

Why Landlords Should Conduct Weekly Nest Checks

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According to a detailed questionnaire the *PMCA* sent out during the 1989 breeding season, fewer than 20% of North American martin landlords conduct regular nest checks on their martins during the breeding season! This means that more than 80% of the people trying to help martins are doing so in a less than effective way. It also may explain why the martin population is declining in so many areas, and only inching up continent-wide, rather than soaring up, as it could be. Interestingly, the same questionnaire showed that the average number of martin pairs attracted to sites where regular nest checking was practiced was 22 breeding pairs, compared to only 10 pairs at sites where no regular checking occurred. (The actual difference is probably greater than this, since landlords who don't do regular nest checks, invariably overestimate their colony size and nesting success. They typically report having a 100% hatching rate, a 100% fledging rate, and a 100% occupancy rate, since they never find any unhatched eggs, dead nestlings, or empty compartments when they clean their houses out at season's end. Obviously, had these folks done regular nest checks, they certainly would have discovered eggs and nestlings that had disappeared prematurely, and several nests that were never used. This is the norm.) Although it's hard to prove that this impressive doubling of colony size is due strictly to better landlord management, it certainly is highly suggestive.

Why are so many martin landlords reluctant and/or afraid to lower their martin houses during the breeding season to conduct weekly nest checks? I think it's because, as children, we were told by our parents that touching or disturbing a bird's nest would cause the parents to abandon their young. We now know that such assertions are false and amount to nothing more than 'old wive's tales.' Birds will not abandon their nests or young when touched by humans — they have far too much "parental investment" accumulated in them by that stage to be so wasteful of their reproductive effort. In fact, anyone who has tried to discourage English House Sparrows or European Starlings from nesting in their martin houses by repeatedly tearing out their nests, knows how nearly impossible it can be to cause a bird to abandon its breeding site. It's the same with Purple Martins — humans can lower their housing, touch their nestlings, and even replace their wet nests, as often as necessary. None of these activities will cause

martins to abandon their nests, young, or colony sites. Martins are incredibly tolerant of human disturbance, which is good, because conducting weekly nest checks is unquestionably the most beneficial activity a landlord can do to help their martins. Leaving them undisturbed, on the other hand, can, and usually does, lead to lower reproductive success. Ironically, you are far more likely to have your martins abandon your site by not doing nest checks than by doing them. If you want to do what is best for the martins under your care, get out there and do weekly nest checks!

"... landlords who conduct weekly nest checks raise significantly more nestlings per nest than landlords who don't."

Unfortunately, many of the people who get into the martin hobby don't understand or realize the effort and commitment that correctly hosting martins entails. Having a successful, growing martin colony is similar to having a garden — there's a lot more to it than just poking some vegetable seeds in the ground then ignoring the site until harvest time. Conscientious gardeners would never dream of not checking their gardens for an entire summer. They know that gardens require weeding, watering, fertilizing, hand pollinating, cultivating, pruning, fencing, staking, insect control, and record keeping. Likewise, there's more to having a successful martin colony than just sticking a house on a pole. Just as certainly as weeds and insects will invade a garden, unwanted pests will compete with your efforts to raise martins. Conscientious martin landlords would never dream of not looking inside their martin houses weekly. Without knowing exactly what is going on in each nest, a landlord would have no clue if owls, raccoons, opossums, squirrels, or pole-climbing snakes, were eating their adults, babies, and eggs, or if the nests had become loaded with blowflies, fleas, or nest mites, or if the nests had become dangerously rain soaked, or if a nestling or parent had died in the compartment requiring removal, or if paper wasps had moved in, or if Starlings or House Sparrows had invaded. And without accurate records, a landlord would have no idea where to replace nestlings that had wandered into neighboring compartments, or accidentally fallen to the ground. A landlord would also not know in which compartments young had inexplicably disappeared before they were old enough to fledge. Not finding and reacting quickly to most of these problems can greatly reduce the breeding success of your martins, or worse, cause complete (and often permanent) loss of the active colony site.

