

TASMANIA — a dark sky sanctuary

Proposal for certification
of Tasmanian Wilderness
World Heritage Area as
an International Dark
Sky Sanctuary



Background



Dark Sky Tasmania is a chapter of the International Dark Sky Association.

Our purpose is to see Tasmania become a world leader in dark sky conservation and awareness. Activities include advocacy, research and education through a program of dark sky events and outreach.

The island of Lutruwita is home to some of the world's most outstanding wilderness; existing under pristine skies, free from light and air pollution. It has been the home of Tasmanian Aboriginal people since the beginning of time. The care and protection of its lands, seas, waterways and skies has been the responsibility of Tasmanian Aboriginal people, a responsibility which remains with current and future generations to this day.

In more recent times, UNESCO World Heritage recognition has provided protection in the form of the Tasmanian Wilderness World Heritage Area Management Plan. However, this protection is predominantly written to safeguard the land, leaving this magnificent area under threat from the modern phenomena of light pollution. This presents a threat to the wildlife and ecosystems

that reside within the TWWHA and rely on the earth's natural light/ dark cycle for their survival. It also is eroding our pristine night skies, reducing our access to the stars and threatening the continuous connection Tasmanian Aboriginal people have to sky country.

Currently, Lutruwita/ Tasmania is a world leader in nature-based tourism. With one of the most accessible dark sky areas on earth, we have an opportunity to create and promote Tasmania as a dark sky destination while at the same time helping to protect what makes the TWWHA so special.

Promoting a natural dark sky is not only good for the environment and our cultural heritage, it offers a strong opportunity for our economy. It exemplifies a progressive, environmentally-aware, and health-conscious community that is consistent with Tasmania's brand and ethos.

Prepared by International Dark Sky Association Tasmanian Chapter (Dark Sky Tasmania).

Supported and presented by Destination Southern Tasmania. Photos by Luke Tscharke.

Retaining our dark sky enhances what visitors and locals already love about our state.

Astro-tourism is one of the fastest-growing and most sustainable forms of visitation. Parts of North America and Canada, and more recently New Zealand, have invested in dark sky visitor experiences to access this growing market. Studies show that this not only benefits the environment, but has a direct impact on tourist numbers, providing significant economic benefit to those regions.

Designation of all or part of the TWWHA as a dark sky sanctuary by the International Dark Sky Association (IDA) would strengthen Lutruwita/Tasmania's international reputation for pristine natural environments and deliver significant economic benefits to the state.

We recommend:

1. The Tasmanian Government commit to a feasibility study to identify the pathway forward to create a Dark Sky Sanctuary.
2. The Tasmanian government commit to incrementally creating an IDA-designated dark sky sanctuary in the Tasmanian Wilderness World Heritage Area (TWWHA) to enhance the brand values of the state as well as stimulating economic growth from associated Astro Tourism and share its extraordinary access to the night sky.
3. As a first step towards this goal, the Tasmanian government commit resources necessary to obtain dark sky sanctuary status for the largest component of the TWWHA, the Southwest National Park.

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1 / What is a 'dark sky'?

“Dark sky” characterises a natural nocturnal environment, innately dark, enabling unobstructed views of the cosmos. The night sky, free from excessive artificial light pollution that often escapes our urban centers and creates a ‘sky glow’. This illumination often washes out the night sky, diminishing our ability to observe celestial bodies and phenomena, thus, disconnecting us from a fundamental part of nature.

Dark sky communities, places, parks, and sanctuaries are areas recognised for their exceptional nocturnal environment quality. They are usually located far from urban centers, where anthropogenic light pollution is minimal, and thus the night sky visibility is extraordinary. The International Dark-Sky Association (IDA), the leading organisation in combating light pollution, classifies and designates these areas based on specific criteria that measure the darkness of the sky and the commitment to preserve it (IDA, 2021).

In recent decades, the term ‘Dark Sky’ has increasingly come into prominence, primarily due to the accelerating loss of night-time darkness. This loss is driven by the escalating use of artificial outdoor lighting and the advent of cheap lighting technologies such as Light Emitting Diodes (LEDs). A 2017 study published in “Science Advances” reported that artificially lit outdoor areas worldwide increased in radiance and extent by about 2% per year from 2012 to 2016, highlighting the rapidity of this issue (Falchi et al., 2017).

