Thomas Ennever
A Grammar of Ngardi

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A Grammar of Ngardi

As spoken by Freda Tjama, Margaret Yinjuru Bumblebee, Dora Mungkirna Rockman, Peggy Yalurrngali Rockman, Yunuja Nampijin, Dampa Yujuyu Nampijin, Maudie Mandigalli, Kathleen Padoon, Payi Payi Napangardi, Patricia Lee, Nyirrpingawurru Japaljarri, Mark Moora, Marie Mudgedell and Patrick Smith

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The Ngardi language, the examples used and the knowledge expressed herein are all the intellectual property of the Ngardi people. While the analysis (and any of its inevitable shortcomings) are my own, many insights and observations about the language come from Ngardi speakers themselves. This input has had a substantive role in informing various analyses presented herein and this is made explicit in the prose and tracked in various footnotes.

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My own involvement with Ngardi documentation efforts came about through contact with Dr Felicity Meakins, Dr Tasaku Tsunoda and Lee Cataldi. I was initially directed by Felicity towards a set of recordings made by Dr Tsunoda some 50 years earlier, on south-eastern Kimberley cattle stations in the mid 1970s. Through making contact with Dr Tsunoda, Lee Cataldi and the Board of Warlayirti Artists, I embarked on a trip to the Balgo community to return copies of these early recordings and propose a descriptive documentation project which has been ongoing since 2015.

A somewhat abridged first version of this grammar was written as a Masters thesis (Ennever, 2018). My revisions to the current grammar have benefited from comments and feedback from my supervisors Felicity Meakins and Mary Laughren, and from my examiners Jane Simpson and Jean-Christophe Verstraete. Throughout the process of writing this grammar my analysis benefitted from insights and comments from Mitch Browne, Amanda Hamilton-Hollaway, David Nash and David Osgarby. I am ultimately indebted to Erich Round for initially getting me interested and involved in linguistic enquiry. For assistance with resources, I thank Tasaku Tsunoda and Lee Cataldi for sharing their recordings and materials with me. I also thank Chikako Senge, Tom Honeyman, Tom Green, Joe Blythe, Elizabeth Alvey of the UQ Fryer Library, the staff

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Contents

Abbreviations, symbols and conventions

Conventions

All phonological representations are rendered in IPA characters and may or may not be enclosed in forward slashes / . . . /. Phonetic forms are enclosed in square brackets [. . .]. The main line of example sentences is transcribed in the Ngardi orthography and is plain (non-italicised) text. Italics appearing in the main line of example sentences are reserved for loan words or borrowings, for example *tayimap*=ma-nani 'tie_up=GET-IPFV.PST'. Italics are also used for citing lexemes within text, for example *mangarri* /maŋari/ 'vegetable food'.

Suffixal (derivational and inflectional) boundaries in morphologically complex words are indicated by a dash '-'; preverbs which are compounded with a verb in a complex verb construction are represented with an equal sign '=' (e.g. *parli=pi-nya* 'find=HIT-PST'), which is also used to indicate clitic boundaries (e.g. *ya-nta=lu* 'GO-IMP=PL.S'). Inflecting verb roots are glossed in small caps. Preverbs are glossed with no caps. Portmanteau forms are indicated by a period '.' in the glossing line.

Ungrammatical forms are indicated by an asterisk '*', while translations which are uncertain are indicated by an initial question mark '?'

Abbreviations

Abbreviations used in this work follow the Leipzig glossing conventions (Comrie, Haspelmath & Bickel, 2008), augmented by additional abbreviations as required.

A	transitive subject	IPFV	imperfective
ABS	absolutive	IRR	irrealis
ABL	ablative	LCT	locational bound pronoun
ACCOMP	accompaniment	M	middle voice
ACS	accessory	MOVE&X	prior associated motion
ADJ	adjectiviser	NARR	narrative
AFF	affirmative	NEG	negative
AGENT	agentive	NMLZ	nominaliser
ALL	allative	NPST	non-past
AM	associated motion	O	object/oblique (pronominal)
ANAPH	anaphoric propositus	O	object of transitive clause
ANTICIP	anticipatory	OBL	oblique (pronominal)
ASRT	assertive	OBLIG	obligative
ASSOC	associative	OBV	obviative
ASSUMP	assumptive	PAUCAL	paucal
ATT	attenuative	PERL	perlative
AUX	auxiliary	PFV	perfective
C, CAT	catalyst	PL	plural

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CERT	certainty (particle)
COMP	complementiser
COMPL	completive
COMPAR	comparative
CONDIT	conditional
CONJ	conjunction
CONTR	contrastive
CF	counterfactual
CUST	customary
CVC	complex verb construction
CM	conjugation marker
D.ABL	directional ablative
DAT	dative
DELIM	delimitive
DEN	denizen
DIM	diminutive
DIR	directional
DU	dual (pronominal)
DUAL	dual (nominal)
DUB	dubitative
DYAD	dyadic
EMPH	emphatic
EMPH.AUX	emphatic auxiliary
ERG	ergative
ELA	elative
EP	epenthetic
EVIT	evitative
EXCL	exclusive
HITH	hither
HORT	hortative
HYP	hypothetical
IMP	imperative
INCEP	inceptive
INCL	inclusive
INCRE	increment
INF	infinitive
INTENS	intensifier
INHAB	inhabitant
IPFV	imperfective
IO	indirect object
IRR	irrealis
KGROUP	kinship group suffix
KPOSS	possessed kin
LACK	lacking
LAT	lative
LOC	locative
PM	possessum
PO	primary object
POSS	possessive
POT	potential
PP	possessive phrase
PPOSS	personal possessive
PR	possessor
PRIV	privative
PROP	proprietive
PRS	present
PRS.AUX	present auxiliary
PRST	presentative
PRTL	presentational
PST	past
QUOT	quotative
RECIP	reciprocal
RECOG	recognitional
REFL	reflexive
REP	repetitive
RESTR	restrictive
RESULT	resultative
RDP	reduplicant
S	subject (pronominal)
S	intransitive subject
SEMBL	semblative
SEQ.AUX	sequential auxiliary
SEQ_LOC	sequential locative
SG	singular
SO	secondary object
SSUB	simultaneous subordinator
SUB	subordinator
SVC	serial verb construction
T	temporal subordinator
TERM	terminative
TOP.AUX	topic auxiliary
TR	transitive
TWD	toward
UNCERT	uncertain
UNREAL	unrealised
VOC	vocative
X&MOVE	subsequent associated motion
1	first person
2	second person
3	third person
♀	female
♂	male

1 Introduction

Ngardi is a Ngumpin language within the Ngumpin-Yapa subgroup of the widespread Pama-Nyungan language family (Australia). It is the language of the Ngardi people whose traditional lands extend south of the modern-day community of Balgo around the Northern Territory/Western Australia border, spanning both the Tanami and Great Sandy deserts. Ngardi is a highly endangered language with less than ten remaining speakers and is no longer being acquired by children as a first language. While there has been a gradual shift towards English in recent years, transmission of the Ngardi language was arrested by complex social factors associated with colonial contact in the early to mid twentieth century. This resulted in a dramatic shift towards Kukatja, a Western Desert language (Valiquette, 1993).

Today, different Ngardi people are speakers of a very broad range of languages including varieties of Warlpiri (Hale, 1982; Hale, Laughren & Simpson, 2015; Jagst, 1982; Nash, 1986; Simpson, 1983), Light Warlpiri (O'Shannessy, 2005), Jaru (Tsunoda, 1981b), Kukatja (Valiquette, 1993), Pintupi (Hansen & Hansen, 1978), Walmajarri (Hudson, 1978), Wangkajunga (Jones, 2011), (Fitzroy) Kriol (Hudson, 1985) and varieties of Australian Aboriginal English. Many Ngardi people continue to live close to their traditional lands in the communities of Balgo, Malarn (Mulan), Yaruman (Ringer's Soak) and Kururrungku (Billiluna). Others yet have come to live further afield in such places as Kununurra, Fitzroy Crossing, Lajamanu and other communities in the NT. Generally, Ngardi people have shifted to using the *lingua franca* of each of these communities as their primary mode of communication. Such geographic dispersion and shifting language practices have resulted in Ngardi's precarious status as an endangered language. Many of the legacy recordings on which this grammatical description is based were collected with a range of Ngardi men and women for whom Ngardi was their first language – but who have since passed away. The youngest fluent or semi-fluent speakers are now in their fifties. While there has been previous documentation of the language – the most significant being Cataldi's (2011) dictionary – there has been no prior published reference grammar of the language.

This introductory chapter begins by detailing a number of linguistic preliminaries including the typological profile (§1.1.5), language name and neighbouring languages (§1.1.2), and linguistic classification (§1.1.3). The wider physical environment (§1.1.5) and the socio-historical contexts in which Ngardi has been spoken (§1.3) are also detailed. The origins of this work, the data, previous research and contributors to the current grammar are all described in §1.4. The chapter concludes with an overview of the topics covered in the grammar and how they are divided between chapters (§1.4.7).

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1.1 Linguistic preliminaries

1.1.1 Language name

'Ngardi' is an endonym, used by Ngardi people to refer to themselves and the language they speak.[1] Published references to the language appear with the following orthographic variants: Ngardi (Cataldi, 2011; Nash, 1996), Ngari (Berndt & Berndt, 1988; Nash, 1996; Wafer, 1980), Ngarti (Wrigley, 1989) Ngardily (Green, 1988), Ngartily (Nash, 1996) and Ngadi (Capell, 1940a). The spelling adopted here (Ngardi) follows the dictionary by Cataldi (2011). The variability in the representation of the medial consonant (*r*, *rt* or *rd*) has a basis in actual phonetic variation. Wafer (1980), for example, reports that the Ngardi speakers with whom he worked freely alternated between pronunciations with a retroflex flap [ŋéɽɪ] and a retroflex continuant [ŋéɻɪ], which motivates the spellings 'Ngardi' and 'Ngari' respectively. Many people in Balgo today pronounce the language name as [ŋédɪ] or [ŋéɽɪ] and hence it can adequately be captured by a phoneme /ɽ/ (stop voicing is non-contrastive in Ngardi) and orthographically represented as '*rt*', i.e. 'Ngarti'. Nevertheless, due to the presence of flapped articulations by some speakers, Cataldi's orthography involving '*rd*' is retained (see §2.1.1). With increasing community interest in language revitilisation, there may very well be revision to orthographic *rd* and spelling of the language name in the future. A yet additional variant, Ngardily, reflects the pronunciation of the language name by Peggy Rockman Napaljarri (a Ngardi-Warlpiri woman). Despite Peggy's speech incorporating a number of Warlpiri borrowings, her idiolect of Ngardi is broadly consistent with the language described herein. Importantly, Ngardi/Ngardily (a Ngumpin language) is clearly distinct from the Yapa language Ngardilpa, a Western dialect of Warlpiri as described in Jagst (1975).[2]

The etymology of the word *ngardi* is uncertain. A potentially related lexeme in neighbouring Warlpiri is *Ngardiji*, a term used by Warlpiri to refer to the Kaytetye people (Laughren, Hale, & Warlpiri Lexicography Group, 2007, p. 767). The less clearly related term *ngarlina* 'countrymen' is found in Mudburra while further afield in some

1 The ISO 639-3 language code for Ngardi is 'rxd'.

2 In addition to these orthographic and phonological variants, there are two additional terms that are sometimes used to refer to Ngardi people: Bunarra (Capell, 1940b; Oates & Oates, 1970; Terry, 1926) and Tchagilin (Terry, 1926). Within the linguistic literature, Capell (1940b) describes Bunarra as a variant of Eastern Walmajarri and places it in the territories described for the latter by Hudson (1978), while Oates and Oates (1970, p. 90) locate it in the area of Sturt Creek and south to Gregory Salt Sea. Terry (1926), in contrast, locates the 'Boonarra tribe' in areas overlapping with Tsunoda's (2006) account of Nyininy and Ngardi territories. Potentially Bunarra may represent a more general term for multiple groups, indicating 'those who live by winnowing grass seed in [ˈpanːa] or wooden dishes' (Tindale, 1974). The term *punarra* in Ngardi means 'stripe' or 'incision carved into a shield' and, while Cataldi does not rule out its metaphoric extension to language, she has not heard its usage as a language name (Cataldi, pers. comm. to AUSTLANG, 2007).

Mirndi (non-Pama-Nyungan) languages the forms *ngarli* (Ngarnka) and *ngarlwi* (Wambaya) are used for 'speak' or 'talk' (David Osgarby, pers. comm.).

1.1.2 Linguistic region and dialectal variation

The Ngardi language is situated at the intersection of a number of language groups. To the west and north are the other members of the Western Ngumpin clade of Ngumpin-Yapa: Walmajarri and Jaru respectively. To the east are the Yapa languages Warlpiri and Warlmanpa (further east and north); and to the south and south-west are the Western Desert languages Kukatja, Wangkajunga and Pintupi.[3] Map 1 illustrates the approximate locations of these languages.

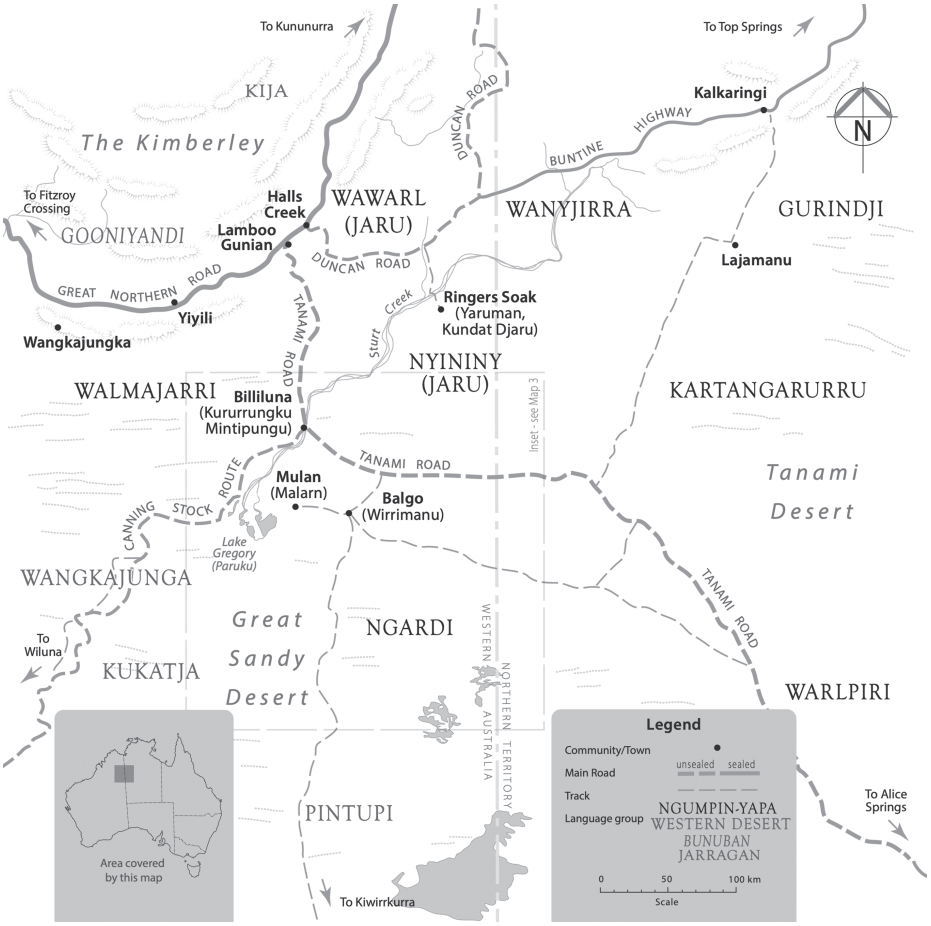
The extent of Ngardi country varies in published literature. Capell (1940b, p. 425) reports that '[Ngadi is] spoken about Lewis Creek, immediately south of Sturt's Creek', Oates (1975, p. 133): '[Ngardi is] west of Walmba [*sic*], about the W.A. border', and McGregor (1988a, p. 204): 'area from Balgo to Gordon Downs'.[4] Cataldi (2011) provides the most comprehensive description and this account was affirmed by Ngardi speakers with whom I worked. Ngardi country is understood to be 'bounded by Balgo and the southern shores of Lake Gregory in the North, about the NT/WA border in the east, the Mangkayi area in the south and just to the east of the Canning Stock Route in the west' (Cataldi, 2011, p. i). A number of important Ngardi sites are situated south of Yagga Yagga: Tarlapunta, Yayiyarr (Twin Lakes), Ngantalarra, Nakarra Nakarra, Kunakurlu, Lamanparnta, Walkali and Mangkayi (Stansmore Range).

While different speakers exhibit some variation in certain aspects of their speech, there is little in the way of 'named dialects' of Ngardi (although cf. the relationships between Ngardi and eastern Walmajarri and Nyininy discussed in §1.1.4). One exception is a discrete term 'Ngaliya' (sometimes written Ngalia) as used by some Ngardi people in Balgo. This term is used to refer to both a group of people and a language variety which is described as half Ngardi, half Warlpiri by Marie Mudgedell. Catherine Berndt (1965, p. 255) recorded the same term in use among Balgo residents over 50 years earlier to refer to peoples whose country lies to the east of Balgo in the area around Tanami Downs (formerly Mongrel Downs). This usage of the term appears somewhat distinct to Tindale's (1974) report of 'Ngaliya', which he identified far to the south of this area (approximately west of Yuendumu).[5] A less widely used term is

3 'Yulparija', most likely an exonym meaning 'southerners' (also cited as 'Julbre'), is placed immediately south of Ngardi in Hobson (1990) but this is corrected to the western side of Wangkajunga in Burridge (1996).

4 This same range of occupation is described in Wafer (1980) and attributed to Sandy Jupurrurla: 'from Wirrimanu to Gordon Downs'. This region is, however, affirmed by multiple Ngardi and Jaru people as associated with Southern Jaru peoples.

5 Note that Tindale (1974) dismisses Catherine Berndt's report of this usage and only recognises a group identified as Ngalia centred around an area west of Yuendumu, including Nyirrpi. This is



Map 1: Ngardi and surrounding languages.

'Nambulatji', which is similarly identified as Ngaliya-Warlpiri and is possibly associated with the wider Tanami area (Patrick Smith (pers. comm. March, 2019), and see Piele as quoted in McGregor 2004, p. 164).

A cross-cutting mode of identification for at least some residents of Balgo are terms which correspond to groups of people covering wider areas, above and beyond linguistic identification. From the perspective of some individuals living in Balgo the abstracted cardinal diagram in Figure 1 was established.

Nyininy (Jaru), Ngardi and Ngalia were all identified as Waringarri. Ngalia is also sometimes grouped with Ngardilypa and certain westernmost Warlpiri people under

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also the main usage of the term by Warlpiri people today. Note that both usages mentioned here are distinct from the Southern Western Desert language 'Ngalia' spoken in western South Australia.

