

Conservation Action Plan

Wollemi pine (*Wollemia nobilis*)

This plan has been prepared in accordance with the requirements of s.78C of the National Parks and Wildlife Regulation 2019 (Reg.) in relation to an Asset of Intergenerational Significance (AIS) as declared under s.153G of the *National Parks and Wildlife Act 1974*.

Site details

AIS site	AIS-ES-001
Site location	An area of 5000 hectares in Wollemi National Park
NPWS contact	Area Manager, Blue Mountains Branch

Environmental values

This table sets out the environmental values for which the land was listed as an AIS (Reg. 78C(3)(a)).

Identified value(s)	Value description
Important habitat for Wollemi pine	<p>The Wollemi pine is the sole living representative of an ancient genus and is critically endangered. As a monotypic genus, the genetic diversity within the extant species constitutes the full genetic range of the genus.</p> <p>The Wollemi pine is a rainforest tree that grows up to 40 metres tall and is often multi-stemmed with individual trees comprising up to 40 trunks. The crown is slender and column like. Branches are arranged in successive whorls along stems and male or female cones are borne terminally. Adult foliage is arranged in four rows with branches exhibiting a unique diamond-shaped pattern along their length due to the species' rhythmic growth.</p> <p>The declared site contains the entire known wild population of the Wollemi pine, which comprises four closely occurring stands or sites. As of May 2021, there are only forty-six adults and forty-three juveniles remaining in the wild population.</p>

Key risks to environmental values

This table sets out the key risks to the environmental values of the land (Reg. 78C(3)(b)).

Key risk(s)	Description
Inappropriate fire regimes	<p>High severity fire events resulting in loss of individuals of Wollemi pines. Too frequent fire preventing successful recruitment and/or maturation of seedlings and coppices. The Wollemi pine may require at least 50-100 years between fire events to enable post fire recovery.</p> <p>This risk is exacerbated by the highly restricted distribution and extremely small population size of the Wollemi pine.</p>
Pathogens, diseases and micro-organisms	<p><i>Phytophthora cinnamomi</i> and <i>P. multivora</i> have been detected at the main wild site and are known to cause mortality of Wollemi pine in controlled experiments. Disease burden results in damage to root structures, branch and stem dieback and mortality of individuals.</p> <p>This risk is exacerbated by the highly restricted distribution and extremely small population size of the Wollemi pine.</p>
Disturbance	<p>Site visitation for essential management and research without adequate risk mitigation measures and unauthorised visitation resulting in damage to Wollemi pines through trampling, soil compaction or erosion and spread of pathogens, impacting habitat stability, recruitment and causing dieback and mortality.</p>
Weeds	<p>Infestation of Wollemi pine habitat by invasive weeds to the extent that the recruitment or establishment of plants is impacted.</p>
Anthropogenic climate change	<p>Changes to rainfall, temperature patterns and disturbance regimes such as fires, floods, heatwaves and storms, to which the species and its habitat are not adapted.</p>

Conservation activities

This table sets out the conservation activities required to:

1. control, abate or mitigate the key risks and
2. maintain, restore and remediate the environmental values of the land (Reg. 78C(3)(c)).

Key risk(s)	Impacted site(s)	Conservation activities
Inappropriate fire regimes	All sites	<ul style="list-style-type: none"> • Develop a fire management strategy for the Wollemi pine by 30 June 2022 and update the strategy, as required. The strategy must provide for: <ul style="list-style-type: none"> - prescribed burning which will reduce fuel loads in relevant areas and provide a strategic fire suppression advantage - maintenance of remote area wildfire response capacity - implementation of fire protection and response measures in the Wollemi pine populations, as appropriate - integration of site-specific requirements into NPWS and NSW Government bushfire planning, risk management and operational response arrangements. • Implement the strategy.
Pathogens, diseases and micro-organisms	All sites	<ul style="list-style-type: none"> • Develop standard operating procedures for hygiene management at the site by 31 December 2022 and update as required. • Implement the procedures during all site visits. • Develop a disease management plan by 31 December 2022 and update the plan, as required. • Implement the disease management plan.
Disturbance	All sites	<ul style="list-style-type: none"> • Implement law enforcement and compliance action to prevent unauthorised access, to the extent practicable. • Ensure all authorised access occurs in accordance with risk mitigation protocols which avoid significant impacts arising from trampling of plants, compaction and erosion of soils and the introduction and spread of pathogens.
Weeds	All sites	<ul style="list-style-type: none"> • Remove weed species that negatively impact on areas occupied by the Wollemi pine, such as preventing the recruitment or establishment of plants, by targeted application of physical and chemical weed control.
Anthropogenic climate change	All sites	<ul style="list-style-type: none"> • Maintain genetically representative ex-situ living collection with at least one failsafe backup. • Collect genetically representative vegetative material and/or seeds as required to ensure that ex-situ collections and translocated populations comprise of an appropriate range of genetic material from all four wild sites.
All risks	All sites	<ul style="list-style-type: none"> • Maintain at least two translocated populations on national park.

Other land management activities

Within the declared land there are existing assets and infrastructure of NPWS and other external service providers, including public utilities.

Maintenance operations (including inspection, emergency works and routine and standard maintenance) that are exempt development in accordance with the *Environmental Planning and Assessment Act 1979*, and which are performed on and around existing assets and infrastructure, are authorised under this conservation action plan (CAP) provided such operations are taken in a manner that aims to minimise the risk to the declared environmental values of the land and with any other required consents or approvals.

All maintenance operations on the declared land are to be undertaken in accordance with this CAP.

Measuring and reporting

This table sets out the requirements for measuring and reporting on health and condition Reg. 78C(3)(d)).

Attribute	Metric	Method
Health and condition of the Wollemi pine population	Population census: Number of established (adult & juvenile) individuals	Census count of established trees and juveniles every five years and after any fire or other significant disturbance event at the site.
	Stems health	Annually assess the per cent of individuals impacted by disease.
	Canopy health	Annually assess canopy health to identify dieback and disease or disturbance impacts through high resolution photography and drone imagery.
	Recruitment	Count and map seedlings and vegetative recruits (coppices >two metres tall or >two centimetres diameter at breast height (DBH)) every five years.

A report on the health and condition of the value for which this AIS was declared will be prepared and published on the Department of Planning and Environment, [Environment, Energy and Science website](#). The report will summarise the baseline and current health and condition of the values of the declared land and its overall trajectory.

Evaluation of Conservation Action Plans

This CAP will be amended or replaced as new information becomes available that helps improve our management of the identified assets (Reg. 78H).

The Secretary must appoint a scientist, or a panel of scientists, to conduct a review, as soon as possible after the period of five years from the first approval of a CAP, to examine whether CAPs have been effectively implemented (Reg. 78J(1)).

Conservation Action Plan – Wollemi pine (*Wollemia nobillis*)

Date prepared	November 2021
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Approved by	Atticus Fleming, Deputy Secretary NPWS
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