

Wednesday, 28 June 2023

Te Hui o Te Kaunihera ā-Rohe o Heretaunga

Hastings District Council

District Planning and Bylaws Subcommittee Meeting

Kaupapataka

Agenda

Te Rā Hui:
Meeting date: **Wednesday, 28 June 2023**

Te Wā:
Time: **1.00pm**

Te Wāhi:
Venue: **Council Chamber
Ground Floor
Civic Administration Building
Lyndon Road East
Hastings**

Te Hoapā:
Contact: **Democracy and Governance Services
P: 06 871 5000 | E: democracy@hdc.govt.nz**

Te Āpiha Matua:
Responsible
Officer: **Group Manager: Planning & Regulatory Services - John
O'Shaughnessy and Environmental Policy Manager - Rowan
Wallis**

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HASTINGS DISTRICT COUNCIL
207 Lyndon Road East, Hastings 4122 | Private Bag 9002, Hastings 4156
Phone **06 871 5000** | www.hastingsdc.govt.nz
TE KAUNIHERA Ā-ROHE O HERETAUNGA

District Planning and Bylaws Subcommittee – Terms of Reference

A Subcommittee of Council.

Fields of Activity

The District Plan Subcommittee is responsible for advising the Council by;

- Providing guidance to Council officers with regard to the drafting of the District Plan (or sections thereof) and consultation on discussion documents and drafts.
- Providing guidance to Council officers in respect of the drafting of Council's new or revised bylaws and providing oversight of the Special Consultative Procedures.
- Te Tira Toitū te Whenua – Hastings District Plan Cultural Values - to consider and advise Council how the cultural values of Waahi Taonga and Waahi Tapu are to be integrated within the District Plan.

Membership

- 6 Councillors.
- 3 Heretaunga Takoto Noa Māori Standing Committee Members appointed by Council.
- 1 externally appointed member with relevant qualifications and experience.
- 1 member of the Rural Community Board appointed by Council.
- Chair appointed by Council.
- Deputy Chair appointed by Council.

Quorum – 6 members including 3 Councillors

DELEGATED POWERS

- 1) To review and provide comment on draft new or reviewed District Plan provisions and to recommend to the Council the adoption of drafts for consultation.
- 2) To hear and consider all submissions reviewed in respect of any District Plan proposal and to recommend responses to the Council.
- 3) To recommend to the Council the final wording of any new or reviewed District Plan provisions for adoption.
- 4) To review and provide comment on draft new or reviewed bylaws, and to recommend to the Council the adoption of drafts for consultation.
- 5) To hear and consider all submissions received in respect of any bylaw proposal and to recommend responses to the Council.
- 6) To recommend to Council the final wording of any new or reviewed bylaw for adoption by the Council.

Wednesday, 28 June 2023

Te Hui o Te Kaunihera ā-Rohe o Heretaunga

Hastings District Council

District Planning and Bylaws Subcommittee Meeting

Kaupapataka

Agenda

Mematanga:

Membership:

Koromatua

Chair: Councillor Alwyn Corban

Ngā KaiKaunihera

Councillors: Marcus Buddo (Deputy Chair), Michael Fowler, Simon Nixon, Ann Redstone and Kevin Watkins

Rural Community Board appointee - Jonathan Stockley (RCB Chair)

Mayor Sandra Hazlehurst

3 Heretaunga Takoto Noa Māori Standing Committee appointees:
Elizabeth Waiwiri-Hunt and Tipene Cottrell (appointments to be confirmed) and one other Vacancy still existing

1 External appointee - Vacancy

Tokamatua:

Quorum:

6 - including 3 Councillors

Apiha Matua

Officer Responsible:

Group Manager: Planning & Regulatory – John O'Shaughnessy

Environmental Policy Manager – Rowan Wallis

*Te Rōpū Manapori me te
Kāwanatanga*

Democracy &

Christine Hilton (Extn 5633)

Governance Services:

Te Rārangi Take

Order of Business

Apologies – Ngā Whakapāhatanga

- 1.0** At the close of the agenda no apologies had been received.
 At the close of the agenda no requests for leave of absence had been received.

2.0 *Conflict of Interest – He Ngākau Kōnatunatu*

Members need to be vigilant to stand aside from decision-making when a conflict arises between their role as a Member of the Council and any private or other external interest they might have. This note is provided as a reminder to Members to scan the agenda and assess their own private interests and identify where they may have a pecuniary or other conflict of interest, or where there may be perceptions of conflict of interest.

If a Member feels they do have a conflict of interest, they should publicly declare that at the start of the relevant item of business and withdraw from participating in the meeting. If a Member thinks they may have a conflict of interest, they can seek advice from the General Counsel or the Manager: Democracy and Governance (preferably before the meeting).

It is noted that while Members can seek advice and discuss these matters, the final decision as to whether a conflict exists rests with the member.

Confirmation of Minutes – Te Whakamana i Ngā Minitī

- 3.0** Minutes of the District Planning and Bylaws Subcommittee Meeting held Wednesday 5 April 2023.
(Previously circulated)

4.0 *Environmental Policy Workstream Priorities* **7**

5.0 *Frost Fan Noise Assessment* **11**

6.0 *Update on Dark Sky Standards - consideration of submission from Graham Palmer to 2021 - 2031 LTP on light pollution* **19**

7.0 *Minor Items – Ngā Take Iti*

8.0 Urgent Items – *Ngā Take Whakahihiri*

Wednesday, 28 June 2023

Item 4

Te Hui o Te Kaunihera ā-Rohe o Heretaunga

Hastings District Council: District Planning and Bylaws Subcommittee Meeting

Te Rārangi Take

Report to District Planning and Bylaws Subcommittee

Nā:
From: Rowan Wallis, Environmental Policy Manager

Te Take:
Subject: Environmental Policy Workstream Priorities

1.0 Purpose and summary - *Te Kaupapa Me Te Whakarāpopototanga*

- 1.1 The District Plan and Bylaws Subcommittee has provides guidance to the Environmental Policy team in helping them to establish their workstream priorities with these recommendations then being reported to Council for adoption.
- 1.2 The workstream was reviewed a year ago and with the completion of some pieces of work, RMA replacement Act legislation due mid-2023, and the impacts of Cyclone Gabrielle it is appropriate to undertake a further review. The influences on the workstream include;
 - National Policy Statement – Urban Development
 - National Policy Statement – Freshwater
 - National Policy Statement – Highly Productive Land
 - Forthcoming National Policy Statement – Indigenous Biodiversity
 - Natural and Built Environments Act due to be enacted mid 2023
 - Strategic Planning Act due to be enacted mid 2023
 - Forthcoming National Planning Framework
- 1.3 Council's focus to date has been on responding to the high levels of housing demand and this is evident in our current workstream priorities. This has resulted in making the Heretaunga Tamatea Settlement Trust's Wairatahi development the number one project for the Policy Team. Policy planners are increasingly providing guidance design input into the large number of Kainga Ora applications that are being received and this is a workstream not previously covered. Similarly with

private developers, considerable effort is being put into ensuring that developers are encouraged to reference the Intensive Residential Design Framework in their developments, so that medium density developments are not viewed negatively by the community. It is worth noting that Plan Change 5 which is currently in progress incorporates the Intensive Residential Design Framework into the assessment criteria for medium density applications.

- 1.4 Post Cyclone the District Plan and Bylaws Sub-committee met on an informal basis and the workstream priorities were discussed. The sub-committee had been pleased with the positive outcomes achieved with Plan Change 4 Te Mata Building Prohibition Area and requested that the remaining outstanding and cultural landscapes be reviewed in the same manner and that this be put forward as a priority in the district plan review workstream.
- 1.5 The following table outlines the projects that are currently being worked on and those that are necessary to meet legislative requirements. The suggested priority listing is based upon statutory requirements and those that the policy team have assessed as having the highest priority to achieve the outcomes sought by Council.

| Environmental Policy | Priority | Status | Timeline* |
|---|----------|---|---|
| Ensuring ePlan is up to date | 1 | Impacted by Plan Change 5 and the new Natural and Built Environment and Spatial Planning Acts | Ongoing |
| Irongate /York Structure Plan/ Plan Change | 1= | Approved by the EPA for Covid Fast Track Process. To be lodged July 2023 | To be decided by Heretaunga Tamatea Settlement Trust |
| Plan Change 5 – Right Home, Right Place | 1= | To be re notified with submissions closing September 2023 | Hearings scheduled early 2024 |
| Outstanding Landscapes Review | 2 | Scoping of the project and engagement of consultants for the remaining 7 outstanding and cultural landscapes required | Likely to be a 2- 3year project |
| Implement National Planning Standards – we have until 2024 to implement. | 3 | We are looking to seek an Order in Council to have the implementation date set back a further two years. | If successful, this would be extended from Aug 2024 to Aug 2026 |
| Wahi Taonga review to include a reviewed nomination process. | 3= | A Working group with PSGE's and Te Manaaki Taiao has been established | Estimated to be at least a 2 year project. |
| Responding to changes in Legislation – e.g., RMA Reforms and new National Policy Statements | 4 | The Spatial Planning Act and Natural and Built Environment Act will be enacted (come into force) mid 2023. | Next stage of consultation on the RMA reforms will take place later this year with the introduction of the National Planning Framework. |
| Input into Future Development Strategy and Regional Spatial Strategy | 5 | The FDS is well underway with first round of public engagement to be undertaken in July 2023. | FDS to be completed November 2024 |
| Structure Planning for Lyndhurst Extension and Kaiapo | 6 | Lyndhurst extension structure plan assessment | Lyndhurst to be completed last quarter of 2023, with |

| | | | |
|--|----|--|--|
| | | work almost completed. Stormwater modelling underway for Kaiapo. | Kaiapo first quarter 2024. LTP funding brought forward to 2024. |
| NPS-UD Policy 11: Prepare a Comprehensive Parking Management Plan as a result of requirement to remove carparking minimums | 7 | | CPMP by last quarter 2022 |
| Review of Noise Provisions for Frost Fans | 8 | | To DP & Bylaws Meeting June 2023 |
| Commercial Review | 9 | Review of Commercial Strategy would be the first stage. The Business Capacity Assessment under the NPS-UD will provide useful information. | Need to review the Commercial Strategy as the first step. The issue of providing for residential development within commercial zones and the relationship with the commercial service zones also needs addressing. |
| 206 Queen Street – Site Redevelopment | 10 | Decisions on Submissions released 9 th May 2023 | |
| 117 Heretaunga Street East- Site Redevelopment | 11 | | Working with developer - Ongoing through 2023 |
| Identification of Significant Natural Areas Project | 13 | Uncertain when the Draft NPS- Indigenous Biodiversity will be enacted. | To meet the requirements of the NPS – Indigenous Biodiversity |
| CBD Liaison | 14 | | ongoing |
| Nomination Project for new Heritage Items | 15 | | Underway over the next 3 years. |

*The timeline for many of the projects is the date that they will be brought to Council for approval. Where the projects require changes to the district plan the process from there is outlined in the RMA and timeframes can only be approximate as a significant influencing factor is the number of submissions received.