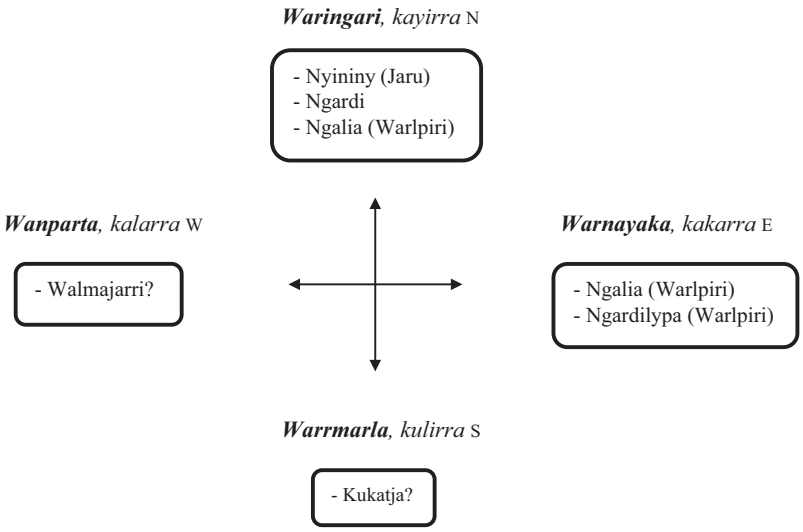


Figure 1: Cardinal-based macro-groupings of language groups (as recorded in Balgo).

the term Warnayaka. A similar denotation of Warnayaka is mentioned by Jagst (1982, p. 1), although compare the observation of Laughren et al. (1996) that it can refer to a central northern dialect of Warlpiri. With respect to the terms Wanparta and Warrmarla, there was little insistence on how these were associated with language groups, but it was suggested to me that Walmajarri go with Wanparta[6] and Kukatja go with Warrmarla.[7] Importantly, these terms were discussed and recorded in Balgo. How, and whether, such terms exhibit variable or deictically-sensitive reference based on someone's locale is uncertain. For instance, one Ngardi man recorded in the 1970s when working on Nicholson Station referred to his birthplace at Mangkayi in the Stansmore Ranges, far to the south of Balgo, as belonging to Warrmarla. Still additional variation is recorded by the Berndts who noted at Birrindudu that Walmajarri people were being referred to as Warrmala – although the Berndts rightly identified it not as a reference to a specific language group but a 'generalising' label (Berndt & Berndt, 1987, p. 183).

6 A term 'Wanparta' is also listed in Westerlund (2015, p. 169) as an endoynm for those who speak Ngarla (a Ngayarda (Pama-Nyungan) language to the distant west of Ngardi country).

7 In Warlpiri, the term 'Warrmarla' can be used to refer to Western varieties of Warlpiri (Laughren et al., 1996, p. 2) or it can generically refer to 'an armed band of men'.

1.1.3 Linguistic classification

Ngardi belongs to the Ngumpin clade of the Ngumpin-Yapa subgroup of the Pama-Nyungan language family (McConvell & Laughren, 2004).[8] The subgroup takes its name from two widespread lexemes for the word 'man' in its member languages, *ngumpin* (as in Gurindji) and *yapa* (as in Warlpiri). While Ngardi is classified as a Ngumpin language, the term for 'man' in Ngardi is *ngantany*.[9] A widely accepted internal phylogeny of the Ngumpin-Yapa subgroup is provided in Figure 2, after McConvell (2009).[10]

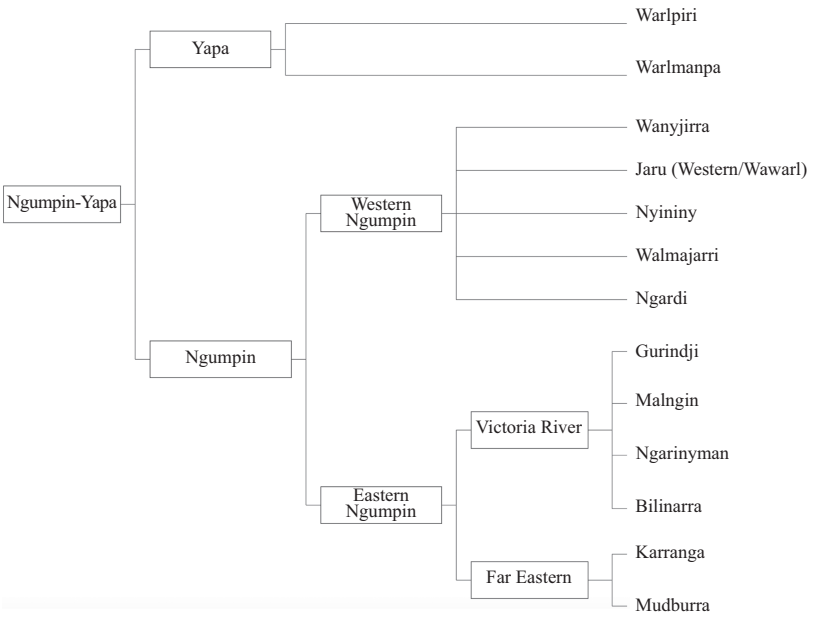


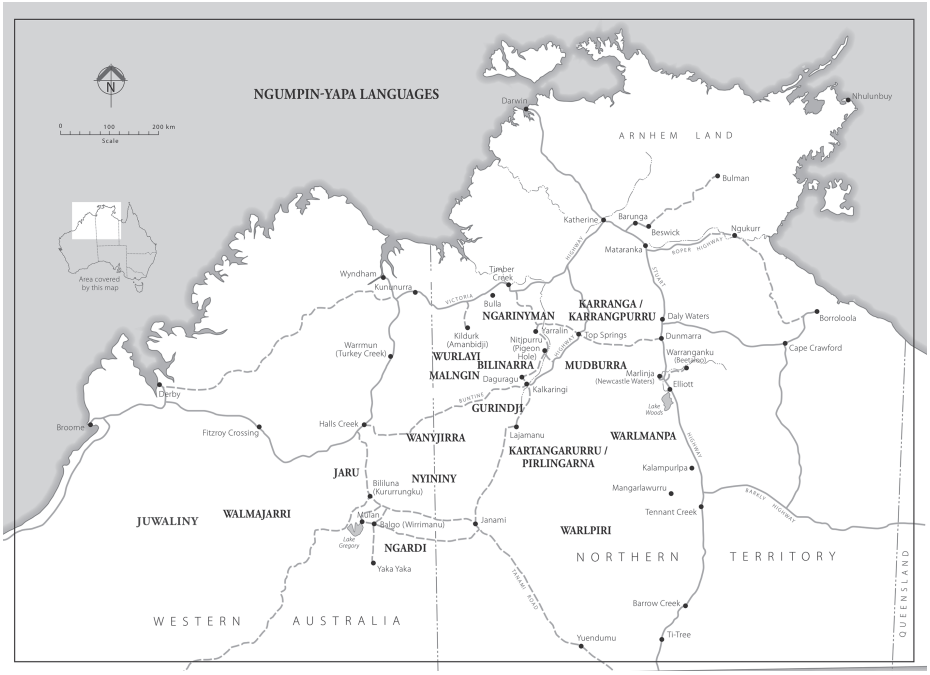
Figure 2: Phylogeny of Ngumpin-Yapa (McConvell, 2009, p. 791).

8 Highly variable classifications of Ngardi are found in the literature. The earliest classification of Ngardi is that of Capell (1940a, p. 244), whose lexicostatistical analysis placed Ngardi within his proposed 'Mudburra group', consisting of Yulparija, Jaru/Nyininy, Wanyjirra, Mudburra, Malngin, Ngarinyman and Eastern Walmajarri. Capell (1962) revises this to a grouping of Ngardi, Warlmanpa, and Wanayaka (a Warlpiri dialect) within the larger 'Western Desert group'. Later work by O'Grady, Voegelin and Voegelin (1966) positioned Ngardi within the 'Ngarrka' (Yapa) group – a classification mirrored in Oates and Oates (1970, p. 88). These later classifications were all proposed on the basis of lexicostatistical comparison, utilising Tindale's (1954) wordlist of Ngardi. Tsunoda (1981b, p. 5) presents a lexicostatistical analysis of his own 104-item wordlist of Ngardi which grouped Ngardi most closely with Walmajarri (77%) and Jaru (66%).

9 This is contrary to Wafer (1980, p. 3), who claims the Ngardi term for 'man' is *ngarrka*. Cf. additional lexemes for 'man' in other Ngumpin-Yapa languages: *mawun* (Jaru), *piyirn* (Walmajarri) and *ngarrka* (Mudburra, Warlmanpa).

10 Mconvell's (2009) phylogeny is augmented here with the positioning of Wanyjirra within Western Ngumpin languages (see Senge, 2015, p.8) and the inclusion of named varieties Nyininy and Malngin.

While the Ngumpin languages Kartangpurru, Wanyjirra and Malngin are absent from this phylogeny, they are understood to form something of a dialect chain spreading from Jaru in the south-west to Gurindji in the north-east (Senge, 2015). Map 2 shows the relative locations of all languages within the Ngumpin-Yapa subgroup.



Map 2: The Ngumpin-Yapa language family.

A division of Ngumpin into Western and Eastern clades as in Figure 2 is not explicitly motivated in McConvell and Laughren (2004) but has been established on lexicostatistical comparison. Throughout this work, I will refer to Wanyjirra, Jaru, Walmajarri and Ngardi as a coherent group (Western Ngumpin) since they consistently share sets of morphosyntactic features to the exclusion of the eastern Ngumpin languages (Malngin, Gurindji, Bilinarra, Ngarinyman and Mudburra). A slightly different internal grouping is found in the phylogenetic analysis of Bowern and Atkinson (2012, p. 835), which groups Ngardi and Jaru at a level distinct from Walmajarri and places the eastern Ngumpin languages (Mudburra, Gurindji, Malngin, Ngarinyman and Bilinarra) at a closer relationship with the Yapa languages.[11]

11 Using similar phylogenetic methods but utilising data from phonotactics, Macklin-Cordes and Round (2015) produce a phylogeny that largely mirrors Bowern and Atkinson's (2012) findings.

In terms of speaker's perceptions, Wafer (1980, p. 3) reports that the Ngardi speakers with whom he worked regarded Ngardi as being most similar to Jaru and Nyininy, then Walmajarri, and more distantly related to Warlpiri. When working with Ngardi speakers in Balgo in the 1990s, Cataldi (2011, p. 1) reported that speakers identified Warlpiri as most similar to Ngardi. In my own experience while working with speakers throughout 2016–2020, it was commonalities in grammar between Ngardi, Nyininy (southern Jaru) and eastern Walmajarri that were most frequently and explicitly pointed out to me. Speakers with whom I worked were also aware of commonalities (typically only lexical) between Ngardi and Kukatja as well as between Ngardi and Warlpiri.

1.1.4 Ngardi in relation to Eastern Walmajarri and Nyininy

From a lexical and grammatical viewpoint, Ngardi is very closely related to Eastern Walmajarri and Nyininy and these three language varieties could be considered dialects of a single language (see Cataldi, 2011, p. i). However, they are considered different languages by the respective speech communities and so they are referred to as such in the discussion here. Additionally, despite sharing a high degree of lexical similarity, there are a number of grammatical features which distinguish these varieties. While I make no attempt to precisely quantify these differences, a selection of the main grammatical differences between these three languages includes i) tense, aspect and mood (TAM) categories and forms; ii) case markers; iii) bound pronouns; and iv) clausal negation. In the comparisons that follow, abbreviations are Eastern Walmajarri (eW), Jaru, (Ja), Ngardi (Ng) and Nyininy (Ny).

Beginning with the verbal system, there is significant variation in the form, number and type of verbal inflections in Ngardi, Eastern Walmajarri and Nyininy. While all three languages share a 'potential' inflection of the form *-Cu* with a variety of modal functions, Ngardi and Nyininy have a discrete 'irrealis' inflection of the form *-Nngi* which is used to mark unreal or uncertain events, especially in hypothetical contexts (e.g. in past and non-past conditionals). In western varieties of Walmajarri and certain varieties of Nyininy (as formerly spoken at Gordon Downs) an inflection *-Ca* is used for imperative and other modal functions (e.g. past irrealis). In Ngardi, an inflection *-Ca* is strictly reserved for imperative functions. Additionally, eastern Walmajarri lacks any verbal directional morphemes (clitics or suffixes {*-rni*, *-rra*}). Nyininy possesses the 'hither' form *-rni* but it only occurs with imperative and potential tense values. Ngardi possesses both *-rni* ('hither') and *-rra* ('hence') and these combine idiosyncratically with TAM categories (see §7.5). Further comparison of TAM categories in Ngumpin-Yapa langugaes more generally is provided in §7.6.

The forms and functions of case markers in these three languages also diverge. Some notable examples include the allative: *-jawu* (Ny, eW) vs *-kurra* (Ng); ablative *-nginy* (Ny, eW) vs *-jangka* (Ng); privative *-mulu(ng)* (eW, Ja) vs *-wangu* (Ng). In each

case the 'divergent' Ngardi form is actually shared with the Yapa language Warlpiri. Ngardi, Eastern Walmajarri and Nyininy differ with respect to the case-marking of free pronouns. In Ngardi and eastern Walmajarri, all case marking attaches regularly to a single invariable root of the free pronoun, as per the Ngardi: *ngaju-ngku* (1SG-ERG) and *ngaju-ngka* (1SG-LOC). In Nyininy, however, non-core cases (i.e. dative, locative, allative, ablative etc) attach not to the expected root but to a modified stem. Thus the Nyininy equivalents: *ngaju-nggu* (1SG-ERG) and *nganinginy-ja* (1SG-LOC).

In terms of their system of bound pronouns, eastern Walmajarri appears to be somewhat distinct from Ngardi and Nyininy. Eastern Walmajarri (like other varieties of Walmajarri) has a distinct series of bound pronouns used to cross-reference absolutive marked direct objects (e.g. *=ji* 1SG.O) as opposed to dative marked arguments (e.g. *=ju* 1SG.DAT). Ngardi and Nyininy, however, use just a single series for cross-referencing absolutive and dative NPs except in the third person singular for which there is a distinction between-ϕ (3SG.O) and *=rla* (3SG.OBL) respectively.

Finally, clausal negation also varies across these three languages. Ngardi and Nyininy have a negative operator of the form *wakurra*, while Eastern Walmajarri has *ngajirta*. Eastern Walmajarri is similar to Ngardi and Nyininy however in forming negative commands via *ngajirta* + potential *-Cu* (cf. *wakurra* + potential *-Cu* in Ny and Ng). This can be contrasted with other varieties of Walmajarri as described in Hudson (1978) which form negative commands via *ngajirta* + imperative/irrealis inflection *-Ca*.

1.1.5 Typological profile of Ngardi

The phonological system of Ngardi is unremarkable when compared to other languages within the Pama-Nyungan family. Ngardi exhibits many widespread phonemic properties of the language family: a three-way vowel system, numerous place contrasts across a paired series of nasal and oral stops, a lack of fricatives, and no voicing contrasts. With respect to place contrasts, Ngardi is of the 'double-apical' type (contrasting retroflex and non-retroflex apicals), while lacking a lamino-dental/lamino-palatal distinction reported in other areas of the continent (Hamilton, 1996). Of particular interest is the presence of allophonic flapping of the retroflex approximant phoneme /ɻ/ – consistent with the southernmost varieties of Jaru (Tsunoda, 1981b) and constituting an interesting analogue to fully phonemicised flaps in western dialects of Warlpiri (Laughren & Ingram, 1999). Ngardi is further notable for lacking the sets of historic lenition changes observed for peripheral stop consonants in other Ngumpin languages (McConvell, 1997; McConvell & Laughren, 2004).

Seven major classes of lexemes are recognised in Ngardi: nominals, preverbs, verbs, bound pronouns, particles, interjections, and clitics. Ngardi is morphologically agglutinative and exclusively suffixing. While Ngardi is notable for exhibiting patterns of case stacking (Austin, 1995; Plank, 1995), the language is fairly moderate on the spectrum of analytic↔polysynthetic word structure. Words rarely exhibit more

than three or four morphemes. The complex verbal word in (1) has six morphemes, one of which is a portmanteau (of tense and aspect), and two of which are enclitics.

(1) Pirdiny=ma-nani-nyirra=lu=nganpa.
arise=GET-IPFV.PST-NARR=3PL.S=1PL.EXCL.O
'They made us stand up.' (YMN: LC23b: 472309_475708)

Noun phrases (NPs) in Ngardi have 'general number' and can be cross-referenced with singular or non-singular bound pronouns when fulfilling argument roles (§6). Number of NPs can be optionally specified by dual or paucal suffixes (§4.4.1) or by use of a class of modifier NPs, termed 'quantifiers' (§5.1). Nouns are not classified by a gender or noun class system and NPs are not specified for definiteness. NPs in argument roles are marked for one of five grammatical cases (ergative, absolutive (unmarked), dative, locative, and allative). Non-argument NPs can occur with all of the grammatical cases (in non-argument contexts, e.g. secondary predicates §9.3) as well as the non-grammatical lative and evitative cases. Case marking in Ngardi typically exhibits complete concord across constituents of a noun phrase and only rarely shows evidence of phrase-final marking as found in the neighbouring Warlpiri. The morphological property of complete concord is demonstrated by the allative in (2).

(2) Ya-nta-rra **ngurrara-kurra** **nyuntu-punta-kurra** wirrirl!
GO-IMP-HENCE **country-ALL** **2SG-PPOS-ALL** back
'Go back to your own country!' (NMN: Manungka_01-035167)

Ngardi, like Warlpiri, possesses a class of eight morphological suffixes termed 'derivational case': elative, ablative, perlative, proprietive, possessive, personal possessive, privative, and lacking (§4.6), which behave somewhat like case inflections (§4.5) on the one hand and somewhat like derivational suffixes (§4.3) on the other. An example is the elative *-jangka* which has a function typical of a regular spatial case suffix in (3) (it shows agreement across a noun phrase) but has a function more akin to derivational morphology in (4).

(3) Ya-ni **yalu-jangka** **murlukun-jangka**.
GO-PST **that-ELA** **jar-ELA**
'He got out of that glass jar.' (MMN: TEN1-2017_016-02: 40743_44395)

(4) **Purdangirli-jangka-rlu** purda=nya-nkura.
behind-ELA-ERG listen=SEE-HORT
'People nowadays/young ones (lit. 'those from behind') must listen.' (MAM: TEN1-2016_002-01: 470178_475997).

Case suffixes in Ngardi are also used in a subordinating function to encode relationships between finite main clauses and non-finite subordinate clauses. So-called 'subordinating case' serves to mark control relationships between main and subordinate clause arguments as well as indicating various temporal or semantic relations between the two clauses. In (5), the elative case suffix *-jangka* marks the constituents of a non-finite subordinate clauses, encoding prior relative tense and subject control.

(5) Wirrirl=ya-ni **paja-rnu-jangka** **purnu-jangka**.
back=GO-PST **bite-INF-ELA** **wood-ELA**
'He came back, having chopped the wood.' (PSM: TEN1-2018_037-01: 1120922_1124405)

Ngardi has properties of both a head-marking and a dependent-marking language (Nichols, 1986). Grammatical relations are signalled by a combination of case-marked NPs and cross-referencing bound pronouns. Frequent ellipsis of NPs is observed which results in arguments solely being registered by the bound pronouns. Ngardi is a morphologically ergative language. Nominals and free pronouns take case markers registering core relations of A vs S/O in an ergative case-marking alignment. Bound pronouns, in contrast, exhibit a nominative-accusative alignment of the core relations A/S vs O. All relevant syntactic processes such as reflexivisation, control of subordinate clauses and serial verb constructions provide evidence for nominative-accusative syntax. Argument structure in Ngardi is further notable for the fact that a range of NPs marked with certain 'non-core' cases are also cross-referenced by the bound pronouns. Certain dative case-marked nominals are cross-referenced by one series of bound pronouns (labelled 'oblique' and identical to the series of forms used to cross-reference absolutive objects barring the 3SG), and certain locative or allative case-marked nominals are cross-referenced by another series of bound pronouns (labelled 'locational').