This increasing light pollution not only affects astronomical observations but also has profound effects on wildlife and human health, disrupting biological rhythms, and impacting overall ecosystem function (Gaston et al., 2013). Therefore, the concept of Dark Sky and its preservation is not just about reconnecting us with the cosmos; it is also about preserving the delicate balance of life on Earth.

REFERENCES:

- International Dark-Sky Association (IDA). (2021). International Dark Sky Places. www.darksky.org/our-work/conservation/idsp/
- Falchi, F., Baugh, K., Kuechly, H. U., Kyba, C. C., & Hölker, F. (2017). The artificial night sky brightness in 2016. *Science Advances*, 3(5), e1701528.
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“Some people are looking for quietness and stillness, for a meaningful connection to nature and to others who care for nature. They are looking for Tasmania, even if they don’t know it yet. A Tasmanian Dark Sky Sanctuary will be enormously attractive to them, and international examples show they will pay for an experience they can only find here – a uniquely Tasmanian experience that makes a positive impact on them, on this place, and on the planet.”

—Todd Babiak, CEO of Brand Tasmania

2 / Dark sky tourism opportunities



Dark sky tourism, also known as ‘astro-tourism’, is a growing subcategory of eco-tourism. It capitalises on the opportunity to experience pristine, natural night skies where the constellations and cosmic wonders are at their most resplendent. In conjunction with other nature-based experiences, dark sky tourism can significantly augment the visitor experience in Tasmania, offering a unique and deeply captivating adventure.

It is estimated that over 80% of the world’s population now resides in urban areas where access to clear starlit skies is inhibited due to light pollution. Consequently, what was once primarily a scientific concern has increasingly resonated with a broader public. The yearning to reconnect with nature and the cosmos has stimulated a demand for ‘dark sky experiences’ in locations blessed with naturally dark night skies.

Evidence suggests that dedicated dark sky tourism programs present an array of advantages:

1. They represent one of the most sustainable forms of tourism, requiring minimal infrastructural development and causing little environmental disruption (Che, 2016).
2. They often encourage overnight stays, contributing significantly to local economies (Moss et al., 2014).
3. They can boost visitor numbers, especially during off-peak seasons, given that stargazing isn't seasonally dependent. In fact, winter sky viewing is often preferred due to longer periods of darkness and the visibility of certain celestial events (Falchi et al., 2016).

Internationally, governments are taking proactive steps to preserve and manage their dark skies. In the United States and Canada, state and federal authorities have actively pursued international certification of national parks, reserves, and other public lands as dark sky places. For instance, in the U.S. states of Arizona and Utah, dedicated dark sky tourism programs have been running for decades, attracting millions of tourists each year.

In the Asia-Pacific, New Zealand has realised the potential of dark sky tourism with its '100% Pure New Zealand' brand, thus actively pursuing the designation of their national parks as 'dark sky places' by the International Dark-Sky Association. With four dark sky places currently accredited, visitation numbers to these areas have reportedly surged by as much as 300%. The success of this program is evident in the fact that the International Dark Sky Reserve at Aoraki Mackenzie is currently assisting in establishing similar dark sky places in other national parks due to increased visitor demand.

Similar successful programs are found across the globe. For instance, the International Dark Sky Park at Galloway Forest Park, Scotland, has reported increased visitor numbers, with a direct return on investment of nearly 2:1. In Northumberland, England, their International Dark Sky Park has shown an increased visitor spend of over 8:1 against their investment.

These examples underscore the substantial potential for dark sky tourism to contribute to Tasmania's tourism offering. Such a commitment not only helps preserve our night skies but also offers a unique, immersive experience to visitors while bolstering the local economy.

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- Che, D. (2016). *New geographies of leisure, tourism, and mobilities*. Routledge.
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- Falchi, F., Cinzano, P., Duriscoe, D., Kyba, C. C., Elvidge, C. D., Baugh, K., ... & Furgoni, R. (2016). The new world atlas of artificial night sky brightness. *Science advances*, 2(6), e1600377.

