

## Present site management

*Present use:* Numerous monumental stone structures in Mangareva, including several temples (*marae*), are known to have been dismantled or destroyed by French missionaries in the nineteenth century, the stone being reused in other buildings. Owing, presumably, to its comparative isolation, many structures on the Atituiti Ruga plateau survived. The plateau is largely covered today in dense high vegetation including Java plum and other non-indigenous trees, but much of the eastern façade of the Te Rua Ra platform has been damaged in the last ten years during the construction of a nearby road.

*Protection:* The sheer cliffs rising up to Mount Duff, and a steep bluff descending sharply down to the coastal plain, provide natural barriers to the north and south respectively.

*State of conservation:* The site appears to have been largely, if not completely, neglected since traditional practices were abandoned. The horizon in the direction of December solstice sunrise is currently obscured by high vegetation.

*Archaeological/historical/heritage research:* The island was studied in 1934 by the Polynesian archaeologist K.P. Emory, but the structures on the Atituiti Ruga plateau went unrecorded. An archaeological survey of the area, including test excavations, was carried out by an international team between 2001 and 2003.

## Additional bibliography

Hiroa, Te Rangi (P.H. Buck) (1938). *Ethnology of Mangareva*. Honolulu: Bishop Museum Press (Bernice P. Bishop Museum Bulletin 157).

Kirch, Patrick V. (2004). “Solstice observation in Mangareva, French Polynesia: new perspectives from archaeology”, *Archaeoastronomy: The Journal of Astronomy in Culture*, 18, 1–19.

Laval, Honoré (1938). *Mangareva: l’histoire ancienne d’un peuple polynésien*. Paris: Librairie Orientaliste Paul Geuthner.

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## Case Study 4.3: Wurdi Youang, Australia

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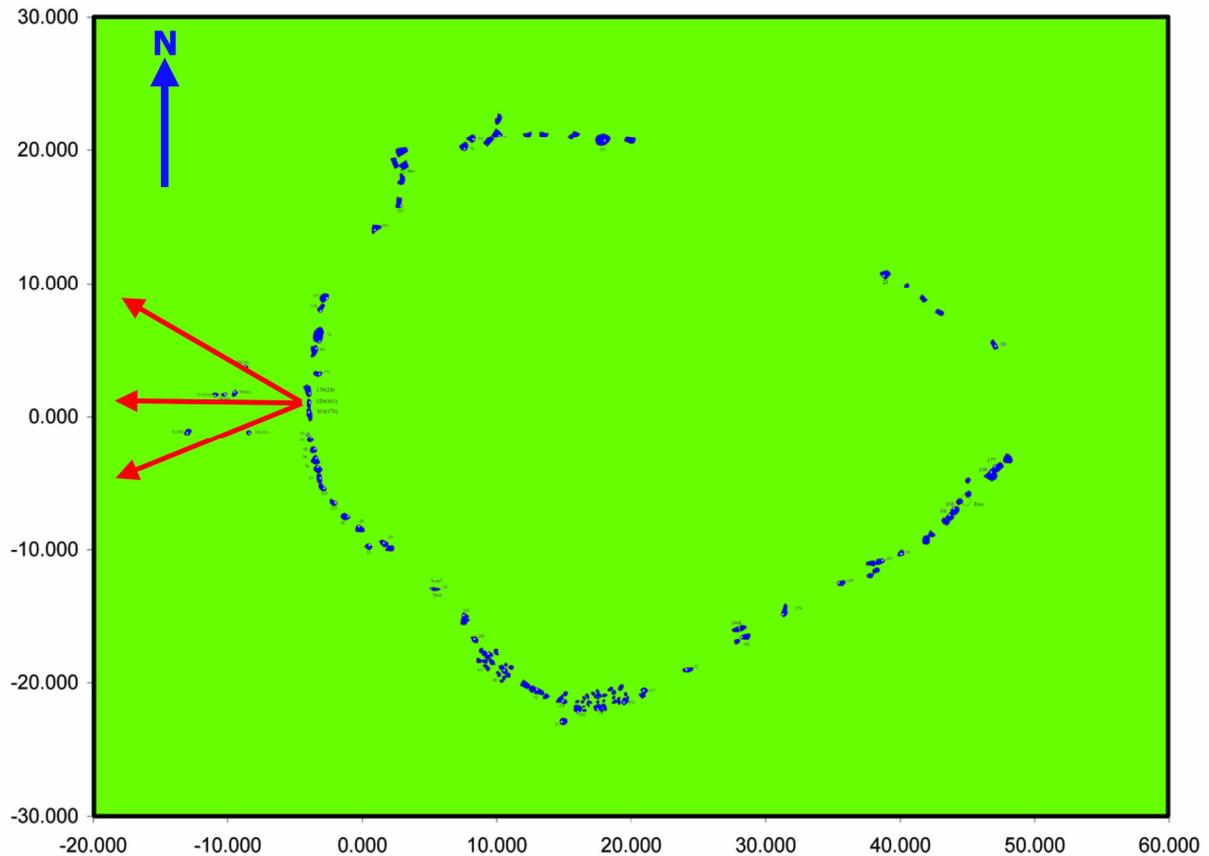
**Ray Norris**

### Presentation and analysis of the site

*Geographical position:* Near [REDACTED] between Geelong and Melbourne, Victoria, Australia.

