Tāhuna GLENORCHY DARK SKIES SANCTUARY

Newsletter February 2026

We hope you have been having a nice relaxing summer so far, although the weather has given us quite a mixed bag.

February sees a return of darker skies earlier than the previous months and we are looking forward to getting back out and planning more night events.

One event to look out for is the total lunar eclipse on 3 March. Although the actual totality of the eclipse isn't until around midnight, we're thinking of having an informal gathering to witness the event, and perhaps get some photos.

Mars takes the spotlight as our Planet of the Month, so we'll be shining a light on our red planetary neighbour and what we know about it.

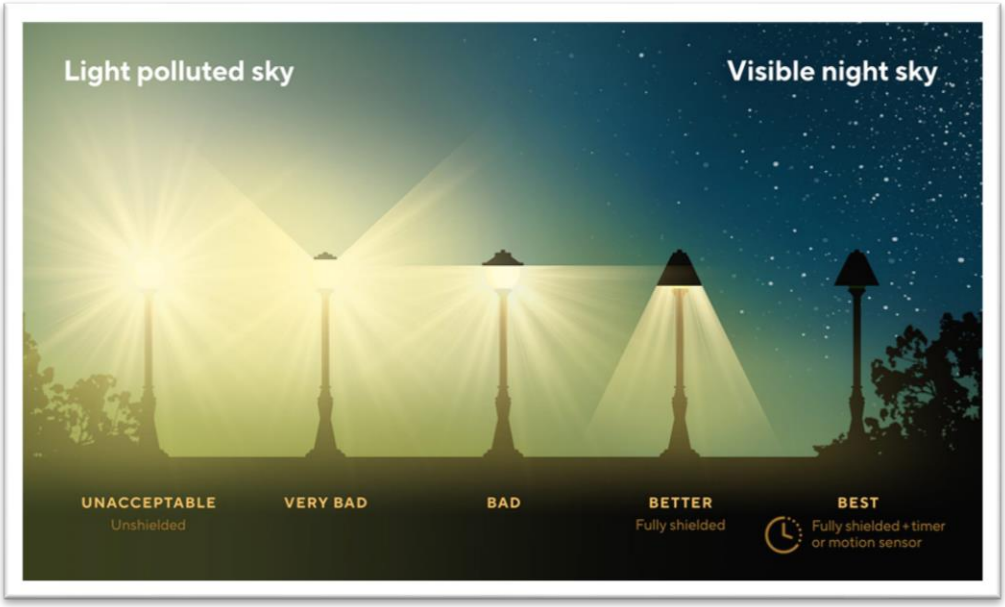
Meanwhile, we're thinking about how to encourage more people to think about light pollution and how to reduce our light "footprint" so there's some helpful hints in this month's newsletter.

The Dark Sky International Website has a lot of information about light pollution and has a whole section dedicated to a personal lighting audit, reproduced in part at the end of this newsletter, too. It's a great place to start!

Coming up this month:

- 1st Feb: Full moon
- 6th Feb: Waitangi Day
- 14th Feb Valentine's day
- 17th Feb: New moon
- 18th Feb: Mercury Is 0.1 degree north of the moon (at 11.03 pm) and an occultation will be visible from New Zealand
- 19th of Feb: Mercury will be at the greatest eastern elongation

Here is the link https://darksky.org/get-involved/home-lighting-assessment/



World Astronomy News

Sunlight on Demand?

Dark Sky International has recently brought to our attention a private start-up company proposing to "light up the night" and have asked us to sign an open letter to the company.

A private California-based start-up is proposing a future in which thousands of in-space mirrors mounted on satellites direct light down to targeted areas on Earth, threatening natural darkness. The company describes this concept as “sunlight on demand,” an idea that would fundamentally alter the night time environment as we know it.

How orbital illumination systems would work

Reflect Orbital’s proposal centres on deploying satellites equipped with large reflective surfaces into low Earth orbit. These mirrors would redirect sunlight toward targets on Earth to customers seeking light at night.

According to company materials, the system is designed to illuminate areas up to five kilometres wide, with reflected light reaching intensities between 0.8 and 2.3 lux, several times brighter than a full moon.

Because satellites move rapidly across the sky, any given area would be illuminated only briefly, for a matter of minutes, as a single satellite passes overhead. Achieving consistent or sustained illumination would therefore require multiple satellites targeting the same location in sequence. **To provide illumination of practical value, the company has proposed deploying thousands of satellites in large mega-constellations.**

Reflect Orbital has applied to the U.S. Federal Communications Commission for a license and, if approved, plans to launch prototype satellites as early as 2026

This link takes you to the news article and the link to sign the open letter if you feel so inclined.

Also happening in astronomy last month...

