FIGURES AND TABLES

FIGURES

1.1 The modern distribution of deserts.  
1.2 Australia is the driest of the six inhabited continents.  
1.3 Global spread of modern humans into Australasia.  
1.4 Map of the Australian arid zone.  
1.5 Influence of the Australian monsoon on Australia’s deserts.  
2.1 Baldwin Spencer with Arrernte elders, 1896.  
2.2 ‘Native village in the Northern Interior’, 1845.  
2.3 Herbert Basedow’s tracing of rock engravings, 1907.  
2.4 Robert Keble’s 1947 map of climatic belts.  
2.5 Jim Bowler’s 1971 map of the Willandra Lakes.  
3.1 The 1893 dig at Lake Mulligan.  
3.2 Distribution of Diprotodon optatum and Genyornis newtoni.  
3.3 Climatic variability over the last 350 ka showing marine isotope stages (MIS).  
3.4 Bowler’s ‘hydrological threshold’ for Australian lakes.  
3.5 The Lake Eyre basin during the last interglacial.  
3.6 Lake-level curve for Lake Eyre.  
3.7 Kocurek’s model of aeolian system response to climate change.  
3.8 The distribution and diversity of late Quaternary megafauna.  
4.1 Map showing archaeological sites dating more than 30 ka.  
4.2 Map of the Willandra Lakes.  
4.3 The excavation at Mungo B in 1976.  
4.4 The Cuddie Springs bone bed.  
4.5 Puritjarra rockshelter.  
4.7 The Mungo 3 (WLH3) burial.  
4.8 Artefacts from the 35 ka palaeosurface at Puritjarra.  
5.1 Map of the continent during the last glacial maximum.  
5.2 Biotic and human responses during the last glacial maximum.  
5.3 The location of glacial refugia.  
5.4 The impact of peak glacial aridity upon land use.
5.5 Plot of radiocarbon dates, showing the impact of the last glacial maximum. 124
5.6 Different types of stratigraphic or occupation hiatus. 131
5.7 Map of western Central Australia. 134
5.8 Stratigraphic section, Kulpi Mara excavations. 135
5.9 Large flake implements from the late Pleistocene unit at Puritjarra. 137
5.10 Map of the Pilbara. 139
5.11 Temporal distribution of stone artefacts at Djadjingil. 140
5.12 Temporal distribution of stone artefacts at Serpents Glen. 147
5.13 The sinkhole at Koonalda Cave. 151
5.14 Fossil human footprint dating to 23–19 ka, Willandra Lakes region. 155
6.1 Excavations at Puntutjarpa rockshelter in 1969–70. 159
6.2 Summed probability plot for all radiocarbon ages from archaeological sites in Australian drylands. 161
6.3 Summed probability plot showing radiocarbon dates on Terebralia and Anadara shell middens. 171
6.4 Excavations at the Skew Valley midden, 1975–76. 173
6.5 Stratigraphy of the Skew Valley midden. 173
6.6 Stratigraphic section for Allens Cave. 177
6.7 Small-tool phase artefacts from Puritjarra rockshelter. 186
6.8 The spatial and temporal distribution of geometric microliths. 187
6.9 The distribution of tula adzes, pirri points and millstones. 190
6.10 Unifacial pirri points from the Lake Eyre basin. 191
6.11 Seed-grinders from Central Australia. 199
6.12 The distribution of Australian language families. 203
7.1 Panaramitee-style rock engravings at Florina station, Olary region. 213
7.2 The distribution of graphic and religious systems across Australia. 215
7.3 Denis Ebaterinja drawing the honey ant ‘dreaming’. 218
7.4 Large striped totemic designs at Emily Gap, Central Australia. 221
7.5 Desert-style provinces for mid-Holocene rock engravings. 229
7.6 Panaramitee-style rock engravings at Puritjarra. 230
7.7 Wanga East rockshelter, showing engraved rock slabs and location of dated samples. 237
7.8 Excavation of engraved boulders at Puritjarra. 239
7.9 Early petroglyph assemblages in the Dampier–Burrup area. 242
7.10 The ‘climbing men’ motif. 243
7.11 Archaic face engravings. 245
7.12 The Burrup rock art sequence. 249
7.13 The sequences of changes in Central Australian rock art. 255
7.14 The long painted frieze at Puritjarra. 256
7.15 Hand stencils and hand prints. 257
7.16 State-and-transition model applied to Panaramitee-style rock art. 265
8.1 The ethnographic exchange system in relation to major pituri groves and quarries for red ochre, millstones and stone axes. 267
8.2 Map showing the southern sector of the Lake Eyre basin. 268
8.3 Map showing major quarries and mines mentioned in the text. 269
8.4 Pearl-shell pendant with interlocking key design. 275
8.5 The Wilgie Mia red ochre mine in about 1910. 278
8.6 The structure of the Wilgie Mia mine. 279
8.7 Survey plan of Narcoonowie grindstone quarry. 285
8.8 Australian stone axe or hatchet, 1861. 288
8.9 The chronological distribution of ground-edge axes. 289
8.10 Hafted stone knife with Melaleuca ‘paperbark’ sheath. 295
8.11 Model showing number of exchange contacts available to hunter-gatherer groups with increasing population density. 297
8.12 Mound of kopi mourning caps on a grave, Eyre Creek, central Australia. 299

