

# Sialia

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## Spring Weather Can Be a Killer

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Living in western Oregon as I do, it's lawfully easy to blame everything on the rain: blue funks, wimpy vegetable gardens, poor voter turnout at elections, and on and on. Sometimes, however, dreary weather affects the non-human residents of the state, too.

For the last eight years, I have spent an exorbitant amount of time peering into chickadee, duck, swallow, and bluebird nest boxes. I work on projects of the Northwest Ecological Research Institute. Our bluebird study (which has been helped by several generous grants from the North American Bluebird Society) is in central Oregon, on the east side of the Cascade Range, where it's supposed to be dry. We have almost 300 bluebird boxes that we have checked every two weeks during each breeding season since 1988. We are studying whether chemical spraying for grasshopper control affects the reproductive success of Western and Mountain Bluebirds (*Sialia mexicana* and *S. currucoides*).

Frequently the weather in central Oregon is sunny and hot, but every spring there are periods of cold, rainy, windy weather that are not only miserable for us box monitors, but fatal to some of the bluebirds and other cavity nesting birds as well. Even on the rainy west side of the mountains, where you'd think the birds would have evolved to cope with nasty spring weather, a prolonged period of cold and rain will cause the death of considerable numbers of birds. Usually young nestlings die or ~~and~~ eggs fail to hatch, leaving the adults to try nesting again when the weather improves; occasionally, the cruelest weather takes the lives of adult birds as well.

While spring weather is the real culprit, the immediate cause of death is usually either starvation or hypothermia, or both. Starvation may be the most frequent cause of death of both adults and nestlings. Although spring is a time of abundant flowers, fruits

have not yet formed or ripened, and last year's fruits have either rotted or been eaten. Spring is a time of hatching insects, but during periods of cold, wet weather, insects become inactive and hide in protected places. While chickadees rarely starve, because they are adapted to searching for hidden seeds and insects, it is much harder for bluebirds, that rely on seeing insects move, to survive. What happens to swallows that depend on high flying insects? Tree Swallows (*Tachycineta bicolor*) are especially susceptible to adverse weather conditions, because they arrive so early and because the availability of their prey is so strongly influenced by weather. Almost every spring I have found dead adult Tree Swallows in nest boxes in which the entrance is only 2 inches above the floor and on sites with no pesticide use. During the spring of 1991 (the spring that did not come to central Oregon until July), for the first time, I found adult bluebirds in our boxes that had died of starvation—nine dead adults in all. I do not believe that weakened birds are trapped in the boxes and die. I believe that weather is the killer; probably our nest boxes provide shelter to individual swallows and bluebirds that would otherwise die.

Insects provide protein for nestling birds of many species, even those that prefer fruit or seeds as adults. Grasshoppers, the preferred food for our bluebirds to feed to nestlings, do not hatch until the eggs are warmed by days of sun. The eggs are safe from even the worst weather. Once the grasshoppers hatch, however, prolonged periods of cold, wet weather keep them inactive so that they may starve, and can allow the rapid spread of diseases that can kill off grasshoppers by the thousands. When the weather turns bad, enterprising bluebird parents find spiders, beetles, and crickets, but often not enough to keep hungry young bellies full.

Hypothermia or chilling is the other major cause of spring deaths among birds, and often occurs in combination with starvation. Before they are fully feathered, during the first 10 days after hatching, nestlings are unable to maintain their own body heat. Eggs chill easily, too; especially in the second week of incubation, chilling is usually fatal. Prolonged stormy weather means many opportunities for either eggs or nestlings to become chilled. When cold storms blow in, parents have a difficult choice to make: going out to search for food or staying in the nest to keep young babies warm. Adult birds are also vulnerable because soaked feathers provide little insulation and energy reserves are rapidly depleted. Even before they start to nest, adult birds may have to choose between the risks of chilling when trying to search for food and starving when trying to stay warm.

Abandonment of bluebird nests is a frequent occurrence in early spring; in my experience, it is almost always caused by bad weather. The immediate cause of death is hypothermia, in combination with starvation in the case of nestlings. If bad weather persists for more than a few days, adult birds must stop feeding nestlings or incubating eggs and must concentrate on their own survival. If the adults die, the babies or eggs will die anyway, but if the adults survive, they can nest again. Many more nests are abandoned with eggs than with nestlings. I have found several instances of four layers of nests with eggs abandoned. The parents stick with the same box because the problem was with the weather, not with the box. (On the other hand, bluebirds and chickadees will always move to another nest site if a predator successfully invades a box.)

To humans, the abandonment of babies sounds cruel, and we don't like to think of our beautiful bluebirds as not being good parents. The truth is that they are good parents, as all of us know who have watched an adult male attack a predator near the nest, or who have found the torn body of a dead parent draped over a nestful of eggs. Blue-

bird parents abandon eggs or nestlings when they have no other choice. In Oregon, spring is notorious for coming and going repeatedly before summer suddenly settles in. Under those conditions, abandonment and re-nesting is a necessary strategy for bluebirds to survive and reproduce most successfully.

Earl Gillis, who organizes volunteers and maintains bluebird trails in northwestern Oregon (*Sialia* 11(4):127-130), reports that periods of bad weather in spring cause many bluebird nest failures in his area, too. He has done some pioneering work in identifying which are the most vulnerable days in the nesting cycle for weather-related failures, and in determining the length and degree of nasty weather likely to be fatal. Earl's work has been very helpful to our bluebird study in eastern Oregon, and we are working together to more precisely correlate nest failures with weather patterns. More importantly, trail monitors now know when it might be critical to replace wet nest material and put out mealworms, saving bluebird nestlings that would otherwise have died during cold, wet periods. These desperate measures are taken in a region where bluebirds are fighting for survival against loss of habitat, introduced competitors, and pesticides. Even where bluebirds are doing fairly well, we should put up nest boxes that face away from the local prevailing storm track. When spring weather becomes a killer, although eggs may be abandoned and young nestlings may starve, the adults may survive to nest again when the sun returns. ■

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