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Being a Purple Martin landlord and not conducting weekly nest checks is like driving a car with your eyes closed. Only by doing weekly nest checks, can a landlord receive the feedback necessary to react in a timely fashion to the multitude of problems that invariably face the martins depending on their care. To be the host of a growing martin colony requires parasite control, nest-competitor control, wet nest replacement, anti-predator devices, eggshell and nest material supplementation, premature fledgling replacement, dead bird removal, compartment numbering, daily walk-unders, weekly nest checks, record keeping, and the regular pruning of nearby bushes and trees. Without this constant attention and level of commitment, neither a garden, nor a martin colony, will have much to show for itself at season end.

Here at the PMCA, we typically get daily letters and phone calls all summer from distraught landlords wanting to know why their martins had “abandoned” their colony site or migrated early. Inevitably, we discover none of the callers had been doing weekly nest checks, and consequently, had no idea whether their young had fledged successfully, or been the victims of unseen predators. Had these landlords been doing regular nest monitoring, they would have known if there really was a problem at their sites. Only by doing weekly nest checks can a landlord actually know what is going on at their site, the timing of each phase in the nesting cycle, and how many active nests (i.e., nests with eggs or young) they have, and thus, the number of breeding pairs.

So, why do so many martin landlords elect not to conduct weekly checks? First, many have housing that doesn't allow for easy, vertical lowering — they have housing on rigid poles, or poles that only tilt down. Others have compartments without doors that open easily. And finally, many have the mistaken impression that lowering their houses during the nesting season is somehow detrimental to the martins and will scare them away. As stated above, nothing could be farther from the truth! You can lower the housing daily, if you like, and touch both the young and eggs. There is no risk that any of these actions will cause nest failure or colony-site abandonment. Martins are remarkably tolerant of house and gourd lowerings. In fact, I'm convinced that landlords who conduct weekly nest checks raise significantly more nestlings per nest than landlords who don't.

Uninvolved martin landlords (no matter how well-intentioned they may be), aren't helping Purple Martins as much as they could be, or as much as they might think they are. Landlords need housing that can easily be lowered, and compartments that open quickly for weekly monitoring. Housing on stationary poles, or poles that only tilt down, don't meet these requirements and should gradually be replaced. A landlord with housing that doesn't winch or telescope up and down, will find it much harder, or nearly impossible, to effectively help the martins in their care.

How to Monitor Your Martin Nests

The most important thing to do before each nest check, is search the ground underneath the housing for dropped items. Actually, you should do these walk-unders daily. You may find dropped prey, dropped nest material, thrown out eggs or eggshell hemispheres, dead nestlings, starved adults, plucked martin feathers, or shed owl feathers. All these dropped items are clues to what is happening above.

After a thorough walk-under, lower your martin house, vertically, if you have a winch-operated or telescoping martin pole. Once lowered, some house models still may require the use of a short step ladder to reach the uppermost compartments. If you have poles that only tilt down, DO NOT lower the housing — the tilting will smash your martins' eggs, nests, and young, or cause them to fall out. People with tilting or stationary poles can only do nests checks from the top of an extension ladder leaned against the house. However, this is extremely

dangerous and is not recommended, especially with fragile metal houses on thin steel poles.

Once your house is lowered, quickly begin by opening the door to compartment #1. If there is a completed nest in it, but no eggs visible, gently dig for buried eggs under the leaves with your finger tips. Record the contents onto your Project Martinwatch nest data sheet for that compartment, then close the door securely and move on to the next compartment. After every compartment has been carefully inspected and the data recorded, raise the housing to the height and compass direction it was previously, and walk away so the parents can return to incubate eggs, feed their young, etc. If you have telescoping poles, it is imperative that you mark each joint with alignment marks (use paint or a waterproof Magic Markers) to insure that the house gets reori-

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Edinboro University of Pennsylvania student, and PMCA intern, Scott Melego, helping do a 5-day nest check at one of the NW Pennsylvania colony sites monitored by the PMCA.