Ngardi shares many of the same features of syntactic non-configurationality as described for Warlpiri (Austin & Bresnan, 1996; Hale, 1983). Evidence for rigid phrase structure above the noun phrase (NP) is limited – word order is syntactically free and likely only conditioned by discourse/information structure factors. This is an area of the grammar in need of much greater research than could be provided here.

Like many languages of northern Australia, Ngardi has two discrete classes of verbs: an open, semantically rich class of uninflecting preverbs and a closed class of inflecting verbs. Different subclasses of preverbs with different properties can be identified but generally speaking they are restricted to the preverbal position as in (6).

(6) **Parli=pi-nya**=rlipa=wu wirrpa karnti.
find=HIT=PST=1PL.INCL.S=VOC many bush_potato
'We found lots of bush potato!' (PSM: TEN1-2017_013-02: 841547_844182)

The class of inflecting verbs comprises only 85 lexemes. These verbal roots inflect for tense, aspect, mood, directionality, and associated motion. The two directional features, 'hither' (towards the speaker) and 'hence' (away from the speaker), are notable for their non-orthogonal interaction with the TAM inflections. Ngardi also possesses two 'associated motion' (Koch, 1984) suffixes which appear to derive from historic complex predicate structures involving non-finite + finite verb combinations.

Complex clauses in Ngardi take the form of both hypotactic and paratactic clausal relations. A major morphosyntactic division exists between finite and non-finite and subordination. Non-finite subordinate clauses obligatorily consist of a non-finite predicate (an infinitive verb, a preverb or even a nominal). Constituents of non-finite clauses are marked by case markers functioning as subordinators as described for the elative in (5). Case suffixes variously serve to link subordinate clauses to main clauses via temporal and other semantic relationships, as well as specifying the relationships between arguments of main and subordinate clauses (e.g. subject control, object control, non-subject/non-object control). Finite subordinate clauses comprise two finite clauses which are linked via a subordinator, some of which are homophonous with demonstratives. Finally, coordinate clauses in Ngardi may be formed overtly through the use of one of a small set of polyfunctional particles (with coordinative functions) or through simple apposition (asyndetic coordination).

1.2 Physical environment: Bioregional characteristics

1.2.1 Environment and bioregional features

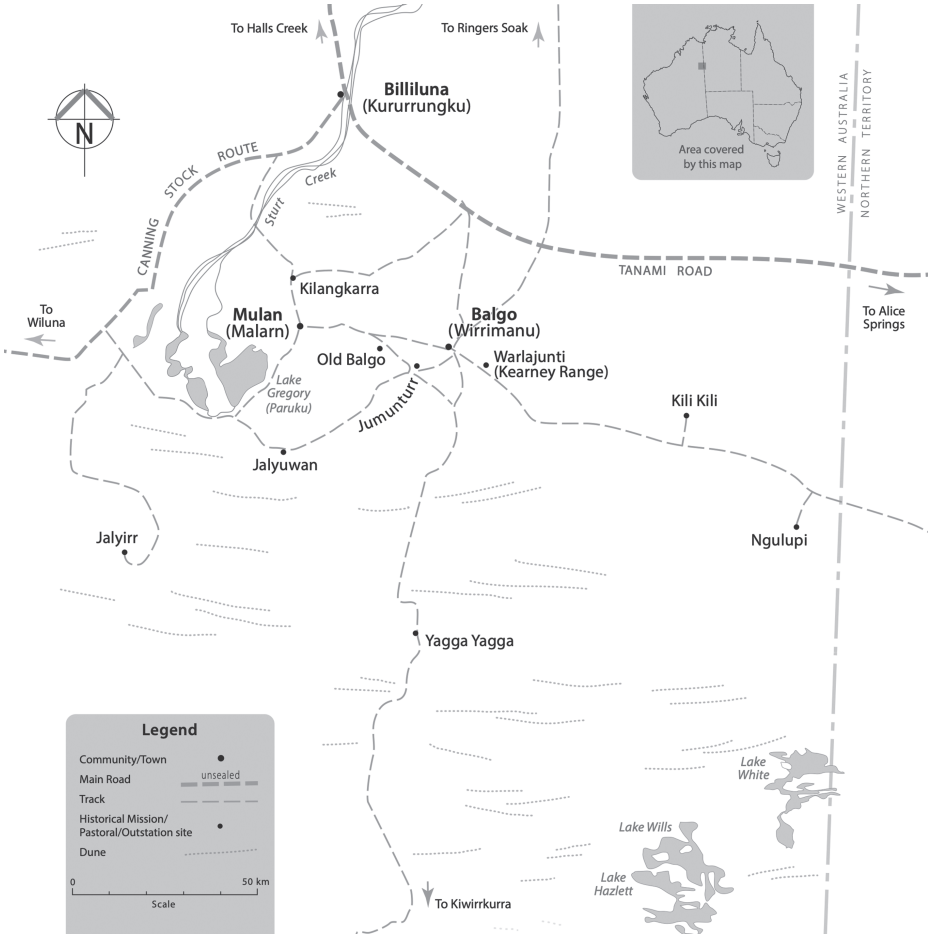
Ngardi country extends across both the western reaches of the Tanami Desert and the north-eastern region of the Great Sandy Desert, close to the border of Northern Teritory (NT) and Western Australia (WA). A striking feature of the Tanami region is its geological age – the weathered surface rock in these areas is some of the oldest in Australia and indeed the world, dating to the Proterozoic (Pre-Cambrian) (Pillans, 2018). The regolith (heterogenous surface layer) is highly weathered and comprises mineral profiles high in ferricretes and bauxites. These mineral profiles give the ground a distinct redness as found through arid central Australia and can be observed exposed in erosion-resistant caps on mesas (*munturt*) as in Image 1.

The present-day community of Balgo itself is located atop an eroded ridgeline that drains from a wide area in a westerly direction towards Paruku (Lake Gregory), a large endorheic lake some 40 km west of the community. A short distance from the eastern edge of the lake is the small community of Malarn (Mulan, pop. approx. 100), while to its north is another community, Billiluna (or Kururrungku, pop. approx. 150). South and south-west of Balgo, lateritic gravel plains give way to extensive sand ridges consistent with those that typify the Great Sandy Desert (Mackay) bioregionalisation zone (see the Interim Biographic Regionalisation of Australia). This is the country in which

Image 1: Weathered slopes of erosion-resistant caps on mesas (*munturt*) south of Balgo.

the former community of Yagga Yagga and the outstations of Lamanparnta, Walkali and Piparr are located. The Great Sandy Desert is a vast area dominated by longitudinal *tali* 'sand dunes', which run some 1000 km across the Canning Basin. Aside from sandhills, the overall topography of Ngardi country is generally flat. The highest point within Ngardi country is found in the south around Mangkayi (the Stansmore Ranges) which rises to just 510 m above sea level (Blake & Yeates, 1976). South-eastern Ngardi country about the NT/WA border is dominated by extensive salt-lake chains – lakes White, Willis, and Hazlett. Map 3 shows Balgo in its local regional context.

The major ecological zone throughout Ngardi country can be classified as 'mixed shrub' steppe (Beard & Webb, 1974) and is dominated by acacia species and spinifex (Cane, 1984). A wide diversity of acacias are found across Ngardi country including *marntirla* 'sandhill wattle', *matu*/*wilpiya* 'silver witchety', *kirriliny* 'pindan wattle' and *manja* 'mulga', to name but a few. Elsewhere on Ngardi country, large tracts of low-lying *mungily* 'samphire shrub' can be found, especially in the south-east of Ngardi country, due to their salt tolerance. Other widely distributed plant species in the region include *kuntupungu* 'bloodwood' from which the edible galls (*ngarlukutu* or *kanta*) are harvested, *jipari* 'Sturt Creek mallee' and *malarn* 'river red gum', after which the community to the west of Balgo is named. Hardwoods such as *pangkurna* or *kunanturu* 'desert oak' and *yinirnti* or *kumpupanu* 'bean tree' were traditionally



Map 3: Balgo, Billiluna and Mulan and surrounding historic communities/outstations.

utilised by Ngardi people for manufacturing *kana* 'digging sticks', *luwanja* 'coolamons' and *mirta* 'shields'.

Some specific areas on Ngardi country have semi-permanent surface water or *nyarna* 'deep water' (for example Yayiyarr 'Twin Lakes') supporting water-dependent eucalpyts such as *jarlipari* 'ghost gum', while others areas have *mulju* or *ngawiri* 'shallow soaks'. Larger trees can be found lining semi-seasonal creek beds. These primarily include species of eucalypts; *yilangkiyi* 'blue mallee', *jalipari* 'river red gum' and *tinjil* 'coolibah'. Many other areas of Ngardi country are nevertheless devoid of significant quantities of readily accessible surface water or larger eucalypts for shade. Many researchers of Western Desert life have noted the formidable constraints on human habitation presented by the water and food scarcity of the region (see Cane, 1984, p. 393 for a summary).

1.2.2 Traditional life (pre-European contact)

Prior to contact with non-Indigenous people, Ngardi people lived a semi-nomadic lifestyle consistent with that of many Aboriginal groups of the northern Western Desert region (see, e.g. Cane, 1984, 1987; Thomson, 1975). Availability of resources (namely the seasonal presence of food and water) played a major role in determining the distances people travelled, the sites visited, and the time spent in various locations. Resource-driven concerns were also set alongside a need to fulfil various social and ceremonial obligations across numerous sites throughout the year.

Ngardi people – like their Kukatja and Pintupi neighbours – lived and moved in quite small groups, often consisting of just one or two family units (cf. Thomson, 1975). During *wurrkarla* 'growing season after rain', Ngardi people gathered in much greater numbers and would travel greater distances to attend ceremonies and to visit areas which had not been foraged over since the previous year (Cane, 1984, p. 394). When staying in temporary camps, Ngardi people would typically construct low-lying *wirriny* 'windbreaks', structurally supported by *manja* 'mulga scrub' and built up with *yuka* 'spinifex' and brushwood. Such structures were particularly necessary during *jarrilyi-lyirla* (cold (easterly) wind time), when the cold easterly winds sweep across the desert.

Despite the fundamentally semi-nomadic lifestyle of Ngardi people, there is evidence that a range of food storage techniques and strategies had been developed – predominantly involving dry food stuffs (Cane, 1987; Thomson, 1962). Across the whole desert zone, *lukarrara* (*Fimbristylis oxytachya*), *mungily* (*Tecticornia verrucosa*) and other seed types were a staple of Aboriginal people's diets. The collection, preparation (husking, winnowing, grinding) and cooking of seeds was a major preoccupation of Ngardi women (see relevant studies by Cane 1984, 1987). The seeds of various species of *yuka* 'grass' were utilised to make *wanapirti* 'seed cakes'. Women would spend significant time winnowing seeds from chaff and sand/grit with a *kulinjirri* (a coolamon designed for winnowing) in the preparation of a paste which would either be eaten raw or cooked in a type of damper. Grindstones or *jungari* formed part of an essential toolkit for Ngardi people. Some were transported between camps, while other heavier base stones were left in seasonal camps so that grains could be readily processed *in situ*. Various species of acacias, including *kilkirdi* (*Acacia holocericea*), were also valued as sources of food by Ngardi people. However, many species of acacia seeds of this region are toxic and very little is known about how the Ngardi and Kukatja prepared such foodstuffs (Cane, 1987, p. 405). The woody stems and root systems of many acacias are also home to the prized *laju* 'witchetty grubs', which are extracted carefully with *ngarnngu* 'hooked barbs', made from whatever materials are available.

Vast tracts of land were utilised and foraged over for their perennial crops of *karnti* or *puurda* 'yam, bush potato' (*Ipomea costata*), *jalparr* or *kumpupaja* 'bush tomato' (*Solanum chippendalei*), and *jirrilpaja* 'bush carrot' (*Vigna lanceolata*). Ngardi people continue to forage these bush foods when in season today. Ngardi people also monitor the activities of various animals that serve as seasonal indicators as to

when conditions are most suitable for certain activities such as hunting and foraging. For example, when the Burton's snake-lizard (*Lialis burtonis*) is heard producing its distinctive call '*lirtlirt*' – from which it takes its Walmajarri/Ngardi name – it is considered a suitable time for *puurda* 'yams' to be harvested. Details of when various foodstuffs in this region are in season are provided in Cane (1987).

While the women conducted much of the gathering of dietary staples, men would often be concerned with the hunting of larger game, dependent on seasonal and local availability. Particularly prized meats were various macropods *jaji* 'kangaroo', *mala* 'rufous hare-wallaby', *parntarrngarna* 'rock wallaby' and *jiya* 'euro', but also lizards such as *jarrampayi* 'perentie' and *jarany* 'roughtail lizards', and snakes such as *walyarrangarnujarra* 'Ramsay's python'. Ngardi men utilised a range of spear types – some specific to hunting, others for fighting. The *kirnimiliny*, for example, was a large hunting spear to which a *jimpirla* 'stone spearhead' would typically be attached using *wajarn* 'spinifex resin' and fastened with *jiliwa* 'animal tendon'. Other spear types include the *malmurru* (a small, lightweight spear) and the *wurrumpurru* (a shovel-nosed spear).

Ngardi country was once home to numerous smaller marsupials: *kalatawurru* 'the desert rat kangaroo', *kanakarlumpayi* 'fat-tailed mouse', *nyarlku* 'bilby', *mingajurru* 'golden bandicoot', *milpatiri* 'spectacled hare-wallaby', and the *mala* 'rufous hare-wallaby' to name but a few. Many of these species are now critically endangered, if not extinct. Some, such as the *kakarraturl* 'northern marsupial mole' are believed to have stable populations but are rarely spotted. The reduction in numbers of all marsupial species is primarily due to competition from and predation by introduced species. It is clear that traditional Aboriginal fire management practises also played an integral role in the ecological balance of landscapes across the Western Desert (Bird et al., 2008; Burrows et al., 2006) and Tanami (Nash, 1991; Vaarzon-Morel & Gabrys, 2009) regions, and their cessation has had dramatic effects on the ecology of these regions (Bolton & Latz, 1978). Some of the earliest satellite photographs of the wider region (c. 1953) reveal complex mosaics of small burnt patches of vegetation, producing a checkerboard of post-fire succession zones that both encouraged growth and limited the risk of large scale, devastating bushfires (see Burrows & Christensen, 1990). Later satellite images up to 1986 reveal that this mosaic has since been completely lost due to the last Pintupi people moving off their country west of Lake Mackay. In its place, satellite images have revealed large tracts of senescing vegetation alongside huge tracts of burnt country brought about by lightning-caused bushfires.[12]

In recent decades, various introduced species, including camels (*kawujuwal*), feral cats (*pujikat*) and wild horses (*timana*), have all contributed to the decline of native fauna (see Burrows, 2018). Wild horses predominate in northern and north-western tracts of Ngardi country (often centred around more permanent water sites), while

12 The study by Burrows and Christensen (1990) focused on an area west of Lake Mackay in Pintupi country (south of Ngardi country) – one of the last areas in Australia where Aboriginal Australians were living in an entirely subsistence fashion.

in the more arid zones to the south, large groups of camels predominate. Feral cats are found across all of these ecological zones and are found even within some of the most arid regions. Nevertheless, certain populations of many unique native species continue to thrive on isolated Ngardi country; including reptiles such as the striking *katapurda* 'mountain devil' (*Moloch horridus*), the deadly *nguwa* 'desert adder', and large numbers of *jiya* 'euro or rock wallaby' and *marrany* 'dingo'.

1.2.3 Climate

Balgo is located in a semi-arid zone that is within the influence of monsoonal seasons which dominate weather patterns across northern Australia. The mean maximum temperatures in Balgo (1950–2016) range from 26.1 °C in June to 38.7 in November/December.[13] Overnight mean lows range from 12.5 °C in July to 25.2 in January. Balgo exhibits some climatic features of a pre-monsoonal 'build up', with temperature peaks arriving in December prior to the heaviest rains. The wettest three months are January to March, with a mean maximum precipitation of 84.2 mm in February and a mean annual precipitation of 356 mm/year. The period following rains is known as *wurrkarla* (lit. 'time of green') when rapid growth of vegetation occurs and typically proceeds through March until May (Cane, 1987, p. 394). This is followed by *pirriyarla* or *jarrilyiyirla*, 'cold weather time', which is characterised by strong easterly and south-easterly winds. The driest three months are July to September. Rainfall is nevertheless highly unpredictable and annual rainfall has been recorded with totals as low as 90 mm (1958) and as high as 907 mm (1974) (Bureau of Meteorology).

While the data provided here offer some indication of climate for Ngardi country in its northern extent, the influence of monsoonal weather patterns decreases as one moves south through Ngardi country. The southernmost tracts of Ngardi country are increasingly more arid with less annual precipitation. In the eastern regions of Ngardi country, annual average rainfall has been recorded around 200 mm (Kearney, 1985, p. 23). There are, however, no available climate data for central Ngardi country south of Balgo.

1.2.4 Prehistory and time depth of Aboriginal occupation

When considering the time depth of Aboriginal occupation of Australia, it is generally agreed that the most extreme arid zones in Australia (including the Tanami and Great Sandy Deserts) were settled later than the rest of the continent (O'Connell &

13 Accurate climate data for Balgo is limited to the period 1950 to 2016. However, some precipitation data stretches back to 1940 and includes data gathered at both 'Old Mission' (30 km west) and present-day Balgo (Wirrimanu).

Allen, 2012). While there have been exceedingly few archaeological studies on Ngardi country itself (although see Cane and Novak (1981)), neighbouring sites provide approximate indicators for the time depth of human occupation of the region. West of Ngardi country, at Parnkupirti 'Site Three' (eastern edge of Lake Gregory), stone artefacts associated with human occupation have been located in sediments dating to 37 thousand years ago and most probably in the vicinity of 45–50 thousand years ago (Veth et al., 2009). Taken in combination with evidence of habitation in country to the south-east of Ngardi country, south of Mt Liebig at Puritjarra, dating to 35 thousand years ago (Smith, 2006), as well as far south as the Nullabor Plain (e.g. Allen's Cave, c. 40,000 years (Munt, Roberts & Gorman, 2018; Walshe, 1994)), there is sufficient archaeological evidence to support occupation of the entire north-west arid zone for a period approaching 50,000 years (Veth, McDonald & de Koning, 2018).

The mounting evidence for long-term occupation of this region is set in contrast to the traceable time depths of Aboriginal languages spoken in the Western Desert region at the time of contact. Putative and highly approximate dates proposed for the expansions of both Pama-Nyungan languages, and (more locally) the Western Desert languages, are argued by some to be of a much more recent time depth at approximately 5000 years ago for Pama Nyungan (McConvell, 1996a; McConvell & Bowern, 2011), and approximately 1500 years ago for the Western Desert languages (McConvell & Laughren, 1996; Veth, 2000).

