Lights Out for Lepidoptera: Helping Moths (and Your Garden) by Preserving the Night

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When we think about pollinators, it's easy to picture butterflies flitting around in daylight or bees gathering nectar under the sun. But there's an entirely different crew of pollinators that take over after dark—quietly, efficiently, and largely unnoticed. Among the most important? Moths.

Hummingbird moth – Courtesy of Tom Ress

These nighttime pollinators may not get the fanfare of their daytime counterparts, but they play an essential role in supporting native plants, feeding birds and bats, and helping gardens and wild spaces bloom. Unfortunately, their work is being disrupted by something as simple as the lights we leave on at night.

Moths are far more than fluttering porch guests. In fact, they make up the majority of the Lepidoptera group (which also includes butterflies) and number more than 160,000 species around the world. Many of them are excellent pollinators, especially of night-blooming flowers that rely on scent and pale petals to attract visitors under moonlight.

What makes moths special in the garden? They can travel long distances, sometimes miles, in a single night, carrying pollen between flower patches across yards, neighborhoods, and even fragmented wildlands. This helps plants maintain strong genetic diversity, which in turn supports resilience to pests, disease, and changing climate.

Yucca moth – Courtesy of Ann Cooper CC BY-NC

Some plants have evolved to rely exclusively on moths. Others simply benefit from having pollinators that work the night shift, filling the gap left when bees and butterflies go to bed.

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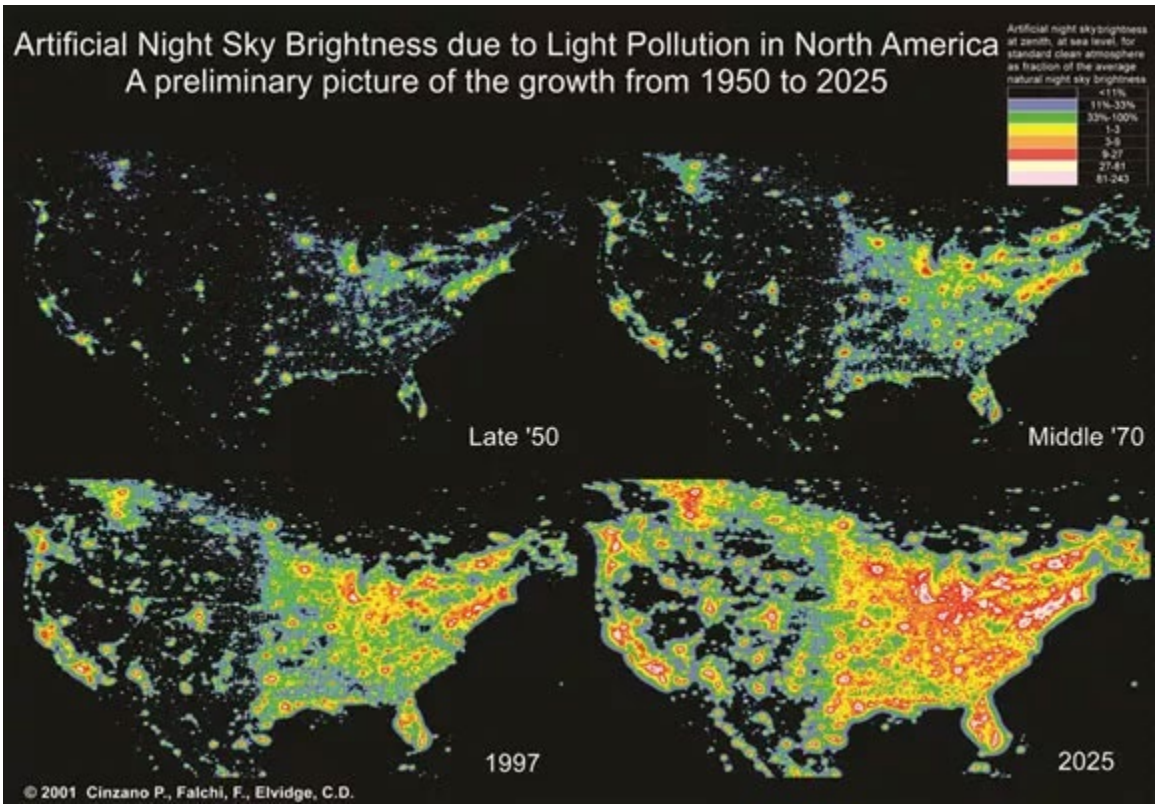
What's the Problem with Lights?