DARK SKY TOURISM PRODUCTS

Dark Sky sanctuaries and parks around the world have taken steps to develop tourism products that align with the Dark Sky opportunity.

1. Aoraki Mackenzie International Dark Sky Reserve, New Zealand:

This area in New Zealand was declared an International Dark Sky Reserve in 2012. Several local tour operators, such as Earth & Sky, offer guided stargazing tours. They also offer astrophotography tours and workshops, where tourists can learn to capture stunning images of the night sky.

www.earthandskynz.com

2. Atacama Desert, Chile: Recognised as one of the best places in the world for stargazing due to its high altitude, dry air, and lack of light pollution, the Atacama Desert has several tour companies that offer nighttime excursions. For example, SPACE (San Pedro de Atacama Celestial Explorations) provides professional astronomy tours with large telescopes.

www.spaceobs.com

3. Kerry International Dark Sky Reserve, Ireland:

This is the only Gold Tier Reserve in the Northern Hemisphere, and it offers multiple ways for visitors to enjoy the dark skies. Local businesses offer services such as “Star Sailing”, which provides guided tours and workshops.

www.kerrydarkskytourism.com

4. Cherry Springs State Park, USA: This park in Pennsylvania is one of the best places on the eastern seaboard for stargazing. They offer programs such as the Night Sky Tour, where a park ranger uses a laser pointer and telescopes to show constellations and other celestial bodies.

www.dcnr.pa.gov/StateParks/FindAPark/CherrySpringsStatePark/Pages/default.aspx

5. Brecon Beacons National Park, Wales:

This park offers many stargazing events and workshops, often in collaboration with local astronomical societies. There’s also a “Dark Sky Discovery Site” at the National Park Visitor Centre, where you can stargaze independently.

www.breconbeacons.org/stargazing

6. NamibRand Nature Reserve, Namibia: This reserve is one of only a handful of International Dark Sky Reserves in Africa. They offer unique accommodation options like the “Star Bed”, which is an open-air bed on a raised platform for an unobstructed view of the stars.

www.namibrand.com

These examples illustrate some of the diverse range of tourism products that can be developed to leverage the Dark Sky opportunity. They include guided tours, workshops, special accommodation options, and collaborations with local astronomical societies.



TASMANIAN PRODUCTS

Although limited at the moment there is a growing interest in this area and especially pleasing is the boost to our Off Season offering.

1. McHenry's Distillery and Beaker Street:

Through a successful grant program McHenry's distillery on the Tasman have developed Australia's newest and southernmost observatory and Dark Sky Event Hub on top of Mount Arthur at the site of the distillery.

www.beakerstreet.com.au/events/dinner-whisky-stars

2. Walk on kunanyi: Hold an after dark tour

walkonkunanyi.com.au/rezdy-items/southern-stars

3. Freycinet Winter Light and Astro

Photography Workshop: Luke O'Brien
Photography tours and Tuition

www.lukeobrien.com.au

Sourced from Beaker Street

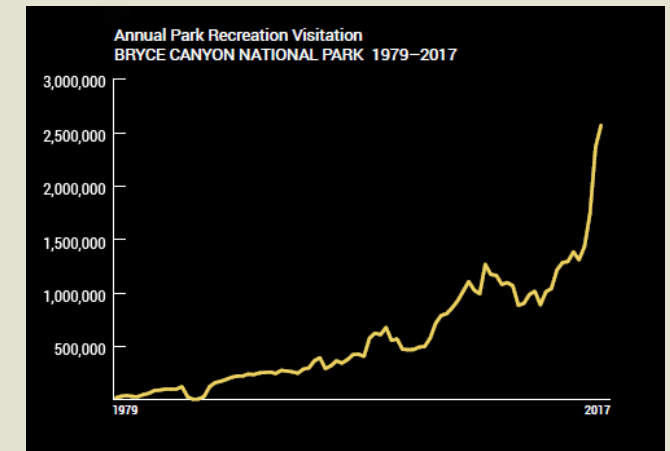


Sourced from Walk on kunanyi



“Having internationally recognised dark skies bolsters our ability to attract more visitors and offer more night programming which results in more people enjoying our parks at more times of the day.”