1.3 Ngardi in a socio-historical context

The current, endangered status of the Ngardi language is a direct result of the recent history of Ngardi people and their contact with early colonists. While the histories of Ngardi people are complex and multifaceted, the primary factors that led to the endangerment of the Ngardi language were the encroaching influences of the pastoral and mining industries, along with the long-term direct effects of the Balgo Mission. On both the cattle stations and in the Balgo Mission, a great diversity of culturally and linguistically distinct groups were brought together into new, centralised communities. For complex socio-historical and demographic reasons, the Ngardi language was subordinated to the dominance of other traditional languages. In Balgo the dominant language was a variety of Pintupi referred to locally as Kukatja (see Cataldi, 2011, p. 1; Valiquette, 1993). Cataldi (2011, p. 1) points to the role of the dormitories, the segregation of children from their parents, and the linguistic repertoires of the first children gathered into the dormitories as being the deterministic factors in paving the way for the shift towards a Kukatja-dominated speech community. Marie Mudgedell, a Kukatja-Ngardi speaker, reflected that Ngardi was even discouraged from being spoken by Kukatja people and she attributes this as one of the reasons for which Ngardi is no longer spoken by younger people.

This section gives an overview of the history of Ngardi people and the historical developments that have given rise to the current sociolinguistic situation in Balgo.

First, a summary of the published literature which engages with Ngardi peoples is provided in §1.3.1. The earliest documentation of contact between Ngardi people and Australians of European descent is described in §1.3.2, the development of the mission in §1.3.4, post-mission life in §1.3.5 and a summary of multilingualism (past and present) in §1.3.6.

1.3.1 Written histories of Ngardi people

There is exceedingly little written history which focusses on Ngardi people or the Ngardi language. Nevertheless, numerous incidental accounts of Ngardi people, their culture and their country can be found across a broad and diverse literature. Primary historical accounts from Ngardi people themselves can be found in Napanangka et al.'s (1997) *Yarrtji: Six women's stories from the Great Sandy Desert*, a collection of stories and histories from six senior Ngardi and Kukatja women from Balgo and Yakka-Yakka. These oral histories include accounts of life prior to the arrival of the missionaries, settlement at the missions and accounts of first contact with Europeans. Many of these narratives form part of the Ngardi corpus and have informed the linguistic analyses in this grammar. Additionally, records of Ngardi people have been compiled as part of the due process of assembling cases for various land claims: Report No 22: 'Warlpiri, Kukatja and Ngardi Land Claim' (Kearney, 1985). Report No. 42 'Tanami Downs Land Claim'(Olney, 1992), and, more recently, Ngururrpa (Cane, 2006) and Lappi Lappi/Ngulupi (*Tex on behalf of the Lappi Lappi and Ngulupi Claim Group v State of Western Australia*, 2018).

The history of the Balgo Mission itself has also been documented by a range of missionaries, (art) historians and anthropologists. Zucker (2005), Byrne (1989) and Ganter (2016) all provide accounts of the historical movements of the German Pallottine missionaries responsible for the development of the first Balgo Mission.[14] Father Anthony Peile worked with Balgo people as a priest first in Halls Creek (1966–1973) and later in the Balgo community (1973 – late 1980s). Piele's detailed and wide-ranging notebooks provide impressive documentation of the Kukatja language, with particular emphasis on Kukatja biocultural knowledge and concepts of health and healing. These notebooks formed the basis of later publications: *A basic Kukatja to English dictionary* (1993) edited by Hillaire Valiquette, and *Body and soul: An Aboriginal view* (1997) edited by Peter Bindon. There are a number of accounts examining the development of Balgo in the post-mission period, both with respect to the community (Dé Ishtar, 2005) as well as the development of art practices and the highly successful art industry (Watson, 1996, 1997, 2003; Carty, 2011). Anthropological accounts of Abo-

14 Primary sources for Ganter's account predominantly come from the transcribed handwritten notes of Alphonse Bleischwitz and the biography of Brother Frank Nissl.

riginal peoples who came to reside in Balgo can be found in Berndt (1970, 1972), Cane (1984, 1987), Poirier (2005) and McCoy (2008). Myers (n.d.) and Young, Marchevsky and Wick (1981) describe the burgeoning ceremonial life of Balgo in the 1980s, which came to be known as 'Balgo Business' (*julurru*) and was well known right across the Kimberley and into the Northern Territory.

Musical traditions, including various song sets, belonging to Aboriginal people of the Kutjungka[15] region (including Ngardi people) have been documented by a range of ethnomusicologists and linguists. Songs of various genres were recorded in Balgo by Richard Moyle (1997), Sonja Peter, Lee Cataldi and the women of the Manungka Manungka Association (e.g. Napanangka et al., 1997) and more recently by Turpin and Meakins (2019). In regards to social and governmental policy in the region, Cane (2016) provides an analysis and critique of governmental policy associated with the movement of Aboriginal people in the Balgo area to live on outstations in the late 1990s.

Various geographical survey and documentation work of Ngardi homelands has also been conducted, timed with the beginning of oil and mineral exploration in the region in the late 1980s (see Cane, 2016 for a summary). Relevant archaeological reports on the prehistory of the wider region were mentioned in §1.2.4. Detailed archaeological studies which examine massacres of Aboriginal people in the Kutjungka region include Smith et al. (2017) and Smith (2016) for the massacre at Purrkuji (Sturt Creek Station) on Nyininy country (just to the north of Ngardi country).

1.3.2 First contact with European settlers

There are few explicit written accounts of first contact between Europeans and Aboriginal peoples living on or near Ngardi country and none that reference Ngardi people directly. What can be surmised of the earliest settler contact with Ngardi people can be gleaned from examination of firsthand accounts (e.g. Napanangka et al. (1997)) and further appreciated from what has been documented under the history of the Pintupi (see Long, 1989), since Pintupi and Ngardi peoples' contact history is closely connected.

The Kimberley region in north-western Australia was one of the most recent regions within Australia to be subjected to non-Indigenous exploration and occupation (Smith, 2000). Prospecting cattlemen initially favoured the Kimberley for the region's perceived suitability for cattle and an attitude that the large numbers of local Aboriginals would provide a ready source of labour (Bolton, 1958). The first forays of European explorers into Kutjungka lands was in 1855 with the expedition of Sir Augustus Charles Gregory who travelled down Sturt Creek as far as its terminus (Paruku), which he named Lake Gregory. European exploration of the Tanami and northern Great Sandy

15 The term 'Kutjungka' is used to refer to the region which encompasses the three communities of Balgo, Mulan and Billiluna – the residents of which all share familial, linguistic and cultural connections.

Desert regions began in the late 1870s when Peter Egerton-Warburton (1872–1874) traversed southern Warlpiri (Ngaliya) country as far west as 'Red Cliff Pound' and 'Hidden Valley' (near Lappi Lappi and Lake Hazlett) and later Nathaniel Buchanan (1880s) pioneered the first European overland routes through the Great Sandy Desert north of Lake Mackay.[16] Carnegie's expeditions across the Gibson and Great Sandy Deserts followed in 1896–1897, traversing Ngardi country south-to-north and finishing in Halls Creek. There were no documented expeditions directly into Ngardi country again until 1933 when Michael Terry ventured into a low-lying valley in the vicinity of Lake Hazlett (south-eastern Ngardi country) on his expedition across the NT/WA border. A similar area was traced again later in 1957 by Donald Thomson.

The discovery of gold in the relative vicinity of Ngardi country, first to the north at Halls Creek in the 1890s, and later to the east at Yartuluyartulu (The Granites) and Jarnami (Tanami) in 1900, brought neighbouring Jaru and Warlpiri people in direct contact with European settlers (see Kearney, 1985; Olney, 1992). This was followed by a burgeoning interest of pastoralists in the viability of the south-eastern Kimberley as pastoral country. In 1906, Alfred Canning travelled through Walmajarri and Wangkajunga country (to the west of Ngardi country), in a bid to chart a route for droving cattle out of the Kimberley and on to southern markets. The eventual (but ultimately short-lived) Canning Stock Route profoundly affected Ngardi's western neighbours (Carty, Davenport & Lafontaine, 2010). In addition to direct and hostile contact by Canning and his men, the spoiling of important water sites eventually led to the northward movements of people out of their desert homelands and onto various mission settlements and cattle stations to the north. By the 1920s cattle stations had been established right across the eastern Kimberley as far south as Sturt Creek, both at 'Carranya' and '(Old) Billiluna' (see Map 4). Many Ngardi people had likely heard word of Europeans and began, for various reasons, to move on to cattle stations both in the NT and throughout the south-east Kimberley.[17]

1.3.3 Movement of Ngardi people onto missions and cattle stations

A clear reconstruction of the historical events that led to Ngardi and other Aboriginal groups of the western Tanami and northern Great Sandy Deserts to occupy various mission sites, cattle stations and townships is a complex issue. Many social and environmental factors have been speculated upon as lying behind the historical movement of Western Desert groups out of the desert in the early to mid twentieth century and onto cattle stations and missions throughout the south-eastern Kimberley. These

16 Expeditions by Giles (1875–1876) and Warbuton (1875) predate Carnegie's expedition but both passed to the south of Ngardi country.

17 Many Ngardi and Kukatja people also recall seeing stock animals for the first time before coming into contact with Europeans themselves.

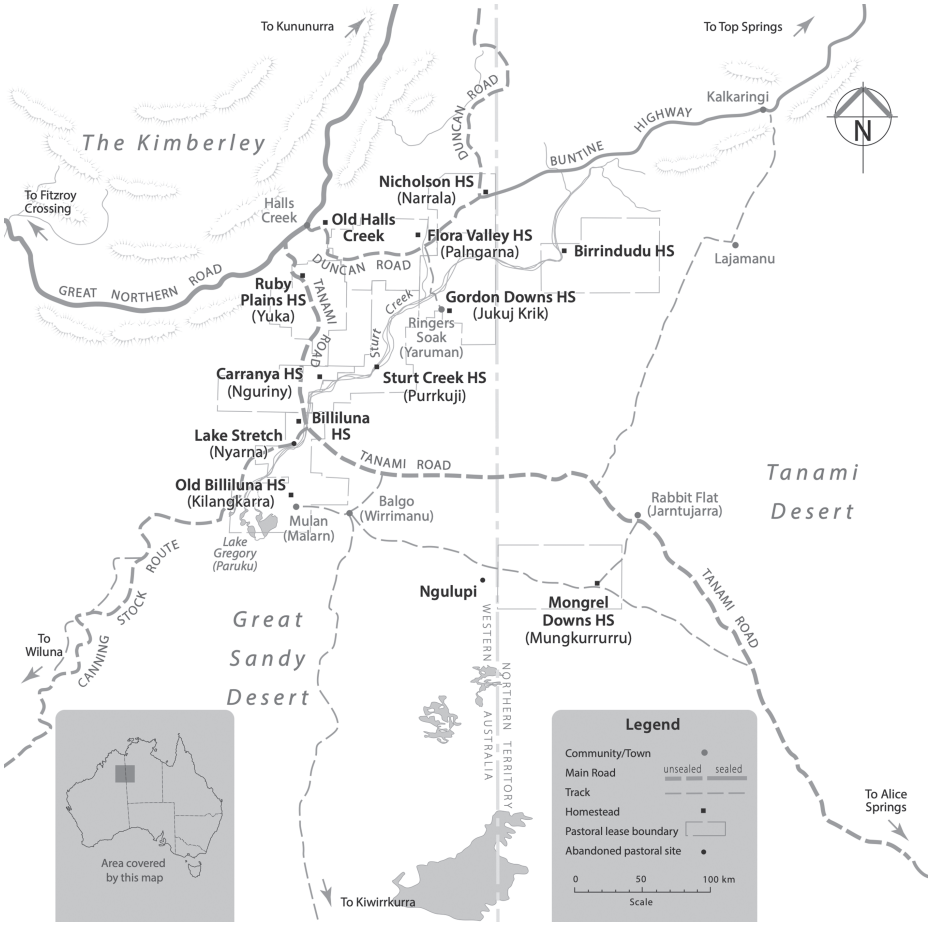
have variously included mentions of forced 'round-ups' and coercion as well as volitional, agentive movements by Western Desert peoples, potentially on the promise of more predictable and easier access to food and water sources (see Long, 1989; and Carty, 2011 for a summary of the relevant literature). Factors beyond direct contact with Europeans appear to have had an important role in the history of this region. Thomson (1975) and Long (1989) reference the effects of increasing water scarcity – in particular a decade-long regional drought which affected the country around Lappi Lappi (1895 to 1906). Such environmental factors encouraged the Kukatja to migrate east from an original occupation of lands westward from the area north of Lake Mackay to the Stansmore Ranges (Thomson, 1975, p. 6) – an area associated with Ngardi people. Carty goes as far as to conclude that 'the social geography of the Kukatja was therefore being transformed by ecological and social pressures 50 years before the Pallottine missionaries arrived in the desert' (Carty, 2011, p. 27).

Whatever the complex social and historical motivations that instigated such dispersion, Ngardi men and women ended up working across a large number of cattle stations in the Kimberley and the NT (many owned by Lord Vestey), far to the north of their traditional country. Patrick Smith reports that Ngardi people lived in some numbers at the original sites of Billiluna station (Kilangkarra and Nyarna),[18] Ruby Plains (Yuka), Flora Valley (Palngarna), Nicholson (Narrala), Sturt Creek (Purrkuji), Ringer's Soak, Gordon Downs (Jukuj Krik), Spring Creek, and Birrindudu Stations (see also R. M. Berndt & Berndt, 1987). The location of these cattle stations with respect to the modern-day community of Balgo is presented in Map 4.

The living conditions that greeted Aboriginal people on the stations were appalling. Firsthand accounts by the Berndts (1987) and a review of the literature by Smith (2000) provide a glimpse of the horrific conditions faced by Aboriginal men, women and children on cattle stations in the south-east Kimberley. Men and women worked for little more than meagre rations of sugar, flour, tobacco (*ngunju*) and tea (*iki*, *ngurlukaji*). Conditions on Birrindudu and Gordon Downs stations were singled out by the Berndts in particular as being particularly brutal: no access to nutritious food, labour exploitation, abuse of women, as well as murder and reprisal killings (for the hunting of livestock) characterised the new lives of Aboriginal people in the south-eastern Kimberly in the early to mid twentieth century.

In addition to the oppressive conditions on the cattle stations, Walmajarri, Ngardi and Jaru people alive today recall the massacre of their grandparents which took place at Kaningarra and then at Purrkuji (near Sturt Creek Station) in the aftermath of the

18 There are multiple historical sites of the Billiluna homestead all within the Billiluna Pastoral Lease. The lease was first taken up by Joseph Condren on 4 May 1920 (Gard & Gard, 1990, p. 135). A windmill was erected at a site now referred to as Comet, not far from present-day Mulan. The original site of the first homestead was subsequently established at a place called Kilangkarra (on 'Butcher Creek', north of Mulan). The homestead was later moved to Nyarna (Lake Stretch, also known as Warnku) and then on to present-day Kururrungku (also known as Mindibungu).



Map 4: Map of cattle stations in the south-eastern Kimberley.

murders of Joseph Condren and Tim O'Sullivan in 1922.[19] The oral history, passed down from the sole adult survivor, Riwarri[20] and supported by recent archaeological investigations (Smith, 2016; Smith et al., 2017), recalls how a number of people were shot and other men, women and children were rounded up near Kaningarra, on the Canning Stock Route. The remaining survivors were walked in chains northeast as far as Old Denison Downs (near Sturt Creek Station) homestead. Here, 'they were chained between trees in

19 The suspect, named Banjo, had been tracked west and north-west of Old Billiluna Station and was shot on 8 November 1922. Associated police reports make no reference to the massacres also enacted in the wake of the Condren/O'Sullivan murders, first at Warlikarrapungu (Godfrey Tank) and then later at Sturt Creek Station. See Smith (2016) for a full discussion of the evidence.

20 Note that Riwarri is the name as recorded in various sources (e.g. Smith, 2016), but at least Patrick Smith pronounced his name as Riwiyarri [ɻ́wɪjɛ̀rɪ].

the goat yard and shot. The bodies were then burnt . . . Most of those killed were incinerated in the well, but not everyone. The bodies of women and children were incinerated at a separate area and others were burnt inside the goat yard' (Smith, 2016, pp. 27–28).

While maltreatment, exploitation and the murder of Indigenous people formed the dominant theme of settler–Indigenous relations throughout much of the south-east Kimberley, not all settler-Indigenous relations from that period are assessed negatively by Indigenous people of the Kutjungka region. Patrick Smith, for example, readily recalls the good treatment Jaru, Walmajarri and Ngardi received from Sam Hazlett and Jimmy Malabi at Palm Springs. Furthermore, survivors of the Sturt Creek massacre reported that they were given refuge by Dave Bickley at Mt Brophy, by Tom Bradshaw at Slatey Creek, and by Jack Skeen and Dave Piggley at Lewis Creek (Smith, 2000, p. 70, 2016, p. 31).

Movement in and out of missions and cattle stations by men and women of older generations appears to have decreased rapidly after the first few decades of settler contact. The earliest accounts of contact made reference to a greater degree of freedom than came to be enjoyed on life within the mission or at the pastoral camps. Such accounts are found in the oral histories of Ngardi women recorded in the mid 1990s and these accord closely with the oral histories of Wangkajunga women (Andrews, 1996; Bolger, 1987).

> My mother take me all around. We bin go up and down, up and down. I bin getting big. I go back and grow at Balgo. Come there when I was a girl. We bin go to Mangkayi now, still girl. When I come back from Mangkayi had *ngapurlu* – breast like little tomatoes. Back to Balgo. Live at Balgo and Lake Stretch and Sturt Creek. I bin walking self now. (Napanangka et al., 1997, p. 103).

1.3.4 Establishment of the Balgo Mission and the mission period (1939–1983)

The arrival of the Pallottine Missionaries and the establishment of the Balgo Mission in the late 1930s was by far the single most disruptive event for many Ngardi and Kukatja people. It brought the influence of Western ways of life further south than the southernmost cattle stations at the time – the southernmost pastoral station had been established on Sturt Creek at Dennison Downs Station by Stretch and Weekes (Carnegie, 1898, p. 357). The vision of the Church in venturing south from Beagle Bay and an initial site at Rockhole (south-east of Halls Creek) was to provide 'a buffer' between the traditional Aboriginal way of life and European life which was encroaching on their world – and, undoubtedly, to evangelise and bring Aboriginal people into the Church. However, the notion that the Church could somehow provide 'a haven' in which Ngardi, Jaru, Kukatja, Walmajarri, Wangkajunga and Pintupi people would be able to live their lives independent of the effects of European settlement would be a gross misrepresentation of the impact the mission had on people's lives. Carty (2011, p. 47) goes as far as to conclude, in reference to the Balgo Mission, 'while protecting

people from exploitation on the colonial frontier, the mission came to embody that very colonial frontier through practises which actively sought to change Aboriginal ways of life and foster dependence on an alien economy'.

The formation of the first Balgo Mission is traced in detail by Ganter (2016). Following the initial recommendations of Father Ernest Worms, a German missionary team led by F. Aphonsus Bleischwitz left a site known as Rockhole (about 20 km south-south-west of Halls Creek) in 1939 and ventured south with an intention to establish a mission site somewhere beyond the terminus of Sturt Creek and Lake Gregory on the fringes of the Great Sandy Desert.