2.0 Recommendations - Ngā Tūtohunga

- A) That the District Planning and Bylaws Subcommittee receive the report titled Environmental Policy Workstream Priorities dated 28 June 2023.
- B) That the Subcommittee ratify the Workstream Priorities for the Environmental Policy team and recommend that it be referred to the Heretaunga Takoto Noa Māori Standing Committee for feedback, before it is recommended to be adopted by Council as its environmental and district plan priorities.

Attachments:

There are no attachments for this report.

Wednesday, 28 June 2023

Item 5

Te Hui o Te Kaunihera ā-Rohe o Heretaunga

Hastings District Council: District Planning and Bylaws Subcommittee Meeting

Te Rārangi Take

Report to District Planning and Bylaws Subcommittee

Nā:
From: Rowan Wallis, Environmental Policy Manager

Te Take:
Subject: Frost Fan Noise Assessment

1.0 Executive Summary – *Te Kaupapa Me Te Whakarāpopototanga*

- 1.1 A submission was lodged to the Annual Plan voicing concern over the level of frost fan noise within the Plains Production zone. The issues raised were around the cumulative effects of frost fans and also around the fact there are no rules governing their operating times.
- 1.2 It was agreed that the given the length of time since the provisions were last reviewed that it was appropriate to investigate best practice provisions for frost fan noise.
- 1.3 The review undertaken by acoustic consultants Malcolm Hunt and Associates has identified that the maximum noise limits for frost fans is 10dB higher than the best practice limits. It further recommends that provisions be included to account for special tonal features of frost fan sound and also to include provisions that restrict the operation of frost fans under windy conditions or under temperature conditions where their use is not required.
- 1.4 Adopting the best practice provisions could have some implications for current landowners with older style frost fans. It may make them non-complying but they will be able to rely on existing use rights to operate their machines. It will assist Council and the landowners to meet their obligations under Section 16 of the Resource Management Act to avoid unreasonable noise.

2.0 Recommendations - *Ngā Tūtohunga*

That the District Planning and Bylaws Subcommittee receive the report titled Frost Fan Noise Assessment dated 28 June 2023 and that consultation be undertaken with the appropriate horticultural and viticultural industry representatives and stakeholders. That the outcome of the consultation be reported back to the Subcommittee to enable it to make recommendations on whether a plan change is appropriate.

3.0 Background – *Te Horopaki*

- 3.1 A submission was made to the Annual Plan 2022-2023 stating that the current noise provisions in the district plan as they related to frost fans were insufficient to protect dwellings in the vicinity of the fans and asking Council to review them.
- 3.2 The submitters also asked why the cumulative effects of frost fans were not taken into account within the performance standard and stated that consideration should be given to limits on their operation.
- 3.3 The submitter had previously made numerous complaints regarding the noise from frost fans and these were investigated by the Compliance team and were found not to be exceeding the district plan rules.
- 3.4 The noise provisions relating to frost fans were last considered by the Council through the review of the district plan. An acoustic consultant was engaged to review the provisions in the 2003 Operative District Plan and to recommend where changes needed to be made to reflect best practice. The acoustic consultant said that the level of noise provided for in the plan did not reflect best practice and recommended that the approach taken to the measurement of the noise levels be amended. This would result in the noise rules being based on an outdoor noise limit for frost fans rather than the limits being based on distance from residential zone boundaries or dwellings.
- 3.5 The recommendation was also to lower the noise limits to conform to best practice. The hearings committee agreed to the new measurement approach but not to the lowering of the noise level as they were concerned that this would constrain the growers, particularly those that had existing fans based on the old rules.

4.0 Discussion – *Te Matapakitanga*

- 4.1 It is now nearly 8 years since decisions on submissions to the District Plan were notified. There have been a number of technology improvements to frost fans in that time. It is therefore timely to once again consider the existing noise provisions in the district plan in relation to frost fans.
- 4.2 The District Plan has a “Right to Farm” philosophy which recognises that there are well established 'amenity levels' associated with the principal activities of the area, and that new or emerging activities must acknowledge these amenity standards, as part of the ongoing operation and development of the rural resources of the Hastings District. At the time that the district plan was reviewed the rules associated with Frost Fans were considered by the Council against that philosophy.
- 4.3 The outcome from the Annual Plan submissions was that investigations would be undertaken on current best practice to see how the district plan provisions align.
- 4.4 Malcolm Hunt Associates was engaged to report on current best practice in New Zealand. This consultancy has undertaken similar work in Marlborough, Bay of Plenty and Masterton.
- 4.5 The recognised best practice is that a single frost fan should not exceed LAeq 55dB when measured outdoors:
 - i) At a distance 300 metres from the device; or
 - ii) At the notional boundary of any existing dwelling, visitor accommodation or other habitable building (other than on the property on which the frost fan is situated). *Notional boundary is defined in the district plan as; meaning a line 20 metres from and parallel to any wall of a building used by a noise sensitive activity or the legal boundary, whichever is closer to the building.*

whichever is the least distance.

- 4.6 There are additional requirements for rural frost fans not be located within 500 metres of a Residential Zone.
- 4.7 The key benefits of this approach of limiting frost fans to 55dB at 300m (even when no dwellings are present are;
- i) That it restricts the overall level of noise emission which limits cumulative frost fan noise effects.
 - ii) It limits the noise effects at dwellings and noise sensitive buildings to acceptable levels indoors with the windows closed.
 - iii) It is of benefit to modern frost fans (e.g., 5 bladed models) as they may meet the limit at closer than 300m to an existing dwelling.
- 4.8 The current rules in the District Plan state that a frost fan shall not exceed LAeq 65dB when measured outdoors at a distance which is the lesser of;
- i) 300 metres from the device; or
 - ii) At the notional boundary of any noise sensitive activity (other than on the site that the fan is situated or any other adjoining site in the same ownership) or at any point within a residential zone.
- 4.9 As can be seen the district plan provides for a noise limit that is 10dB more than the current best practice. Decibels increase exponentially and as a result every increase of 10 dB on the decibel scale will result in a doubling of the perceived loudness.
- 4.10 An important factor in the assessment of compliance with the 55dB noise limit is accounting for “Special Audible Characteristics” of frost fan sound which may make the sound additionally annoying (compared to sound at that level that does not possess such characteristics) Appendix B to the New Zealand Standard NZS6802:2008 Acoustics- Environmental Noise, contains suitable methods to account for the presence of special audible characteristics.
- 4.11 Best practice now also commonly includes restrictions on the operation of frost fans under windy conditions or under temperature conditions which do not warrant frost fan operations. These aspects do not currently form part of the frost fan noise provisions in the district plan.
- 4.12 Some Councils (eg Marlborough District Council) also place additional controls on new dwellings or noise sensitive activities that will be located within 300 metres of an existing frost fan. This would require an acoustic installation rule for suitable protection of indoor spaces.
- 4.13 The acoustic noise consultant recommends best practice noise provisions for frost fans as shown in Attachment 1 to this report.
- 4.14 If the new rules were to be adopted, a number of landowners with older frost fans would be unable to meet standards. However, they would be able to continue to use their machines under the existing use right provisions of the Resource Management Act.

5.0 Options – Ngā Kōwhiringa

Option One - Recommended Option - Te Kōwhiringa Tuatahi – Te Kōwhiringa Tūtohunga

- 5.1 To adopt the best practice noise provision recommendations from Malcolm Hunt and Associates and undertake consultation with the appropriate horticulture and viticulture industry and stakeholder organisations:

Advantages

- To bring the district plan provisions for frost fan noise in line with nationwide best practice.
- It may encourage landowners to upgrade frost fans to the latest technology.

- This option would reflect the duty under Section 16 of the Resource Management Act to avoid unreasonable noise.
- It would assist with dealing with the issue of the cumulative effects of frost fans.

Disadvantages

- It would reduce the amount of noise able to be emitted by frost fans in the Plains Production and Rural Zones.
- It may result in some landowners incurring costs to upgrade their older frost fans if they chose to meet the new standard.

Option Two – Status Quo - Te Kōwhiringa Tuarua – Te Āhuetanga o nāiane

5.2 Retain the existing district plan provisions for frost fans.

Advantages

- It reinforces the “Right to Farm” philosophy in the district plan.
- It does not place any additional cost on landowners who rely on frost fans for crop protection.

