

Supplemental Feeding Reduces May 2002 Weather Deaths of Purple Martins

Patrick Kramer

*Purple Martin Conservation Association
Edinboro University of PA
Edinboro, PA 16412*

James R. Hill, III

*Purple Martin Conservation Association
Edinboro University of PA
Edinboro, PA 16412*

Introduction

In May of 2002, unseasonably cool weather covered much of North America. To many folks, it seemed like spring was never going to arrive. But for martin landlords, the lack of warm weather presented a life-threatening challenge; would their birds be able to survive until the weather improved? Between May 17-22, a mass of cold air blan-

keted much of the eastern half of North America causing record low temperatures in many localities, resulting in widespread mortality of Purple Martins. Martins are unable to feed when the temperature dips below 48° Fahrenheit because their aerial insect prey become inactive. Purple Martins usually weigh 50-55 grams, but as a martin starves it uses up its energy stores (fat) and eventually will digest its primary flight muscles. A martin can only survive for 4-5 days without food, becoming weaker and weaker until it cannot forage. Martins that have starved to death typically weigh between 33-38 grams.

Purple Martins are the earliest tropical-wintering migrants to return to their nesting grounds. Because nesting cavities are typically scarce, birds are rewarded for early returns to breeding sites by the acquisition of a cavity. For this reason, martins have always pushed, and will continue to push, the limits of migration.

Purple Martins have several adaptations to help them cope with cold weather. The large size of a Purple Martin is one such adaptation. A large body has greater volume with less surface area, reducing heat loss. Communal cavity roosting behavior (20-40 birds packed into a single cavity) is another adaptation, where birds forfeit territoriality to share space, conserving heat. This sometimes backfires when the bird most exposed to the elements, the one nearest the entrance hole, dies from exposure or starvation, and traps the others inside the cavity. For this reason, it is important to monitor this behavior and check your housing frequently during episodes of cold weather. Another cold weather survival technique of the Purple Martin is to huddle up in warm, sheltered places. Martins are often observed sitting



Fig. 1. Ken Kostka (left) and James Hill (right) photographing 25 ground-roosting martins in Edinboro, PA, as they rush forward to eat the scrambled egg tossed to them during the martin-killing weather of mid-May 2002.

fluffed up in sunny wind-shadowed perches and shingled roofs when stressed (see Figs. 4, 7).

Even with all of these survival strategies, some martins will perish if they do not eat for 4-5 days. The length of survival depends on many factors, such as health, stored fat levels, and availability of communal cavity roosts. Ultimately, a bird has a given amount of energy

stored in its body fat and tissues, and if dietary requirements are not met, then that energy is used. In recent years, supplemental feeding techniques have been developed by some landlords to ensure the survival of their birds. Colonies located in the northern expanses of the martin's range are usually hard to establish making them essentially "more valuable," justifying the expense and effort. Some feel that in the grand scheme of nature, supplemental feeding is just another form of tampering and will have negative effects on the species. From reading the online *PMCA* Forum and the many letters to the *PMCA*, one quickly finds out that both sides are well represented.

The Martin-killing Weather of 2002

April and May were characterized by on and off cold, typical of most springs in the temperate parts of North America. However, this spring was punctuated by an extreme cold snap lasting 4-6 days depending on locality. The maps on page 25 show temperature deviations from normal average for the United States. One can clearly see how extensive the cold weather was. There were also winds and rain complicating the situation. On May 20th, the *PMCA* (in northwestern PA) received enough snow to accumulate on cars. We also had hard frosts four nights straight, devastating to both the birds and local farmers. However, temperatures in the days and weeks following this cold snap were agreeable to both man and bird, having highs in the 60's and 70's. June turned out to be a very hot month and it seemed the birds that survived the month of May had a good breeding season.

PMCA's Experiences

When the bad weather struck in May, the PMCA was fortunate to have already trained its birds to accept food; they showed little hesitation in taking mealworms and crickets (purchased from Fluker Farms, 1-800-735-8537). The PMCA has had success feeding its colonies since the spring of 2000. In 2002, we had been feeding the martins as needed since April. That readiness of the birds to accept supplemental foods certainly helped their chances for survival. It allowed them to feed without interruption and bought any bird not already feeding, or just arriving, more time to learn by watching its fellows eat.