Initially, temporary mission camps were made at Comet (near modern-day Mulan) before another camp was made at Jalyuwarn, south-east of the southern end of Lake Gregory.[21] This site, comprising a creek with a billabong and rock pools, is reported to have been occupied by a '60-strong Aboriginal camp' upon the arrival of the missionary team – but no other details are noted (see Ganter, 2016). During the period 1939–1942, the mission's livestock (mainly sheep and some goats) were moved between Comet and another site, Jumunturr (also spelt Doomendora), located south of Old Mission. The water here, however, was not of sufficient quality to support the team and so the operations of the mission were necessarily spread across three sites (Comet, Jalyiwarn and Jumunturr) until 1942 when the mission shifted to Palku (Balgo) east of Malarn (Mulan) where a permanent source of water had been established via the successful boring of a well.[22] The former mission sites at Palku and Jalyiwarn are now referred to as 'Old Mission' or 'Old Balgo' by Balgo (Wirrimanu) residents today.

By the time of the establishment of the Balgo Mission proper in 1942, significant disruption of Aboriginal peoples of the northern Western Desert region had already occurred, and across a vast area. According to Olney (1992, p. 11), by 1945 nearly all traditional owners associated with the Warlpiri/Kukatja land claim had left their traditional lands along the NT/WA border. While populations at Old Balgo Mission were somewhat transient in the mission's early years, Ronald and Catherine Berndt's anthropological work identified a wide array of linguistic groups coming to live there on a semi-permanent basis, including Kukatja, Manyjilyjarra, Walmajarri, Wangkajunga and Ngardi people (Berndt & Berndt, 1960, p. 2).[23] Ngardi people continued to walk out of the desert and onto Balgo Mission well into the 1960s (see Long 1989, p. 29). By 1960, Berndt and Berndt (1960) reported that there were around 150 adults and children living on a semi-permanent basis in the vicinity of Old Balgo.

Due to issues of water quality and water scarcity, as well as concerns regarding the operation of the mission and its independence from Billiluna Station (on whose lease-

21 Named 'Bishopdale' after Bishop Raible.

22 The origin of the place name 'Balgo' is not entirely clear. Ryan (1989) asserts it that is derived from the Kukatja term *palku* meaning 'foul wind'.

23 Berndt and Berndt (1960) also make reference to another group, Ngabi, for whom I am unable to provide any further information.

hold land it was located), the Balgo Mission was moved in 1965 under the supervision of Fr. John McGuire (Berndt & Berndt, 1960) to the site of modern-day Balgo.[24] The new mission, completed in 1965, through the labour of local Aboriginal men, developed quickly. Balgo (or 'New Mission' as it was initially called by Aboriginal people) had an administration centre, clinic, school, monastery, teacher's house, church, convent, laundry, boys' and girls' dormitories, a bakery, dining hall, slaughter house, store, workshop and a head stockman's house. The mission, while increasingly more connected to the rest of the country (by both more reliable radio and later an airstrip), was largely self-supporting. It boasted a cattle industry, flocks of sheep and goats, pigs, chickens and gardens. By the late 1960s, the Aboriginal population had reached 300 and, by 1969, 400.

Following the establishment of the DAA (Department of Aboriginal Affairs) in 1972 under the Whitlam government and increasing pressure under federal policy of 'self-determination', self-management became a condition of federal assistance to Aboriginal communities in the early 1980s. Less than 15 years after moving from Old Balgo, the Church was pressured into ceding its land administration to the Aboriginal people in 1983. The new governing body, Wirrimanu Aboriginal Corporation, was officially incorporated on 6 September 1984.

While life in Balgo Mission was inescapably harsh and stories of brutality abound, it is also reflected upon with a certain fondness by many older Balgo residents. During the mission period, Aboriginal people remained fundamentally involved in the productive capacity of the community: they participated in the building of community infrastructure; the management of the mission's livestock (cattle, goats, sheep and chooks), and the growing, harvesting and preparation of food in gardens and the kitchen. Since the closure of the mission and the shifting management of the Balgo community, Aboriginal people have faced a loss of involvement in day-to-day activities which govern their lives. The accompanying onset of welfare dependence also removed Aboriginal people's active involvement in the day-to-day operations of the community.

1.3.5 Post-Mission life in Balgo

Coinciding with the church's loss of influence in the Balgo community, there was a nationwide movement to support Aboriginal people to move back and live on their traditional lands in the late 1970s and into the 1980s. This came to be known as the outstation movement (Peterson & Myers, 2016) and was typified by a widespread push (both on a local level by traditional owners and at a policy level by government) for the establishment of smaller settlements or outstations back on country.[25] For Aborig-

24 Modern-day Balgo lies on Jaru country and is associated with the *Luurn* 'kingfisher' dreaming (*Luurnpa* in Kukatja).

25 'On country' is a term that refers to Aboriginal people being on or living on their own traditional land.

inal people living in Balgo, this resulted in the establishment of Mulan (1979) to the west and Yagga Yagga (1985) to the south. Smaller outstations south of Yagga Yagga were also established at Piparr, Walkali and Lamanparnta around this time. Yagga Yagga in particular transformed into a particularly vibrant outstation – essentially becoming a community in its own right – with a permanent population of 150 residents by 1997 with numbers swelling to as many as 500 as during one period of initiation ceremonies in the early 1990s (Cane, 2016, p. 261). Many Ngardi people lived at Yagga Yagga during this time as it was situated within their homelands (unlike Balgo) and was close to many important cultural sites. Ultimately, however, the occupation of Yagga Yagga was relatively short-lived and its closure in 2005 is described by Cane (2016) as resulting from what he summarises as 'an administration of suffering' (cf. Peter Sutton's *The politics of suffering*, 2011), involving not only systematic mismanagement, but a fundamental lack of interest on the part of governing and administrative bodies to genuinely listen to and respond to the concerns and challenges faced by Yagga Yagga (and Balgo) residents.

In the years since the closure of Yagga Yagga, many Ngardi people have moved back into Balgo or have moved elsewhere throughout the south-east Kimberley or the Northern Territory. Balgo itself has transformed quite dramatically from its days as a Mission settlement where many Aboriginal people lived in makeshift lean-to's made from discarded corrugated iron. Balgo residents are arranged into three main camps: 'top camp' on the eastern edge of town; 'bottom camp' on the western edge of town, near the Mulan road; and (the most recent) *kayili* 'north' camp on the northern edge of town. The modern community retains the Catholic school (Luurnpa Catholic School), the church and the parish house. Gone are the gardens, boys' and girls' dormitories, kitchens and nuns' house. In their place are a conglomerate of buildings and infrastructure set up for external service providers: a clinic, a police station, a council office and post office.

Over the years, Balgo has seen the success and the demise of a highly productive language program (in Kukatja) at the Walkali Centre within the Luurnpa Catholic School. Nevertheless, a number of key individuals in the community remain committed to language teaching in the school both within the school faculty and the community at large. On the eastern edge of the community, near the women's *jilimi* (Law ground), Kapululangu Aboriginal Women's Law and Culture Centre established a women's centre which has served as a multifunctional organisation for nearly two decades. From the 1980s, the development of the Balgo art scene and the incorporation of Warlayirti Artists has played an integral role in the development of the community (Carty, 2011; Dé Ishtar, 2005; Poirier, 2005) and it continues to provide one of the very few income streams outside of Government welfare programs. The Balgo community received a newly renovated store in 2017 and a multi-million-dollar pool opened as recently as 2019. All residents buy all of their food, fuel, power cards (for domestic electricity), appliances and personal possessions from this one store. Small stores are also found in neighbouring Mulan (40 km) and Billiluna (110 km),

but the nearest regional hub is that of Halls Creek (280 km). Balgo families regularly pool their resources to attend personal, social and business trips in the wider region. A number of highly successful artists have even travelled overseas as part of their internationally-recognised careers as artists.

1.3.6 The role of multilingualism: Past and present

To my knowledge there are no monolingual Ngardi speakers today. All remaining Ngardi speakers are fluent in at least three languages. The multilingual status of Ngardi speakers appears to extend into pre-European contact times – oral histories give testament to high degrees of multilingualism being the normative mode of communicative practice. This would have been further fostered due to traditional intermarriage between discrete linguistic groups across the Western Desert (Holcombe, 2004). Many Ngardi speakers recorded over the last 60 years spoke and continue to speak Warlpiri and/or Jaru (Cataldi, 2011, p. 1).[26] Numerous Ngardi people also have long-term connections to Walmajarri people who lived in the vicinity of Paruku (Lake Gregory) and are variously fluent in the variety of Walmajarri still spoken today in Mulan.

By the same token, however, European contact and the fundamental social disruptions to Ngardi people also had a massive impact on how, when and where Ngardi people came to learn additional Aboriginal languages. Ngardi-speaker Tjama Napanangka thus reflects on coming to learn the Kukatja language only after she moved into Balgo Mission:

(7) Nganimpa=rnalu kayirra-ngulu-jankga, wangka-nya-ngurra
1PL.EXCL=1PL.EXCL.S north-ABL-ELA SPEAK-PST-NARR
Ngardi-mipa=lku.
language_name-RESTR=then
'Those of us from the north, we only spoke Ngardi.'

Wakurra=rnalu purda=nya-ngani nganayi-ku. Kula=rnalu=yanu
NEG=1PL.EXCL.S listen=SEE-IPFV.PST whatsit-DAT NEG=1PL.EXCL.S=3PL.O
andasdan=ma-nani-nyirra=rnalu=yanu Kukatja
understand=GET-IPFV.PST-NARR=1PL.EXCL.S=3PL.O language_name
'We did not understand whatchacallem, we did not understand them, the Kukatja.' (TJN: Manungka_02-022027: 2810322_2815198)

Similarly, Bolger (1987) records an oral history of Warlpiri woman Violet Jimpirriya, who grew up on traditional lands away from direct contact with early missions or

26 Tsunoda (1981b, p. 17) reports that Ngardi people working as stockmen at Gordon Downs Station in the 1970s and 1980s also spoke Jaru.

cattle stations but eventually settled at Kurungal (Christmas Creek Station). In this process, she came to learn at least three new languages: Ngardi, Kukatja and Wangkajunga during her movements west across the NT/WA border and north on to the missions and stations of the south-east Kimberley. Prior to contact with *kardiya* she spent some time travelling in Warlpiri and Ngardi country around Mangkayi (Stansmore Range). Eventually, Jimpirriya arrived at Old (Balgo) Mission and, later, Billiluna Station. Here Jimpirriya makes the following comment:

> So we went to the camp and this Billiluna manager asked them to bring us up to the station next morning to give us clothes. So we was living there now in Billiluna. And I started to learn their language, Ngarti. Because when I came from Warlpiri area I was speaking Warlpiri and Ngaripi[27] – two language. But when I came down here to Western Australia I spoke Ngarti, Wangkajunga, Kukatja, that's all I spoke. (Bolger, 1987, p. 110).

Once Ngardi people had come to live at the mission and their patterns of movement across their country slowly decreased, it is clear that the intergenerational transfer of the Ngardi language was dramatically arrested. This was first and foremost due to the forced separation of families – and in particular the segregation of younger generations from older generations. Berndt and Berndt (1960, p. 2) reports on the situation in both the mission and the stations at the time: 'for the youth on the station and in the dormitories, it seems possible that only about 5 to 10% of their time is spent with their parents and relatives in the native camp'. Marie Mudgedell reports that most of the children who grew up in the dormitories in Old Mission were not allowed to see their parents. Cataldi (2011, p. 1) summarises similar reports by the Balgo women with whom she worked. Of great consequence, then, was the fact that the dominant language of the children who were first placed into the dormitory system was a variety of a Western Desert language, which came to be referred to as Kukatja. It was in the dormitory context where many young children shifted from strictly speaking the language of their parents and instead started speaking the language of the first children taken into the dormitories – a communalect which is the basis of modern Kukatja. Marie Mudgedell and Mark Moora both affirmed that they learned Ngardi by spending time with old people (two generations above them), both on country and when 'running away' to live in camps near the stations rather than in the dormitories at Balgo. Patrick Smith likewise learnt Ngardi by spending much of his formative years outside of the mission dormitories with older Ngardi men with whom he worked as a stockman. Within the mission context, however, Ngardi quickly ceased to be spoken as a main language – instead being restricted to small groups for whom it was their first language. Kukatja instead quickly came to predominate as the *lingua franca* among the youngest generations who grew up in the mission dormitories from the late 1950s and early 1960s. The handful of Ngardi speakers who remain – and who

27 This may represent a spelling variant – or indeed a genuine phonetic variant – of Ngardilypa, a Western variety of Warlpiri detailed in Jagst (1975).

contributed intimately to the publication of this grammar – are mostly elderly and spread across the south-east Kimberley and the Northern Territory. The language has not been a primary mode of communication for any significant group of individuals for over a decade and it is not being acquired by children.

It is not the case that the community of Balgo became entirely monolingual within a generation, however. Valiquette (1993, p. 27) cites numerous languages spoken in the community during and preceding his work at the Luurnpa School in the early 1990s, including Ngardi, Walmajarri, Jaru, Warlpiri, Pitjantjatjara, Wangkajunga and Pintupi as well as varieties of English and Kriol. Nearly all of these languages continue to play a role in day-to-day communication and the expression of individuals' identity and place in society today.

1.4 The current grammar

1.4.1 General theoretical approach

The approach taken in the writing of this grammar can be said to broadly fall within the basic linguistic theory framework (Dixon, 1997). This is a descriptive-oriented framework that has emerged through grammatical descriptions (predominantly of Australian Aboriginal languages) with the loosely stated aim of 'describing each language on its own terms'. Rather than being employed as a prescriptive theoretical framework, it has generally been taken up as a general approach to language description that builds on the cumulative analytical expertise of existing grammatical descriptions (Gaby, 2017, p. 22). To that end, the analysis of Ngardi grammar presented here has not been pursued purely in isolation, as if it were being approached as an entirely unique language in an undocumented language family. Rather, typological considerations from related and neighbouring languages frequently played a role in directing research questions, as well as informing and supporting the final analysis. This is an inherent entailment of analysing the grammar of a language since it requires a typological method (see Cristofaro, 2006). An additional aspect of this particular approach to language documentation has been the avoidance of positing formalisms or employing theoretical terminology that would reasonably date the grammar and render it opaque to future readers. One simple way in which this has been pursued has been the use of widely employed glosses and terminology whever appropriate. This approach better allows future linguists to revise existing analyses and make meaningful typological connections.

Lastly, I have endeavoured to furnish the grammar with a generous selection of example sentences, as far as was reasonably possible. I believe this approach both better enables future linguists to assess Ngardi grammar in a manner somewhat independent from my own analytical conclusions, and moreover gives the reader a better sense of the ways in which the Ngardi language is used. However, the reader is cautioned that the corpus of examples in this grammar is by no means a representative

sample of naturalistic speech, nor are the examples a meaningful depiction of the culture, interests or priorities of the speakers that uttered them. The necessities of providing a grammatical description of the whole linguistic system have displaced any attempt to present a truly balanced socio-cultural representation of the language and how it is used across the broadest range of communicative contexts.

1.4.2 Data collection and corpora

The language data which are drawn upon to exemplify the analysis in this grammar primarily originate from corpora compiled by four authors: Tasaku Tsunoda, Tom Green, Lee Cataldi, and me. Where necessary, I refer to these respective corpora as 'Tsunoda's corpus', 'Green's corpus', 'Cataldi's corpus' and 'my corpus'. Table 1 gives some indication of the provenance, content and size of the combined corpus of the Ngardi language. All recordings I made have been deposited with PARADISEC (http://.paradisec.org.au/) (these materials are being processed at time of print). The corpora of Tsunoda, Green and Cataldi are archived with the Australian Institute of Aboriginal and Torres Strait Islander Studies (AIATSIS) (https://collection.aiatsis.gov.au).

My own audio-recordings were made on a Zoom H6 Portable Field Recorder. A variety of microphones were used including an XYH-6 XY microphone module, an MSH-6 Mid-side microphone capsule, and a Rødelink Filmaker kit for wireless recording via a Rødelink LAV lapel mic. In some cases, for example during transcription checking, speakers preferred not to be recorded and, as a result, notes were simply taken in notebooks.

Table 1: Overview of audio corpus of Ngardi language materials (as of 2019).

Authors	Type(s)	Duration (approx.)	Dates collected
Ennever, Thomas	Narratives, grammatical elicitation, dictionary checking	128hrs[28]	2016–2019
Cataldi, Lee; Peter, Sonja	Narratives, procedural texts, dictionary checking, conversational data, ceremonial texts, song sequences	40hr	1990–1991, 2000–2001
Green, Tom	Narratives	1hr	1988
KLRC[29] (various authors)	Explanation of artwork, song sequence, biographical interviews, dictionary checking	1hr	1984, 1989, 1998
Tasaku, Tsunoda	Word list elicitation, narrative text	5hrs	1976

28 The total number of hours given here includes quite substantial periods of silence, conversations in English, and off-topic activity captured during a recording session.

29 Kimberley Language and Resource Centre.

Table 2: Overview of written materials concerning the Ngardi language (as of 2019).

Author	Type	Description	Dates collected
Ennever, Thomas	Masters thesis	Dissertation submitted to the University of Queensland, entitled 'Pronominal and nominal morphology of Ngardi: A Ngumpin-Yapa language of Western Austalia'	2018
Cataldi, Lee and Napanangka, Tjama	Draft dictionary grammatical sketch	Substantial draft dictionary with examples extracted from written transcripts; grammatical sketch	1990–2011
Honeyman, Tom	Honours thesis	Dissertation submitted to the Australian National University entitled 'Topic and Focus in Ngardi', based on Cataldi's data	2000
Wafer, James 'Jim'	Wordlist	A Summer Institute of Linguistics (SIL) wordlist	1980
Green, Tom and Rockman, Peggy	Grammatical notes & wordlist	Transcriptions of two Ngardi narratives; preliminary grammatical notes and a wordlist	1988
Tsunoda, Tasaku	Fieldnotes	Grammatical notes, paradigms, wordlists	1975–1976

The variety of the Ngardi language described in this grammar is a result of providence and availability rather than design. The idiolects represented in Cataldi's, Tsunoda's and my own corpora all converge in likeness to a degree to which they can be confidently considered a single dialect of a single language. That this was appropriate from the perspective of speakers themselves was confirmed by all those with whom I worked throughout 2015 to 2019. The speech of Peggy Rockman (as in Green's recordings) was noted by Ngardi speakers as involving notable mixing of Warlpiri words but these aspects were readily pointed out where appropriate by speakers. The same is true of other mixing practices of Ngardi with English, Kukatja, Walmajarri or Jaru vocabulary in the speech of various individuals.

Since Ngardi is no longer used as a language of daily communication, this work is, in some respects, a salvage grammar in so far as I have attempted to capture the language as it was spoken by the last fluent speakers. My own fieldwork relied heavily on targeted elicitation in a bid to fill remaining gaps in grammatical analysis that were not elucidated from more naturalistic conversational data appearing in earlier recordings of the language. Nevertheless, the small number of speakers with whom I worked were still highly fluent speakers with a strong command of the language; some of them could freely supply extensive narrative texts and respond readily to semi-structured elicitation prompts.

1.4.3 Recording types and methodologies

In this section I extrapolate briefly on the types of recordings created by Cataldi (§1.4.3.1) and myself (§1.4.3.2) – the two largest collections of recordings and those which from which the majority of examples for this grammar are drawn.

