Tāhuna GLENORCHY DARK SKIES SANCTUARY

Newsletter August 2026

We had a lovely visit with the Taiwan Dark Sky Group last month, and enjoyed their presentation at the Headwaters Eco Lodge. It was a wonderful chance to hear what other groups around the world are doing to preserve the night sky. Hopefully we can bring you more such talks in the future.

The Matariki celebration dinner was also a success and well attended, with heaps of food and conversation. With grateful thanks to the Rural Women and Dark Skies group for providing the food.

Coming up this month:

- 12th August: New Moon
- 19th August: Preserving Legacies workshop on Climate scenarios
- 25th August: Preserving Legacies workshop on wetland restoration
- 28th August: Full Moon

August sees the beginning of the Preserving Legacies workshops and korero. Save the dates (above) and do come out for both talks at the Headwaters 7pm.

Leslie and Darren have been working hard in the background to think carefully about what our community and area needs to both preserve our environment and be resilient to climate change. Thinking about our dark skies above and protecting our wetlands below.

This month we take a look at the dwarf planet Pluto...and what a surprising dwarf planet Pluto turned out to be! Next month we'll start looking at other surprising objects you can find in the night sky.

At the end of August, Corrine is off to Stonehenge to attend the Archaeoastronomy field school, so next month's newsletter will be coming to you from England, and we'll discover what the latest thinking in Archaeoastronomy is about!

World Astronomy News

What is SETI?

SETI stands for the Search for Extra-terrestrial Intelligence. Essentially, it's a collection of scientific projects seeking artificial signals from deep space—such as radio waves or laser pulses—that might prove we aren't alone in the universe.

Modern SETI officially kicked off in April 1960 with our first real scientific attempt to listen for alien radio signals.

When SETI was first getting started in 1959, astronomers realised that if aliens wanted to chat, they'd probably broadcast at a frequency of 1420 MHz. Why? Because that is the exact frequency emitted by neutral hydrogen, the most common element in the universe. It's like the universal "Channel 1" for space communication.

The Famous "Wow!" Signal

In 1977, Ohio State University's Big Ear telescope picked up a massive, 72-second-long signal from deep space. It was so jaw-droppingly strong that the astronomer on duty circled the data printout and wrote "Wow!" in the margin.

While it became the most famous mystery in SETI history, it was never caught again, making it impossible to prove what caused it. However, thanks to scientific breakthroughs over the last couple of years, scientists have almost completely ruled out aliens, leaning instead toward a rare, natural cosmic event.

The Next Generation: Breakthrough Listen

Launched in 2015 with a massive $100 million investment, the Breakthrough Listen initiative has completely changed the game. Instead of just pointing telescopes at small, single clusters of stars, it uses incredible computational power to sweep across massive chunks of the cosmos.

- Breakthrough Listen teamed up with NVIDIA to launch a revolutionary AI system. This machine learning powerhouse processes deep space signals 600 times faster than previous tech, instantly filtering out Earth-based static to find the real mysteries.
- Historically, booking time on giant telescopes was rare and expensive. Today, Breakthrough Listen uses a technique called "commensal observing" on telescope arrays like MeerKAT in South Africa. A supercomputer quietly duplicates the live data stream during normal astrophysics research. This lets scientists scan over 1 million nearby stars without getting in anyone else's way!
- Instead of just listening to our immediate stellar neighbours, the project is thinking huge. It's scanning the galactic plane and 100 neighbouring galaxies simultaneously, keeping an ear out for immensely powerful transmissions from alien civilisations that may be capable of harnessing the energy of an entire star or galaxy.

Learn the night sky

This month...

The New Moon is on the 12th of August, and the Moon will be full on the 28th of August. Dark night begins at 7.23 pm on the 1st of August and begins at 7:54 pm by the end of the month on the 31st of August.
On the 28th of August, the end of a partial lunar eclipse may be visible.