- **Rogue Saturn:** Astronomers measured the mass of a free-floating, "rogue" planet for the first time, finding it to be roughly the size of Saturn, making it surprisingly massive for a planet floating alone through the Milky Way without connection to a star like our sun.
- **Webb's "Red Dots" Explained:** The mysterious "red dots" in JWST images of the early universe have been identified as young, supermassive black holes hidden within dense, gas-rich "cocoons".
- **Earliest Hot Galaxy Cluster:** Using ALMA, astronomers detected the earliest hot galaxy cluster atmosphere ever observed, existing just 1.4 billion years after the Big Bang, challenging theories about how quickly structures formed.
- **Protoplanetary Disk Chaos:** Hubble revealed the largest, most chaotic protoplanetary disk ever observed, showing that the birth of planets is more turbulent than previously thought.
- **Betelgeuse's Companion:** A small, hidden companion star was identified as the cause of the variable “heartbeat" behaviour of the red giant star Betelgeuse.

Learn the night sky

This month...

The Moon will be full on the 1st of February and the New Moon is on February the 17th. Dark night begins at 11.18 pm on the 1st of February and begins at 10.20 pm by the end of the month on the 28th of February.

In the Evening Sky

On the 18th of February, Mercury is 1 degree north of the moon and you can watch an occultation. This is when Mercury disappears behind the moon.

Venus is visible after sunset all month.

Saturn is in Pisces and is visible for a few hours after sunset.

Jupiter remains in the constellation of Gemini and can be seen as soon as the sky is dark.

How to Find Gemini in the night sky

First find our old friend, the constellation Orion. Draw an imaginary line from Orion's bright star Rigel (above the pot,) through his red shoulder star Betelgeuse (below the pot) and continue northeast. You'll arrive at Gemini, with Castor and Pollux appearing as two bright stars of similar brightness positioned close together.

The planet Jupiter will be just above and slightly left these stars, nearer the feet of the twins.

Pollux is the brightest star in Gemini and holds a special distinction: it is the closest giant star to our solar system, located just 34 light-years away. It shines as the 17th brightest star in Earth's night sky.

Castor is the second-brightest star in the constellation Gemini. Although it appears as a single star in Earth's night sky to the naked eye, Castor is actually composed of six separate stars in three distinct binary systems about 51 light-years from Earth.

Notable Deep Sky Objects in Gemini:

- Messier 35 **(M35 / NGC 2168)**: A beautiful, easily visible open star cluster, often called the "Shoe Buckle Cluster," is located near Castor.
- NGC 2392 **(Eskimo Nebula)**: A planetary nebula resembling a face with a fur hood when viewed telescopically, known for its bipolar structure.

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Let's talk about MARS

The planet Mars was named by the ancient Romans for their god of war because its reddish colour was reminiscent of blood.
In Roman mythology, he was the father of Romulus and Remus, the founders of Rome and hence an ancestor of the Roman people. (Does that make them the first Martians? Hmmm....)

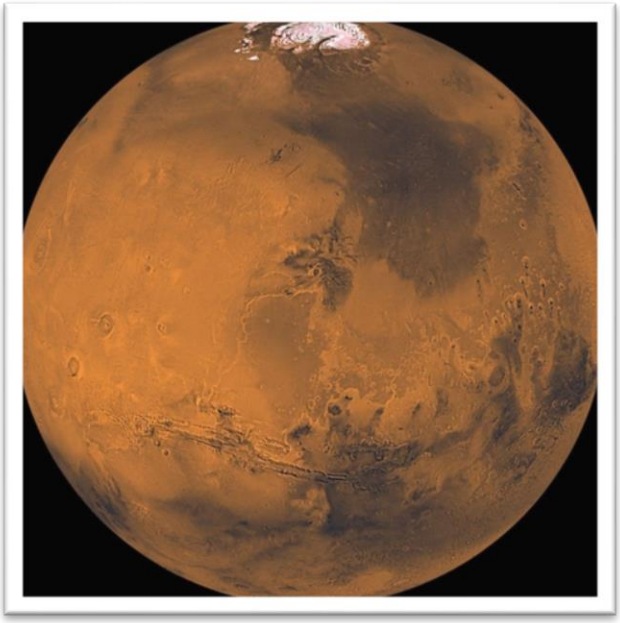
Mars – the fourth planet from the Sun, and the 2nd smallest behind Mercury – is a dusty, cold, desert world with a very thin atmosphere. This dynamic planet has seasons, polar ice caps, extinct volcanoes, canyons and weather systems.

With a radius of 3,390 kilometres, Mars is about half the size of Earth.

As Mars orbits the Sun, it completes one rotation every 24.6 hours, which is very similar to one day on Earth (23.9 hours). A year on Mars lasts 687 Earth days.

