

Thoughts on Feeding Hummingbirds in the Winter

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Many years ago as a graduate student in zoology at UC Berkeley, I studied hummingbird behavior using both wild and captive birds as subjects. Species I studied included Anna's (*Calypte anna*), Black-chin (*Archilochus alexandri*), Allen's (*Selasphorus sasin*), and Rufous (*Selasphorus rufus*). Most of the time I kept my captive hummingbirds in an 8' x 8' by 8' outdoor enclosure sheathed in window screen.

Rather than feed simple sugar syrup, I fed a mixture containing sugar, vitamin drops, protein, and other nutrients. In addition, I maintained a colony of fruit flies and a couple of times a week would release a large quantity of them into the hummingbird cages. It was amazing to watch the action when the fruit flies were released. All of the hummingbirds took to wing and deftly plucked the fruit flies out of the air or any surface they happened to land on. The fruit flies didn't stand a chance and were quickly devoured. Using this approach I kept my captive hummingbirds healthy for over a year and even fledged and raised two Allen's hummingbirds which I collected in order to study learned vs. instinctive feeding behavior.

In 1999 I moved to Snohomish, WA where I put up a bird feeder, hung blocks of suet and, of course, hummingbird feeders. Many Rufous hummingbirds visited from spring to mid-summer and even nested in the shrubs on my property, but I didn't see my first Anna's hummingbird until 2011. By 2013 they became year-round residents and were breeding on my property. When the Anna's showed up I maintained a 4:1 sugar syrup all winter. When temperatures dropped below the mid-20s I kept the food from freezing with a ball of small Christmas lights.



As a few years passed, I observed that there were fewer birds in late winter than in early winter. Two possible reasons for this are that the birds leave and go somewhere else or they do not survive. Because little natural food is available in the winter, I believe it is unlikely that the birds leave. It is important to note that, once you attract hummingbirds for the winter, you must keep it up even if you are out of town or the birds may starve.

Both of my birding books from the 1960s, Peterson's *A Field Guide to Western Birds* (1961) and Robbins, Bruun and Zim's *Birds of North America* (1966), placed the north end of the range of the Anna's hummingbird in California. Since that time they have moved north as residents more than 400 miles. According to the National Audubon Society, winter feeding and home gardens have probably supported this movement (<http://birds.audubon.org/birds/annas-hummingbird>).

While sugar syrup may be fine to attract wild hummingbirds during the summer, it is not a sufficient diet for captive hummingbirds or, in my opinion, wild hummingbirds lured by feeding to stay in cold climates north of their native range. While normal winter mortality will cause loss of some birds, I believe the winter diet likely contributes to a reduction in overall fitness. In the near absence of insects and spiders, their primary source of protein and other nutrients is largely missing. Imagine what it would do to our health if we consumed mostly sugar water with just an occasional nutritionally rich food for 3 or 4 months.

In late 2014 I changed my winter feeding program soon after the first frost; a time when I expect the availability of insects and spiders to be greatly reduced. At first I tried to replicate the formula I used as a graduate student but found the ingredients are no longer available. One of the ingredients I did use was baby formula and, consequently, reviewed the nutrients in all of the baby formulas I could find. Eventually I selected Gerber Good Start gentle as my supplement. A key reason for this choice is that whey protein is the first ingredient. Most baby formulas on

January 4, 2016

the shelves at my grocery store use soy protein which is of vegetable rather than animal origin. The formula also contains a good selection of vitamins and other nutrients.

The recipe on the Gerber can calls for “1 unpacked level scoop (8.9g)” per 2 ounces of water. Given the high quantity of sugar needed to maintain body temperature, I was concerned that feeding at this rate would provide too much protein and, consequently, settled on 1 level scoop per 8 ounces of 4:1 sugar syrup. The instructions also say that you can refrigerate for up to 24 hours and discard unused formula after 1 hour. While this level of caution may be reasonable for infants, I have not found it to be necessary for hummingbird food. I typically mix up 8 ounces at a time then put 2 ounces in each of two small feeders placed fairly far apart (hummingbirds don't like to share). The Anna's hummingbirds which are using my feeders consume this quantity of food in about 3 days. In cold weather there is no sign of spoilage of the food outside. After a week in the refrigerator it still tastes and smells as fresh as when it was made up. As the weather warms up I will probably change the food more often and, when I see insects I will switch back to just sugar water.

At the end of last winter it appeared to me that there were as many Anna's hummingbirds as at the beginning. This gives me confidence that there isn't a downside to adding baby formula; it also gives me one subjective data point that the formula I use promotes winter survival. Time will tell whether this pattern continues in the future. At least I can feel confident that I am providing the hummingbirds with a more nutritious diet than they would otherwise be able to obtain, and they will hopefully be healthier coming out of winter.