Moths have evolved over millions of years to use natural light from the moon and stars to navigate. Today, the increasing glow of artificial lights, like porch bulbs, streetlamps, and floodlights, confuses them. Many moths are drawn in tight circles around lights until they collapse from exhaustion, are eaten by predators, or can't find food or mates.



Light Pollution Over Time – Courtesy of the NPS

This disorientation is known as "flight-to-light" behavior. It doesn't just affect one or two insects - it disrupts entire pollination patterns and can contribute to declines in moth populations. And fewer moths mean fewer pollinated flowers, less food for birds and bats, and less support for your garden's health.

What You Can Do at Home

The good news? You can help moths and other nighttime wildlife starting tonight. Here are a few easy, garden-friendly actions:

- **Turn off unnecessary outdoor lights**, especially during spring and summer when the moths are most active.

- **Use motion sensors or timers** so lights are only on when needed.
- **Swap to warm-colored bulbs (2700K or lower)** - they're less attractive to moths and still provide plenty of light for humans.
- **Point lights downward**, not up or out into the yard.
- **Plant a moon garden** with pale-colored, fragrant flowers that bloom at night, favorites of moths and other nocturnal pollinators.
- **Say no to bug zappers and avoid using pesticides**, which often harm helpful insects more than the pests they target.

Virginia Creeper Sphinx – Courtesy of Dean Smith and Indiana Nature LLC

Letting your garden go dark is one of the simplest and most powerful ways you can support biodiversity. By simply flipping a switch or adjusting a fixture, you create a safe space for moths to thrive—helping to keep the pollinator web strong.

So next time you pause outside in the evening, take a look around. You might just spot a fuzzy little pollinator zipping past your moon garden, doing the quiet work that keeps our ecosystems blooming.

Moon Garden Favorites (Native + Moth-Friendly)

All Regions (widely adaptable or with broad ranges):

- **Evening Primrose (*Oenothera biennis*)**: Tall spikes of soft yellow blooms that open at dusk, beloved by sphinx moths. Easily grown in sunny, dry to medium soils.
- **Wild Bergamot (*Monarda fistulosa*)**: Pale lavender blooms with a minty fragrance, drawing bees by day and moths by twilight. Prefers full sun to partial shade and medium soils.
- **Common Yarrow (*Achillea millefolium*)**: Cream or white clusters that reflect moonlight beautifully, great for many pollinators. Drought-tolerant.

- **Purple and White Prairie Clover (*Dalea purpurea* and *D. candida*)**: Pairing these two species can enhance both aesthetic appeal and pollinator benefit. Best in sunny, dry prairie-style gardens. (Note: *D. candida* can appear weedy and may not suit all aesthetics.)

Midwest & Plains:

- **Wild Quinine (*Parthenium integrifolium*)**: White, sturdy flower heads, blooms well into the evening. Hardy and drought tolerant, thrives in sunny spots.
- **Meadow Anemone (*Anemone canadensis*)**: Soft white flowers in spring; gentle groundcover for shaded moon garden borders. (Note: can spread vigorously.)
- **Fragrant Gaura (*Oenothera guara*, formerly *Gaura biennis*)**: Tall, wispy white-pink blooms open in the evening and sway with even the slightest breeze.

Northeast & Appalachians:

- **Virginia Bluebells (*Mertensia virginica*)**: Though not white, the luminous pastel-blue flowers glow at twilight. Moist, shady woodlands are ideal.
- **White Wood Aster (*Eurybia divaricata*)**: Pale flowers bloom in shade and provide late-season support for moths.

Southwest & Desert:

- **Sacred Datura (*Datura wrightii*)**: Large white trumpet flowers that bloom at dusk; attracts hawk moths. (Note: toxic if ingested; be wary for outdoor pets who enjoy eating plants!)
- **Desert Evening Primrose (*Oenothera deltoides*)**: Low-growing with huge white blooms that unfurl in evening. Ideal for sandy, arid gardens.

Pacific Northwest & California (Note: these species have very specific site needs – include only if your garden has suitable conditions)**:**

- **Yerba Mansa (*Anemopsis californica*)**: Moisture-loving with white, cone-centered blooms; thrives in pollinator gardens with streambanks, seeps, or raingarden components.
- **California Evening Primrose (*Oenothera californica*)**: Sprawling, delicate white blossoms that open in low light. Loves sandy, low-water soils in coastal or desert areas.