Mars' axis of rotation is tilted 25 degrees with respect to the plane of its orbit around the Sun. This is another similarity with Earth, which has an axial tilt of 23.4 degrees.

FUN FACT Mars looks red because of iron oxide in the dust. Yes Mars is rusty!



Mars has two small moons, Phobos and Deimos, that may be captured asteroids. They're potato-shaped because they have too little mass for gravity to make them spherical.

The moons get their names from the horses that pulled the chariot of the Greek god of war, Ares.

Mars has the highest volcano in the solar system. Olympus Mons is a giant volcano on Mars, three times as high as Everest and as wide as France.

At the present time NASA has three space craft in orbit around the planet and 2 active rovers on its surface. There have been 6 successful Mars rovers in total, 5 from NASA and the other one from China.

Perseverance Mars rover took this selfie on July 23, 2024, the 1,218th Martian day, of the mission. To the left of the rover near the centre of the image is the arrowhead-shaped rock nicknamed "Cheyava Falls," which has features that may bear on the question of whether Mars was home to microscopic life in the distant past.

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Take the Dark Sky Home Lighting Assessment

The problem with bad lighting

Bad lighting at night not only disrupts the nighttime environment that plants, animals, and our communities depend on, it also reduces safety.

Overly bright light at night and glare from unshielded luminaires create harsh contrast, impairing our vision, making it harder to see steps, or potential threats lurking in shadows.

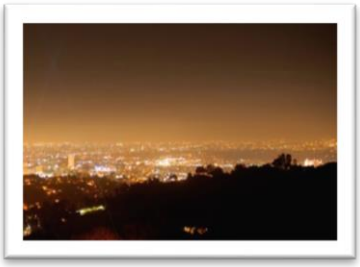
Exposure to light at night can suppress the body's production of melatonin, a hormone that regulates our sleep-wake cycle, metabolism, and immune system.

Artificial lights can cause migrating birds to wander off course towards dangerous nighttime landscapes and cities. Millions of birds die colliding with needlessly illuminated buildings and homes every year.

Light pollution disrupts moths and other pollinators essential to healthy habitats and gardens, altering their behavior and contributing to population declines.

We're only beginning to grasp the impact of artificial light on habitats, with new research continually revealing more affected wildlife, including:

- Hummingbirds
- Wallabies
- Little penguins
- Bees
- Zebra fish
- Songbirds
- Peahens
- Bats
- Owls
- Mice
- Seabirds
- Monarchs
- Atlantic salmon
- Zooplankton
- European perch



Skyglow

Skyglow is the dome of brightness on the horizon that obscures our view of the night sky.

Glare

Glare is when light enters our eyes at shallow angles, causing discomfort and restriction of the pupil, reducing visual acuity.

Light trespass

Light trespass is when light is falling outside of the property boundary onto another property or home.

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Step
2

The importance of quality lighting at night

The key to protecting the night is quality lighting. Lighting that follows the Five Principles of Responsible Outdoor Lighting at Night ensures it's used only when and where it's needed, and in ways that reduce light pollution and its harmful effects on the world around us.

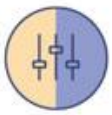
The Five Principles of Responsible Outdoor Lighting at Night

Useful

All light should have a clear purpose. Use lighting only when and where it is needed.

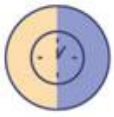
Targeted

Shield and aim your light so it only falls downward and where it is useful.



Low-level

Light should be no brighter than necessary to save money and reduce glare.



Controlled

Lighting should only be on when needed. Use timers and motion sensors.

Warm-colored

Warm-colored light causes less skyglow. Use amber-toned lighting when possible.

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Now use the table below to conduct a survey of the outdoor lighting at your own home. Let us know if you need help as the Tāhuna Glenorchy Dark Skies crew would be happy to help if you need some guidance on how to make your lighting more Dark Skies friendly. You can contact us via our website at https://glenorchydarkskies.org.nz.

Let us know if there are other topics you'd like to hear about! Looking forward to seeing you all next month. In the meantime, Keep it Starry!

Step 2

Home outdoor lighting assessment

Assess the outdoor lighting on your property. Give each luminaire a score and record what actions are needed to improve them.

1. Useful 2. Targeted 3. Low-level 4. Controlled 5. Warm-colored

Fixture name *Exp. front porch*	Principles checklist *What principles are met?*	Action needed *What needs to be fixed?*	Date of assessment
Back Porch	✓ 2 ✓ 4 ✓	Light spills into neighbors yard. Light needs shield and timer.	1/25
1.	1 2 3 4 5		
2.	1 2 3 4 5		
3.	1 2 3 4 5		
4.	1 2 3 4 5		
5.	1 2 3 4 5		
6.	1 2 3 4 5		
7.	1 2 3 4 5		