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ented to the exact height and compass direction between nest checks. Martins only recognize their own nest by its height and compass direction. Misorientation of an active martin house can cause the martins to throw out "foreign" eggs, kill "trespassing" nestlings, and even kill each other in squabbles over compartment ownership. A single house orientation mistake is disastrous for the reproductive success of a martin colony, a mistake that can cause total colony-site abandonment.

Checking gourd nests is a bit different. If you don't have gourds with built-in access doors, you will need a flashlight to illuminate the contents and a long, thin twig to gently push the leaves off the buried eggs for an accurate count. The eggs will always be in the center of the leaf-lined nest bowl, in the lowest depression. Be very gentle or you could puncture or break the eggs.

What Information to Record

If you are going to go to the trouble of doing weekly nest checks, you should also number the compartments and keep written records. Why keep written records? Because if you don't, you'll never know where you are. Imagine trying to run a successful business without keeping records. It can't be done. Simply record the contents of each nesting cavity on every nest check, and also any action you may take toward those contents. It's that simple. The sample Project Martinwatch data sheet shown above, demonstrates the codes to use during each nest check to record contents and actions. (Project Martinwatch sheets are available in everyone's Martin Market Place products catalog. These forms can be photocopied for use with multiple housing units, or write to the PMCA for additional forms.)

Care must be used when trying to count martin eggs since the birds often hide them under a layer of green leaves until the clutch is nearly complete and incubation begins. After hatching, record the number of young, the number of unhatched eggs and the number of dead nestlings, if any. Finally, record the number of young that survived to fledging age from each nest. Obviously, on your Project Martinwatch nest record sheets, you must record the date of each nest check and the compartment identification number. Through subsequent observations with binoculars (or a tripod-mounted spotting scope), record the age of the parents at each nest (i.e., whether adult male, adult female, subadult male or subadult female.) This is important because younger parents nest later in the season, lay fewer eggs, and hatch and fledge a smaller proportion of their eggs and young.

Finally, using changes in egg number in conjunction with

nest-check dates, you can determine the clutch-initiation date (i.e., the date the first egg was laid in each nest). Clutch-initiation date is important because landlords need it to calculate hatching and fledging dates for each nest. Without knowing the expected fledging date of each brood, a landlord wouldn't know if young that had disappeared between nest checks had reached fledging age or not. One indicates nesting success, the other a problem that may need addressed. The easiest way to determine the outcome of each nest is to use a Purple Martin Prognosticator, an ingenious calculator

wheel (available through the PMCA) that foretells hatching and fledging dates, plus the age of nestlings on any given date.

When to Do Nest Checks

The best time of day to do your nest

checks is during late morning, or early afternoon, when temperatures are their warmest and martins are away from their colony sites, foraging. Only conduct nests checks during warm, fair weather. During foul weather, both the parents and the nestlings are under the stress of cool temperatures and lack of food. Never stress them further by disrupting their efforts to incubate their eggs, or brood and feed their young — you could tip the balance and increase mortality during these times. Always keep the duration of your nest checks to a minimum because the disturbance will disrupt the parents' normal activities — instead, they will fly around the housing giving alarm calls and a few individuals may even dive past your head. Once you have finished your nest check, walk completely away to allow the birds' routine to return to normal. Avoid doing nest checks just before sunset. If a winch cable breaks or comes off its pulley, you'll need time to make the necessary repairs. Also, if you discover some other major problem, you won't have time to make modifications before dark.

