

SCIENCE BRIEF

Why and how we can protect our night

A natural night sky, illuminated by the Moon, stars and Milky Way, connects us to something ancient and shared. For as long as life has existed on Earth, darkness at night has been as fundamental as sunlight, rain and soil. Natural darkness is part of the living world that we belong to.

All life on Earth has evolved with the natural rhythm of day and night. This cycle, repeated for billions of years, is encoded in the biology of every living thing from the smallest insect to the largest mammals. When the night sky stays naturally dark, wildlife can navigate, feed, reproduce, and rest as they always have.

More than 75% of New Zealanders agree that preserving dark night skies is important to them, with appreciation for darkness strongly linked to beliefs about its benefits for health and wellbeing.¹ Seeing natural nightscapes is important to people who head outdoors overnight in Aotearoa.² Unfortunately, natural darkness and its benefits are becoming harder to come by as our night skies keep getting brighter.

Artificial light at night

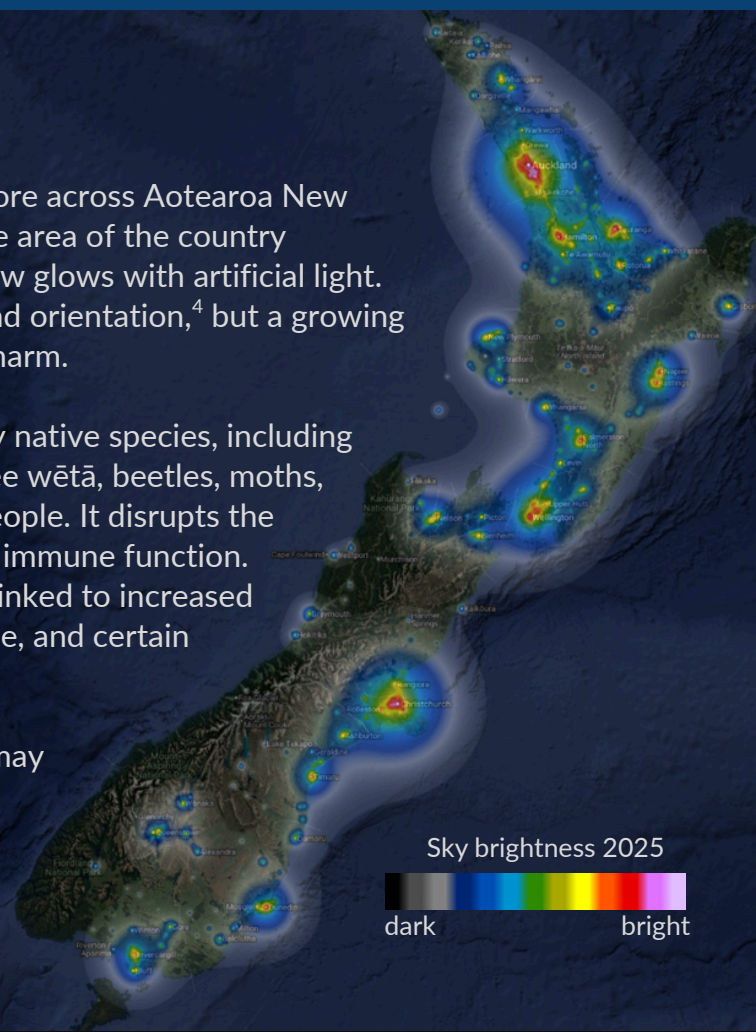
Artificial light at night is being used more and more across Aotearoa New Zealand. Between 2012 and 2021, the lit surface area of the country increased by 37%³ and much of our night sky now glows with artificial light. Light at night can be helpful for human safety and orientation,⁴ but a growing body of evidence shows that it also causes real harm.

In Aotearoa, artificial light at night disrupts many native species, including kiwi, tūī, riroriro, gulls, seabirds, pōhutukawa, tree wētā, beetles, moths, glow worms, fish, and bats.³ Light also affects people. It disrupts the body's internal clock, affecting sleep, mood, and immune function. Long-term exposure to artificial light at night is linked to increased risk of obesity, depression, cardiovascular disease, and certain cancers.⁵

We are still learning how artificial light at night may affect spiritual and cultural connections, and celebrations like Matariki.

Sky brightness 2025

dark  bright



Our lighting choices make a difference

Good news! Responsible lighting design and modern technology can deliver the right light, in the right place, at the right time - while reducing effects on wildlife and people.

Responsible lighting is:



Useful

Use light only if it is needed

All light should have a clear purpose. Consider how it will affect wildlife and their habitats.



Targeted

Direct light only where it is needed

Use shielding and careful aiming to point light downward so it does not spill beyond where it is needed.



Less bright

No brighter than necessary

Use the lowest light level required. Be mindful that some surfaces reflect more light into the night sky than intended.



Controlled

Use light only when it is needed

Timers or motion sensors keep light on when needed and off when not.



Warm-coloured

Use warmer-colour lights where possible

Limit blue-violet (short wavelength) light to the least amount needed — it is the most disruptive to wildlife.

Adapted from Dark Sky International and the Illuminating Engineering Society



1. Cieraad E & Dalley J (2026). New Zealanders' connection with the night sky. Kōtuitui: New Zealand Journal of Social Sciences Online, 21(1): e70013.
2. DOC, unpublished data.
3. Cieraad E & Farnworth B (2023). Lighting trends reveal state of the dark sky cloak: light at night and its ecological impacts in Aotearoa New Zealand. New Zealand Journal of Ecology, 47(1): 3559.
4. Cieraad E & Dalley J (2026). Bright needs, dark desires: Public preferences and balancing the benefits of artificial light and natural darkness at night in Aotearoa New Zealand. People and Nature, 8(1): 197–209.
5. Zielinska-Dabkowska K, Schernhammer E, Hanifin J, Brainard G (2023). Reducing nighttime light exposure in the urban environment to benefit human health and society. Science, 380(6650).
Images: Karem Adem, www.lightpollutionmap.info, Dark Sky International