Under Dark Skies: How Light Pollution Impacts Wildlife
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Since we are mostly creatures of the day, it's easy to overlook how much life unfolds after dark. Yet across the plant and animal kingdoms, nighttime is full of activity—and it only functions as it should when the nights stay dark.

Artificial light at night (ALAN) has become an increasing problem as development spreads. There is a misconception that "brighter is better" (and safer), but too much light in the wrong place or at the wrong time can be counter-productive and can impair vision compared to the right amount of warmer, shielded lighting where and when we need it. In many cases, outdoor lighting isn't needed at all. As we learn more about ALAN, it's clear that improper nighttime lighting harms both people and wildlife. The good news is that switching to responsible outdoor lighting is simple and achievable. Organizations like DarkSky International offer excellent resources to help you become a defender of our night skies, and the many organisms that depend on them.

1. **Insects:** Many nocturnal insects, like moths, use the moon to navigate, a mechanism called the dorsal light response. Artificial light at night disrupts this, causing insects to circle lights endlessly, wasting energy and becoming easy prey. Fireflies rely on bioluminescent flashes to find mates, but bright lights can stop them from flashing altogether—reducing mating and contributing to population declines.

2. **Bats:** Bats' foraging is guided by moonlight and the lunar cycle, but ALAN can disrupt these patterns and alter local bat communities. Some species avoid lit areas, reducing access to otherwise suitable habitats for commuting, foraging, roosting, and raising young.

3. **Snags:** Standing dead trees, or snags, are vital nighttime habitats. Cavities offer habitat for owls, flying squirrels, and raccoons, while loose bark provides shelter for bats, moths, and snakes. Ambient artificial light near snags disrupts nocturnal behavior for all of this wildlife.

4. **Responsible Outdoor Lighting:** Outdoor lighting should be purposeful, no brighter than necessary, targeted, warm in color, and in use only when needed. This saves energy, enhances security, supports human health, protects wildlife, and preserves the beauty of the night sky.

5. **Starry Skies & Healthy Nights:** Humans evolved according to natural cycles of light and dark, and our view of the star-filled night sky has guided all aspects of our civilization. Losing the night sky ruptures our deepest connection to the natural world (and the universe beyond), while bright nights increase health risks through circadian disruption.

6. **Migratory Birds:** About 80% of migratory birds travel at night, using moonlight, stars, and horizon cues to navigate. Artificial light can disorient them, causing collisions with buildings, exhausting circling behavior, or delayed migration.

7. **Owls:** Owls rely heavily on dark skies for hunting and navigation. Artificial light can stress them, drive them from nesting areas, and act as an ecological trap near roads, increasing collision risk.

8. **Mammals:** Nocturnal mammals rely on dark skies to forage, hunt, and hide from predators. The presence of artificial light at night has been shown to trigger an avoidance response in mammals, disrupting their behaviors. Light pollution causes nightscape fragmentation that isolates dark areas from each other, limiting the available habitat and resources for nocturnal mammals.

9. **Amphibians:** ALAN effects on amphibians include loss of visual acuity, reduced calling, and altered movement patterns. Feeding, breeding, body size, and body coloration can also be impacted. Up to 88% of nocturnal frogs and toads are drawn towards artificial light increasing predation risk, road mortality, and exposure to human infrastructure.

10. **Plants:** Many plants are adapted for nighttime pollination. Night-blooming and white or fragrant flowers such as Evening Primrose, Common Yarrow, and Common Yucca attract nocturnal pollinators like moths. Artificial light can disrupt pollination, alter life-cycle cues like bud break and dormancy, and cause stress that makes plants more vulnerable to drought, pollution, and frost damage. Lights near trees can delay leaf drop in fall or trigger premature flowering in spring, putting reproductive efforts at risk.

For additional information visit DarkSky.org
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