Disadvantages

- It does not reflect best practice.
- It does not acknowledge the effects being experienced by some landowners in the rural environment.
- It does not meet the Council’s duty under Section 16 of the Resource Management Act to avoid unreasonable noise.

6.0 Next steps – *Te Anga Whakamua*

- 6.1 The sub-committee needs to consider whether there is a need to reduce the maximum noise standard for frost fan noise in the Plains Production and Rural Zones and how this may impact on the ‘Right to Farm’ philosophy that is enshrined in the District Plan.
- 6.2 Consultation with stakeholders is an important step in the process before preparing the plan change documents including the Section 32 Report and recommending it to the Council for Notification and the formal submission process.

Attachments:

1 [📄](#) Draft Frost Fans Provisions Aug 2022

CG-16-13-00066

Summary of Considerations - *He Whakarāpopoto Whakaarohanga*

Fit with purpose of Local Government - *E noho hāngai pū ai ki te Rangatōpū-ā-Rohe*

The Council is required to give effect to the purpose of local government as set out in section 10 of the Local Government Act 2002. That purpose is to enable democratic local decision-making and action by (and on behalf of) communities, and to promote the social, economic, environmental, and cultural wellbeing of communities in the present and for the future.

[Link to the Council's Community Outcomes – Ngā Hononga ki Ngā Putanga ā-Hapori](#)

This proposal promotes the environmental wellbeing of communities in the present and for the future by ensuring that we have a healthy environment and the health of our people is protected.

Māori Impact Statement - Te Tauākī Kaupapa Māori

The proposal is unlikely to directly impact the kaitiaki role of Māori or impact on the culture and traditions as provided for under the RMA. It has the potential to impact on Māori as landowners involved in the horticulture and/or viticulture industries. Input into this issue would be achieved through the engagement with industry groups and stakeholders :

Sustainability - Te Toitūtanga

It is important that the issue of frost fan noise be managed in a way that provides for the economic wellbeing of primary producers but in a way that provides for the health and wellbeing of the community. The adoption of best practice provisions provides for sustainable use of the land resource while protecting the community from unreasonable noise :

Financial considerations - Ngā Whakaarohanga Ahumoni

The financial costs associated with the consideration of the provisions and their adoption into the district plan is covered under the District Plan review budget:

Significance and Engagement - Te Hiranga me te Tūhonotanga

This decision/report has been assessed under the Council's Significance and Engagement Policy as being of moderate significance as there will be a number of people affected but it will have low financial implications for Council and remain consistent with Council's policies.

Consultation – internal and/or external - Whakawhiti Whakaaro-ā-roto / ā-waho

Consultation is recommended with the horticulture and viticulture industries and other appropriate stakeholders :

Risks

Opportunity: To align the district plan provisions relating to the frost fan noise with those of national best practice :

| | |
|-----------------|------------------|
| REWARD – Te Utu | RISK – Te Tūraru |
|-----------------|------------------|

| | |
|--|---|
| <p>The benefit is that it will safeguard the health and wellbeing of the community.</p> <p>It could enhance the reputation of the Council as one that follows best practice principles in relation to noise provisions.</p> <p>It would assist Council and landowners in meeting their legal obligation under Section 16 of the Resource Management Act to avoid unreasonable noise.</p> | <p>The risk is that it could make some landowners frost fans non-complying and place financial burdens on landowners to upgrade the fans.</p> |
|--|---|

Rural Community Board – Te Poari Tuawhenua-ā-Hapori

The Rural Community Board are attending the District Plan and By Laws Sub-Committee Meeting to provide input into the issues associated with frost fan noise. :

Rule 1

Noise from a frost fan shall not exceed 55 dB LAeq (15min):

- a) at a distance of 300 metres from the device; or
- b) at any point within the notional boundary of any existing dwelling, visitor accommodation or other habitable building (other than on the property on which the frost fan is situated);

whichever is the least distance.

Rule 2

- a) Sound levels shall be measured in accordance with the provisions of NZS 6801:2008 *Acoustics – Measurement of Environmental Sound* and assessed in accordance with the provisions of NZS 6802: 2008 *Acoustics – Environmental Noise*;
- b) As required by NZS6802:2008, frost fan sound which is assessed as possessing special audible characteristics such as tonality or impulsiveness, shall have a 5 dB penalty added to the measured level before compliance with *Rule 1* is assessed except that:
 - (i) where the Reference Method of NZS6802:2008 is used to determine the penalty, the value of the penalty shall be a value in the range 0.1 dB to 6.0 dB as determined by that method;
 - (ii) no penalty for special audible characteristics shall apply to frost fans located greater than 1 kilometre from any existing dwellinghouse, visitor accommodation or other habitable building.

Rule 3

- 3.1 The frost fan shall only be operated for protection of crops from frosts occurring between bud burst and harvest, with the exception that frost fans may also be operated in the following circumstances:
 - a) For the purposes of maintenance and testing, limited to operation between 8am to 5pm on any day; or
 - b) For compliance monitoring at any time when the monitoring is undertaken by the Council or, where the monitoring is undertaken by a third party, when the Council has been notified.
- 3.2 When protecting crops from potential frost damage, a frost fan shall only be operated in wind speeds not greater than 8 km/hr (averaged over periods not greater than 5 minutes) and when the local air temperature is less than 1° C. For the purposes of this rule, temperature shall be measured within the property to be protected, for vineyards at the lowest fruiting wire and for other crops at the lowest point of the bud height (above ground level) of the plants being protected.
- 3.3 The frost fan shall not be located within 500 metres of the boundary to any Residential Zone.

Wednesday, 28 June 2023

Item 6

Te Hui o Te Kaunihera ā-Rohe o Heretaunga

Hastings District Council: District Planning and Bylaws Subcommittee Meeting

Te Rārangi Take

Report to District Planning and Bylaws Subcommittee

Nā:
From: James Minehan, Senior Environmental Planner, Policy

Te Take: Update on Dark Sky Standards - consideration of submission from
Subject: Graham Palmer to 2021 - 2031 LTP on light pollution

1.0 Purpose and summary - *Te Kaupapa Me Te Whakarāpopototanga*

- 1.1 This report seeks a decision from the Committee on how to respond to the submission from Graham Palmer to the Long Term Plan (LTP 2021-2031) concerning light pollution and the option to set standards to combat its impact (Dark Sky Standards)
- 1.2 An initial report on this topic was considered by via the pre-agenda of the District Planning and Bylaws Subcommittee in March 2022 and was put on hold. This was because it was considered that a dark sky project would add too much pressure to the post-covid pandemic workload.
- 1.3 Recently, after consultation with the Chair and Deputy Chair, a dark skies project was seen as having merit but still not considered feasible. This view recognised that Council (and its community) are even more over-stretched in time and resources in the wake of the Cyclone Gabriel event.

2.0 Background Information and timeline

- 2.1 A report was written summarising Graham Palmer's submission. This report highlighted his concern about light pollution and covered the options for setting of standards to avoid this problem (Dark Sky Standards). The report went to the pre-agenda of the District Planning and Bylaws Subcommittee in March 2022.
- 2.2 It was decided to move the report to a holding date in InfoCouncil (i.e., "report pending and not ready to be assigned to any particular meeting"). This was because it was considered that any dark sky project would be too much of a challenge for Council and the community. This decision took into account the existing workloads and recognised that existing work schedules had been severely delayed by the impact of the Covid-19 pandemic.

- 2.3 Graham Palmer was subsequently informed that the report had not progressed any further.
- 2.4 Recently the views of the Chair and Deputy Chair were canvased on whether to proceed with the Dark Skies Project. The feedback was that the project had merit but now was not the time to implement it. This was because the implementation of any dark sky planning requirements would create another imposition on the Council and its community seeking to recover from the wake of Cyclone Gabriel.
- 2.5 It is possible for Council to reappraise the situation at a later date and reconsider the project for another LTP round. The LTP has a ten year planning horizon but is reviewed every 3 years. It is likely that the Council will be undertaking the review in 2024 under the special Cyclone Gabrielle provisions. In any case another review will be in 2027.
- 2.6 It is also possible for Graham Parker to resubmit the project for consideration.
- 2.7 In summary the timeline for consideration of this issue was as follows:

23 April 2021 Graham Palmer submitted to the 2021-2031 Long Term Plan.

5 July 2021 Graham Palmer received feedback from Lex Verhoeven (Strategy Manager) that his submission would need to be considered in more depth by Council officers.

1 September 2021 Background investigation of the details of the submission and follow-up with the submitter (Graham Palmer).

2 November 2021 Site meeting and discussions at 925 Aorangi Road at Maraekakaho with Graham Palmer.

Early March 2022 Draft Dark Sky Report considered at a pre-agenda meeting.

14th March 2022 Report put on hold in InfoCouncil and not assigned to a specific meeting.

3.0 Recommendations - *Ngā Tūtohunga*

- A) That the District Planning and Bylaws Subcommittee Meeting receive the report titled "Update on Dark Sky Standards - consideration of submission from Graham Palmer to 2021 - 2031 LTP on light pollution"
- B) That the Subcommittee approve the decision not to proceed with the Dark Skies Project at this time because Council's focus is significantly on post cyclone recovery issues.
- C) That the Council reconsider the Dark Skies Project in the LTP review in 2027 (not the LTP review in 2024 that will likely to be under the special Cyclone Gabrielle provisions).
- D) That Graeme Palmer be informed of Council's decision on this issue.