Having a cloud of swirling martins above you anticipating your every toss of a mealworm is truly uplifting. Hearing their bills snap as they grab their meals as well as feeling or hearing the wind from them rushing by your head is equally thrilling. The martins even took food from the Bed & Breakfast feeder, saving them valuable energy they would have spent catching tossed foods.

Our challenge this year was to switch to scrambled eggs because of availability and cost. Mealworms and crickets are expensive and require advance planning, which is made difficult by the weather's unpredictable nature. Martins trained to eat eggs would fare better when surprise storms strike, by having an uninterrupted food supply. Louise Chambers really persevered in offering egg, and it paid off on the 20th of May when they finally began to take it.

By that time, the fourth day of cold, we had run out of mealworms. The martins needed to eat the egg or face starvation. The martins were sitting on the PMCA's roof for warmth, so it seemed logical to feed them there. We began

tossing eggs onto the roof, and the martins were soon gobbling up every last bit of it. Desperation was likely the reason they took to eggs, but desperation quickly turned to hope (for us). A feeding frenzy ensued and it lasted for 4 or 5 hours, until sunset. We even stepped up egg preparation by using two kitchens for the first 2 hours.

Eggs were cooked for one minute in the microwave, scrambling the yolk and whites without any added ingredients. The result was a fluffy omelet. But, we used a cup to flatten it into a solid cake so that they could be cut into short strips, mealworm sized (Fig. 5). Louise believed that worm-shaped egg pieces would appeal to the martins. They also proved beneficial because they were far less likely to roll off the roof than cubes. The martins' only preference had nothing to do with shape or size; they preferred an "animated" piece of egg to a still one. Eventually, every last crumb of egg was eaten, however we observed some birds (that would only eat a moving piece of egg) sitting among pieces of stationary egg. If one bird showed interest in a piece of egg by picking it up or pecking at it,

other birds would immediately run or fly over and a tug-of-war for the food would occur. We had great success with 2-cm. long, slender worm-shaped egg pieces (Figs. 4, 5).

Behaviors observed during this feeding frenzy had all of us at the PMCA captivated. The birds lost all of their wariness of people. Pat Kramer had an ASY-M land on his knit cap. Shortly later he had an ASY-F land right onto his open hand, which he

held out empty, just to see if a bird would land. She landed on his index finger and briefly looked back and forth between him and his palm expectantly. James R. Hill, III, had a bird land on his hand. A martin also landed on his scope while he was using it to read leg

