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## Rapid 3-week Transition from Migration to Incubation in a Female Roseate Tern (*Sterna dougallii*)

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### ABSTRACT

*A female Roseate Tern (Sterna dougallii) photographed on 10 May 2008 as it staged in Puerto Rico on its migration north was first observed in the nesting area at Bird Island, Buzzards Bay, Massachusetts, on 21 May. It was incubating a complete clutch of two eggs by 1 June and likely had initiated laying within 20 days of having been in Puerto Rico.*

### INTRODUCTION

Roseate Terns (*Sterna dougallii*) from the NW Atlantic breeding population that nest in the northeastern United States and Nova Scotia, Canada, migrate south in the fall to wintering areas off the coast of northeastern South America (Nisbet 1984; Hays et al. 1997, 1999). When returning north, some individuals stage in Puerto Rico (PR) and other Caribbean islands (Gochfeld et al. 1998,

Hays et al. 2010). The earliest Roseate Terns seen in Massachusetts (MA) arrive in late April and may spend up to a week in the Nantucket Sound area before moving to their colony sites, while younger breeding birds tend to arrive and begin nesting later than do older birds (Gochfeld et al. 1998). Relatively little is known, however, about how long it takes individual females to transition from migration to laying. I report here on a color-banded female photographed on 10 May 2008 in PR that after flying more than 2600 km was observed 11 days later on 21 May in the nesting area at its colony site in Massachusetts, and then finished laying its clutch of two eggs by 1 Jun 2008.

### METHODS

From 2004-2010 adult Roseate Terns trapped at three colony sites in Buzzards Bay, MA, as part of a cooperative project on the metapopulation dynamics, ecology, and behavior of this species were given six-band combinations of two metal bands (a U.S. Bird Banding Laboratory [BBL] band and a four-character field-readable [MFR]

band) and four plastic color-bands (see Spendelov et al. 2008 for details on capture methods and band placement). Trapped adults were sexed, if possible, based on their 'total head + bill' measurement (Palestis et al. 2012). In 2008 at the colony site on Bird Island (41° 40' N, 70° 43' W) off the coast of Marion, I began systematic observations to identify individuals and later match them to nests on 20 May.

### RESULTS

One of the terns trapped at a nest, color-banded, and sexed as a female at Bird Island on 25 Jun 2007 had been banded originally as a chick with a BBL band and MFR band 61L5 on 26 Jun 2001 at Great Gull Island, NY (Hays et al. 2010). On 10 May 2008 Gabriel Lugo was taking pictures from 0800-1030 of Roseate Terns on the rocks near a lighthouse in Arecibo Harbor, Arecibo (18° 29' N, 66° 42' W), on the north coast of PR, he photographed 61L5, the only color-banded adult he saw that day (Hays et al. 2010). Lugo returned to Arecibo on 12 May, but he did not see any color-banded terns on either that trip or two other trips made on 19 and 22 May to this and another nearby site (Hays et al. 2010).

On 21 May 2008, I made the first visit to the same grid plot where 61L5 had been trapped the previous year at Bird Island. Within only a few minutes of setting up my spotting scope at about 1015, the terns began settling again and 61L5 landed on one of the plywood boards laid over the nesting boxes to provide additional cover for Roseate Terns in this area. This grid plot was checked irregularly for nests by me as it was not part of the 'productivity plots' that were checked daily by Buzzards Bay Tern Project staff and I was focused on identifying adults. Therefore, the laying date of the first egg was not noted, but both eggs in its 2-egg clutch were laid by 1 Jun.

### DISCUSSION

The presence of an experienced seven yr-old NW Atlantic breeder in Puerto Rico on 10 May seems somewhat late given that many other individuals from this breeding population were already back in MA by this date. Therefore, based on what is

known about the migration strategies and flight speeds (Alerstam 1985, Keijl 2003, Nisbet et al. 2011) of Common Terns (*S. hirundo*), while 61L5 may have remained around Puerto Rico for several more days, it seems more likely that it began the next major overwater leg of its spring migration at night either on 10 or 11 May as it was not seen when Lugo visited Arecibo again looking for it on the morning of 12 May. Upon first arrival at their colony sites in the spring, Roseate Terns usually loaf on the periphery for at least several days (Cooper et al. 1970) before entering the nesting areas. Its quick landing by its eventual nest site when seen on 21 May suggests that 61L5 had arrived at its colony site no later than 19 May. That this female began clutch initiation less than three weeks after having been in Puerto Rico provides further evidence of a quick trip and arrival at least five days before it was observed at Bird Island and a fairly rapid transition from migration to incubation.

More information about the timing and movements of individuals would be of value for assessing the potential risk of exposure of these terns to oil spills or offshore windpower projects at various stopover sites between their wintering areas and breeding colony sites. While the use of geolocators is providing more details about the entire migration cycle of many species of birds, because of the inherent uncertainty of 150 km or more in the accuracy of the estimated locations of individuals derived from using this technology (Stutchbury et al. 2009, Nisbet et al. 2011), geolocators probably will not be able to tell how much time individual terns may be spending in Nantucket Sound and/or offshore eastern Cape Cod before moving to Buzzards Bay. Until such time as methodological advances allow us to use global positioning technology to precisely locate where an individual is several times a day as can be done for larger seabirds (Ristow et al. 2000), we may not be able to easily collect this sort of important information.

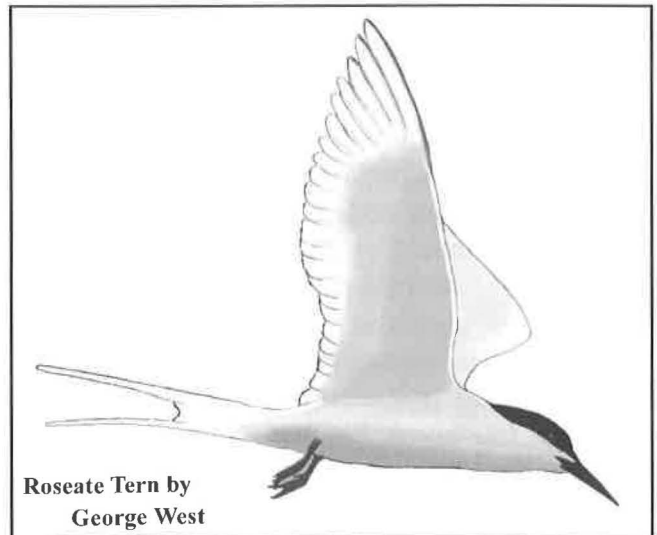
### ACKNOWLEDGMENTS

I thank, in alphabetical order, the American Museum of Natural History; Friends of Patuxent; Massachusetts Division of Fisheries and Wildlife; New Bedford Harbor Damaged Resource Restoration Trust Fund; the USFWS Region 5 Office

of Endangered Species; and the USGS Patuxent Wildlife Research Center (PWRC) for permits and logistical and/or financial support of the fieldwork done in New York and Massachusetts. Ian Nisbet and Carolyn Mostello kindly discussed some of their results from terns given geolocators. Andrew Boyne, Mike Erwin, Brian Halstead, Leopoldo Miranda-Castro, Allan O'Connell, Matt Perry and several anonymous reviewers made helpful comments on early drafts of the manuscript. All banding of Roseate Terns was done under appropriate Federal and State permits and with the approval of the PWRC Animal Care and Use Committee. The use of trade, product or firm names in this publication is for descriptive purposes only and does not imply endorsement by the U.S. Government.

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Roseate Tern by  
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