How Frequently to do Nest Checks

During the egg-laying stage, check the nests every four to five days. This nest-check frequency will allow you to pinpoint the exact clutch-initiation date. After the egg-laying period, you can slow down the pace if you wish, and check the nests only every five to seven days. It is very important that you continue doing nest checks until every last nestling at the colony site has fledged. However, after the young in any given nest reach 22 days-of-age, cease handling them — this could scare them into jumping out of the nest prematurely. Just be extra careful doing

Housing Type/ Cavity #	Date Male/Female	Date First Egg is Laid	Projected Hatch Date	Earliest Poss. Fledge Date	Date																Egg #	Hatch #	Fledge #
					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	A/A	5/18	6/08	7/04	PMN 3E	7E	7E	7E	2E 5Y	7Y NR	7Y	7Y	NR	6Y	6Y	N	N	N	N	7	7	6	
WH-2	S/A	6/03	6/21	7/17	ST ND	HS ND	PM N	2E	4E	4E	4E	1E 3Y	1E/3Y NR	3Y	3Y NR	3Y	3Y	N	N	4	3	3	
WH-3	A/?	6/04	6/24	7/20	X	PM N	N	1E	6E	6E	6E	3E 3Y	5Y/NR 1DY/D	5Y	5Y NR	5Y	4Y	N	N	6	6	4	
WH-4	S/S	5/31	6/19	7/15	X	PM N	N	5E	5E	5E	2E 3Y	5Y NR	3Y 2DY/D	3Y NR	3Y	3Y	1Y	N	N	5	5	3	
PG-1	A/A	5/26-30 6/10-12	6/10-14 6/27-29	7/06-10 7/23-25	X	PM N	1E	1E	0E	3E RA	3E	3E	3Y	3Y NR	3Y	2Y NR	2Y	N	N	1 3	0 3	0 2	
NG-1	A/S	6/01	6/20	7/16	X	PM N	N	4E	5E	5E	5E	5Y	5Y NR	4Y 1DY/D	4Y NR	4Y	N	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.																			Nest Record Sheet Totals:				
																			31	29	22		

A completed Project Martinwatch nest data sheet from a hypothetical 4-unit wooden martin house that has one plastic and one natural gourd hung underneath it. A full-size data sheet for your site is available inside the PMCA's 1997/98 Martin Market Place catalog.

Martin Codes	X = Empty Cavity	D = Discarded	S = Subadult (SY)
	N = Nest	WH = Wooden House	? = Unknown
	E = Egg(s)	MH = Metal House	RA = Renesting Attempt
	Y = Young (Living)	NG = Natural Gourd	PM = Purple Martin
	DY = Dead Young	PG = Plastic Gourd	HS = House Sparrow
	NR = Nest Replaced	A = Adult (ASY)	ST = Starling

nest checks when the young are near fledging age. Lower the housing extra slowly and quietly when the young are near fledging age. And don't make fast movements or talk loudly. If you need to separate a huddle of nestlings that are older than 22 days-of-age, in order to count them accurately, use a long, blunt probe, not your fingers.

What to Do When You Find Problems

While doing your weekly nest checks, you are certain to encounter many situations requiring your immediate attention. If you should have the misfortune of finding a rat snake in one of your compartments, immediately remove and release it alive. Next, start beating yourself up, verbally, for not having had a pole guard in place, because you've probably just lost your entire colony, permanently. The same goes if you should find a raccoon on top of the house, or evidence they had been up the pole (i.e., chewed-off martin wings lying under the house, and blood all over the house). So, whatever you do, make sure your poles are equipped with guards. If you should find piles of plucked feathers, and/or discover doors pulled open, and/or discover many nestlings disappearing prematurely, and/or find an owl feather under the house, you've been hit by an owl. You will need to put owl guards around the outside of your house immediately. I believe owls visit nearly every martin house in North America and once they've succeeded in grabbing a meal, will return night after night until they've wiped you out.