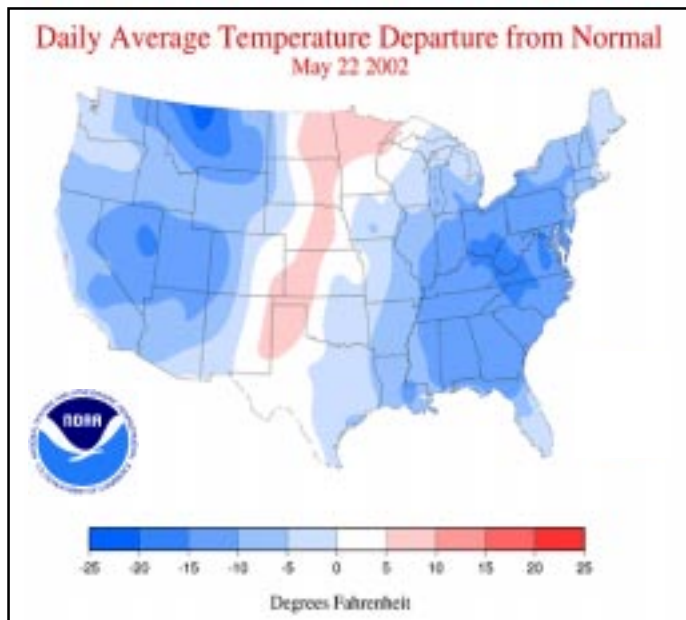
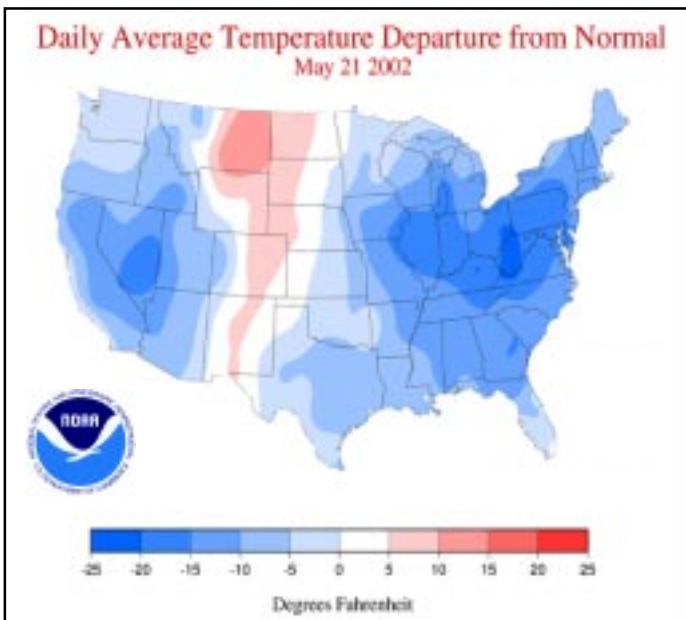
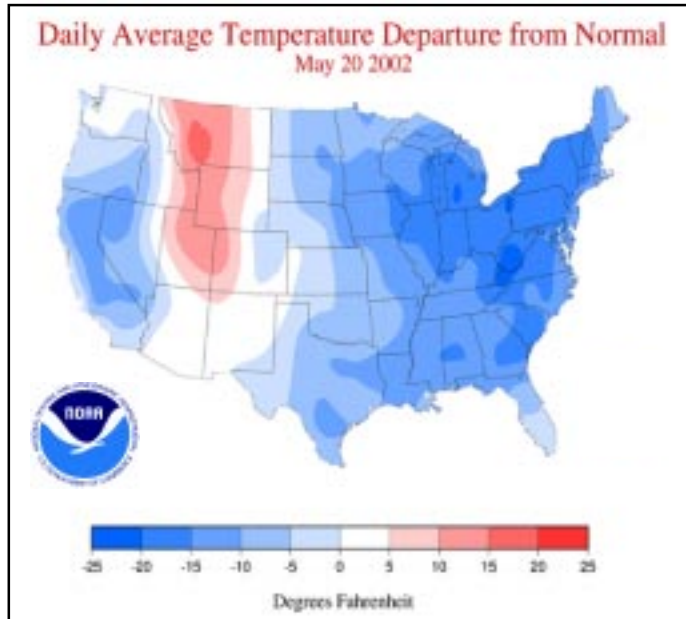
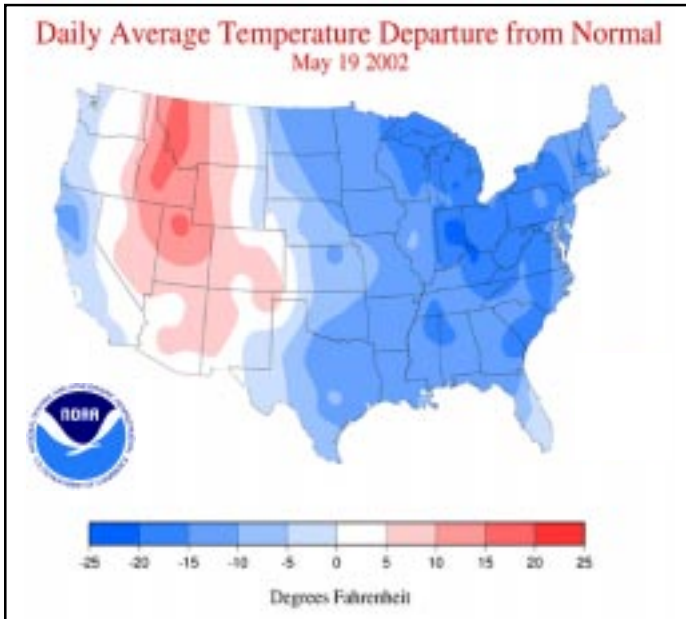
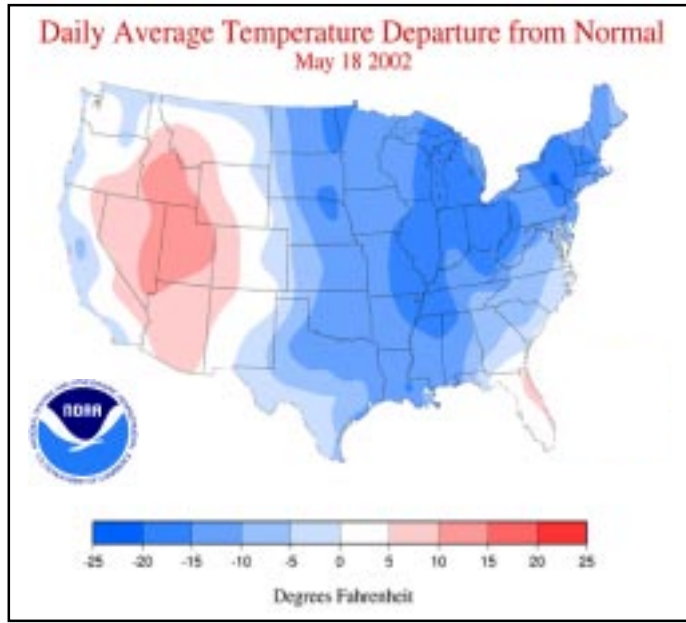
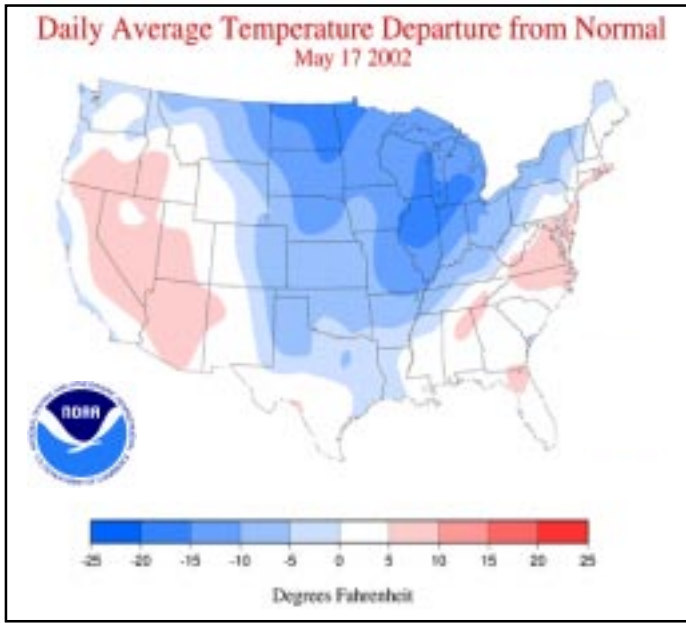


