

WARRUMBUNGLE NATIONAL PARK LIGHTSCAPE MANAGEMENT PLAN

Warrumbungle National Park

Visitors to the Warrumbungle National Park are participating in an evolution of tourism in the area, making the park one of the most important contributors to the local economy along with the adjacent Siding Spring Observatory. The Warrumbungle National Park's recognition by the International Dark Sky Association as a Dark Sky Park (DSP) will highlight this prime example of pristine dark skies.

Siding Spring Observatory is Australia's national optical astronomy facility, and the existing Orana Regional Environmental Plan (REP), relevant local environmental plans (LEP) and Warrumbungle Shire Council Development Control Plan No. 1- Lighting Code to Protect Siding Spring Observatory (DCP), has established thresholds for light emissions to protect the observatory's pristine night sky. Except for one small unlit outlying area, the Warrumbungle National Park is wholly within an 18-km radius of the observatory, where the most stringent restrictions apply. Thus, all permanent lighting in the park must already be in accordance with the constraints imposed by the REP, LEP and DCP.

The Warrumbungle National Park Lightscape plan operates consistent with the REP, LEP and DCP.

The Aims of this Lighting Management Plan

This plan aims to preserve the pristine dark skies of the Warrumbungle National Park by ensuring that all new lighting is good lighting, and by certifying existing lighting to International Dark Sky standards. There are, in fact, very few lights within the Warrumbungle National Park.

The plan also aims to inform visitors to the park about the benefits of preserving dark skies, and providing them with an excellent experience on living within good lighting standards.

This plan works alongside and in conjunction with the aims of Orana Regional Environmental Plan No.1, relevant LEPs and DCP.

The Warrumbungle National Park and surrounding shire councils must observe these regulations and thus show their commitment to the maintenance of the Dark Sky Park.

Name

This plan is called Warrumbungle National Park Lightscape Management Plan.

Where this plan applies

This plan covers the entire Warrumbungle National Park's area of 23,312 hectares, located between the towns of Coonabarabran, Gilgandra and Coonamble.

Why a Dark Sky Park?

Light pollution has a detrimental effect on professional and amateur astronomy, nocturnal animals and everyone's enjoyment of the night sky. Waste light is also wasted energy.

The Warrumbungle National Park straddles three surrounding shire councils, (Warrumbungle, Coonamble and Gilgandra), which are equally committed to protecting pristine dark skies. The shires and the park value highly the opportunity to become the nation's first Dark Sky Park, to educate and exemplify the benefits of dark skies.

Good lighting

The key to protecting dark sky conditions is not *no* lighting, but *good* lighting. Good lighting does its job well, without causing a nuisance to others. It directs the right amount of light in the right place, does not shine upwards, does not annoy neighbours and does not cause glare. It is safe, and saves energy, reducing its greenhouse footprint. Good lighting benefits everyone.

Types of Lighting in the Warrumbungle National Park

Australian Standards

Compliance is necessary with the current requirements of Australian/NZ Standard AS 4282 (Control of the obtrusive effects of outdoor lighting) and AS/NZS 1158 (Road lighting series).

Street lighting and park and gardens lighting

There will be no street lighting within the DSP

Shops, commercial and industrial buildings

There will be a visitor centre which will include external DSP compliant lighting with retail space. This will replace the visitor centre destroyed in the Wambelong fire of 2013.

Advertising signs

There will be a visitor centre and other infrastructure within the DSP; however there will be no advertising lighting within the DSP. There will be electronic signage boards within the DSP and at the 18km zone to assist with management in the WNP in the case of emergency.

Safety and working area lighting

Security lighting in the DSP needs to be properly shielded, well-aimed and of low intensity, to avoid glare and harsh shadows that can hide people and make visibility more difficult. Security lighting of unattended areas must use a motion detector sensor switch. Fittings must be shielded so that no light shines above the horizontal.

Management of lights

Warrumbungle National Park is committed to keeping skies dark by:

- Ensuring that lighting complies with relevant REP, LEP, and DCPs
- Ensuring that all lighting, regardless of its output in lumens, is shielded or properly screened to prevent uplight
- Ensuring that all lights have a coordinated colour temperature less than 3500K
- Providing outreach material to educate visitors regarding the types of lighting they can use in the National Park when camping
- Preventing lights reflecting from white or other surfaces
- Using the minimum number and size of lights, with new lighting to be installed only when a specific public safety concern demands additional lighting
- Switching lights off when they are not needed
- Installing time switches or, preferably, motion detector switches
- All fittings must have an opaque top and/or shielding to prevent any light being emitted above the horizontal plane.
- Down-lights must be deeply recessed with effective low-glare baffles.
- Any structural part of the luminaire or the surrounding material providing the cut off must be securely and permanently fixed. Where the luminaire is bracket mounted from a white or similar highly reflective surface, the light-emitting surface of the luminaire facing the wall must be rendered opaque.
- If intended as a security light during periods of non-attendance etc., the luminaire must be fitted with a motion sensor switch to prevent continuous use. The luminaire must switch off no more than 5 minutes after activation.
- In order to prevent light escaping through glass doors, windows and skylights into the night sky, the installation of heavy-duty blinds, curtains or shutters is required, particularly if operational requirements demand high-powered interior lighting.

Restricted and Prohibited Lighting

- Searchlights and similar high intensity lights are prohibited except when needed for WNP operational activities such as spotlighting for pest control and survey or in emergencies by police or fire personnel.
- The operation of lasers is prohibited except for educational purposes in astronomy.
- Floodlights as used for sports lighting and showground activities are also prohibited, although application can be made for special temporary installations associated with major community events (see below).
- The use of exposed linear lamps primarily intended as an architectural feature or for advertising, is also prohibited. These include fluorescent, cold cathode (neon lighting and signage) and light emitting diodes (LEDs).
- Advertising sign lighting and sports lighting of any type are also prohibited. Electronic sign boards in the park and within the 18km zone are only to be used to assist with management of WNP in emergency.

Short term exemptions for temporary lighting

Temporary lighting is lighting operated for 2 days or less in one calendar year, whether or not the 2 days are consecutive.

Anyone may make a written request to the Warrumbungle Dark Sky Committee for a short-term exemption from the requirements of this plan for temporary outdoor lighting. The request for the exemption must contain, as a minimum, the following information -

- Specific exemption requested
- Reason for the requested exemption
- Time period for use of proposed temporary lighting
- Proposed location of outdoor lighting
- Type and use of outdoor fixtures and lights proposed
- Details of screening and aiming of lights
- Total wattage, light output and type of lamps.

In addition to this information, the Warrumbungle Dark Sky Committee may ask for any other information it needs to consider the request. This committee will usually accept or reject the request in writing within twenty-one days of receiving it. Reasons for rejection may include special astronomical observations taking place at the time.

Permanent short-term exemptions

Two short term exemptions have been agreed upon within this lighting management plan:

1. A temporary lighting exclusion for the use of spotlighting equipment stands in place for flora or fauna surveys and fox control carried out by NPWS staff or contractors.
2. The Crooked Mountain Concert, a single community event, taking place within the first two weeks of November and within the park area, will make all attempts to keep lighting to minimum. Where possible, the concert will be scheduled near bright of moon, further reducing the need for artificial lighting.

Compliance Requirements

The guiding principle of lighting within the Warrumbungle National Park is that light is used only when and where it is needed, and is appropriate for the specific task for which it is intended. In addition, lighting fixtures (luminaires) are required to be fully shielded, with control by timers or motion-sensors wherever possible. These requirements are already embodied in the provisions of the Orana Regional Environmental Plan No. 1 for land within 18 km of Siding Spring Observatory.

General details of suitable lamps are shown in the annexe below. Under certain circumstances requiring express approval, lamps with less than 500 lumens output may be used unshielded if they are controlled by timers or motion sensors.

Future Lighting Plans and Supporting Information.

A lighting plan must be submitted with any Development Application for within the Dark Sky Park. This plan should include the:

- location and mounting height of all proposed and existing luminaires;
- type of light source with power (watts), light output (lumens) and colour temperature;
- details of all shielding necessary to meet the requirements of this document, including those incorporated in the luminaire construction.

Replacing Light Fittings

If any existing, non-complying external light fitting is replaced, it must be replaced with a complying fitting. If an existing, non-complying external light fitting can be made to comply by replacing the lamp (light source) with a different type, then this must be done when the lamp fails.

Within 12 months of achieving Dark Sky Park designation, 90% of lights will comply with IDA regulations.

Lamp Light Output Annexe

Suitable lighting can be chosen from these complying lamp types:

Light Output	LEDs	CFLs	Incandescents
Lumens	Watts	Watts	Watts
450	4 - 5	8 - 12	40
750 - 900	6 - 8	13 - 18	60

All lamps are required to have a coordinated colour temperature (CCT) of less than 3500K (warm white), with a preference for CCT below 2500K.

Reporting

The Park will submit an annual report to IDA by 1 October of each year detailing activities and progress towards fulfilling IDA DSP goals during the previous year.