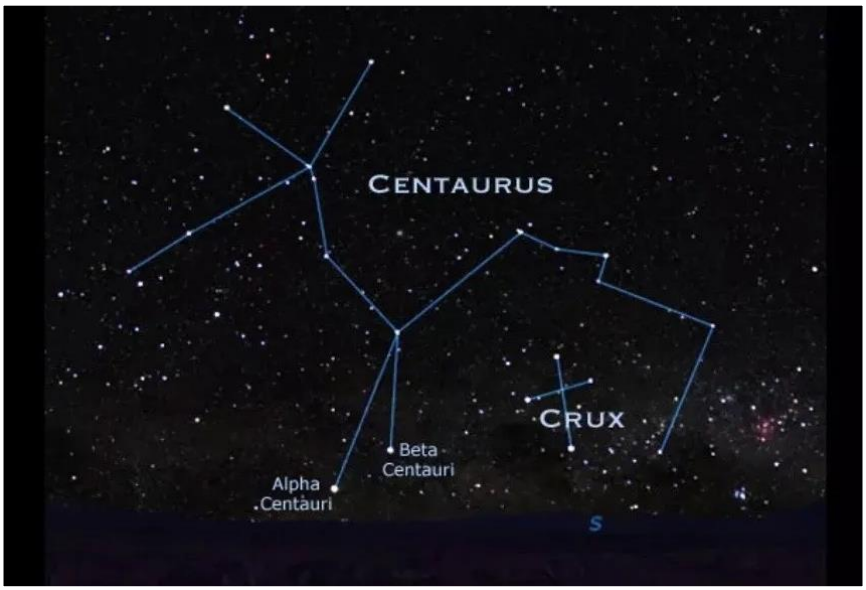
In the Morning Sky

Mercury begins the month in the morning sky, but after the 27th of August it trails the Sun and appears in the evening sky shortly after sunset. Jupiter is now in the morning sky and can be seen just before sunrise. Mars is in the constellation of Taurus (near Matariki) and moves into Gemini by the end of the month. Matariki (Pleaides) can now be easily seen in the morning sky.

In the Evening Sky

Venus is still our bright evening star this month. On the 15th of August, Venus is at eastern elongation. Venus is catching up on us from the far side of the Sun and is now at its greatest angle from the Sun. Through September and October it will slip lower in the evening sky as it moves between the Sun and us.
Saturn is now rising at 11:00 pm, but will be rising at 8:00pm by the end of the month.

In the Zodiac lineup of Constellations, Pisces is the next one to look for; however, as it doesn't rise until after midnight, let's look at the constellation of Crux instead. Crux is the smallest of the 88 official constellations, but as it is circumpolar for us, it is always visible in the southern sky. The stars of Crux were actually visible to the ancient Greeks and Romans, who regarded it as part of the Centaurus constellation. However, due to the gradual shift in Earth's axis (precession), the cross slowly sank below the European horizon and had to be "rediscovered" by European navigators in the early 1500s.



The Crux constellation isn't just about the familiar bright stars—it's also home to some truly spectacular deep-sky treasures!

First up is the **Coalsack Nebula**, a famous "dark nebula" that looks like a giant, cosmic shadow cast against the glowing backdrop of the Milky Way. It's so prominent that you can easily spot it with the naked eye as a large, dark patch in the southern sky. It's right next to the Southern Cross. In Australian Aboriginal astronomy, constellations are often defined by the dark dust silhouettes rather than the bright stars. The Coalsack Nebula serves as the definitive "head" of the celestial Emu, with the dark lanes extending out into neighbouring constellations representing the bird's long neck and body.

Crux is also where you'll find the **Jewel Box** (properly known as the Kappa Crucis Cluster). This sparkling group of stars is one of the youngest open clusters we know of, at just about 14 million years old! If you're under a nice, dark sky, you can catch a glimpse of it with just your naked eye. However, if you grab a pair of binoculars or a small telescope, its true splendour really comes to life, revealing a stunning glitter-box of colourful stars.

NGC 4349: Another open cluster floating within the constellation's boundaries. It holds particular scientific interest because it hosts the red giant star NGC 4349-127, around which astronomers discovered a massive gas giant exoplanet trackable by its gravitational pull. In fact, there are three known exoplanets in this constellation.

Let's talk about Pluto

Pluto and the Kuiper Belt

To truly understand Pluto, we first have to talk about its location in the Kuiper Belt.

Remember the rocky asteroid belt we talked about back in March (home to the dwarf planet Ceres)? The Kuiper Belt is very similar, but with ice. It's a massive, doughnut-shaped ring of ice and rock that begins just past Neptune—around 30 AU from the Sun—and stretches out to 50 AU and beyond. Over time, these icy bodies collided. The smaller ones were ground into dust, but the big ones grew big enough to take a round shape like **Pluto, Eris, Haumea, and Makemake**.
(And possibly others we haven't discovered yet.)