9.1 A fire drive to hunt maala wallabies, Musgrave Ranges, 1933. 303
9.2 Time-series distribution of radiocarbon dates over the last 5,000 years. 311
9.3 Map of Central Australia. 314
9.4 Schematic diagram illustrating different site histories. 315
9.5 Stratigraphic profile for Tjungkupu 1, Central Australia. 315
9.6 Stratigraphy in Trench 1, Intirtekwerle rockshelter, Central Australia. 317
9.7 Principal components analyses of site inventories in Central Australia. 319
9.8 Excavations at Glen Thirsty 1, Central Australia, in 2004. 321
9.9 Changing foraging patterns, comparing the early and late Holocene. 328
9.10 Geographic distribution of the Western Desert language (Wati). 335
9.11 Syd Coulthard at Glen Thirsty, with rock paintings described by E Giles in 1872 as ‘Roman numerals’. 337

TABLES
3.1 Lake Eyre, comparing the size of the last interglacial lake and the largest historical filling 55
3.2 List of taxa, Upper Katapiri fauna (MIS4–MIS6), Cooper Creek–Lake Eyre region 63
3.3 Comparison of middle Pleistocene herbivore dietary guilds across Australia 64
3.4 List of fossil fauna from Lake Callabonna 64
4.1 Archaeological sites in Australian deserts and drylands dating 30–50 ka (chronology and distribution) 79
4.2 Archaeological sites in Australian deserts and drylands dating 30–50 ka (assemblages and site inventories) 95
4.3 Archaeological sites in Australian deserts and drylands dating 30–50 ka (subsistence remains from levels >30 ka) 100
5.1 Relative importance of dryland ranges and gorge systems as biological refugia 118
5.2 Archaeological sites in Australian deserts and drylands dating 30–12 ka 125
5.3 Key archaeological sites where there is substantive evidence for (a) a stratigraphic or occupational hiatus during the last glacial maximum, or (b) for continuing occupation in this period 132
5.4 Changes in intensity of occupation at Puritjarra 138
5.5 Comparative data on the size and diversity of selected assemblages, dated to the last glacial maximum 142
6.1 Archaeological sites in Australian deserts and drylands dating 12–4 ka 166
6.2 The Puntutjarpa sequence 180
6.3 Comparative data on the size and diversity of selected assemblages, contrasting mid-Holocene (8–6 ka) and late Holocene levels (<4 ka) 181
6.4 Radiocarbon dates for initial appearance of backed implements and adze flakes by region 188
6.5 Typological changes in flaked artefacts and ground-stone assemblages at Puritjarra rock shelter 192
6.6 Inventory of wooden artefacts used by ethnographic groups in Central Australia 194
6.7 Radiocarbon dates for initial spread of the dingo (Canis lupus dingo) across Australia 206
6.8 Radiocarbon dates for the last Thylacines (Thylacinus cynocephalus) on the Australian mainland 207
7.1 Recent production of traditional rock art in Central Australia and Western Desert 219
7.2 Stratigraphic and direct dates for rock engravings in the arid zone 223
7.3 Estimates of net rock art production in Central Australia, comparing different time periods 224
7.4 The composition of Panaramitee-style engraved assemblages 231
7.5 Relative stylistic sequence for Central Australia 232
7.6 Key characteristics of Panaramitee-style rock engravings as a graphic system 233
7.7 Radiocarbon ages bracketing the age of Panaramitee-style rock engravings, Central Australia 236
7.8 Composition of rock art assemblages in the Pilbara, comparing the Dampier–Burrup coast and inland Pilbara 241
7.9 Relative stylistic sequence for petroglyphs in the Burrup region 248
7.10 Variation in patination for selected motifs in Burrup rock art 248
7.11 Testing the style sequence for Burrup rock engravings 250
7.12 Comparison of older and younger assemblages of rock engravings, Central Australia 254
7.13 Matrix of similarities between rock art assemblages in Central Australia, using Euclidean distance coefficient 257
8.1 Radiocarbon dates for baler shell (Melo sp.) in the Great Sandy Desert 257
8.2 Production estimates for arid-zone grindstone quarries 283
8.3 Sites with axe fragments in dated contexts in the arid zone 291
Figures and Tables

9.1 List of excavated late Holocene archaeological sites in Central Australia 313
9.2 Excavated assemblages at Tjungkupu 1, comparing the major late Holocene occupation unit and underlying levels 316
9.3 Changes in number and distribution of rock art sites in Central Australia 319
9.4 Habitat mosaic created under different fire regimes in the Western Desert, 2002 325
9.5 Types of plant food in Central Australia, showing the number of species promoted by fire 325
9.6 Index of fragmentation values (IOF) for faunal bone assemblages from archaeological sites in the Western Desert and Central Australia 327
9.7 Changes in hunting patterns shown in faunal assemblages at Puntutjarpa rockshelter, Western Desert 328
9.8 Excavated grindstone assemblage from Intirtekwerle (James Range East), Central Australia 329
9.9 Diyari drought terminology 333