Attachments:

- | | | |
|----|--|----------------|
| 1↓ | Original Draft report on Submission by Graham Palmer Dark Sky Standards | CG-17-13-00002 |
| 2↓ | Submission 22 - Graham Palmer to LTP | CP-11-2-21-22 |
| 3↓ | PDF version of Dark Sky PowerPoint Presentation - relating to Sub 22 Graham Palmer | CG-17-13-00001 |



Tuesday, 26 December 2023

Te Hui o Te Kaunihera ā-Rohe o Heretaunga

Hastings District Council: Pending Reports Meeting

Te Rārangi Take

Report to Pending Reports

Nā:
From: James Minehan, Senior Environmental Planner, Policy

Te Take: Submission from Graham Palmer to the LTP on light pollution and
Subject: setting standards to combat its impacts (Dark Sky Standards)

1.0 Executive Summary – *Te Kaupapa Me Te Whakarāpopototanga*

- 1.1 The Policy Unit was requested to look into this issue of light pollution after Graham Parker gave a presentation on this topic to Council as part of the 2021-2031 LTP consultation process.
- 1.2 The writer met up with Graham Parker at his residence late last year to discuss aspects of his submission.
- 1.3 As a result of this meeting, this report summarises the relevant issues. It starts with an overview and explanation of the subject submission to the HDC 2021-2031 LTP.

2.0 Background – *Te Horopaki*

The submitter and the contents of the submission:

- 2.1 Graham Parker resides in Aorangi Road Maraekakaho and is an astronomer who has built a dark sky observatory and offers accommodation on his rural site.
- 2.2 He states that it is important to address light pollution and set standards to combat the adverse impact on health, ecosystems, culture, climate and astronomy based tourism. He realises, however, that lighting infrastructure that currently exists will take many years to correct and to bring up to any new standards that are set.
- 2.3 He recommends that Council should introduce dark sky standards for all new outdoor lighting fitted to commercial, industrial and residential construction and these standards should include:
 - Full cut off shielding to eliminate light spill into the sky and surrounding area
 - Set strict regulations to limit light trespass
 - Set a maximum outdoor colour temperature limit of 2,700 kelvin
 - Ban the sale and installation of poorly designed flood lighting and promote the use of exterior down lights in their place

- Apply these shielding and colour temperature standards to all Council maintained street lighting and work with Waka Kotahi to ensure all regional road lighting meets the same standards.
- 2.4 Graham Palmer refers to the MfE document ("Our Air 2018"). In relation to the night sky and light pollution, the document states that there is an increasing awareness of the importance of night skies and that this resource is being compromised by light pollution from human activities. The document states that naturally dark night skies are important for multiple reasons including tikanga Māori (Māori cultural practices); unique scenic and scientific values; the health of native species and ecosystems; human health both physical and mental and business opportunities from astro-tourism.
- A world example
- 2.5 A good background to the concept of dark sky planning comes from the Utah Community Development Office. www.darksky.org/wp-content/uploads/bsk-pdf-manager/2020/08/Dark-Skies-Issue-Guide-7-27-2020.pdf
- What's happening in New Zealand
- 2.6 There are a number of initiatives in NZ. These are outlined below.
- Wairarapa International Dark Sky Reserve
- 2.7 A district plan change in 2020 provided for tilted down shielded lights specified at 3000k for the dark sky area of South Wairarapa and Carterton Districts. This was in support of a dark sky application whereby the Wairarapa Dark Sky Association requested certification from the International Dark Sky Association. In July 2021 Carterton District Council and South Wairarapa District Council adopted new rules for the District Plan. This meant that that outside lighting in the two areas would be consistent with the international dark sky reserve requirements thus limiting future light pollution.
- Stewart Island
- 2.8 Southland District Council has special controls for lighting on Stewart Island/Rakiura as this area is recognised as a dark sky sanctuary. The District Plan requires lights to be fully shielded so that light spill will be directed downward and to be warm white (technically less than 3000k).
- Dunedin
- 2.9 As part of the city's street light upgrade (for 2021) more than 700 lower-temperature lights (3000 kelvin LEDs) are utilised in 'sensitive areas' of Dunedin. Also 200K LEDs are to be installed on the Otago Peninsula, as well as Waikouaiti, Waitati, Mihiwaka and near Purakaunui to protect night sky viewing.
- Feedback from Marius Van Niekerk Transportation Asset Manager
- 2.10 Council's Transportation Asset Manager offers the following comments:
- 2.11 HDC has recently completed a streetlight to LED conversion programme that removed all old technology streetlights including high pressure sodium (HPS), mercury vapour (MV) and metal halide (MH). This project focused on streetlights but there are amenity lighting installations that still have some of these older light types in use. These will be replaced over time as budgets permit.
- 2.12 All of the new streetlights (predominantly identified as AEC, OrangeTek and Ibex lighting) have downward facing 4000k LED's as the light source. All these lights have a clean cut-off to minimise light spill into the sky. They do not light up surrounding areas not intended to be illuminated and they greatly minimise light spill. Over 7000 lights have been replaced at a capital cost of \$5.4M with NZTA paying 85 percent of the cost.
- 2.13 The HDC streetlight to LED conversion programme followed the NZTA M30 specification and the colour temperature was identified at 4000k. This was based on the concept that whiter light is

beneficial as it results in improved driver reaction times and thus facilitates road safety. It also helps with security issues in the community. However the need to control light colour temperature and light spill into the environment was also considered.

- 2.14 It is noted that the lights on state highways are controlled by NZTA and these are also being updated to LED lighting.
- 2.15 HDC has installed a central management system which allows dimming. This will further limit the level of light spill into the environment but the dimming level needs to be weighed against the need for community safety and security.
- 2.16 The HDC lighting conversion programme started in 2017 with an 85 percent subsidy received from the NZTA. It was completed in June 2021 and covered over 7000 streetlights. The lights are guaranteed for ten years and have an expected life of twenty years. The change was based on the best information at the time and also followed NZTA recommendations and is considered to give a balance between safety, security and amenity.
- 2.17 So the opportunity to go to lower kelvin lights at this time is lost (i.e. the submitter's recommendation was a maximum outdoor colour temperature limit of 2,700 kelvin) because the NZTA subsidy has been taken up and new 4000 kelvin LED lights have already been fitted.

Other submission points and some options

- 2.18 The District Plan does control lux levels of light spread to property boundaries (there are specific levels set for the various planning zones). The District Plan does not set a colour temperature or specify a certain type of light for private use.
- 2.19 Discussion with Council's Compliance Manager revealed that the private property light trespass problems and/or complaints seldom arise.
- 2.20 In relation to the sale of certain types of flood lighting this is not under Council control but would be a wider issue for central government.

3.0 Options – Ngā Kōwhiringa

- 3.1 One option for raising awareness about dark sky lighting standards would be through providing information to the public. This could be a similar approach that was taken with the production of the Hastings Residential Intensification Design Guide. A simple brochure could be developed to recommend a lighting approach for private property owners/developers and be freely available from Council. An example of what sort of information could be provided is outline in the "Guide to the District Plan lighting Rules on Stewart Island/Rakiura" (Southland District Council). www.southlanddc.govt.nz/assets/have-your-say/darkskies/Lighting-guidance.pdf
- 3.2 A localised option is to change the lights at Maraekakaho. This option has been discussed with Council's Transportation Asset Manager. This discussion revealed that there are only three lights owned by Council in the Maraekakaho village so the impact of this option would be limited. There are also lights at the intersection of Kereru and SH50 but these are owned by NZTA. The Transportation Asset Manager has revealed that the cost to replace a 4000k light with a 3000k light would be around \$1000 including fit out.

4.0 Next steps – Te Anga Whakamua

- 4.1 The issue needs to be further considered by Council:

- 4.2 The question is does Council want to go for dark sky standards and is international dark sky certification desirable in the longer term? Resource document: www.darksky.org/wp-content/uploads/bsk-pdf-manager/2020/08/Dark-Skies-Issue-Guide-7-27-2020.pdf
- 4.3 Does Council want to pursue more stringent light pollution standards in the meantime? Resource document: www.southlanddc.govt.nz/assets/have-your-say/darkskies/Lighting-guidance.pdf
- 4.4 These questions would need further investigation to look at the options, the costs and benefits, the overall desirability and what 'buy in' there would be from the community including mana whenua.

5.0 Recommendations - Ngā Tūtohunga

That the District Planning and Bylaws Subcommittee receive the report titled Submission from Graham Palmer to the LTP on light pollution and setting standards to combat its impacts (Dark Sky Standards) dated 26 December 2023.

Attachments:

There are no attachments for this report.

4/27/2021

Wufoo · Entry Detail

HDC - 2021 - 2031 Long Term Plan

COMPLETE

#15

CREATED



PUBLIC

Apr 23rd 2021, 3:20:53 pm

IP ADDRESS



* Name

Graham Palmer

Address

925 Aorangi Road

Maraekakaho

Hastings

1471

New Zealand

* Daytime contact phone:

212650487

Evening contact phone:

(No response)

* Email

grahampp1972@gmail.com

Please indicate whether or not you wish to speak to your submission at a Council Meeting set down for hearing submissions, commencing 8 June 2021.

Yes

If your submission is a rural matter, it will also be discussed at the Rural Community Board Meeting (24 May 2021). Please indicate if you also want to speak to the Rural Community Board.

What are the main topics in your submission?

Addressing light pollution and setting standards to combat it's impacts on health, ecosystems, culture, climate and astronomy based tourism.

Please tell us your views in the text box or by attaching your submission below.

(No response)

Attach your submission

submission_by_graham_palmer.pdf

<https://app.wufoo.com/entry-manager/1681/entries/15>

1/1



I wish to raise the issue of light pollution and the implications if we do not address it's spread through our environment.

My name is Graham Palmer. I am an astronomer (member of the Hawke's Bay Astronomical Society since 1999), a photographer, a geographer and a small business owner. I have built a dark-sky observatory and with the help of my wife, we have established an eco-friendly, astronomy-based accommodation destination west of Maraekakaho, Hastings.

