Bergstrom 1988). Gaining insight into this dynamic would be a useful area of research so that future observations could be more

easily tied to a reference point as to the stage of the nesting season for Wilson's Plover on St. Kitts. For the purposes of this paper, it appears that the different timings of our two surveys corresponded to relative peaks of activity within the two survey years, making a basic comparison possible.

Development of southeast peninsula wetlands in the last 5 yr has been severe, and irreversible changes to wetlands are proposed. Hotel, condominium, or housing development has been initiated at nine of the ten wetlands on the peninsula. Proposals such as the Christophe Harbour and Cockleshell Bay projects include converting Little Salt Pond, Great Salt Pond, Cockleshell Bay, and Mosquito Bay into deep-harbor marinas. Road construction associated with these projects was well under way in 2009.

Mosquito Bay and Cockleshell Bay were historically connected by a broad channel and the 2009 colonies at these bays would have been contiguous if not for a recently constructed roadbed. In 2009 Mosquito Bay and Cockleshell Bay were drawn down with large areas of exposed salt flats surrounding small reservoirs of saline water. However, three nests were located 3–5 m beyond the wetland perimeter, on a grassy bank, a raised area among rocks, and an oft-used dirt road. The wetland conditions at Great Salt Pond varied substantially with higher water levels in 2009 that submerged the salt flats used as breeding habitat in 2004. Historically, Wilson's Plovers most likely responded to environmental changes by migrating between potential breeding sites at various southeast peninsula wetlands. However, breeding site selection in 2009 may have also been influenced by heavy construction traffic at Great Salt Pond and earthmoving into the wetland to accommodate water pumping for dust control. In contrast, the conditions at Cockleshell Bay and Mosquito Bay were more consistent with exposed salt flats in both years.

The future success of breeding Wilson's Plovers on St. Kitts likely hinges on the extent of future development of wetlands on the southeast peninsula. Unfortunately several of the construction projects underway include proposals to completely alter the nature of the three wetlands where we observed Wilson's Plover breeding in 2004 and 2009. The ability of Wilson's Plover to migrate to and successfully breed at alternative locations, such as Major's Bay Pond and Half Moon Bay Pond where non-breeding adults were observed in 2009, is unknown. Future surveys following these recent developments will reveal the reaction of Wilson's Plovers to development pressure and perhaps highlight the

effects that rapid development have on breeding shorebirds in the Caribbean.

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