James R. Hill, III



James R. Hill, III

Fig. 2 (Upper Photo): Starving martins on the PMCA's driveway eating scrambled eggs. Fig. 3 (Lower Photo): A starving adult female Purple Martin down in the grass, under her gourd, too weak to fly.





James R. Hill, III

Fig. 4. An adult female Purple Martin on the warm, shingled roof of *PMCA* headquarters, in Edinboro, PA, eating some of the scrambled egg thrown to her as a life-saving, supplemental-feeding strategy during the mid-May 2002 bad weather.

bands; when he offered his finger to the bird, she bit him repeatedly without flushing. Louise was carrying eggs out when another female landed on her food tray. The starving martins were desperate enough to put their instinctive caution of people aside; they accepted our efforts to help them.

Other strange martin behaviors were observed, such as martins clinging to the side of a house like swifts in a chimney. Just under the main feeding area on the roof, a Bluebird SuperGourd with an active Tree Swallow nest had an unwelcome visitor. A female Purple Martin actually squeezed through the 1.5-inch entrance hole, while being mobbed by the Tree Swallow. The frantic bird chased off the martin once she wiggled her way back out of the small hole. After that, the Tree Swallow stood close watch over its nest gourd, aggressively deterring martins from getting too close.

The martins ate every speck of egg they could from the roof. They were walking on the ground beneath the roof and under the Bed & Breakfast where egg had fallen. They actually appeared as though that was how they always foraged! We were also amazed to see martins hopping into gutters to get egg that had rolled in from the roof. One could hear their feet as they scurried around



James R. Hill, III

Fig. 5. The scrambled egg "worms" the *PMCA* fed its starving Purple Martins in May 2002.

in the gutters. We had gotten ourselves into the habit of tossing them food over pavement or dirt so we could find and re-throw any uncaught food. This led to our martins landing in our driveway to retrieve egg pieces (see Figs. 1, 2).