—Fred Hayes, Utah State Parks Director



3 / Dark sky benefits beyond tourism

As well as the benefits of tourism, and the associated economic win falls, dark skies have broad environmental, human health and cultural benefits..

These include:

Minimising the effects on human health due to overexposure to harmful light frequencies.

Overexposure to artificial light at night is a key factor in circadian disruption in humans. The imbalance of this natural rhythm is directly linked to health issues such as sleeping disorders, mental health issues, obesity, cardiovascular disease and even cancer. Studies have shown that the level of light pollution where you live is directly linked to increased risk in developing these associated health problems.

Saving energy due to unnecessary or inefficient lighting.

Artificial light at night is responsible for a large amount of our daily energy consumption, up to 20% on a given day. At the same time it is conservatively estimated that 30% of this light delivers no useful purpose, equating to a huge amount of wasted energy on a daily basis.

Reducing the disruption to wildlife and fauna.

Artificial light at night negatively impacts wildlife on many levels including disrupting biological triggers and affecting life history traits. Unintended implications such as reduced ability to navigate, decreased reproduction, increased predation, altered sleep patterns, etc. have resulted in serious and long term impacts on many species.

Preserving cultural and historical values associated with viewing the night sky.

Sky country has been an integral part of Palawa culture since the creation of time. The sky holds a wealth of knowledge that has helped shape daily life in almost every way. Through story, song and dance, valuable information is preserved in the skies around seasonal patterns and weather, navigation of the landscape, and the protection and care of the natural world. Knowledge on how to read the intricate map of the sky and landscape has been transferred over millennia by Aboriginal Ancestors, a tradition that continues to this day. Protection of dark skies enables this connection to culture to remain unbroken, helping ensure the continuation of Palawa culture.

A dark sky place would support Tasmania's image as a 'clean and green' place to live and visit, further support Tasmania as a leader in sustainability and provide recognition for Tasmania's diverse cultural and historical connections to the night sky.

4 / Tasmania: A dark sky sanctuary

Dark sky sanctuaries are the most remote (and often darkest) places in the world whose conservation state is most fragile.

The International Dark Sky Association (IDA) maintains an internationally-recognised ‘dark sky places’ program which certifies land areas as having grades of dark sky significance, similar to the UNESCO World Heritage Sites Program.

The program certifies places as either a sanctuary, park, reserve, place or community, and only 16 dark sky sanctuaries in the world, of which there are currently only 3 in our region:

- Aotea / Great Barrier Island (New Zealand)
- Rakiura / Stewart Island (New Zealand)
- The Jump-Up / Australian Age of Dinosaurs, Winton (Australia)

Tasmania is in the unique position of being home to the largest land area in the world suitable for a dark sky sanctuary — The Tasmanian Wilderness World Heritage Area (TWWHA).

The TWWHA would be extraordinary by international standards, achievable incrementally through certification of component parts. For example, the South West National Park and a number of southern Tasmanian communities meet dark sky place requirements.

The Destination Management Plan for Southern Tasmania identifies a Dark Sky Sanctuary as one of the key catalyst projects for creating accessible natural wilderness and cultural heritage experiences.



5 / Brand values and promotion

OUR BRAND

Tasmania is a place where the uncommon is common. Where you can throw off the shackles and feel everything deeply. It is the antidote to the straitjacket of modern life. Tasmania is no ordinary place and Tasmanians are no ordinary people. It is a place that finds joy in non-conformity and our visitors can discover soul-enriching experiences that are raw, beautiful and honest. Come Down For Air is an invitation to get air in both a literal and metaphorical sense. It is about harnessing the power of place and our people, and creating a moment of calm for travellers.

Astro tourism and Dark Sky Sanctuary's align very closely with our current brand expression and we know that our current target market is looking for this experience.

TOURISM TASMANIA'S ASTRO TOURISM INFORMATION

Dark sky and aurora content consistently performs well above average through Tourism Tasmania's digital marketing programs.

Discover Tasmania social media

- Aurora content and stunning night photography (particularly in winter) is among our top performing social media content.
- The average post engagement can vary between 3.5-9k in likes; however, Aurora and Astro often far surpass that.
- Aurora content has seen between 12-19k likes every time it has been shared in 2023. Astro tourism is a little less, but still surpasses other generic travel content.