1.4.3.1 Lee Cataldi (1990s)

Cataldi's corpus includes a number of different recording genres which can broadly be categorised into three types. First are recordings of unprompted conversation between predominantly Ngardi and/or Kukatja women. For these recordings, Cataldi was absent. A subset of these are conversations recorded while women were playing cards. For reasons of privacy, some of these have been anonymised where appropriate and the associated audio has restricted access within the AIATSIS archive. Second are narrative recordings by a single individual recounting a story (sometimes with input from an additional listener). Cataldi was present during these recordings. Third are a number of elicitation-style recordings in which Cataldi prompts various Ngardi words from Warlpiri as a source language and receives responses from one or two women at a time.

1.4.3.2 Thomas Ennever (2016–2020)

My own corpus involves a number of text types. A large proportion of the corpus involves targeted grammatical and lexical elicitation, generally using English as a source language or, on occasion, Jaru. In addition to direct translation-style elicitation, various non-verbal prompts were used to elicit various aspects of the language. These included various picture-prompted tasks, impromptu directional tasks, and picture-stimulus narration. Supplementing the elicitation-type texts are a number of autobiographical or biographical texts. In addition to the audio corpus, my own corpus includes many notes authored by myself as well as by Ngardi speakers (predominantly Marie Mudgedell), which provide new and revised translations of earlier recordings of the language.

1.4.4 Previous research

The following sections provide a comprehensive summary of previous research into the Ngardi language.

1.4.4.1 Survey studies

The earliest European records of the Ngardi language are in survey studies completed by Michael Terry, Arthur Capell and latter Norman Tindale. These are briefly described in turn.

Michael Terry (1926)

Michael Terry was an Australian explorer, surveyor, prospector and writer. Between 1923 and 1935 he led numerous expeditions throughout inland Australia and later published a number of books describing his experiences (Terry, 1925, 1927, 1931, 1987, among others). Terry (1926) provides a basic list of groupings of Aboriginal peoples from the areas around Gordon Downs Station and Billiluna Station at the terminus of Sturt Creek, which he documented as 'Boonarra' and 'Tchagilin', as highlighted in Table 3.

Table 3: Terry's (1926) lists of Aboriginal groups around cattle stations.

Group	Modern Orthography	Location
Nanaroola		Newcastle Waters
Mootburra	Mudburra	Montijinnie
Wadderman	Wardaman	Dalamere
Loonga		Wyckham
Coorinji	Gurindji	Wave Hill station
Bilinurra	Bilinarra	near Mt Sanford
Mootburra	Mudburra	East of Wave Hill
Manoo	Malngin?	Inverway (station)
Boonarra	Punurra	Flora Valley
Boonarra	Punurra	Halls Creek
Boonarra	Punurra	Gregory's Sea
Tchagilin (language)[30]		Gordon Downs

Terry's locations for the Bunarra overlap significantly with areas associated with Nyininy, Jaru and Ngardi peoples (Tsunoda, 1981b). Further evidence of this correspondence comes from the linguistic material Terry provides in association with the language groups highlighted above. On the basis of the lexical comparanda Terry collected, it appears that 'Boonarra' and 'Tchagilin' groups correspond quite closely with later data collected for the Nyininy dialects associated with the lands around Sturt Creek, Old Flora Valley and Gordon Downs (Tsunoda, 2006) and Ngardi (Cataldi, 2011; Tsunoda, 2006).

Arthur Capell (1940)

In his classificatory study, Capell (1940a, 1940b) provides a basic wordlist of Ngardi that shows close commensurability with the variety of Ngardi recorded about 35 years later by Tsunoda and some 60 years later by Lee Cataldi. Comparanda are presented in Table 4.

30 The term 'Tchagilin' may come from an Eastern Walmajarri or Ngardi word for moon, *jakiliny*.

Table 4: Comparanda of Ngardi wordlists collected by Capell, Tsunoda and Cataldi.

	Capell (1940b)	**Tsunoda (1975–1978)**	**Cataldi (2011)**
man	*ŋarga*		*ngantany, ngarrka*
woman	*gandar*	*garnrda(rr)*	*ngaringka*
head	*wa:lu*	*walu*	*wirrkirl, waluwarnu*[31]
eye	*milba*	*milba*	*milpa*
nose	*mulju*	*mulyu*	*mulyu*
mouth	*lira*	*lirra*	*lirra*
tongue	*djälaṉ*	*jalany*	*jalany*
stomach	*dja:la*	*jala*	*jarla*
bone	*gidji*	*giji*	*kiji*
blood	*djugän*	___	*jukan*
kangaroo	*djädji*	*jaji*	*jaji*
opossum	*djaŋana*	___	*jangany*[32]
emu	___	___	
cry	*djäŋilga*	*lungan*	
fly	*ŋurin*	___	*nguriny*
sun	*bṛaŋu*	*burangu*	*purangu*
moon	*jagan*	*jagiliny, yagarn*	*yakarn*
fire	*waḷu*	*warlu*	*warlu*
smoke	*gundjuru*	*nguriny*[33]	*kunjuru*
water	*ŋaba*	*ngaba*	*ngapa*

Norman Tindale (1952–1954)

In his expedition through north-western Australia, Norman Tindale (1954) collected a 180-item Swadesh wordlist of Ngardi along with materials from 30 other tribes of the region. He also worked with Ngardi people and collected some anthropological notes while on his expedition to Haasts Bluff (Tindale, 1956).

1.4.4.2 Preliminary descriptive work

Kenneth 'Ken' Hale (1967)

Ken Hale made a short recording (of approximately 12 minutes) with Murray Japangardi in 1967 at Yuendumu. This audio file is archived at AIATSIS.

31 'Woman's headdress'.

32 Desert brush-tail possum, *Trichosurus vulpecula vulpecula*.

33 The variant *gunyjuru* was collected at Sturt Creek and is also used by Patrick Smith.

Tasaku Tsunoda (1975–1976)
Tasaku Tsunoda made a number of recordings of Ngardi speakers in the course of his fieldwork with Jaru speakers. Much of his work was undertaken on various cattle stations in the southern Kimberley, including Gordon Downs, Nicholson and Sturt Creek stations. His combined corpus includes material on Wanyjirra (see Senge, 2015), Malngin (see Ise, 1999), Nyininy, Ngardi and Warlpiri. His fieldnotes from 1975–1976 include various grammatical notes for all these languages as well as comparative pronominal, nominal and verbal paradigms. Tsunoda's audiofiles and fieldnotes have been archived with AIATSIS.

Jim Wafer (1980)
Jim Wafer interviewed a number of Ngardi speakers at Balgo in September of 1980. During this time, he elicited the 'Wordlist for Australian Aboriginal Languages' devised by SIL and collected some basic ethnographic information. Wafer worked with Charlie Jakamarra Gordon, Tomato Japangardi Gordon and Sandy Jupurrula (Wafer, 1980). Wafer's materials are archived with AIATSIS.

Matthew Wrigley (c. 1990)
Matthew Wrigley recorded a wordlist with Popeye Jangala, Tchooga Napurrurla and Josephine Tchooga entitled 'Ngarti/Bunarra' while working with the Kimberley Language and Resource Centre (Halls Creek). This wordlist has been archived with AIATSIS.

1.4.4.3 Descriptive work

Thomas Green (1988)
Thomas Green collected some basic linguistic materials on Ngardi while working with Peggy Rockman Napaljarri at Lajamanu in August of 1988. Green compiled an impressive set of preliminary grammatical notes and a wordlist (Green, 1988), all of which are archived with AIATSIS.

Lee Cataldi (1990–2011)
Lee Cataldi continued to work with Peggy Rockman after Tom Green and also worked with a number of other Ngardi women at Wirrimanu (see list of contributors, §1.4.5). Cataldi conducted much of her elicitation work in the Warlpiri language, and was also involved in significant documentation of Warlpiri oral histories (Napaljarri & Cataldi, 1994). Much of the Ngardi language work was done in collaboration with Michelle McKenzie and Sonja Peter as part of the Manungka Manungka Association (the predecessor of the present-day Kapululangu Women's Centre). Tjama Napanangka in particular is credited by Lee with the development of the Ngardi dictionary manuscript. Cataldi's sketch grammar in the foreword of the dictionary

provides essential information on the nominal, pronominal and verbal systems of Ngardi. A preliminary analysis of the case system is present and there is discussion of similarities between Ngardi and Warlpiri and/or the Ngumpin languages. Significantly, Cataldi's corpus includes a number of narrative texts, conversational data, and lexical elicitation for the dictionary. The current version of the dictionary was compiled in 2011 and contains a grammatical foreword (Cataldi, 2011). Cataldi's corpus is archived at AIATSIS and includes both audio files and a selection of text files. An electronic copy of Cataldi (2011) *A dictionary of Ngardi* is available online via the University of Sydney e-Scholarship repository (https://ses.library.usyd.edu.au/handle/2123/21407) as of 2021.

Tom Honeyman (2005)
Tom Honeyman completed an Honours thesis investigating the placement of the pronominal clitic complex in the Ngardi clause according to information structure principles (Honeyman, 2005). Honeyman's data comes exclusively from the Cataldi corpus.[34]

1.4.5 Ngardi language experts and contributors

In this section I describe the contribution of Ngardi speakers[35] either in groups or as individuals, organised by their method of involvement with the knowledge and analyses presented in this grammar.

Tjama Freda Napanangka [TJN] †, Kuninyi (Rita) Nampijijin †, Nanyuma Napurrurla [NMN] †, Patricia Lee Napangardi [PLN] †, Yinjuru Margaret Anjule (Bumblee) Napurrurla [YMN] †, Mungkirna (Dora) Napaljarri [MDN]†, Damper Nampijin [YDN] †, Maatingali (Maati) Bridget Mudgedell Napanangka [MMJ] †, Martingali (Maudie) Nungurrayi [MMN] †, Payi Payi Napangardi [PPN]
All of these women worked closely with Lee Cataldi in the recording and documentation of Ngardi language. Many of them were also central to the development of the book *Yarrtji: Six Women's Stories from the Great Sandy Desert* in collaboration with Pamela Lofts and Sonja Peter (Napanangka et al., 1997). Tjama, in particular, is credited with much of the work that went into the Ngardi dictionary manuscript, providing translations, transcriptions and elucidating points of difference between Ngardi and surrounding languages. The considerable work of these women culminated in the first edition of the Ngardi dictionary (Cataldi, 2011). Of the ten women, I had the pleasure

34 Honeyman was also involved with the digitisation of the dictionary and the interlinearisation of some transcripts.
35 The symbol † is used to indicate those who, at the time of publication, have passed away.

of meeting only Payi Payi Napangardi. She listened to and commented on a number of old Ngardi recordings which I played back to her for translation checking on my trips to Balgo between 2017 and 2019.

Peggy 'Yalurrngali' Rockman Napaljarri [PRN]
Peggy Rockman was first involved in the documentation of Ngardi with Tom Green in 1988. From 1992, she worked closely with Lee Cataldi in the recording, transcription and translation of Ngardi texts made by Ngardi speakers between (1989–1992) with the assistance of Michelle Mckenzie. Rockman was also heavily involved in related Warlpiri language work as part of the Yimikirli Project, resulting in the publication of *Yimikirli: Warlpiri Dreamings and histories* (Napaljarri & Cataldi, 1994). Many of the oral histories collected by Rockman and Cataldi were recorded in varieties of Warlpiri (Ngaliya, Warnayaka) but also in Ngardi, Kukatja, Walmajarri and Gurindji. A highly respected Law woman, Rockman – along with her sisters – was instrumental in securing the success of the Tanami Downs Land Claim (Olney, 1992).

Spring Creek Mick [SCM] †, Jack Langgamarru [TJL] †, Jack Lightning [JLI] †, Yarduwuju 'Saamy' Jantujukurr [DJD] †
All of these men were Ngardi speakers and recorded aspects of their language(s) during the 1970s with Dr Tasaku Tsunoda, both at Nicholson Station and at Halls Creek. I later also worked with the daughter of Jantujukurr – Marie Gordon.

Tommy Skeen [TSK] †, Millie Skeen [MSK] †, Sambo Gordon [SGO] †
Sambo Gordon recorded a little of the Ngardi language with linguist Joe Blythe in August of 1998. Later in August, Millie and Tommy Skeen also made some short recordings in Ngardi with Joe Blythe, detailing their artworks.

Marie Mudgedell [MMN] and Patrick 'Jupiter' Smith [PSM]
Marie Mudgedell has been involved with documenting and teaching language for nearly three decades. She assisted with the translation of a number of Ngardi texts collected by Sonja Peter and Lee Cataldi and is credited with Ngardi and/or Kukatja translations in a wide range of published formats including the book *Yarrtji: Six Women's Stories from the Great Sandy Desert* (Napanangka et al., 1997), the film *Tjawa Tjawa* (Moora, 2015) and in numerous other capacities through the local school (Luurnpa Catholic School), the women's centre (Kapululangu), the art centre (Warlayirti Artists) and the local church. Mudgedell is an accredited Kukatja translator and has previously worked as a Kukatja language teacher in the former language department at the local Luurnpa Catholic School (the Walkali Centre). In addition to her involvement in language documentation and education, Mudgedell is also a prominent Law woman and has played an increasingly central role within Kapululangu Woman's Centre.

Marie Mudgedell speaks five languages: Ngardi, Kukatja, (Sturt Creek) Jaru, Eastern Walmajarri and English.

One of the most senior men in Balgo, Patrick 'Jupiter' Smith is a stockman and a horse-handler. Despite being quick to profess that he never went to school, Jupiter holds an incredible wealth of linguistic and cultural knowledge. He has fluent command of at least eight languages: Ngardi, Jaru (Sturt Creek), Kukatja, Walmajarri (Billiluna/Mulan), Gurindji, Pintupi, Warlpiri and English. Jupiter spent much of his life working on cattle stations throughout the south-east Kimberley and the Northern Territory, and later helped the Mahood family set up their cattle station at Tanami Downs. Jupiter's insights into the richness of expression within the Ngardi language and his ability to translate across multiple languages has greatly influenced the depth and richness of the analysis able to be presented in this work.

The vast majority of my time in Balgo throughout 2016–2020 was spent working with both Marie Mudgedell and Patrick Smith. This work is a testament to their commitment to language documentation.

Kathleen 'Mayan' Padoon † [KPA]

I was lucky enough to work briefly with Kathleen 'Mayan' Padoon from 2017. Marie Mudgedell and I recorded an autobiographical piece for her in Ngardi as a complement to her art installations exhibited at DESART 2017. Mayan was an important Ngardi Law woman and a leading figure in the Manungka Manungka Women's Association (later Kapululangu). She recorded Ngardi language and traditional songs and ceremonies for her country – Ngantalarra – both with Lee Cataldi in the 1990s and then again with me in 2017. Later in her life Mayan became a very successful artist – in 2019 she had a solo exhibition 'Nakarra Nakarra' at Alcaston Gallery in Melbourne.

Irene Padoon [IPN]

Irene Padoon is one of the daughter's of Kathleen Padoon. She assisted me with Ngardi translations in 2018 and 2019. A speaker of at least four languages (Kukatja, Walmajarri, Jaru and Ngardi), Padoon helped generously with Ngardi dictionary and elicitation work throughout 2018 and 2019.

Popeye Tchooga [PJA]

Popeye Tchooga is a speaker of Ngardi, Jaru, Warlpiri and English. He has worked with many linguists including Lee Cataldi (documenting Warlpiri), Matthew Wrigley (documenting Ngardi) and, more recently, Josua Dahmen (documenting Jaru). His contribution to Ngardi language documentation were recordings made as part of a wordlist project conducted by the Kimberley Language and Resource Centre. Tchooga's country is associated with the northern areas of the Tanami Downs Land Claim.

Bonnie Seela [BSE]
Bonnie Seela is a speaker of Jaru, English, Ngardi and some Kukatja. She worked with Marie Mudgedell and me in Balgo in 2018. Seela has also recently been involved in the documentation of the variety of Jaru spoken at Yaruman (Ringer's Soak) with the linguist Josua Dahmen.

Mark Moora † [MAM]
Mark Moora was a senior Ngardi Law man for Ngururrpa country. Brother to Payi Payi Napangardi, Moora was born near Emily Springs, south of Balgo on Ngardi country. He was a speaker of Kukatja, Ngardi and English and has been an immensely important figure in not only native title work (Cane, 2006; *Payi Payi & Ors on behalf of the Ngururrpa People v the State of Western Australia*, 2007), but was also a driving figure in the establishment of the outstation at Yagga Yagga (Cane, 2016). Moora has been involved in the documentation of cultural knowledge over many years through the due process of native title work as well as heritage documentation work in land surveys. More recently he was also involved with the documentation of songs, stories and cultural knowledge (Lempert, 2018; Moora, 2015). Moora initially recorded some Ngardi language in 2016 during my first fieldtrip to Balgo and later helped check the accuracy of place names throughout 2017–2019.

Barbara Sturt [BST]
Barbara Sturt grew up around Flora Valley, Sturt Creek and Gordon Downs Stations. She is a speaker of Jaru, English and some Ngardi. Sturt has been involved in the documentation of the Jaru language for some years (e.g. the Jaru ethnobiological dictionary (Deegan et al., 2010)) and assisted with Ngardi translation and recording in 2017 in Halls Creek where she lives. Barbara was also a central member of the successful Jaru Native Title Claim (*Sturt on behalf of the Jaru Native Title Claim v State of Western Australia*, 2018).

Marie Gordon Munyumunyu [MGO]
Marie Gordon is a Ngardi, Jaru, Kukatja and English speaker, and daughter of Jantujukurr. Gordon and her late husband, Jack Gordon, helped record some Ngardi in Billiluna and assisted in dictionary elicitation, in 2018 in Balgo.

Biddy Timbinah [BTI]; Nelly Gordon [NGO]
Biddy Timbinah and Nelly Gordon are both multilingual Ngardi speakers. I visited them in Kununurra with Marie Mudgedell and Patrick Smith. We discussed the Ngardi dictionary project and both shared brief stories (recounted in Ngardi) of their early lives. Marie Mudgedell and I translated their stories.

1.4.6 Example sentences

Example sentences in this grammar are numbered sequentially. Examples are glossed according to the conventions laid out by the Leipzig Glossing Rules (Comrie et al., 2008), where practicable. Examples are arranged with Ngardi orthography on the main line, glossing on a second line, followed by an English translation (typically my own) on a third line. On occasion, I have found it helpful to include either an alternative translation or a speaker's own translation verbatim on a fourth line. Speaker's translations are enclosed in double quotations " . . . ". The source of each example utterance is provided in brackets at the end of the entry, following the English translation. This citation includes information about the speaker (see the three letter codes in §1.4.5), the corpus and year, the session or filename and the timestamp of the utterance (in milliseconds).

Example citation from my corpus:

(MMN:	TEN1-	2019_	032-01:	3040_9090)
Speaker	Corpus	Year	Session + subsession	Time

References to examples cited from materials sourced from Cataldi's, Tsunoda's or Green's corpus are slightly different. The main parameters of variation are that the year is not necessarily included in the filename and the session numbers differ somewhat.

Example citation from the Cataldi corpus:

(TJN:	LC	21	3040_9090)
Speaker	Collector	Filename	Time

Example citation from the Tsunoda corpus:

(PJA:	TT76_	2501	3040_9090)
Speaker	Collector + year	Filename	Time

Some examples do not come directly from audio-linked corpora but instead are sourced from Lee Cataldi's (2011) *A dictionary of Ngardi*. Examples are cited with relevant page number and speaker codes (where known). The dictionary is available online via the University of Sydney e-Scholarship repository (https://ses.library.usyd.edu.au/handle/2123/21407) as of 2021.