Our location on Aorangi Road was chosen for its beautiful night sky. Using a sky quality meter, I was able to determine that our location is ranked as either a 2 or a 3 on the Bortle scale of 1-9. 1 being a pristine dark location, 9 being inside a major city. https://en.wikipedia.org/wiki/Bortle_scale

When designing our outdoor lighting, we chose to use down-lights exclusively, in order to illuminate where we needed it, without impacting the night sky. Even our sensor lights are eve-mounted down-lights. This has resulted in having the lighting we need without spoiling photography operations in the observatory or when we have guests taking guided night sky tours.

I will make the argument that the long-term plan should take outdoor lighting design seriously for several reasons:

- Human health – many studies now link blue light and general light pollution with long-term health problems, including mental health issues in young people.
https://www.darksky.org/light-pollution/human-health/?fbclid=IwAR3ta6f77TZOVsmqCTeRHnEcfZ6v3W1nYy1QBNgsGwVcq7qA_-XNQJr3B8Y and https://edition.cnn.com/2020/07/08/health/night-light-pollution-disrupt-sleep-wellness/index.html?fbclid=IwAR21HZt-JgO3yf5Jog5Jdz88BryQVMwPmC-0IR2OUj0OBFqwCX3R0T_Khn0
- Ecosystem health – stray light (particularly blue) is proven to harm insect populations and interfere with bird migration patterns.

https://www.nationalgeographic.com/science/article/nights-are-getting-brighter-earth-paying-the-price-light-pollution-dark-skies?fbclid=IwAR1gypSmPaGN82x8jGCEnPsHCp79jT3ftu0-vG-EUZ_dqDlftn7qordUnvE

- Cultural impacts – humans have a long and storied relationship with the night sky, which is currently being lost. <https://cescos.fau.edu/observatory/lightpol-culture.html>
- Scientific loss – astronomers, both professional and amateur, rely on dark skies in order to carry out their research. <https://www.royalsociety.org.nz/major-issues-and-projects/blue-light-aotearoa/matai-arorangi-astronomy/>
- Economic impact – light pollution hurts our economy and our resources. <https://cescos.fau.edu/observatory/lightpol-econ.html?fbclid=IwAR3-ONxvdeftERnAIJWB2eeHRdMlpMp2CIWEGxp2Kh3Kgy9iqaMBp8Ofjic>
- Climate change – Excessive lighting wastes energy, and due to the fact it is being drawn during normal hours of darkness, this power is more likely to be generated by non-renewable means, contributing to our carbon emissions. https://phys.org/news/2017-03-flip-pollution.html?fbclid=IwAR1gypSmPaGN82x8jGCEnPsHCp79jT3ftu0-vG-EUZ_dqDlftn7qordUnvE
- Astronomy Tourism – New Zealand is internationally recognized as a dark-sky location, positioned under the most spectacular section of the Milky Way. Preserving and improving the quality of our lighting can only enhance and develop this growing industry. <https://media.newzealand.com/en/story-ideas/heavens-above-star-gazing-in-new-zealand/>

Of all the different types of pollution that currently degrade our environment, light pollution is the one that is possibly the easiest and fastest to solve. It literally can be stopped by the flick of a switch. However, I am not so naïve to think it is that easy in practice. Lighting infrastructure that currently exists will take many years to correct and bring up to any new standards that are set. Therefore, the most effective thing that can be done, is to quickly set standards for all new outdoor lighting to prevent the issue getting worse in the mean-time. This will allow us to concentrate on solving the issues with existing lighting in the region over the coming years.

Recommendations -

I believe that council should introduce dark-sky standards for all new outdoor lighting being fitted to commercial, industrial and residential construction. These standards should include:

- Full cut-off shielding to eliminate light spill into the sky and surrounding areas
- Set strict regulations to limit light trespass
- Set a maximum outdoor colour temperature limit of 2,700 Kelvin
- Ban the sale and installation of poorly designed flood-lighting and promote the use of exterior down-lights in their place
- Apply these shielding and colour temperature standards to all council maintained street lighting and work with Waka Kotahi to ensure all regional roading meets these same standards.

.....

Supporting documentation - The following was sourced from the ministry for the environment:

Ministry for the Environment >>
>> New Zealand's Environmental Reporting Series

Our air 2018 DATA TO 2017

– Pages 57-60

Quality-of-life impacts

Other impacts of human activities in the air include light pollution, noise pollution, and odours. They are explored in this section. They can have adverse effects on quality of life and human health. Cultural values and eco system well-being can also be adversely affected.

Night skies and light pollution

There is increasing awareness of the importance of night skies, alongside growing recognition that this resource is being compromised by light pollution from human activities. Naturally dark night skies are important for multiple reasons, including:

- tikanga Māori (Māori cultural practices)
- unique scenic and scientific values
- the health of native species and ecosystems
- Human health, both physical and mental
- business opportunities from astro-tourism

The extent of light pollution

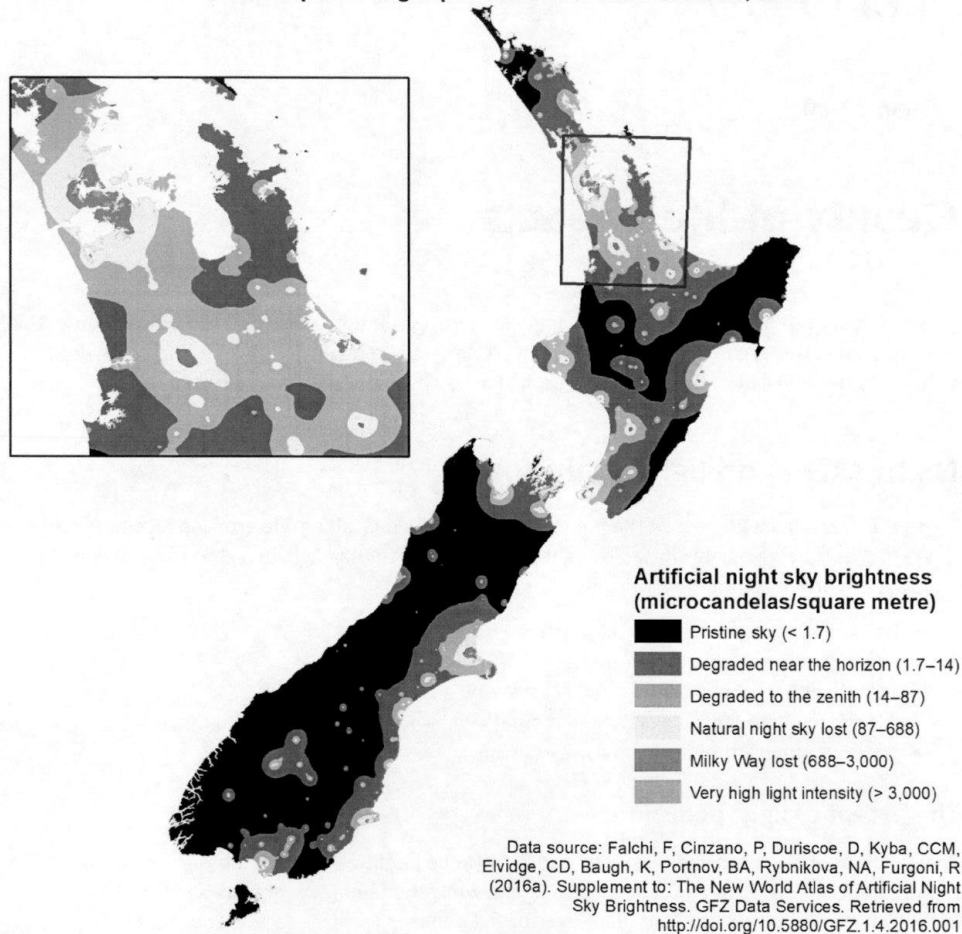
The darkness of night can vary naturally and can also be negatively affected by light pollution. A full moon can be so bright that a torch is not needed, while the faint glow of stars and the Milky Way can be enough to illuminate overturned ponga (silver tree fern) fronds that Māori have traditionally used to mark pathways. Light pollution from artificial lighting is a modern phenomenon that can wash out starlight in the night sky, interfere with astronomical research, disrupt ecosystems, and undermine cultural values.

Light pollution has been estimated for the entire world, including New Zealand. Satellite measurements from six months of observations in 2014 were used to obtain artificial night sky values in microcandelas per square metre (Falchi et al, 2016b). The data indicate that much of New Zealand had little or no light pollution, except for urban areas (see figure 24).

Based on land area, 74 percent of the North Island and 93 percent of the South Island had night skies that were either pristine or only degraded by light pollution near the horizon. However, despite artificial light levels being generally low across much of the country, most New Zealanders live in cities and are therefore disconnected from the night sky. Nearly all parts of all major urban areas had light pollution levels where the natural night sky is lost; it is estimated that over half (56 percent) of New Zealanders are unable to see the Milky Way (Falchi et al, 2016b).

Figure 24

Visual impact of light pollution over New Zealand, 2014



Night skies are culturally important

Pacific peoples were, and still are, highly skilled voyagers. They travelled the vast expanses of the Pacific Ocean to settle the many islands of the Pacific using traditional navigation techniques.

Māori arrived in Aotearoa during the great waka (canoe) migrations by using expert knowledge that included reading the stars and other elements of the environment. Connections back to these waka are a critical element of Māori identity.

In recent decades there has been a renaissance in traditional navigation practices. Many traditional waka now retrace ancestral voyage routes by using the customary techniques, such as the star compass, for direction. These practices link the present generation to Polynesian ancestral knowledge.

