

A Wacky Winter

By Donna Chase, Master Naturalist

This winter has been unusual. With low snowpack and warm spells, early signs of spring are appearing across the valley. *"Daffodils and spring parsley are blooming down valley. Chickadees and juncos are active during milder days."* These changes raise good questions: What happens to small mammals that normally live beneath the snow? Are black bears waking early? While experts don't always agree on the effects of temperature and snowpack, most agree that **daylight** is the primary cue that guides winter behavior in animals.

Before exploring how wildlife responds, it helps to understand a few key terms related to winter survival.

Subnivean Zone

The subnivean zone - a *"critical ecosystem of tunnels under snow that maintains a 20-30 degree temperature in winter"*-forms only when at least **6 inches of snow** accumulate. This insulated layer shelters voles, shrews, mice, weasels, and sometimes rabbits, skunks, and raccoons. Predators such as foxes, owls, and coyotes listen for movement beneath the snow before striking.

In low-snow years, this protective layer is thin or absent, leaving small mammals more exposed and forcing them to rely on brush, logs, and burrows for cover.

Brumation

Brumation is the winter strategy used by cold-blooded reptiles and amphibians. Their body temperature matches the environment, and they become largely inactive for long periods, waking only during warm spells or to hydrate.

Hibernation

True hibernation is a deep, long-term dormancy used by warm-blooded animals such as marmots, chipmunks, and bats. Heart rate and body temperature drop significantly, and the animals do not move, eat, or drink throughout the winter.

Torpor

Torpor is a short- or long-term state of reduced activity that helps animals survive cold or food scarcity. Heart rate remains relatively high, and animals can wake easily. Birds use torpor

overnight, and black bears enter a deep, torpor-like state in their dens. They can be awakened and may emerge early if temperatures rise or food becomes available.

Black Bears in Winter

Experts differ on the exact terminology for black bear dormancy-some consider it hibernation, others torpor, and some a mix of both. Regardless of the label, their winter behavior is well understood.

Bears prepare for winter by gorging in the fall (*hyperphagia*). Once inside the den, they don't eat, drink, urinate or defecate for up to 200 days. Soon after denning, a fecal plug (tappen) forms naturally in the colon. It is 7-15 inches long and 1½ to 2½ inches thick-extremely dry and hard- made of feces, intestinal cells, and foot-pad skin. They eliminate this plug upon leaving the den in the spring.

Throughout winter, bears lose **15-30%** of their body weight. Females give birth in the den and remain inside longer than males to care for their newborn cubs.

Winter Survival Strategies

Animals use a wide range of adaptations to survive both mild and harsh winters. These include:

- Specialized hairs and feathers that conserve heat
- Fat layers for insulation
- Shivering and huddling to maintain body temperature
- Circulatory adaptations that protect extremities
- Migration, burrowing, and various forms of dormancy

Does a mild winter affect wildlife? Experts agree that *"length of daylight rather than temperature and snowpack determine when animals become fully active again."*

Conclusions:

- "Even in a warm winter, animals follow daylight, not temperature."
- "Low snowpack means less subnivean space, so small mammals rely on brush, logs, and burrows instead."
- "Different animals use brumation, hibernation, or torpor to save energy."
- "Wildlife has many built-in tools to handle unpredictable winters."
- "Bears are master winter survivors with remarkable adaptations."