Birds were still feeding up to 9:15 PM, 35 minutes after sunset. They communally roosted that night in natural gourds. James R. Hill, III, observed over 20 martins inside one and watched as martins entered and "climbed up the pile." We had over 80 martins hanging around our research site located outside the office, where most feeding

took place, despite there being only 15 open cavities. Clearly we had birds joining us from other colony sites nearby.

The Bad Weather Experiences of Other Landlords

This weather system affected the entire eastern breeding range of the Purple Martin. We received reports from many landlords. This weather event claimed the lives of adult martins in 13 states and two Canadian provinces: IL, IN, KY, MI, MN, NJ, NY, OH, PA, TN, VT, WI, WV, Quebec and Ontario. Nestlings died in 9 states: AL, GA, KS, KY, MS, NC, SC, TN, and VA. Kentucky

and Tennessee had both adults and nestlings perish. The geographic distribution of the martin mortality clearly corresponded with the weather patterns shown on six maps on page 25. Since the martins in the southern part of their breeding range lay and hatch their eggs earlier than in the north, this explained the pattern of nestling mortality observed. Adults in the north were naturally following a later schedule. In the geographic areas north of where nestlings perished, martins with eggs in their nests abandoned thousands of eggs. The most-northern martins hadn't begun egg-laying yet.

Several landlords in addition to the *PMCA* credited the survival of their martins to supplemental feeding. Mary Dawson of Michigan believed that virtually every Purple Martin in her area died of starvation between May 17-23. Her colony and that of a nearby neighbor survived because she fed many thousands of crickets and large mealworms throughout this period. She also reported that later migrating martins filled some of the newly-vacated sites. The delayed subadult migration provided many landlords with a second chance.

One touching story came to us from Linda Lyman of Ontario who had a female martin eat from her hand. She noticed the bird just "riding" the house as it was raised and lowered, so Linda offered her a cricket and the bird calmly ate several from her hand. Most people resorted to less personal means of feeding their martins, although most would have loved such an experience. Posts on the Purple Martin Forum <www.purplemartin.org/forum> contained pointers about how to work with crickets and mealworms. Some of the best advice included: pinch the crickets' heads before putting them in feeding trays (or on house porches) so they will still kick, but won't hop away; and freeze crickets ahead of time so that you will have an emergency supply handy that you can thaw out quickly to room temperature and use when necessary. One Forum poster even suggested what chain of fast food

restaurant had the best plastic spoons to use as catapults for flinging insects up into the air for the martins.

Ethics of Supplemental Feeding

While most martin landlords support the supplemental feeding of weather-stressed martins, there are those that oppose it. The Forum proved to be a hotspot for this controversial issue, provoking a heated debate between those with pro-feeding and anti-feeding viewpoints.

Those in favor of supplemental feeding feel it is our duty as landlords to help starving martins, to make sure that starlings and House Sparrows don't get the upper hand, and to make up for all the other ways humans have disturbed the balance of nature. Those opposed feel humans are taking conservation too far, are making martins too dependent on humans, and are interfering with natural selection.

The *PMCA's* official stand on the issue is that supplemental feeding of martins is a worthwhile and valuable management strategy

to be added to the landlord's arsenal. It's really no different than offering seeds to seed-eating birds, which most of us do without thinking twice about it. The Purple Martin has been declining in many portions of its breeding range, so active management is needed to reverse this downward trend.

Conclusion

Based on all the evidence, it seems clear that supplemental feeding of Purple Martins with crickets, mealworms, and scrambled eggs this past May saved many thousands from starvation. We strongly recommend that other landlords give it a try.



James R. Hill, III



Pat Kramer

Fig. 6 (Upper Photo): Hungry martins eating mealworms from the *PMCA's* Bed & Breakfast. Fig. 7 (Lower Photo): Weather-stressed martins huddled on the warm shingles of the *PMCA's* headquarters in Edinboro, PA.



Purple Martin Conservation Association
Edinboro University of Pennsylvania
Edinboro, PA 16444

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*An adult male Purple Martin eating
scrambled egg off the ground during
the bad weather of May 2002*