Te Pae Māhutonga (the Southern Cross) is a constellation that is visible low in the night sky and identifies the South Pole. It has long been used to navigate and has been associated with Polynesian and European arrival in New Zealand (Durie, 1999). Matariki was also frequently used in navigation, and was instrumental to the early navigators finding New Zealand (Matamua, 2017).

Celestial bodies are culturally and spiritually significant to Māori. Mātauranga Māori comes from Māori relationships and interactions with the environment developed over thousands of years. Māori observe the stars and moon phases to inform how they apply traditional knowledge. Poor visibility of the night sky affects their ability to use and develop mātauranga and to undertake culturally significant practices.

Knowledge of the stars and Maramataka (the lunar cycle) are both used by Māori as a guide for planting, harvesting, hunting, and gathering food and also for voyaging, building, celebrating, and karakia (prayer) (Matamua, 2017). Each phase of the moon has a different name and indicates whether an activity is suitable or unsuitable for the day ahead. Similarly, tohunga (experts) would look at the position, brightness, colour, and movement of stars to deduce information and rely on it for traditional practices (Matamua, 2017).

Matariki

The Matariki star cluster is also known as Pleiades or the Seven Sisters. Some iwi use other stars to signal the time associated with Matariki, such as Puanga to the east. Matariki means 'the eyes of god'. A longer form of this name is Ngā mata o te ariki o Tāwhirimātea. This name reflects the traditional creation stories shared by some iwi that recall when Tāwhirimātea, enraged at the separation of Papatūānuku (Earth Mother) and Ranginui (Sky Father), ripped out his eyes, crushed them, and threw them to the sky. Hence,

Matariki comprises the eyes of Tawhirimatea, who is also known as the blind god, illustrating the character of the winds.

Matariki is a significant time for remembering those who have recently died. During the year, Taramainuku (the captain of the waka-o-Matariki) collects the dead after they make their way along te ara wairua (the spiritual pathway) to Rerenga Wairua (Cape Reinga). They fall as stars at the prow of Taramainuku's waka.

Pōhutakawa is the star associated with the dead, and rises during June. When Matariki rises, Taramainuku releases the hunga mate (those who have passed on) to carry on their journey into the afterlife (Matamua, 2017). This is why Māori lament during the rising of Matariki – it is a time for the last farewell.

Matariki is also a time of renewal and celebrating new life. The rising of Matariki signals the Māori New Year, and indicates what the forthcoming year will look like. There has been a recent revival in Matariki celebrations nationally. Matariki is an example of the significance of the stars, both spiritually and for cultural practice and knowledge, as an intrinsic element of te ao Māori (the Māori world view). Maintaining good visibility of the night sky is crucial to preserve this relationship.

Naturally dark night skies are a scenic and scientific resource

Naturally dark night skies are recognised as a scenic resource in New Zealand for recreational star gazers and astronomical studies. The Mackenzie region, in the centre of the South Island, is recognised as one of the best stargazing sites on Earth, due to very limited light pollution and unusually clear atmospheric conditions. Controls for outdoor lighting were first put into place in the Mackenzie region in the early 1980s to help minimise light pollution.

In 2012, a 4,300 square kilometre area was proclaimed an International Dark Sky Reserve – the largest in the world (International Dark Sky Association, 2012). It also has gold tier status, which is generally reserved for the darkest skies. The astronomical research centre Mount John Observatory lies within this reserve. Around 200,000 people visit each year to see the stars. The Starlight Festival held at Mt Cook is a highlight in the growing astro-tourism industry (International Dark Sky Association, 2017).

The organisers of the International Dark Sky Reserve recognised that the night sky played a critical role for Māori, not only for navigation, but also because astronomy and star lore have become integrated into Māori culture and part of daily life. The reserve seeks to honour this history by recognising that the night sky is an integral part of the area's natural and cultural landscape (International Dark Sky Association, 2012).

Night skies are critical for the well-being of ecological systems

Light pollution can disrupt natural patterns in ecosystems. This is particularly critical for nocturnal species, which are active at night, such as kiwi and native bat species. The absence of light is a key element of their habitat.

International research has revealed numerous connections between light pollution and species disruption. Many species rely on natural patterns of light and dark to navigate, cue behaviours for nesting and mating, and hide from predators or forage for food (Gaston et al, 2013; Rich & Longcore, 2005).

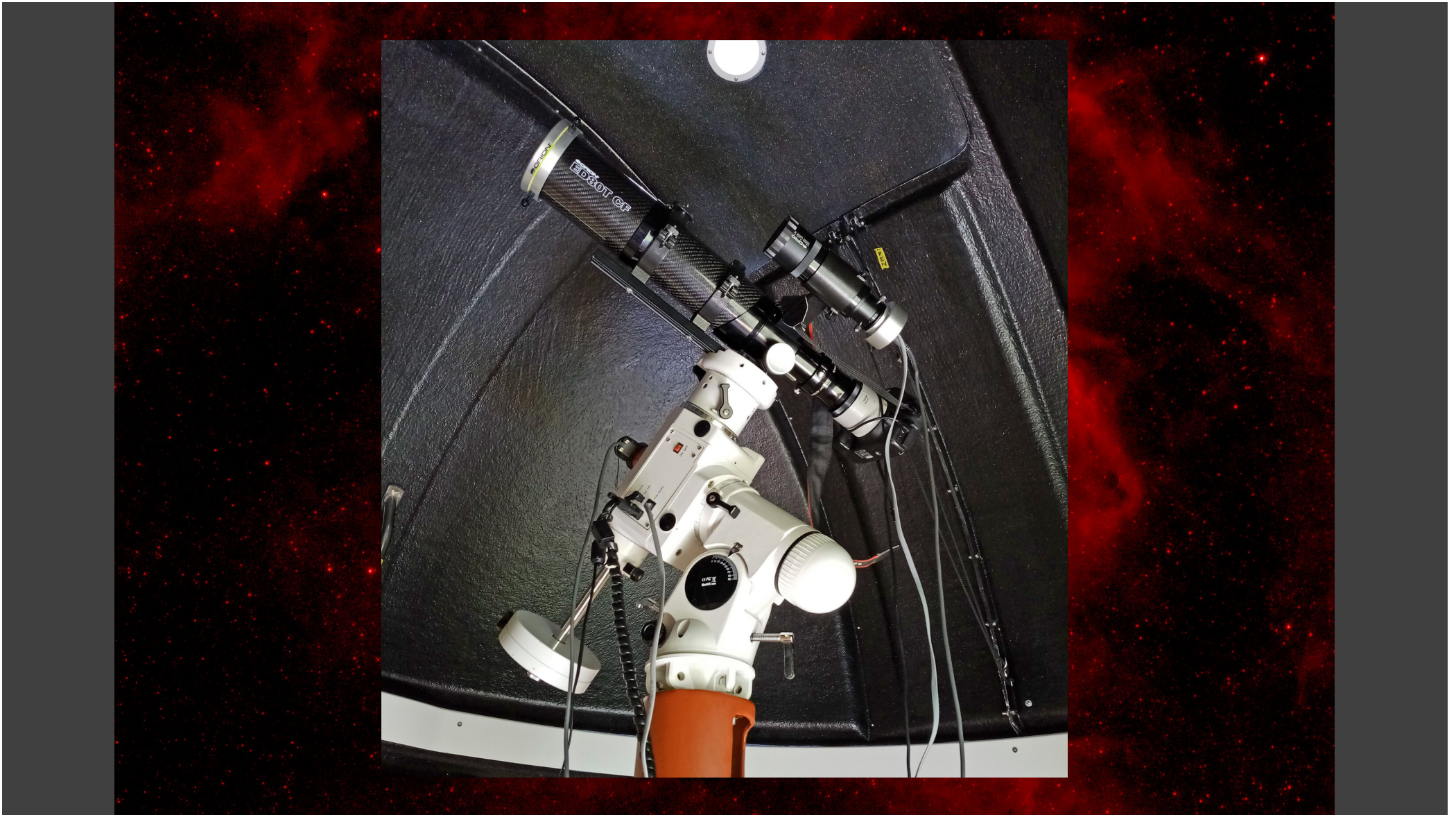
Limited information is available on how light pollution affects native species and ecosystems in New Zealand. However, in Nelson and Hawke's Bay unusual nocturnal feeding behaviour has been observed, where groups of karoro (southern black-backed gull) were feeding on swarms of beetles that are attracted to artificial light (Pugh & Pawson, 2016). In Hamilton, a survey of native long-tailed bats found they were detected much less frequently at places with even a small increase in the number of roads and street lights (Le Roux & Le Roux, 2012).

