



# Project Martinwatch

The world's largest team of backyard volunteers  
needs your participation!

**Your Help Needed:** Since 1995 the PMCA has been urging martin landlords to participate in a continent-wide, citizen-science project known as "Project Martinwatch." Participants monitor their nests, record the information on photocopies of this data sheet, and mail them to the PMCA at season's end. Project Martinwatch allows us to obtain information on the range-wide reproductive success of Purple Martins.

Housing Type, Cavity #, & Hole Type	Male/Female	Age	Date First Egg is Laid	Projected Hatch Date	Actual Hatch Date	Earliest Possible Fledge Date	Date												Egg #	Hatch #			
							20 May	25 May	30 May	4 June	9 June	14 June	19 June	24 June	29 June	4 July	9 July	14 July			19 July	24 July	
WH-1 R	A	5/18	6/08	6/08	7/04	PMN 3E	7E	7E	7E	2E 5Y 1do	7Y	7Y	7Y	6Y	6Y	N	N	N	N	7	7	6	
WH-2 E	S	6/03	6/21	6/22	7/18	ST ND	HS ND	PM N	2E	4E	4E	1E* 3Y 2do	1E/3Y NR	3Y	3Y NR	3Y	N	N	4	3	3		
WH-3 C	A?	6/04	6/24	6/24	7/20	X	PM N	N	1E	6E	6E	6E	3E 3Y HD	5Y/NR 1DY/D	5Y	5Y NR	5Y	4Y	N	6	6	4	
WH-4 R	S	5/31	6/19	6/19	7/15	X	PM N	N	5E	5E	5E	2E 3Y HD	5Y NR	3Y 2DY/D	3Y NR	3Y	3Y	1Y	N	5	5	3	
AG-1 C	A	5/26-30	6/10-14	6/10-12	6/27-29	6/28	7/24	X	PM N	1E	1E	0E	3E RA	3E	3E 1do	3Y NR	3Y	2Y NR	2Y	N	1	0	0
NG-1 R	A/S	6/01	6/20	6/20	7/16	X	PM N	N	4E	5E	5E	5E	5Y 4do	5Y NR 1DY/D	4Y NR	4Y NR	4Y	N	N	5	5	4	
Using the codes below, record exactly what you find in each compartment on every nest check and any action you may take. Using the laminated martin photos, record age of nestlings on first encounter.																			<b>Nest Record Sheet Totals:</b>				
																			31	29	22		

A completed Project Martinwatch Nest Data Sheet from a hypothetical 4-unit wooden martin house that has one artificial gourd and one natural gourd hung underneath it. A data sheet for your site is on the back of this page, along with a key to the coding system.

## Participation is Easy:

Participants conduct nest checks on their martin housing every 5 days all season long and record exactly what they find in each nest cavity, and what actions they may take. Participants start monitoring nests when nest building begins at their sites and continue at 5-day intervals until after all the young have fledged. It is critical for our research to have one empty nest check. If 5-day nest checks are not possible, a 7-day schedule is acceptable. Checks are done in the afternoon. Checks are avoided during cool or rainy weather, and are done as quickly as possible to minimize the time parents are kept away from their eggs or young. Nest monitoring will not cause martins to abandon their nests. Landlords who conduct regular nest checks actually raise more martins than those who don't.

**Nest Check Codes:** The codes to use during nest checks are listed in the "Martin Codes" box on the data sheet. Familiarize yourself with these codes and the layout of the data sheet. Record the date of each nest check at the top of each column. Use a separate line for the contents of each nest cavity. List the housing type, entrance hole type, and cavity number in the far left column (all compartments should be numbered). Use the second column for the age of each parent (if known), male first, female second. The third column is for the date the first egg is laid, which is determined by extrapolation and/or using the Prognosticator. The fourth column is for projected hatch date (see below). The fifth column is for the actual hatch date (determined by using the laminated martin photos). The sixth column is for entering the earliest possible fledging date for each nest (see below). The remaining columns are for recording exactly what you find in each nest cavity on each nest check, and for any actions you may take. More than one code can be entered in a single box and codes can be combined, as in 3Y/2do/2DYD\*, for "3 live young, 2 days old, 2 dead young, discarded, additional dated comments on back."