1.4.7 Overview of topics covered

Chapter 2 describes the phonetics and segmental phonology of the language. This includes the description of the phoneme inventory, its orthographic representation, and the range of allophones available to each phoneme. Some limited phonological and morphophonological processes are described. The chapter also includes a description of the structure of the word – including syllable structure, stem structure, positional constraints on phonemes, and permissible consonant clusters. The chapter concludes with a preliminary analysis of lexical stress and a description of select intonational patterns.

Chapter 3 introduces the structure of the noun phrase and surveys the derivational and inflectional morphology relevant to the nominal word class. The bulk of the chapter subsequently deals with the various forms and functions of the Ngardi case system.

Chapter 4 details the various nominal subclasses in Ngardi: quantifiers (including numerals), demonstratives, ignoratives, free pronouns, directionals, locational and temporal nominals, action nominals, and kin terms.

Chapter 5 introduces the system of pronominal enclitics or 'bound pronouns'. This chapter describes the forms and functions of the bound pronouns, particularly with respect to their role in marking core grammatical relations which are further described in Chapter 8. Additionally, there is discussion of the positioning of bound pronouns within the clause and an analysis of the complex morphology involved with the realisation of multiple bound pronouns.

Chapter 6 deals with morphosyntax of the verbal domain. This chapter establishes the two major classes of verbal words in Ngardi: the preverb and the verb. The subsequent focus is on the inflectional categories encoded by the inflecting verb: namely Tense Aspect Mood (TAM), as well as directional and associated motion inflections.

Chapter 7 focuses on the formation of complex predicates. This includes a discussion of both serial verb constructions (SVCs) and complex verb constructions (CVCs). The bulk of the chapter deals with the latter since CVCs are one of the most common predicate types. CVCs are described in terms of their constituent members, which can variously include a range of different types of preverbs (uninflecting verbal elements) but also the use of nominals and Kriol origin verbs. This chapter also incorporates an event semantic analysis of the reduced set of inflecting verbs in Ngardi which are 'productive' in the formation of CVCs.

Chapter 8 examines various simple clause structures. Language-specific definitions for grammatical relations are provided, and clause types are divided according to their valency (avalent, monovalent, bivalent and trivalent) and categorised with respect to their case-marking and pronominal argument properties. This analysis helps to chart canonical clause types (e.g. intransitive, transitive, ditransitive)

but also helps elucidate non-canonical variations (e.g. existential, copula, semi-transitive, semi-distransitive, etc.).

Chapter 9 presents a range of modal and propositional particles and enclitics which can be used to further modify a simple clause. Due to the function of these particles, this chapter deals with such constructions as negation, the formation of commands, and other modal constructions.

Chapter 10 moves on to syntax beyond the simple clause and examines the way in which complex clauses are formed. This includes a discussion of finite and non-finite subordination, as well as types of coordination, involving both coordinators and asyndetic phenomena.

2 Phonology

This chapter provides an overview of the phonetics and segmental phonology of Ngardi. The segmental inventory (§2.1), working orthography (§2.1.1) and minimal pairs/tuples illustrating phonemic contrasts (§2.1.2) are described. The range of allophones associated with each phoneme is presented in §2.2. Ngardi exhibits only a small number of phonological processes (§2.3) and some lexically restricted morphophonological processes (§2.4). The structure of the word is covered in §2.5 and includes discussion of syllable (§2.5.1) and stem (§2.5.2) structure; positional constraints on phonemes within words (§2.5.3) and permissible consonant clusters (§2.5.4). Some preliminary description within the prosodic domain is provided, in terms of lexical stress (§2.6) and intonation (§2.7).

In describing the phonology of Ngardi, I have attempted to focus on presenting known variation in the phonetic data. While the overall phonological system is not notably distinct from many languages within the Ngumpin-Yapa subgroup the phonetics of these languages are largely undescribed. The description of Ngardi phonetics that follows involves primarily qualitative and impressionistic observations and so brings the usual limitations. Nevertheless, I hope it serves to provide a fruitful starting point for future research by focussing on observable phonetic variation underlying the phonological system (Gasser & Bowern, 2014).

2.1 Segmental inventory

The inventory of consonant phonemes in Ngardi is set out in Table 5. The descriptive labels assigned to manner and place follow standard Australianist practice. The IPA symbol conveys a typical realisation of the phoneme. An exception is the series of plosives for which the voiceless IPA symbols alone are used. Orthography is enclosed in single quotation marks ‘ . . . ’.

Table 5: Ngardi consonant phonemes.

	Apical		Laminal	Peripheral	
	Alveolar	**Retroflex**	**Prepalatal**	**Bilabial**	**Velar**
Plosive	/t/ ‘t’	/ʈ/ ‘rt’ ‘rd’[36]	/c/ ‘j’	/p/ ‘p’	/k/ ‘k’
Nasal	/n/ ‘n’	/ɳ/ ‘rn’	/ɲ/ ‘ny’	/m/ ‘m’	/ŋ/ ‘ng’
Lateral	/l/ ‘l’	/ɭ/ ‘rl’	/ʎ/ ‘ly’		
Tap/trill	/r/ ‘rr’				
Approximant		/ɻ/ ‘r’ ‘rd’	/j/ ‘y’	/w/ ‘w’	

36 For discussion of orthographic ‘rd’ see §2.1.1

https://doi.org/10.1515/9783110752434-002

The distinction between apico-alveolar /t, n, l/ and apico-retroflex /ʈ, ɳ, ɭ/ consonants is neutralised word-initially (see §2.5.3.1.1). Initial apicals are most frequently alveolar and the phonemic neutralisation is rendered with the non-retroflex series /t, n, l/. However, some lexemes are readily perceived with both alveolar and retroflex articulations; for example, /tuʈ/ 'break' is heard both as [t̪uʈ] and [tuʈ]. Yet other lexemes are produced consistently with quite deliberate word-initial retroflexes: /taka/ [ʈaka].[37] This topic is therefore in need of further investigation. Orthographically, I follow the mainstream Australianist practice of using 't' and not 'rt' for initial apicals; i.e. *turt* not *rturt*. Where it is necessary to phonetically represent initial apicals, I do so based on my own impressions; however, I make no further claims as to the phonetic nature of the neutralisation.

The inventory of vowel phonemes is set out in Table 6. Ngardi distinguishes three vowel qualities (/i, a, u/), each of which makes a phonemic length distinction /iː, aː, uː/.

Table 6: Vowel inventory.

	Front	Back
High	i, ii	u, uu
Low	a, aa	

Vowel length has a very low functional load in Ngardi and minimal pairs with short vowels have only been identified within initial syllables of words. This positional constraint on a vowel length contrast is widespread in Australia and found in related languages Warlpiri (Ngumpin-Yapa) (Nash, 1986), Pintupi (Hansen & Hansen, 1969) and Wangkajunga (Jones, 2011, p. 23) (Western Desert); but also further afield in such languages as Arabana-Wangkanguru (Hercus, 1994), Yukulta (Keen, 1983) and Djambarrpuyŋu (Jepson, 2019).

2.1.1 Practical orthography

The practical orthography used here is adopted from Cataldi (2011) and was developed in collaboration with the Ngardi speakers – specifically through consultation with Patricia Lee Napangardi. It closely follows the Warlpiri orthography and generally follows the voiceless series of IPA symbols *p*, *k*, *t*, *rt*, *j* for plosives /p, k, t, ʈ, c/.[38] The orthography follows many well-established conventions for Australian languages

37 These observations for initial apicals parallel very closely the observations made by Senge (2015, p. 80) for Wanyjirra and Tsunoda (1981b, p. 37) for Jaru.

38 As is common in the orthographies of many Australian Aboriginal languages, the palatal plosive /c/ is represented with '*j*' and the semivowel /j/ with '*y*'.

(Dixon, 1980) – including the use of digraphs for three retroflex segments: *r* followed by the corresponding apico-alveolar series (*t*, *n*, *l*), i.e. *rt*, *rn*, *rl* (see the note on initial retroflexes in the preceding section). The retroflex approximant /ɻ/ is represented by a single *r* while the symbol *rr* is used for the apico-alveolar tap/trill /ɾ/. Two other digraphs are used for palatal articulations: *ly* /ʎ/ and *ny* /ɲ/.

When representing consonant clusters involving two retroflexes, only a single r-digraph is used on the left edge of the cluster. For example, /paɳʈa/ 'the top' is rendered as *parnta* and not *parnrta*. For palatal nasal + plosive clusters, no evidence for a clear contrast between homorganic /ɲc/ and heterorganic /nc/ clusters has been found. While it is possible to identify differences in articulation between types of clusters, the present work makes use of Cataldi's (2011) orthography which does not disambiguate the clusters orthographically, i.e. *nj* is generally used for both /ɲc/ and /nc/. This approach is consistent with orthographic conventions for Warlpiri (see Nash, 1986, p. 10) but differs from those for most Ngumpin languages. An exception to this rule is the segmenting of multimorphemic words where a retroflex or palatal cluster is formed across a morpheme boundary. In these contexts, the two segments are both rendered as digraphs and are separated by a hyphen: e.g. *lamparn-rtu* /lampaɳ-ʈu/ 'child-ERG', and *parntany-ju* /paɳʈaɲ-cu/ 'old_woman-ERG'.

A single complicating factor in the Ngardi orthography is Cataldi's (2011) orthographic decision to distinguish *r*, *rt* and *rd* in the Ngardi dictionary.[39] Cataldi posits that *rd* is not a phonemic flap as in Warlpiri but is simply a 'voiced' retroflex plosive for which she heard 'consistent differences in voicing properties from *rt*'.[40] Orthographic *rd* is only found word-medially in Cataldi's materials and no claim is made to a contrast outside intervocalic positions. Inspection of the data has revealed that there is significant intra- and inter-speaker variation in the pronunciation of lexemes containing Cataldi's *rd*. Generally speaking, however, Cataldi's *rd* can be assigned phonemically to either i) a retroflex glide /ɻ/ or ii) a retroflex stop /ʈ/. Both phonemes appear to have possible realisations as retroflex flaps [ɽ], for some speakers.

i) /ɻ/ as [ɻ] or [ɽ]
purda
/puɻa-/ [puɽa], [puɻa]
'hear'

39 Green (1988) similarly transcribes Ngardi using 'rd' but worked from the assumption that the phoneme inventory of Ngardi was identical to Warlpiri and possessed phonemic flaps.

40 The phonetic realisation of intervocalic /ʈ/ is typically voiced [ɖ] and hence Cataldi's proposal that there are consistent voicing differences between graphemes 'rt' and 'rd' does not hold up to scrutiny.

ii) /ʈ/ as [ʈ], [ɖ] or (less commonly) as [ɽ]
kardu
/kaʈu/ [kaɖu], [kaɽu]
'wife'

In the present work, I retain the use of *rd* for consistency with Cataldi (2011), barring one exception. In cases where *rd* only corresponded to a plosive in the data (without observed flapped articulations) these have been transposed to orthographic '*rt*' in the present grammar. All other usages of '*rd*' which occur in lexemes that show clear alternations with a flap have been retained. The nature of retroflex flapping is a highly interesting one in Ngardi and flaps arguably have a near-phonemic status for some speakers – a topic which warrants further instrumental investigation.

Setting aside the use of '*rd*', the Ngardi orthography is otherwise identical to that used for Walmajarri, Gurindji, Malngin, Warlmanpa and Warlpiri. Orthographies of other Ngumpin-Yapa languages are distinguished by the use of a 'voiced' series of graphemes for the plosives (*d*, *rd*, *b*, *g* as opposed to *p*, *t*, *rt*, *k*). This is the case for Jaru, Wanyjirra, Bilinarra and Mudburra.

2.1.2 Minimal phonemic contrasts

This section presents minimal (or near minimal) pairs and tuples that illustrate phonemic contrasts among consonant (§2.1.2.1) and vowel phonemes. Contrasts are presented primarily in intervocalic positions only for reasons of space.

2.1.2.1 Consonantal contrasts

Place contrasts are initially shown between the five places of articulation for plosives (Table 7) and nasals (Table 8).

Table 7: Place contrasts among the plosive consonants.

	/t/	/ʈ/	/c/	/k/
/p/:	pan**p**a – pantaɳi 'slow' – 'FEEL.PST'	wa**p**ira – wa**ʈ**i 'father' – 'collarbone'	**p**iʎki – **c**iʎki 'mud' – 'seed'	pa**p**ar – pa**k**ar 'mistake' – 'thorny'
/t/:		ŋa**t**i – ŋa**ʈ**i 'mother' – 'language name'	**t**aka – **c**aka 'hand' – 'bum'	pa**t**a – pa**k**a 'fall' – 'prickle'
/ʈ/:			wi**ʈ**i – wi**c**i 'naked' – 'lizard sp.'	pu**ʈ**aya – pu**k**a 'bettong' – 'rotten'
/c/:				ŋar**c**a – ŋar**k**a 'enough' – 'comprehend'

Table 8: Place contrasts among the nasal consonants.

	/n/	/ɳ/	/ɲ/	/ŋ/
/m/	ŋa**m**a – ŋa**n**a 'mother' – 'who'	ŋga**m**a – ŋa**ɳ**a 'mother' – SEQ.AUX.1SG.S	**m**aɳa – **ɲ**aɳa top. AUX.1SG.S – 'deep'	**m**uɲcu – **ŋ**uɲcu 'toothache' – 'tobacco'
/n/		pi**n**a – pi**ɳ**a 'understand' – 'nectar'	pi**n**a – pi**ɲ**a 'understand' – HIT.PST	ya**n**i – ya**ŋ**i 'GO.PST' – 'one'
/ɳ/			ka**ɳ**a – ka**ɲ**a EMPH. AUX.1SG.S – CARRY.PST	pu**ɳ**uŋgka – pu**ŋ**uŋkaɭa 'tree-LOC' – HIT.INF.SEQ.LOC
/ɲ/				**ɲ**aɳa – **ŋ**aɳa 'deep' – 'SEQ.AUX.1SG.S'

No minimal pairs for alveolar and prepalatal nasals /n, ɲ/ have been observed in a prepalatal plosive /c/ context. As mentioned in §2.1.1, I generally follow Cataldi's (2011) orthography and representing all nasal + palatal plosive clusters as 'nj'.

The following examples show contrasts between liquids and apical plosives (8), and between semivowels and plosives (9).

(8) Contrasts between liquids and apical plosives
/r, l, t/
mu**r**u – mu**l**u – mu**t**u
'reverse' – 'this one' – 'red ochre'
/ɾ, ɻ, l, t, ʈ,/
ŋa**r**iɳi – ŋa**ɻ**i – ŋa**l**i – ŋati – ŋa**ʈ**i
TELL.PST – 'belongings' – 1DU.INCL – 'mother' – 'language name'
/ɻ, ɭ, t/
wi**ɻ**i – wi**ɭ**iɲ – wi**ʈ**i
'floodout' – 'backbone' – 'naked'
/ɻ, l, t/
ki**ɻ**a – ki**l**a – ki**t**a
'big' – 'dead bullock' – 'outside'
/r, ɻ/[41]
ka**r**u – ka**ɻ**u
'creek' – 'wife'

41 The phonemes /r/ and /ɻ/ do not contrast word-initially, since the apical alveolar /r/ does not occur word-initially.

(9) Contrasts between semivowels and plosives
/j, w, c/
jaɻu – **w**aɻujani – **c**aɻu
'slowly' – 'climb_GO.PST' – 'talk'
/w, p, k/
ɻa**w**a – ɻa**p**a – ɻa**k**a
'underground' – 'headache' – 'hand'

There is only limited evidence for a contrast between the retroflex approximant /ɻ/ and the initial apico-alveolar plosive /t/. A putative minimal pair is /ɻuwaɻuwa/ 'urine' – /tuwa/ 'store', where the latter is a recent English borrowing. Nevertheless, many /ɻ/ initial words in Ngardi exhibit a phonemic alternation /ɻ/ ~ /t/, for example /ɻaka ~ taka/ 'hand, five' (and see §2.3.3). Many /ɻ/-initial words in Ngardi are cognate with flap-initial words in Western Warlpiri, or /ɽ/-initial words in Eastern Warlpiri.

2.1.2.2 Vowel contrasts

Phonemic contrasts amongst the three vowels in word-initial and word-final syllables are presented in Table 9.

Table 9: Contrasts between /i/, /u/ and /a/.

Word-initial σ	Word-final σ
/i, u/	
k**i**ta – k**u**ta 'outside' – 'short'	paŋk**i** – paŋk**u** 'awake' – 'cross cousin'
/i, a/	
p**i**ŋki – p**a**ŋki 'cave' – 'awake'	pak**i** – pak**a** 'wagon' – 'thorn'
/a, u/	
k**a**nci – k**u**nci 'leg' – 'bauhinia tree'	punt**a** – punt**u** 'promised spouse' – 'clean'

There is some limited evidence for a phonemic contrast between short and long vowels in Ngardi. Minimal pairs exist for /u, u:/ and /a, a:/ and are shown in (10). No clear examples have been identified for /i, i:/. I treat phonemic long vowels as bimoraic rather than as a sequence of two vowels.[42] This helps capture the categorical absence of a sequence of two phonemic vowels of different qualities; *ia, *ua, etc.

42 Note, however, that phonemically long vowels are written as a sequence of two graphemes, e.g. /a:/ 'aa'.

(10) Contrasts between short and long vowels
/u, uː/
p**u**ɻa – p**u**ːɻa
'bush tomato' – 'bush potato'
/a, aː/
k**a**ɻa – k**a**ːɻa[43]
'saltwater' – 'east'

The analysis of phonemic vowel length affects the wording of the rule of allomorphy particular to the ergative and locative cases, namely, that it is sensitive to the moraic count of vowel-final stems rather than the syllabic count. Bimoraic stems take one allomorph while trimoraic or longer stems take another as illustrated with the locative allomorphy in Table 10 (see §4.5.3 for details).

Table 10: Metrically-conditioned allomorphy of the locative case.

Stem	Locative allomorph
/cuwa/ 'carrot'	*-ŋka*
/puːɻa/ 'yam'	*-ɭa*
/luwaɲca/ 'coolamon'	*-ɭa*

Phonetic long vowels also occur as realisations of vowel-glide-vowel sequences both morpheme internally as well as across morpheme or word boundaries. These are discussed in (§2.2.4.1). There is of course the question of whether or not long vowels can be analysed as underlying vowel-glide-vowel (VCV) sequences where C is a glide that shares place of articulation with the neighbouring vowel, for example [iː] as /iji/. A long vowel analysis is preferred for the following reasons:

i) There are some (admittedly limited) instances of (near-)minimal pairs (§2.2.4.1).
ii) True phonemic long vowels are *never* realised as vowel-glide-vowel sequences even when uttered in citation contexts.
iii) Certain phonemic vowel-glide-vowel sequences never show variation (i.e. /naja/ [néjɐ] but *[néːj]).
iv) For those lexemes in which /aː/ is implicated, not only is there no acoustic trace of a glide; but it is further unclear whether it should be assigned to /j/, /w/ or even /ɻ/ at the phonemic level since none of the semivowels have quite the same co-articulatory relationship to /a/ as they do to /i/ or /u/.

43 While used by some Ngardi speakers, this is possibly a Jaru borrowing. The typical Ngardi form is /kakara/.

Nevertheless, the marginal status of phonemically long vowels is also reflected by their uneven distribution within the lexicon. Phonemically long vowels predominate in lexemes within the class of preverbs (11). Where phonemic long vowels appear within the class of nominals, they are largely restricted to animal or plant terms (12).