Commonly, while doing a nest check, you will find a nestling (or less commonly, a parent) dead in the nest. Remove their bodies so any surviving nestlings aren't jeopardized by bacteria or disease. It is also common to find eggs that have been kicked out of the nest bowl to the front of the compartment, or out onto the porch or ground. You can discard these eggs — they will not hatch. Martins deliberately remove infertile eggs, or those with dead embryos. Do not place them back in the nest bowl. During a nest check, you also may find nestlings in places they don't belong, like on the ground, or in neighboring compartments. By referring to your nest record cards, you'll be able to return them to their rightful compartments, greatly increasing their chances of survival.

After the eggs hatch, you may encounter two additional problems needing attention: rain-soaked nests and parasites. Under certain weather conditions, nestlings in wet nests can die from hypothermia. If you find wet nests, remove the youngsters and throw out their nests. Replace each nest with a 2-inch pad of soft wood shavings, dried lawn clippings, or fine pine straw, then fashion a nest bowl or depression in the rear. Put the nestlings back into them. Once you start taking a closer look at your nests on a weekly basis, you may be shocked by the sheer abundance of nest mites, fleas, and blowfly larva you'll see. Tests at PMCA headquarters show that these parasites can prevent the fledging of as many as 50% of the hatchlings. The best and safest way to control nest parasites is to throw them out with the nest. We recommend changing the nests (as described above) on the 2nd and 4th nest checks post hatch, or when the nestlings are about 8-10 days old, and again when 18-20 days old.

What You Can Learn From Doing Nest Checks

If you're not monitoring your martin nests, you'll be at a loss to understand and interpret the behaviors you are observ-

ing, and will miss out on a great deal of the pleasure that can be derived each summer from hosting these wonderful birds. On the other hand, by keeping accurate records, and knowing exactly what is going on in each compartment, you can learn a great deal about your martins, and the species in general. For instance, you'll learn that adult martins at long-established breeding sites, don't begin nest building until about 4-6 weeks after the first birds are observed back and it takes them one to two weeks to complete their nests. You'll learn that they do not use every nest that they build. Sometimes as many as half the nests never receive eggs because martins seem to get disoriented while building, and construct partial nests in neighboring compartments. You'll learn that they rarely initiate their clutches until lining their nest bowl profusely with fresh, green leaves or pine needles and lay but one egg a day, usually in the early morning. You'll learn that adult pairs lay 4-6 (rarely 7) eggs, while subadult pairs typically lay 3-5 eggs, but adult birds sometimes pair with subadult birds. You'll learn that martins don't begin incubation until they lay their penultimate egg, and have an incubation period of about 15-16 days. You'll learn that all the eggs in a typical clutch may not hatch on the same day, but can have an asynchrony of two to three days. You'll learn that martin eggs are white, starling eggs blue, and House Sparrow eggs brown speckled. You'll learn that martin nestlings fledge 26 to 32 days after hatching. You'll learn that only about 80-90% of the eggs hatch and only about 80-90% of young fledge. However, during cold, wet summers, you'll discover that these rates can drop to as low as 0%. And finally, you'll learn that fledglings may, or may not, come back to sleep in the same (or nearby) compartments for a week or so, after fledging.

Participate in Project Martinwatch

If you are going to go to the trouble of doing weekly nest checks and recording your nesting data, please share it with the *Purple Martin Conservation Association*. Please fill out a Project Martinwatch sheet for every house at your site and send them in to the *PMCA* at season's end. Data being collected on a continent-wide basis over a period of time will allow us to learn a great deal about the population dynamics of this totally-human dependent species. You'll also have the satisfaction of knowing you are participating in a very worthwhile project, designed to help the species you love. To date, fewer than 130 (2%) of our 6,500 members are regular participants. We need more.

If every martin landlord in North America would start managing their colonies in a more "hands on," responsible manner, I believe the martin population would double or triple in just a few, short years. Landlords who haven't yet begun monitoring their martin boxes, out of fear of scaring their birds off, can look forward to greatly increasing the number of young they'll fledge each year, if they'll just take the nest check plunge. I strongly urge everyone to get more involved in their hobby by doing weekly nest monitoring. It's the most important, beneficial thing you can do to help the martins in your care.

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