**Counting Eggs and Nestlings:** Purple Martins commonly hide their incomplete clutches under a layer of green leaves. During each nest check, inspect this leaf layer gently with your fingertips to feel for hidden eggs. After hatching, nestlings huddle together, so to count them, they must be separated with a finger or blunt probe. In houses or gourds with access doors, monitoring nests is simple, but in housing lacking these features, landlords may need flashlights, mirrors, and probes in order to check nests. Adding porch dividers to all housing with shared porches will prevent older nestlings from walking between compartments and confusing your results. NEVER MOVE EGGS OR YOUNG TO DIFFERENT NESTS! This actually lowers the nesting success of host nests, shortens parental life, and can spread disease.

**Martin Breeding Biology:** Purple Martins lay 1 egg a day at sunrise until they've laid from 1 to 7 eggs. They do not skip a day. Incubation begins the day before the last egg is laid and requires 15 days (from the laying of the last egg until the hatching of the first egg). During cool weather, incubation may be delayed, causing

clutches not to hatch until 16-24 days after clutch initiation. Once hatching begins, it may take 48 hours for all the eggs in a clutch to hatch. Due to this staggered hatch, siblings may vary in age by as much as 2 days, causing fledging of most nests to be spread over 2-3 calendar days. Nestling martins don't fledge until 26-35 days after hatching.

**Ageing Nestlings:** The very first time that you encounter a hatchling in each active nest, age the oldest nestling in that nest by carefully

removing it and comparing it to the life-size photos on the laminated martin photos (for sale from the PMCA). After its age is determined, place it back in the nest huddled with its siblings. Record the age on the Project Martinwatch sheet. Later, using the Prognosticator, align the nestling age cell with the date cell and read backwards to the hatch date. Record this in the "Actual Hatch Date" column. Use the actual

hatch date to determine "Earliest Possible Fledge Date," using the Prognosticator.

**Fledged or Failed?:** The only way to tell how many young have fledged from a nest is to determine how many survived to the date on which they would have reached the minimum fledging age of 26 days old. A formula for determining it follows: Earliest Possible Fledging Date = Date First Egg is Laid + [(Number of eggs laid, minus one) + 15 days + 26 days]. For example: if a clutch of 5 eggs was initiated on June 1st, the last egg would be laid on June 5th. These eggs would begin hatching 15 days later on June 20th, and the oldest nestlings could begin fledging no sooner than July 16th, the day they would turn 26 days old. Using the formula: Earliest Possible Fledging Date = June 1st + (5-1) + 15 + 26 = 45 days. When you add 45 days to June 1st you get July 16th. Add 43 days to a clutch of 3, 44 days to a clutch of 4, and so on.

Landlords can make these determinations more easily by using the "Purple Martin Prognosticator," an ingenious calculator wheel (available from the PMCA), that accurately tells: 1) the date hatching will begin in each nest; 2) the age the young will be on any given date; and 3) the earliest possible fledging date for the young in any nest. The back side of the wheel shows how to determine first egg dates. Using the Prognosticator, Project Martinwatch participants can accurately fill out the third, fourth, fifth, and sixth columns of their nest record sheets, and determine whether young have fledged successfully from a nest, or disappeared prematurely due to predation or other causes.

**Summarizing Your Data:** Fill in the three columns on the right-hand side of the data sheet as the season progresses. Once you have determined the clutch size for a nest, enter it in the Egg# column. Likewise, record the number of young that hatched and fledged from each nest in the Hatch# and Fledge# columns. To calculate season totals for each sheet, total all the numbers in each of these 3 columns, and record them in the circles at the bottom of each column.

**Assigning Parental Ages:** Landlords with binoculars or spotting scopes who can distinguish among the four breeding plumages of martins should record the age of each parent at each nest. When unsure of the age of a parent, put a "?" in its sex/age category on the data form. Novices should refer to the color photos on the adult plumage page of the laminated color martin photos. Before assigning an age to an individual, observe it entering its cavity with nest material, to feed young, or removing fecal sacs on at least three different dates.