Discover Tasmania (DT) website

Figures from the past 12 months of data.

- DT performs very well for searches related to the southern lights/ aurora e.g Southern lights Hobart, *How to see the aurora*, *Aurora Tasmania*, *Aurora borealis*
- This has seen a spike over the past month (March 2023) (organic traffic up 22%), given the excellent conditions for viewing the aurora, but it remains a strong performer year round.
- Our article — “How to see the Southern Lights” has driven the second most amount of organic search traffic (58,372 clicks), only behind the homepage 120,486. The popularity of this content type has been consistent for at least the last 5 years.

www.discovertasmania.com.au/experiences/stories/southern-lights

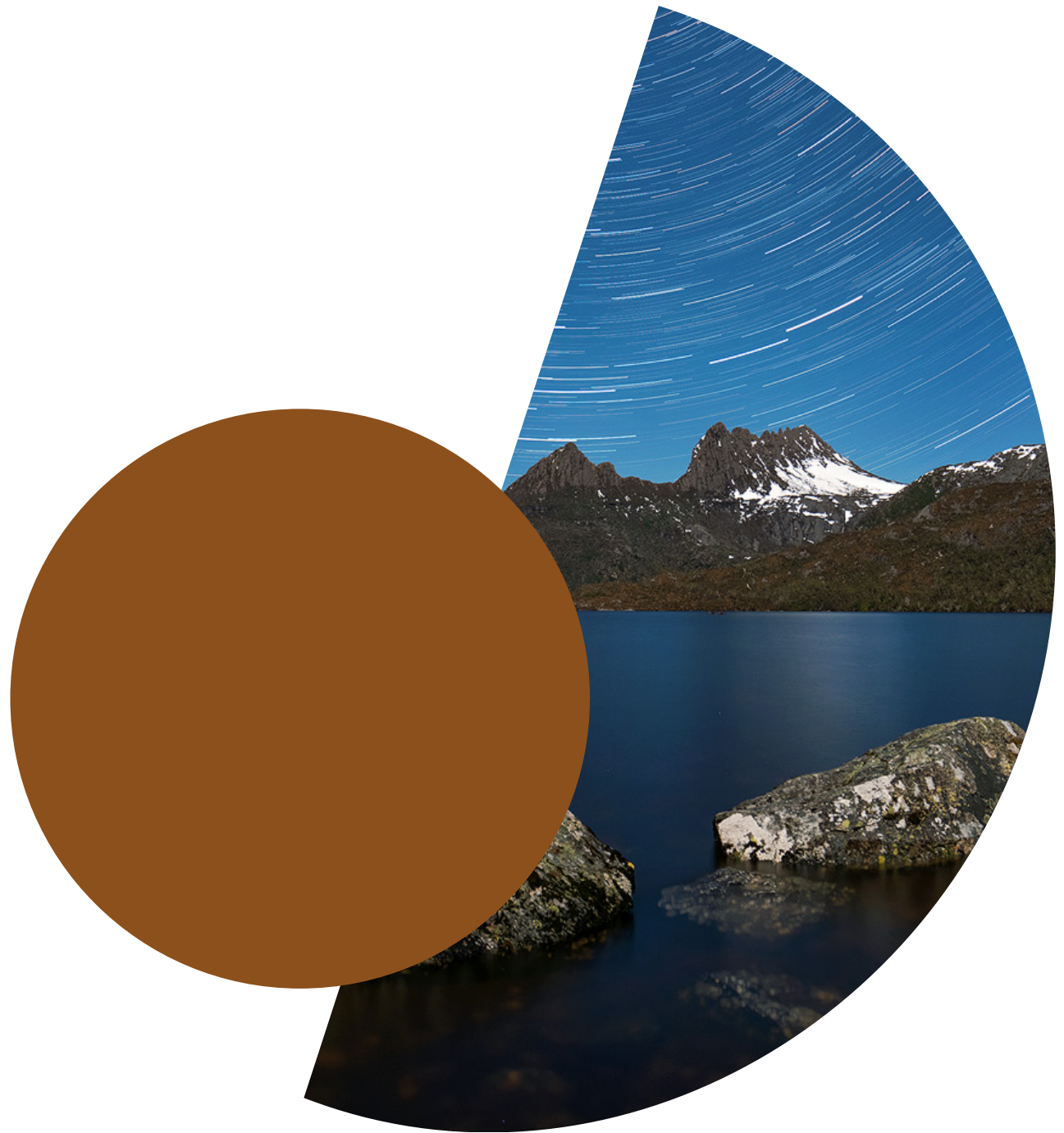
- There does appear to be some search demand. With queries related to 'dark sky' and 'stargazing' on the rise in Australia