The Discovery

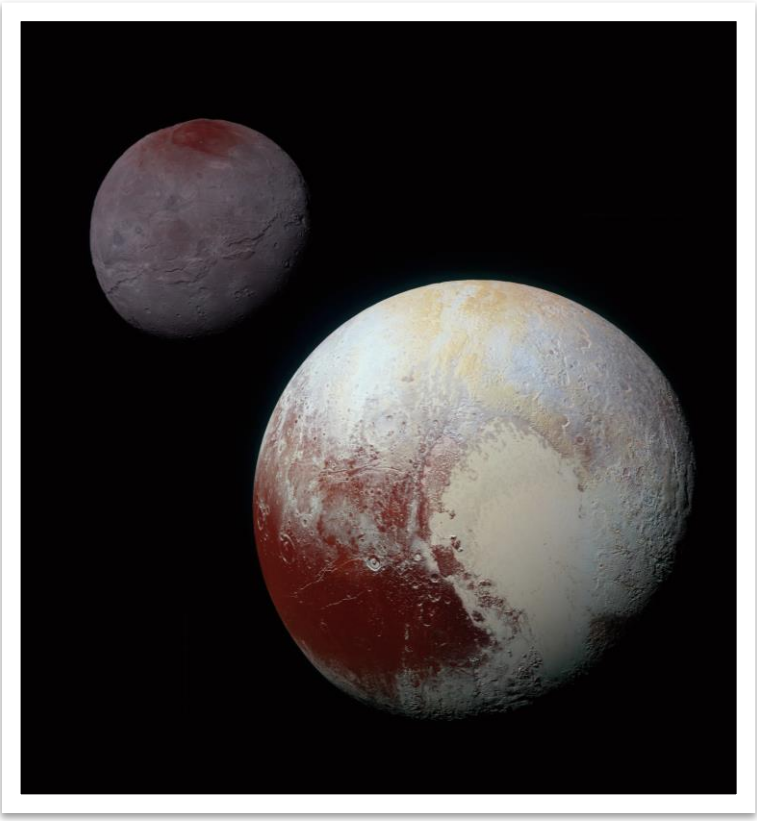
Pluto was discovered on February 18, 1930 when astronomer Clyde Tombaugh spotted it at the Lowell Observatory in Arizona.

For decades, Pluto was known as our ninth planet. However, the discovery of Haumea in 2004 and Makemake along with Eris in 2005 sparked a major scientific debate.

They realised Pluto is really small. Only 2/3rds the size of our moon. Another problem for Pluto is that it doesn't orbit on the same plane as the other planets. Pluto's orbit is highly inclined, tilted at an angle of roughly 17° relative to the flat, disk-like plane where the eight major planets orbit.

Most planets have near-circular orbits. Pluto's orbit is highly elliptical (oval-shaped), meaning its distance from the Sun fluctuates drastically. Because it is tilted and stretched, Pluto's path actually crosses inside Neptune's orbit. Despite this, gravitational resonance prevents them from colliding.

Because Pluto hadn't "cleared its neighbourhood" of other icy objects, the International Astronomical Union (IAU) reclassified it as a **dwarf planet** in 2006. We still love it no matter what designation is has.



Pluto (front) and Charon -
Note: the planet and moon are actually much further apart than shown.

Pluto and Charon

Pluto isn't travelling through space alone! On June 22, 1978, astronomer James Christy discovered Pluto's largest moon, **Charon**.

Although they aren't officially recognised as a "dual-planet" system by the IAU, they dynamically act just like one.

A Shared Centre of Gravity: In most setups, a moon orbits a point deep inside its parent planet. But because Charon is huge—about 12% of Pluto's mass—they actually orbit a shared centre of mass (a **barycentre**) located in the empty space between them. They are literally swinging each other around!

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Let's tackle light pollution at home

Living in a community striving for International Dark Sky recognition is a badge of honour. It means we are lucky enough to still see the Milky Way arching over us—a sight fast disappearing around the globe. But achieving this designation **isn't about** turning off all the lights and living in the dark. It's about being smarter with the light we do use.

Outdoor lighting is essential. It keeps our pathways safe, secures our homes, and extends our living spaces into the evening. However, poor lighting choices don't just stay in our yards—they spill upward, creating a haze of light pollution that blots out the stars.

Fortunately, protecting the night sky starts right at our own doorsteps. By rethinking our home lighting, we can maintain safety while doing our part for the community. Here are four simple ways to audit your backyard:

1. Light Only What You Need

Take a look outside tonight. Is your lighting serving a clear purpose? Focus on illuminating specific hazards, like steps or entryways, rather than flooding entire zones. If a light doesn't have a specific job, turn it off.

2. Shield and Direct Downward

Unshielded fixtures scatter light in every direction, including straight up into the atmosphere. Look for "fully shielded" fixtures that direct light strictly downward where it's actually useful. A simple rule of thumb: you should see the illuminated ground, not the glowing bulb itself.

3. Keep it Warm

The colour of your light matters. Cool, bright white, and blue-toned LEDs mimic daylight, disrupt nocturnal wildlife, and scatter more easily in the atmosphere, worsening skyglow. Opt for warm-toned bulbs instead—look for a Colour Temperature of **2200K to 3000K** on the packaging. These amber hues are much gentler on the eyes and the environment.

4. Use Tech to Your Advantage

We don't need continuous light when we aren't there to use it. Installing motion sensors on security lights ensures they only pop on when necessary. Timers and smart plugs are also excellent tools to ensure decorative or garden lighting automatically shuts off after bedtime.

Here in the Southern Hemisphere, we have a front-row seat to some of the most spectacular celestial features in the universe, from the Southern Cross to the Magellanic Clouds. By making these minor adjustments to our homes, we can secure our dark sky status, protect local biodiversity, and ensure these stars shine brightly for generations to come.

Let's work together to keep Glenorchy beautifully dark outside. When the sun goes down, let's make sure we will still be able to see the stars!