DIATOMACEOUS EARTH USE INSIDE NESTS -- FOR BLOW FLY LARVAE CONTROL

(CAN ALSO ERADICATE EARWIGS AND ANTS INSIDE BLUEBIRD, TREE SWALLOW, AND CHICKADEE NESTS).

The adult female blow fly lays eggs in cavity-nesting birds' nests—usually when the temperatures are 70 degrees and above. Each female blow fly deposits thousands of eggs over her 2-to 8-week life span. An average fly lays about 50-200 eggs, but several flies can enter a nest box and lay eggs inside the nest. Hatching usually occurs in less than 24 hours when conditions are warm. The larvae feed on the nestlings by night and move downward into the nesting material during the day—remarkably, the larvae avoid being eaten by the adult birds during the day by hiding inside the nest and under the nest cup and nestlings. Blood is usually drawn from the nestlings' feet or legs, often from between the toes, and sometimes they attach to the nestlings' chest and onto the wings. If too many larvae exist in one nest, this infestation can cause the nestlings to have a developmental problem due to loss of blood and thus develop anemia—this can cause lack of nutrition, dehydration, and weakness to the point of not being able to take in food from the parent birds. If the weather is cold (50 degrees and under), insects become slow or dormant and is problematic for the parent birds to find these foods for their young. This can cause death in nestlings. Depending on the temperature, the larvae (maggots) usually complete development in 4 days. At the end of this period, larvae typically burrow in the nesting material and pupate for 5 to 7 days which the adult flies emerge. About a week later, new adult females begin to deposit eggs and the life cycle is repeated. A small amount of the gentlest form of organic 100% **"FOOD-GRADE" DIATOMACEOUS EARTH** can be applied under a completed nest cup to eradicate the larvae. What is DE? Diatomaceous earth is made from the fossilized remains of tiny, aquatic organisms called diatoms. Their skeletons are made of a natural substance called silica. Over a long period of time, diatoms accumulate in the sediment of rivers, streams, lakes, and oceans. Today, silica deposits are mined from these areas. Diatomaceous Earth is not a chemical pesticide—it is the mechanical method to eradicate the larvae before their mouthparts develop and feed on the nestlings' blood. When soft-bodied insects come in contact with D.E., this causes massive loss of body fluids, dehydration, and then the larvae die. When the dust is eaten by crawling insects, the D.E. inhibits breathing, digestion and reproduction. Because it kills by mechanical action rather than poison, insects have not developed immunity to it. You can find this product in health food stores or online. Avoid pool-grade DE or any with chemical additives sometimes found in DE sold at garden centers. Ask for 100-percent "food-grade" diatomaceous earth, the gentlest and purest form of DE. The color is white and the consistency is like a fine flour.

WHEN AND HOW TO SAFELY APPLY FOOD-GRADE DE: Best time to apply DE is after the first egg is laid BUT BEFORE hatching takes place—a two-week period opportunity window of time to insert the DE carefully inside the nest under the eggs inside the nest material. Once the first egg is laid, Mom bird has completed shaping her nest cup for the egg clutch. This helps to be sure none of the DE is on top of the eggs or on the top of the nest cup where the eggs are. Ideally, the best time is during the egg laying period because the female has not started incubation and more than likely will be off the nest in the afternoons. Use an inexpensive plastic ketchup container with a narrow tip and cap. Many of these can be purchased for about $1 at local grocery stores in kitchen or picnic supply sections.

EASIEST AND SAFEST APPLICATION DIRECTIONS: WITHOUT TOUCHING THE EGGS, find the bottom of the nest cup gently with one finger. About ONE INCH BELOW that point of center of the nest, insert the tip as far as it will go, pointed slightly down towards nest box floor and apply a few puffs just under the nest cup, and then about one inch on both sides at that same depth surrounding the nest cup. Be sure not to push the tip straight inside the center of the nest cup so that no DE powder is on top of the egg clutch or on top of the nest cup. Take a clean brush and gently brush out and down and away from the nest any excess powder on edge of box. If it is a very windy day, consider returning and applying the next day or so. One application per each brood is enough to eradicate most (not always all, which is OK) larvae stages. Used, fledged nests left over the winter can have overwintering parasites, including blow fly larvae, so do remove the used nests after each fledging so that the breeding birds have a clean box to build a fresh nest. The following page explains the easiest method how to apply DE inside nests. See photos next page…

PHOTO SEQUENCE STARTING TOP LEFT TO RIGHT AND FOLLOWING NEXT ROW: After first egg is laid but before hatching, carefully find bottom of nest cup (do not touch eggs). Pointing tip DOWN, puff DE a few times below center one inch below bottom of nest cup and then on each side of nest cup at same level one inch surrounding each side, tip pointing down. Take a clean paintbrush and remove excess DE powder on edge of nest box, cap DE bottle to keep moisture out, use a mirror to check nest, and then securely close box. After doing this a few times, it will be much easier with practice.

Prepared by C. Boran, for VBS, 2018