<https://trends.google.com/trends/explore?geo=AU&q=dark%20sky,stargazing&hl=en>

- There also appears to be a plenty of questions and propositions which content and experiences could be built around.

<https://answerthepublic.com/reports/ecb83f4d-705e-4dd7-a279-28f01cdc59ae>

Cumulatively this indicates that there is strong consumer interest in this area.



6 / The investment

A dark sky sanctuary is achievable for Tasmania if the following requirements are met:

- A comprehensive Lighting Management Plan (LMP), endorsed by the IDA, must be implemented;
- At least 67% of existing outdoor lighting must conform to the requirements of the LMP, and 90% of all lighting within 5 years of designation;
- Meet minimum IDA sky quality standards at certification, and undertake a sky brightness measurement program to ensure the night sky quality does not degrade over time;
- Dark skies to be acknowledged as an important resource value by recognition in official government documents; and
- Signage is to be installed and maintained at an entrance to the sanctuary.

A sanctuary can only be pursued with the support of the site's owner managing agency. Given that the TWWHA includes multiple land owners, a two-stage approach to certification, starting with a single-owner area within the TWWHA could generate sanctuary status quickly and encourage other land-owners to come on board.

The Southwest National Park, owned by the Crown and managed through the Tasmania Parks and Wildlife Service, is potentially suitable as a standalone sanctuary within the TWWHA.



Using the Southwest National Park as an example, estimated certification costs are as follows:

ESTABLISHMENT

| | |
|--|------------------|
| Initial sky brightness survey | \$100,000 |
| Lighting audit | \$80,000 |
| Creation of lighting management plan | \$20,000 |
| Upgrade of non-compliant lighting | \$500,000 |
| Creation of signage and interpretation | \$50,000 |
| TOTAL | \$750,000 |

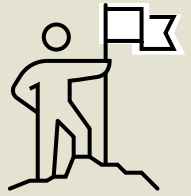
ONGOING

| | |
|--------------------------|---------------------|
| Annual report and survey | \$150,000 pa |
| Annual event/comms | \$50,000 pa |
| TOTAL | \$200,000 pa |

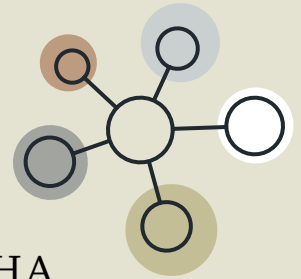


7 / Next steps

- Establish lead agency to manage project



- Consult with stakeholders



- Decide on target area within TWWHA

- Conduct feasibility study



- Secure funding



8 / Further reading

1. The Sky and Sustainable Tourism Development: A Case Study of a Dark Sky Reserve Implementation in Alqueva. *Aurea L. O. Rodrigues, Apolónia Rodrigues and Deidre M. Peroff.*
2. Estimating the Potential Economic Value of the Night Skies Above the Colorado Plateau. Mitchell and Gallaway. 2016. Missouri State University.
3. 2016 National Park Visitor Spending Effects: Economic contributions to local communities, states, and the nation. Cullinane Thomas, C., and L. Koontz. 2017. Natural Resource Report NPS/NRSS/EQD/NRR—2017/1421. National Park Service, Fort Collins, Colorado, USA
4. “Astronomical Tourism”: The Astronomy and Dark Sky Program at Bryce Canyon National Park. Fredrick M. Collison, Kevin Poe. 2013.
5. Destination South Tasmania, Destination Management Plan
6. Informing TWA’s dark sky tourism products and strategies, Tourism Western Australia, March 2021

To find out more about creating Tasmania’s dark sky sanctuary contact us:

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