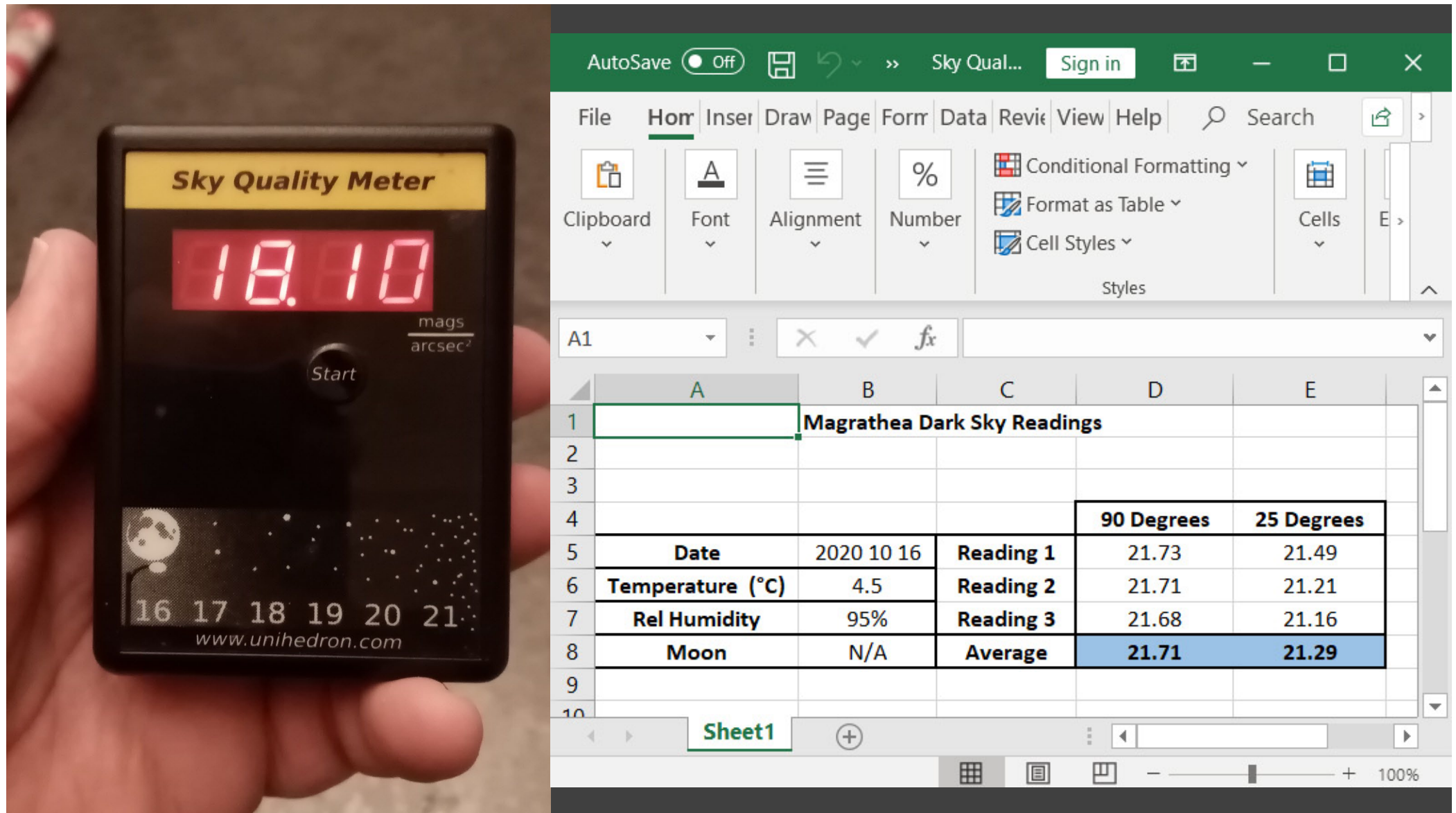
New energy-efficient lighting technologies, such as light emitting diodes (LEDs) may exacerbate light pollution problems by changing the spectrum of light emitted. Low-pressure sodium streetlights, with their familiar orange hue, are being replaced by LED lights in places such as Wellington and Auckland. These LED lights produce a more natural white light made up of a broad spectrum of wavelengths, which is visible to a wider range of species. This can affect circadian rhythms and melatonin production (Gaston et al, 2013). It can also affect night vision in humans (Falchi et al, 2016b). However, many newer lighting systems include better horizontal shielding so less light escapes upwards to pollute the night sky. These studies suggest that light sources with a colour temperature of 2,700 Kelvin or below are best.











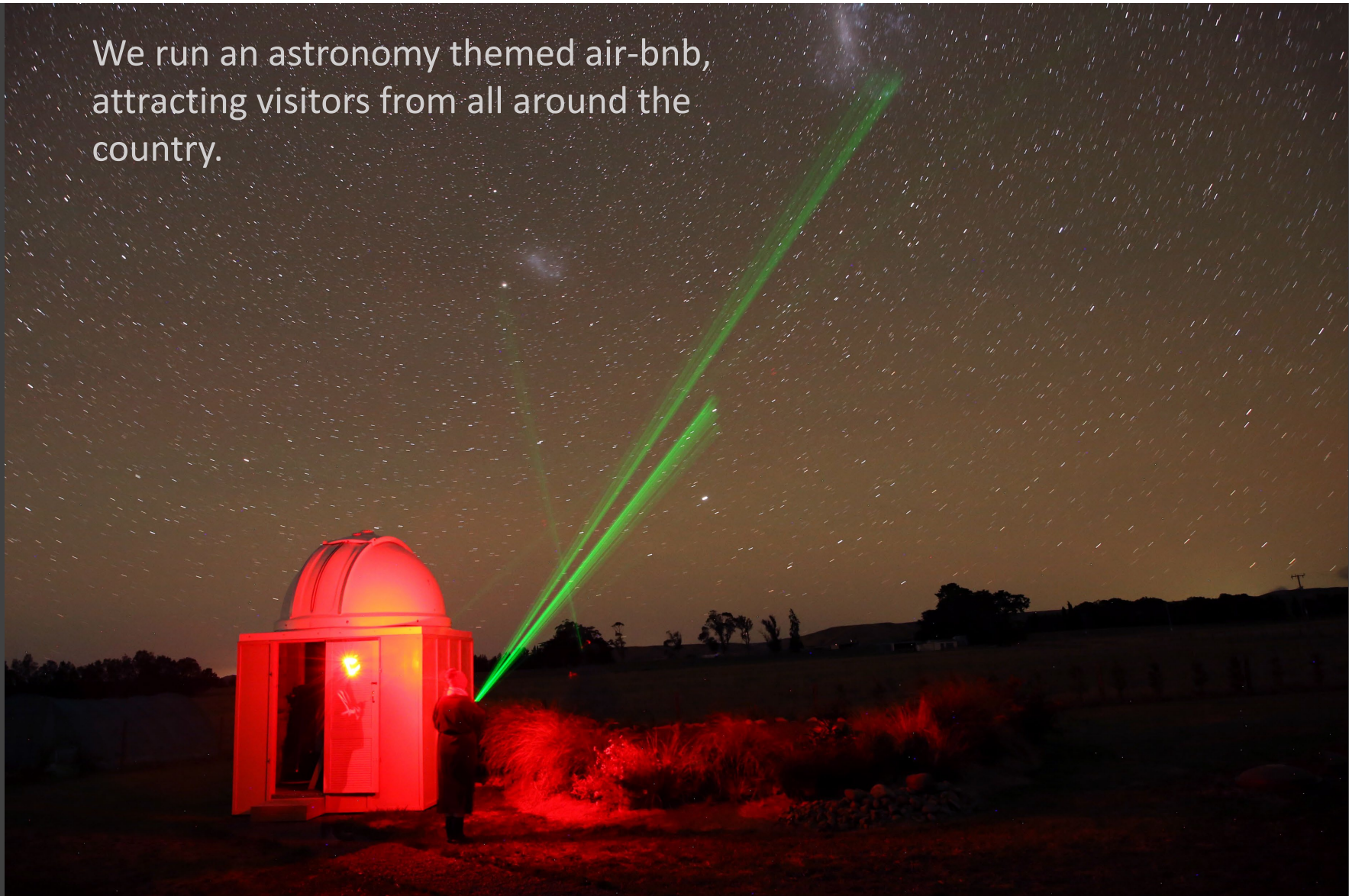








We run an astronomy themed air-bnb,
attracting visitors from all around the
country.



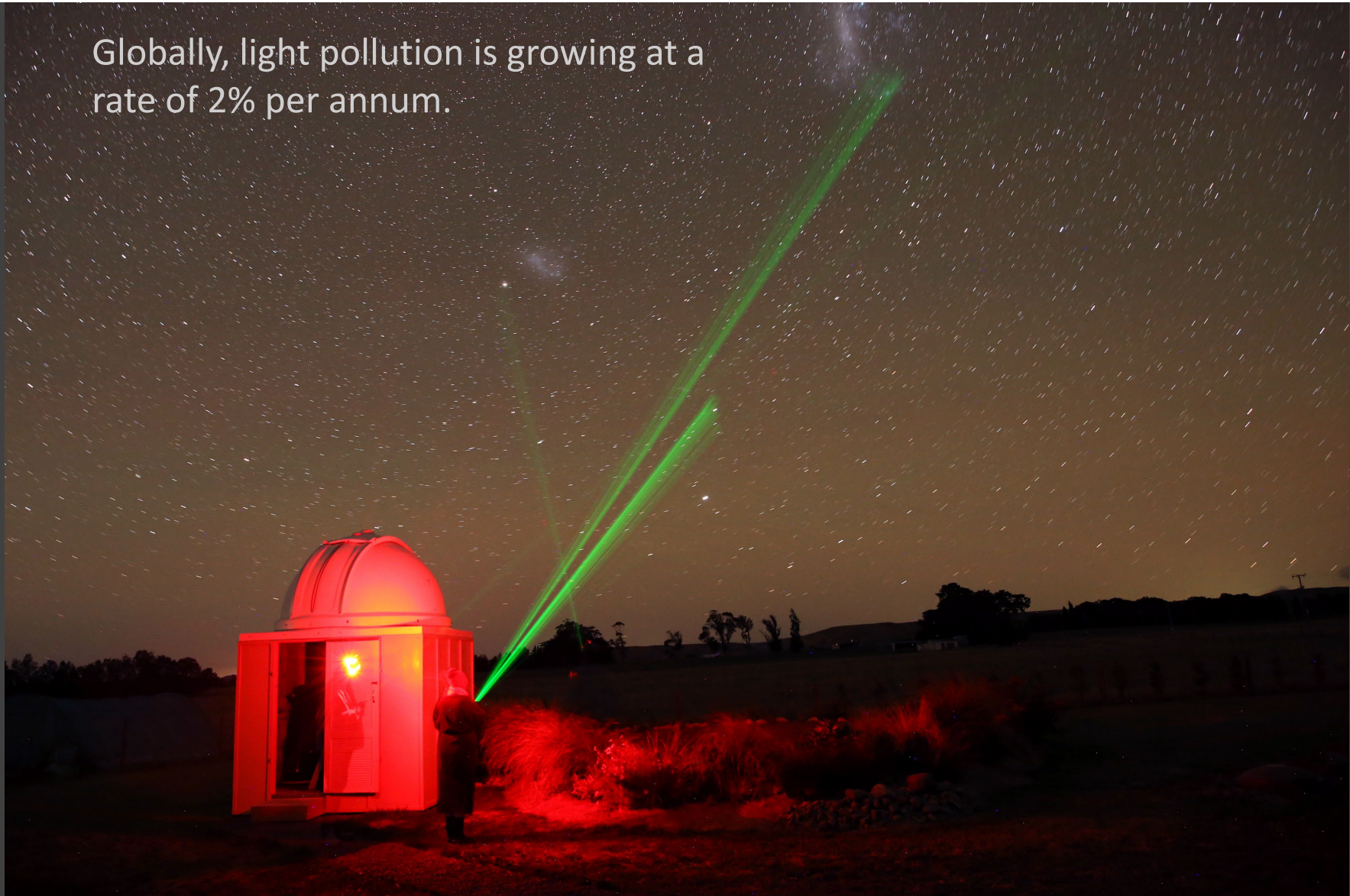
Our guided night sky tours are very popular and are a great educational tool.



