



*Environment Protection and Biodiversity Conservation Act 1999*

INCLUSION OF A PLACE IN THE NATIONAL HERITAGE LIST

I, Ian Gordon Campbell, Minister for the Environment and Heritage, having considered, in relation to the place listed in the Schedule of this instrument -

- (a) the Australian Heritage Council's assessment whether the place meets any of the National Heritage criteria; and
- (b) the comments given to the Council under section 324G of the *Environment Protection and Biodiversity Conservation Act 1999*; and

being satisfied that the place specified in the Schedule has the National Heritage value or values specified in the Schedule include, pursuant to section 324J of the *Environment Protection and Biodiversity Conservation Act 1999*, the place listed in the Schedule in the National Heritage List.

Dated 23rd day of March, 2006

[signed]

Ian Gordon Campbell  
Minister for the Environment  
and Heritage

**SCHEDULE**

## STATE

Local Government Area

Name:

Location / Boundary

Criteria / Values

**VICTORIA**Murrindindi Shire**Flora Fossil Site - Yea:**

About 13ha, 1.5km east-south-east of Yea, comprising the area within a circle of radius 200m centred on AMG point: 7923 Yea 362300mE 5879330mN (MGA point 362420mE 5879480mN).

**Criterion****Values**

- (a) the place has outstanding heritage value to the nation because of the place's importance in the course, or pattern, of Australia's natural or cultural history.

The Silurian Baragwanathia Flora Fossil Site - Yea (Barclays Cutting) exposes well preserved specimens of *Baragwanathia longifolia* and a range of other plants occurring as part of a floral assemblage in graptolite-bearing beds dating from the late Silurian period. This rich fossil deposit of some of the earliest known vascular land plants is well recognised as being of international significance. The plant fossils considerably predate lycopsids (club mosses and their allies) found in the Northern Hemisphere fossil record. They provide evidence of the dramatic evolution and development of vascular plants that occurred during this time, particularly the adaptation of plants from the sea to the land. *B. longifolia* is almost exclusively found in the Southern Hemisphere and these fossils may indicate that land plants developed first in the Southern Hemisphere (Garratt 1978, Jaeger 1966, Joyce & King 1980, White 1988).

The lowermost assemblage at Barclays Cutting contains an unusually high number of early vascular land plants including *Baragwanathia longifolia* and another lycopsid, *Yarravia* sp. (Lycophytina), *Salopella australis* sp. nov., a new species of *Hedeia* (Rhyniophytina), members of the Trimerophytes (a related group of early plants from which all higher plants evolved) and at least one zosterophyll (Zosterophyllophytina). The assemblage at Barclays Cutting is considered to be of Late Silurian (Ludlow) age based on the presence of the graptolite species *Bohemograptus bohemicus*, known only from Ludlow strata elsewhere. The presence of graptolites confirms the Late Silurian (Ludlow) age of about 415 million years. This makes Yea the oldest site for early vascular land plants in Australia, and one of the oldest such sites in the world (Garratt 1978, Tims & Chambers 1984, White 1988).

Criterion	Values
(b) the place has outstanding heritage value to the nation because of the place's possession of uncommon, rare or endangered aspects of Australia's natural or cultural history.	Localities with Silurian graptolites and an extensive <i>Baragwanathia</i> flora fossil assemblage in close association are restricted to two sites in Australia. The Barclays Cutting site has the best-preserved specimens and has yielded the widest array of fossil species. This site also provides the most conclusive evidence for the Silurian (Ludlow) date (Garratt 1978; Garratt & Rickards 1984, 1987).
(c) the place has outstanding heritage value to the nation because of the place's potential to yield information that will contribute to an understanding of Australia's natural or cultural history.	The presence of <i>Baragwanathia</i> flora in association with graptolite fossils has attracted considerable research since the site's discovery in 1875. Graptolites, such as <i>Bohemograptus bohemicus</i> which occur at the locality, are key faunal taxa used to stratigraphically age fossils and hence determine the relationships of <i>Baragwanathia</i> floras (Garratt 1978, Harris & Thomas 1942). The Yea site has played a central role in the long-running debate surrounding the evolution of the earliest land plants. Only relatively recently has the stratigraphy been conclusively confirmed as of Silurian age (Garratt & Rickards, 1984).
(d) the place has outstanding heritage value to the nation because of the place's importance in demonstrating the principal characteristics of: (i) a class of Australia's natural or cultural places; or (ii) a class of Australia's natural or cultural environments.	The site is regarded as providing the best example of an early land plant fossil flora in Australia because of its species richness and excellent state of preservation. It has yielded an unusually high number of early vascular land plants including <i>Baragwanathia longifolia</i> , other lycopsids and several other early plants from now extinct groups (Garratt 1978; Garratt & Rickards 1984, 1987).
(h) the place has outstanding heritage value to the nation because of the place's special association with the life or works of a person, or group of persons, of importance in Australia's natural or cultural history.	<i>Baragwanathia</i> fossils were first discovered at Yea in 1875 and subsequently described by Australia's eminent pioneer palaeobiologist Dr Isabel Cookson and Professor William Lang from Manchester University in 1935. Cookson (1893-1973) was world renowned for her fossil plant studies and is strongly associated with the Yea fossil site. Cookson's description of the <i>Baragwanathia</i> fossil assemblage rates as one of her major achievements over a research career that spanned 58 years and produced great insight into the history and evolution of Australia's flora (Australian Science and Technology Heritage Centre 2005).

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For a description of any references quoted above, and more information on each of the places please search the Australian Heritage Database at <http://www.deh.gov.au/cgi-bin/ahdb/search.pl> using the name of the place.