*Location:* Latitude 37° [REDACTED] S, longitude 144° [REDACTED] E. Elevation 80m above mean sea level.

*General description:* The Wurdi Youang site is one of a number of stone arrangements known in the state of Victoria that were built by Aboriginal people before European settlement. It is on land traditionally owned by the Wathaurong Aboriginal people and may be an initiation site.



**Fig. 4.3.1.** Plan of the Wurdi Youang site showing the solstitial and equinoctial alignments from the westernmost stones. The scales are in metres. © Ray Norris.

Its construction date is unknown, and could be anywhere in the range c. 25000BC to about 1835AD. All records of its use have disappeared. Archaeoastronomical surveys indicate that it was related to observations of the changing setting position of the sun on the western horizon.

*Inventory of the remains:* The Wurdi Youang Aboriginal stone arrangement, also known as Wada Wurrung and the Rothwell Archaeological site, consists of a roughly egg-shaped circle, about 50m in diameter, of about 100 basalt stones. The stones range from small rocks about 20cm in diameter to standing stones about 1m high—some of which appear to be supported with ‘trigger stones’—with an estimated total mass of about 23 tonnes.

The three largest stones in the circle are placed together at the western end, from which a number of small outlying stones indicate the setting position of the Sun at the solstices and at the Equinox, to an accuracy of a few degrees. The straight segments on the north-east and south-east sides of the ring also indicate the sun’s setting points at the two solstices when viewed from the eastern apex of the ring.

*History of the site:* The area has been occupied by the Wathaurong hunter-gatherer Aboriginal people from about 25000 BC until their culture was destroyed in about 1835. Since then, the area has been farmed by European settlers, although the Wurdi Youang site itself has been untouched.

*Cultural and symbolic dimension:* Aboriginal cultures have long been neglected, and until the last few decades there were systematic attempts by the European majority to suppress them (e.g. children were punished for speaking their indigenous language in school). That repression has thankfully largely disappeared, and both Indigenous and non-Indigenous groups are now working to consolidate and rebuild the indigenous cultures. While Aboriginal



**Fig. 4.3.2.** The view to the west from the westernmost part of the circle, including the three largest stones. Photograph © Clive Ruggles.

art, music, and dancing are well known, only recently has attention been paid to other aspects of indigenous culture, such as astronomy. The study of astronomy in Aboriginal cultures is in its infancy, but there has been much interest in it both from indigenous and European groups, resulting in a great deal of media coverage and related activities.

Alignments in the cardinal directions are common among stone arrangements in Victoria, which implies that the Wurdi Youang alignments are not fortuitous.

*Authenticity:* The site is classified as an Aboriginal Heritage Site by the relevant department in the State government, Aboriginal Affairs Victoria. This is based on the fact that:

- similar stone arrangements are known elsewhere in Victoria, although none exactly resembles Wurdi Youang;
- the stone arrangement is on a property that has been owned by one family since first settlement, and the family tradition rules out a European origin; and
- the arrangement has no known counterpart among colonial structures. It is on rocky ground with no commercial or agricultural value, and it would not have been suitable for defining the boundaries of a sheep dip, sheep pen, or cattle dip. There is no evidence that it ever formed part of a fence or building.

*Integrity:* Some stones may have been removed, but in general the site is probably in a similar condition to when it was last used by the Wathaurong people in about 1835.

*Documentation and archives:* Aboriginal Affairs maintains a site register, which includes all known accounts of the site.

## **Present site management**

*Present use:* Wurdi Youang is situated in rural agricultural land, with unadvertised public access to the stone configuration. There is no current agricultural or other use of the land at the site, but arable farming takes place within 50m.

*Protection:* Wurdi Youang is a protected Aboriginal Heritage site. The ‘tradition owners’ are the Wathaurong Aboriginal Cooperative Limited.



**Fig. 4.3.3.** The view to the west from the eastern side of the circle, showing the solstitial alignment of the straight sections. Photographic and graphic © Ray Norris.

*Archaeological/historical/heritage research:* The existence of a tangible astronomical connection at the site was recognised by John Morieson in the 1990s, and has been recently confirmed by archaeoastronomical surveys by Ray Norris and others.

*Main threats or potential threats to the site:* There are no obvious threats at present, but the imminent publication of its astronomical significance introduces potential threats from vandalism if the site receives publicity.

*Outreach:* There are no interpretative signs at present at the site.

### **Additional bibliography**

- Morieson, J. (2008). “The case study of the Boorong”, in Jonas Vaiškūnas (ed.), *Astronomy and Cosmology in Folk Traditions and Cultural Heritage*, pp. 258–262. Klaipėda: Klaipėda University Press (Archaeologia Baltica 10).
- Mountford, C.P. (1927). “Aboriginal stone structures in South Australia”, *Transactions and Proceedings of the Royal Society of South Australia* 51, 169–172.
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- Norris, R.P., Norris, P., Hamacher, D.W. and Morieson, J. (2010). “Wurdi Youang—an Aboriginal stone arrangement with possible solar alignments”, *Archaeoastronomy: The Journal of Astronomy in Culture*, 22, in press.