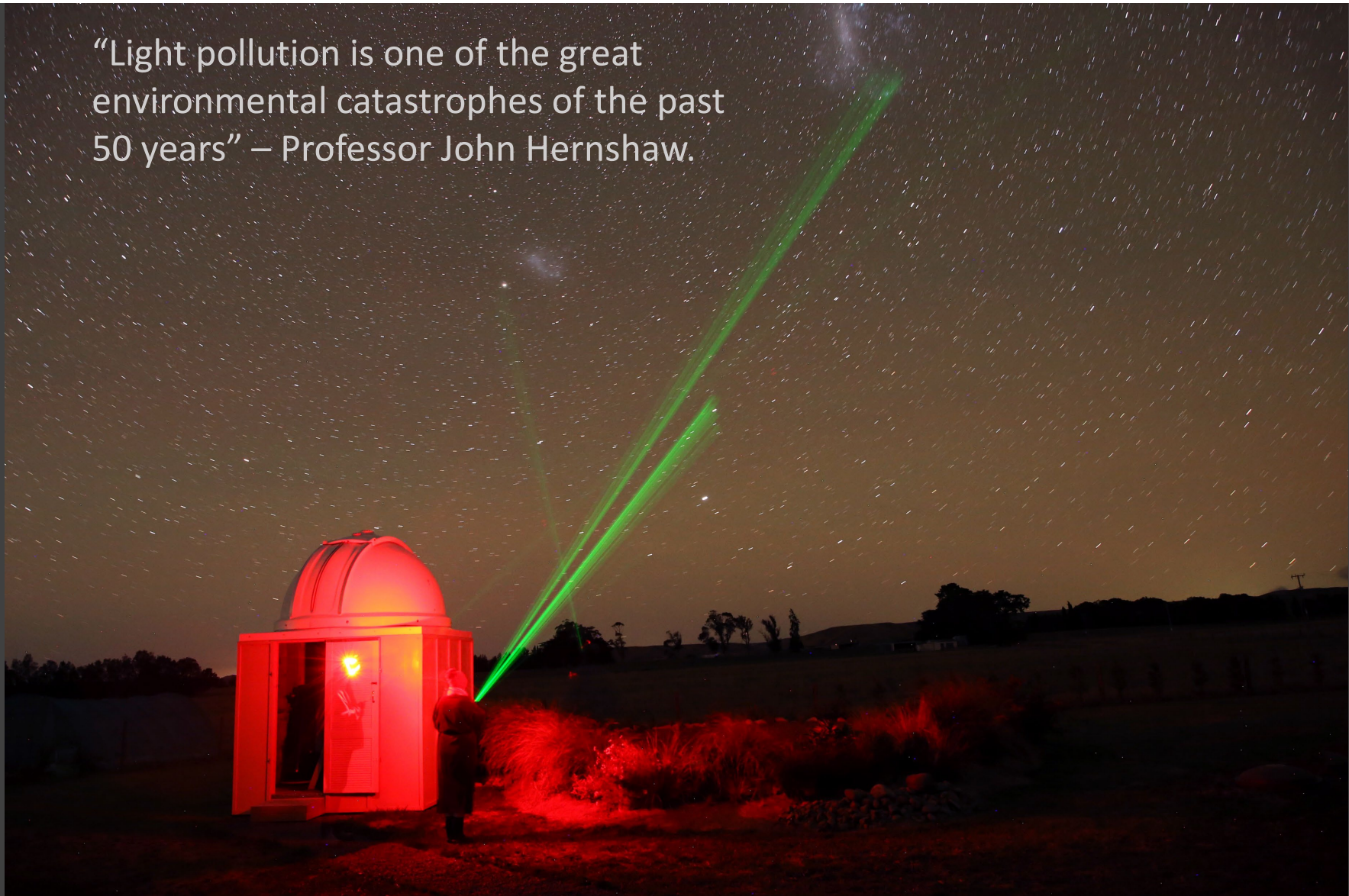
Sadly, most people in NZ are not able to see such wonders from their backyards due to stray light.



Globally, light pollution is growing at a rate of 2% per annum.



“Light pollution is one of the great environmental catastrophes of the past 50 years” – Professor John Hernshaw.



The glow of un-shielded lighting from Hastings (25Km away) impacts the sky at our location.



The glow of un-shielded lighting from Hastings (25Km away) impacts the sky at our location.
In contrast, when we turn our shielded lights on, the brightness of the sky does not change...





Please note the warm colour and that none of the actual light bulbs or LED's are directly visible from outside the property. This is the key to preventing light pollution, sky glow and light trespass.



If the HDC chooses to take action on light pollution, it
will not be the first to do so...

Other areas where outdoor lighting is being regulated:

Other areas where outdoor lighting is being regulated:

- Mackenzie Basin/Tekapo

Other areas where outdoor lighting is being regulated:

- Mackenzie Basin/Tekapo
- Aotea/Great Barrier Island

Other areas where outdoor lighting is being regulated:

- Mackenzie Basin/Tekapo
- Aotea/Great Barrier Island
- Rakiura/Stewart Island


Other areas where outdoor lighting is being regulated:

- Mackenzie Basin/Tekapo
- Aotea/Great Barrier Island
- Rakiura/Stewart Island
- Waiheke Island

Other areas where outdoor lighting is being regulated:

- Mackenzie Basin/Tekapo
- Aotea/Great Barrier Island
- Rakiura/Stewart Island
- Waiheke Island
- Wairarapa District

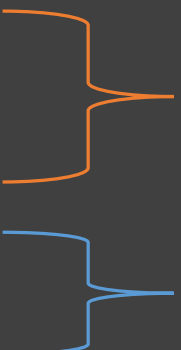
Other areas where outdoor lighting is being regulated:

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 - Rakiura/Stewart Island
 - Waiheke Island
 - Wairarapa District
- 
- These three have already met IDA standards

Other areas where outdoor lighting is being regulated:

- Mackenzie Basin/Tekapo
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 - Rakiura/Stewart Island
 - Waiheke Island
 - Wairarapa District
-
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- These two are in progress

Other areas where outdoor lighting is being regulated:

- Mackenzie Basin/Tekapo
 - Aotea/Great Barrier Island
 - Rakiura/Stewart Island
 - Waiheke Island
 - Wairarapa District
- 
- These three have already met IDA standards
- These two are in progress

I would love to have the Hastings District added to this growing list...

Where to from here? What are the first steps?

Firstly, I believe that the HDC should act with a level of urgency to develop a set of standards for all new outdoor lighting installations. These new standards should be implemented ASAP as part of the building code or other appropriate regulations.

Firstly, I believe that the HDC should act with a level of urgency to develop a set of standards for all new outdoor lighting installations. These new standards should be implemented ASAP as part of the building code or other appropriate regulations.

This critical first step will prevent the current level of pollution from worsening.

Next, a phase-in period should be set for bringing existing lighting up to code. It will take many years to fix the current pollution by refitting or rectifying existing infrastructure.

Next, a phase-in period should be set for bringing existing lighting up to code. It will take many years to fix the current pollution by refitting or rectifying existing infrastructure.

Where changing existing lighting is not feasible (such as major sports grounds), time limits and curfews could be considered to limit their impacts.

I would like to propose that the Maraekakaho area initially be selected as a demonstration site for dark sky lighting regulations.

Here are some excellent links for further reading...

International Dark-Sky Association:

<https://www.darksky.org/>

Lighting design:

https://www.darksky.org/fixture-seal-of-approval-program-expands-global-presence/?fbclid=IwAR1F0g0vJ4WXTyuy_dO4lLeZBFKxVxdMUAhGebdXHzDP6KoZrZ76WUQsrh4

Guidance for policy makers:

<https://www.darksky.org/our-work/lighting/public-policy/model-lighting-laws-policy/>

<https://www.darksky.org/our-work/lighting/public-policy/policy-makers/>

I am happy to take questions and provide further sources of information for your consideration and assistance...

I would like to offer my services in this regard on an on-going basis.

Graham Palmer
021-2650487

grahampp1972@gmail.com

<https://www.facebook.com/Maraekakaho-Dark-Sky-Project-101062394704090/>

<https://grahampalmer.com/links/astronomy-obsession/>