(11) caː- ‘agape’
ji:ʎ ‘desperate’
raː- ‘clean’

(12) kaːŋka ‘crow’
wiːɲ-wiɲ ‘grey falcon’
taɭkaːri ‘mountain devil’
jatalaːri ‘mountain devil’
paɭaːɳ ‘turtle’

Long vowels are also found fairly frequently in English-derived loan words, likely as a means of retaining the phonetic features of the source language:

(13) tiːpiri ‘billycan’ (literally ‘tea thing’)
kuːl ‘school’
caːpala ‘prickle’ (from the English ‘sharp fellow’)

2.2 Allophonic variation

In this section, the common phonetic realisations of phonemes are described. Wherever possible I provide specific examples from the corpus which instantiate the allophonic pattern being described. However, in some cases where an allophonic rule is of a sufficiently general nature, the data is abstracted away from.

2.2.1 Plosives

Oral stop inventories of Australian languages can be categorised as to whether they make one or two place distinctions for plosives made with the tongue apex (apicals) and the tongue blade (laminals) respectively. Ngardi is a ‘double-apical’ /t/, /ʈ/ but single laminal /l/ language and lacks a lamino-dental plosive /t̪/ found in some Australian languages (Hamilton, 1996, p. 56), such as Arrernte (Pama-Nyungan) to the south-east and Kija (Jarragan) to the north. It is also conventional in descriptions of phonologies of Australian languages to further group the velar and bilabial plosives under a class of ‘peripherals’ (Dixon, 2002, p. 549). In Ngardi such a grouping is less

well-motivated but is retained here out of descriptive convenience for a small number of phonotactic statements (§2.5).[44]

In the following subsections I describe the realisation of plosive consonants according to the following acoustic properties: voicing (§2.2.1.1), release (§2.2.1.3), duration (§2.2.1.2), and lenition (§2.2.1.4). In terms of their articulatory features, the bilabial plosive /p/ is articulated with both lips and limited, if any, lip rounding. The apico-alveolar /t/ is articulated with the apex of the tongue raised against the alveolar ridge. Preceding a retroflex in a following syllable, /t/ may show some anticipatory place assimilation. For the apico-postalveolar retroflex /ʈ/, the tongue apex is tipped further back and contact is made with the post-alveolar region. It has been claimed for some Australian languages that under faster and more casual speech, the retraction of the tongue apex is reduced (Butcher, 1995; Round, 2009, p. 42) and this appears to be the case for Ngardi too. The prepalatal plosive /c/ is articulated with the tongue blade rather than the apex. Contact is not as far back as the central area of the hard palate but occurs somewhere between the post-alveolar ridge and the prepalatal region. The term 'lamino-alveopalatal' is equally appropriate for this articulation. The velar plosive is the most posterior plosive and is articulated by raising the tongue body up against the velum. The exact nature of the acoustic cues to the various place of articulation contrasts are an area in need of further instrumental research.[45] However, the following subsections provide some preliminary findings as to their varying acoustic properties.

2.2.1.1 Voicing

Plosives in Ngardi are not contrasted in terms of their voicing properties and voiced and voiceless allophones occur for all plosives. Many factors appear relevant to the distribution of voiced and voiceless allophones, including speech rate and prosodic structure. Place of articulation also appears relevant. Peripherals /p, k/ tended towards voiceless realisations in a range of segmental environments more so than /c, t, ʈ/. This may relate to somewhat longer durational values for peripherals (at least for some speakers, see §2.2.1.2) and concomitant passive devoicing. Voicing of plosives also exhibits inter-speaker variation. Some speakers tend towards more voiceless realisations in all environments compared to other speakers. For example, Marie

44 This can be contrasted with Gurindji (McConvell, 1996b, p. 20) and Wanyjirra (Senge, 2015, pp. 92–96) where productive morphophonological lenition rules appear to target the peripherals as a coherent class. In Ngardi such lenition only applies allophonically in casual speech contexts.

45 There is some anecdotal evidence for partial place neutralisation rarely discussed in the literature on the phonology of Australian languages, namely, the neutralisation of the apical contrast in non-initial contexts and a loss of the prepalatal/retroflex apical distinction. Evidence for this comes from the types of transcription practises of native speakers: impermissible spellings, e.g. *rny* (i.e. hearing retroflexion with a palatal), and valid alternative spellings, e.g. *Jupurrurla* or *Jupurrula* (male subsection), *kalarra* or *karlarra* 'west' *=rnalu* or *=nalu* 'we (not you)', among others.

Mudgedell utilised voiceless (and longer) plosives more frequently and in a wider range of segmental environments than Patrick Smith, who exhibited not only more voiced realisations but also more lenited tokens (§2.2.1.4).

The following generalisations can nevertheless be made with respect to voicing allophony, applicable to all plosives. Examples are presented below with various references to both a male (Patrick Smith) and a female (Marie Mudgedell) speaker.

Plosives are generally:

i) voiceless word-finally (/__#) (14)
ii) voiceless in stop clusters (/__C, C__) (15)
iii) voiced following nasals (/N__) (16)

(14) /tirip/ [tírɪp] (MMN: TEN1-2018_015-03: 190030)
'overnight stay'
/luric/ [lúɾɪc] (PSM: TEN1-2018_009-01: 78533)
'finish'
/cupaʈ/ [cʉ́peʈ] (MMN: TEN1-2018_019-01: 3772296)
'warm'

(15) /kuckuc/ [kʊ́ckʊc] (PSM: TEN1-2016_005-03: 690194)
'bad situation'
/kak=pi-ɳa/ [kákpɪ̀ŋa] (PSM: TEN1-2019_006-02: 1692837)
strike=HIT-PST

(16) /ɲuntu=n/ [ɲʊ́ndun] (PSM: TEN1-2016_005-03: 190107)
2SG=2SG.S
/paɳʈi=jira-ɳi/ [pɛ́ɳɖi-jiraŋɪ] (PSM: TEN1-2017_006-02: 79901)
smell-PLACE-PST
/lampaɳ/ [lɛ́mbɛɳ] (PSM: TEN1-2016_005-03: 176020)
'child'
/waŋka-ɲa=lu/ [wáŋgɛɲàlu] (PSM: TEN1-2018_032: 1289232)
SPEAK-PST=3PL.S
/wanci-ɭa/ [wánɟɨɭa] (MMN: TEN1-2019_005-06: 260258)
where-LOC

Moving beyond the environments listed above, much greater variability is found. Both voiced and voiceless realisations of plosives are found following the liquids /r/, /l/, /ɭ/, /ʎ/. Examples of variable realisations of peripheral plosives following liquids are presented in (17).

(17) Variably voiced allophones of peripheral plosives following liquids

/wirpa/	[wírbɐ]	(PSM: TEN1-2018038-02: 1192156)
‘many’		
/wirkiɭ/	[wírgɨɭ]	(PSM: TEN1-2018_038-02: 1384894)
‘hair’		
/murku/	[múrku]	(MMN: TEN1-2019_005-06: 340888)
‘boy’		
/taɭkaːri/	[tágɐ̀ːri]	(PSM: TEN1-2018_015-01: 84168)
‘mountain devil’		
/palku/	[bálku]	(PSM: TEN1-2016_005-03: 225723)[46]
‘Balgo’		

Under sufficiently emphatic or slow speech contexts (especially in single-word elicitation) plosives may be voiceless in more or less any environment, including post-nasal and intervocalic environments. In some cases, this appears to be a result of passive devoicing rather than active modulation of voicing. Voiceless intervocalic plosives were invariably of longer duration than voiced counterparts. Durations of voiceless peripheral tokens in particular were observed ranging between 100–200 milliseconds (ms); compare similar findings by Ennever, Meakins and Round (2017, p. 12) for Gurindji. For many tokens, a gradual decrease in intensity associated with voicing is observed consistent with the passive effects of a reduction in trans-glottal air pressure. Studies on the limits of passive voicing in plosives in different phonetic environments (Ohala, 1983; Stevens, 1998, pp. 465–466) reliably show that plosives are subject to passive devoicing only 25–100 ms after the onset of oral occlusion, depending on additional factors (subglottal pressure, muscular tension of the vocal tract and place of constriction).

Word-medial plosives, perceived impressionistically as voiceless were investigated acoustically. The majority of voiceless tokens were on average longer than 50 ms and in fact were found with durations in excess of 100 ms. Indicative examples are provided in Figure 3. Spectrograms show 0–7000 Hz.

2.2.1.2 Duration

The duration of plosives in intervocalic word-medial and intervocalic word-initial (i.e. plosives following a vowel-final word) contexts were investigated in order to determine any consistent differences between places of articulation. Duration values were automatically calculated within Praat (Boersma & Weenik, 2019) using an R-based script designed to extract durational values and estimate lenition properties based on relative changes in intensity (see Ennever et al., 2017 for details and justification). To begin, I focus on intervocalic, word-medial realisations of plosives in which the full range of segmental contrasts are observed and segmentation is the most straightforward. I report on

46 Initial /p/ in this token was voiced as it was preceded by a word-final vowel.

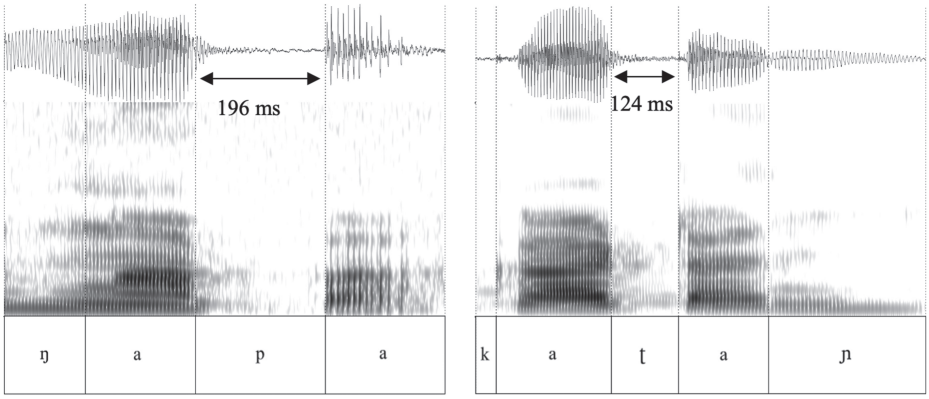


Figure 3: Passively devoiced intervocalic plosives /p/ (196 ms) in /ŋapa/ 'water' and /ʈ/ (124 ms) in /kaʈaɲ/ 'coals'.

data from highly controlled single-word elicitation (one male and two female speakers (Figure 4)) as well as from casual, unprompted speech (one male speaker (Figure 5)).

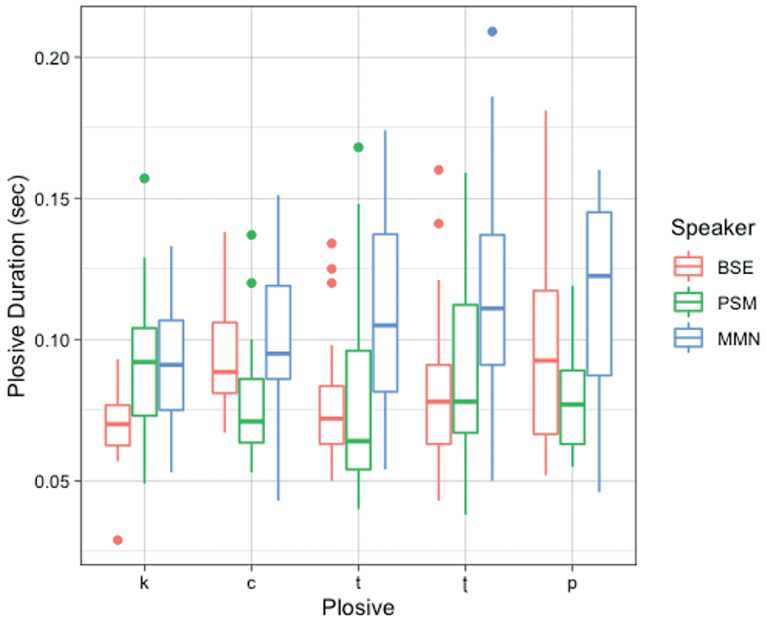


Figure 4: Closure durations of intervocalic word-medial plosives (n=333).

The data in Figure 4 corroborate an impressionistic observation: there is substantial variation between speakers with respect to plosive durations. The speaker with

the longest duration plosives (MMN) produced oral constrictions over 100 ms on average for /t/, /ʈ/ and /p/ compared to average durations between 70 and 90 ms for the two other speakers examined. MMN also produced voiceless plosives more often both in elicited speech and in casual speech contexts. Speakers also differed with respect to which places of articulation were associated with longer closure durations. For both MMN and BSE, velar /k/ had the shortest closure durations overall, while for PSM velar /k/ had the longest closure durations. A commonality was that all speakers consistently exhibited longer closure durations on average for the apico-retroflex plosives compared to the apico-alveolars. These data indicate that closure duration may play a role in distinguishing /t/ and /ʈ/. However, not only is there significant overlap in the range of values observed, but data collected from casual speech contexts (Figure 5) indicate that such tentative durational distinctions are not maintained across faster speech contexts.

Figure 5 displays segment durations of intervocalic plosives as recorded during non-elicited, casual speech (one narrative) of a single male speaker, n=263. Since these data were recorded during casual speech, I include comparison between intervocalic word-medial and intervocalic word-initial tokens (i.e. both V_V and V# _V). Since the apicals are not distinguished word-initially, word-initial data were collapsed and presented under /t/ alone.

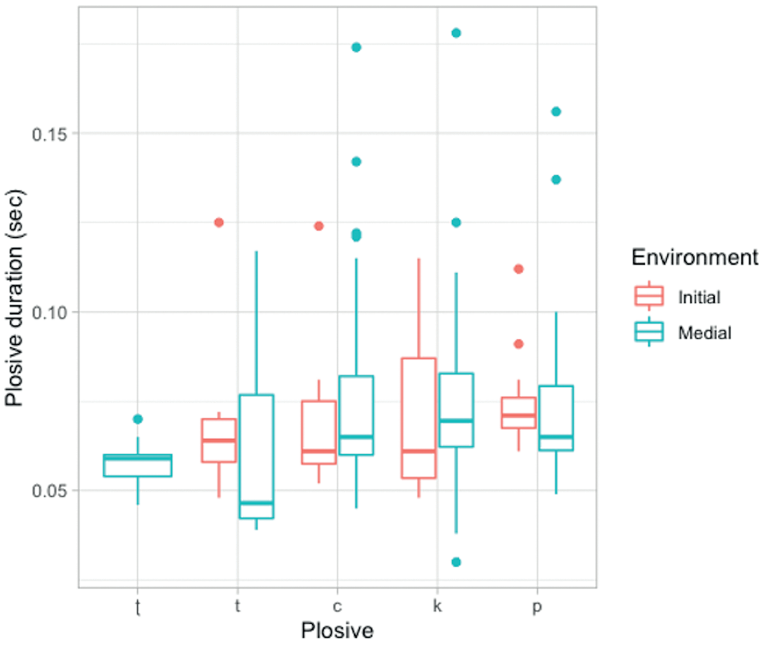


Figure 5: Duration of intervocalic plosives (initial and medial) in casual speech (n=263).

Figure 5 illustrates the unsurprising finding that under casual speech contexts all plosives were of shorter durations on average than in elicited contexts (compare plosive closure durations of PSM in Figure 4). In terms of positional effects, word-medial apical plosives were on average shorter than either the peripheral or palatal plosives in casual speech contexts. Somewhat unexpectedly, word-initial intervocalic plosives were not longer (and in some cases were even shorter on average, e.g. /c/ and /k/) than intervocalic medial plosives, with the exception of alveolar /t/. This runs counter to the expectation that consonants in the onset of a (primary) stressed syllable and at a word boundary would be less likely to be temporally reduced than in word-medial, unstressed positions (see e.g. Ségéral & Scheer, 2008).

Outside of intervocalic contexts, plosives can also be reduced. Specifically, in nasal + plosive clusters, the acoustic properties of a discrete oral occlusion may be masked by delayed velic-raising. This results in the phonetic effect of post-nasal plosive deletion as shown in the spectrogram showed in Figure 6. Some evidence of the turbulence associated with the burst release of the palatal oral occlusion is visible leading into the onset of the vowel. Spectrogram shows 0–7000 Hz.

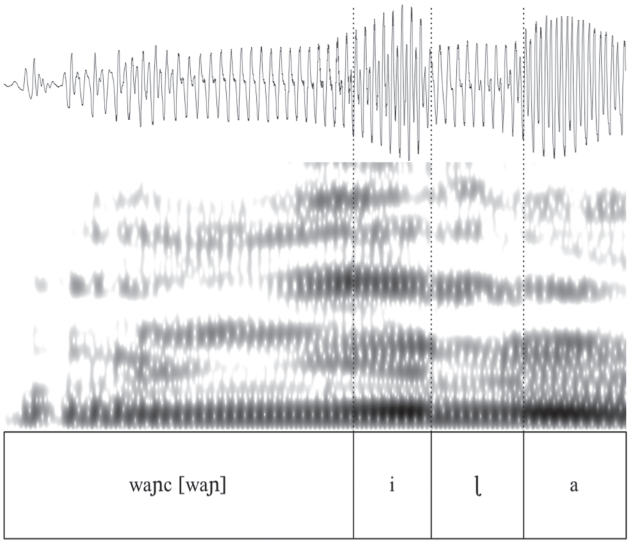


Figure 6: Deletion of a plosive in a nasal + plosive cluster /c/ in /waɲcil̪a/ 'where'.

Deletion of post-nasal plosives in favour of a prolonged nasal is reported in other Australian languages such as Pitjantjatjara and Burarra and appears to be a common manifestation of 'preservative assimilation of nasality' (Butcher, 1999, p. 480).

These data represent a very preliminary investigation of plosive durations in Ngardi. Further work needs to be done to distinguish both the relationship between

lexical stress and segment duration as well as higher-level prosodic factors (for example phrase-final lengthening). Nevertheless, based on this preliminary evidence, it does not appear that plosives are systematically distinguished by constriction duration and, moreover, there is notable inter-speaker variation with respect to segment durations.

2.2.1.3 Release

Plosive releases are also considered relevant in cueing place of articulation contrasts since acoustic bursts carry acoustic properties associated with the resonating cavity formed behind the place of constriction (Ohala, 1990, p. 265). Plosive releases are restricted to prevocalic and prepause environments. Plosives occupying initial positions within clusters and word-final plosives are unreleased in Ngardi. The burst release properties of plosives in Ngardi can be broadly characterised as follows. Bilabial /p/ was found to exhibit only low intensity bursts (due to the lack of an anterior resonating cavity); the apicals exhibited short, low-intensity bursts. In contrast, velar /k/ and prepalatal /c/ are often realised with not only relatively strong bursts but were optionally realised as affricates.[47] Affricated velars tend to occur in word-initial positions and are thus voiceless (i.e [k͡x]). Palatal /c/ tends to be realised as [c͡ç] (a voiceless, non-sibilant palatal-affricate). Affricated realisations are still produced within the prepalatal region, rather than being anterior in the vocal tract and produced as a canonical sibilant of the English variety, i.e [tʃ]. This impressionistic observation requires further instrumental study, however. A spectrogram illustrating affricated realisations of /k/ and /c/ within a single word is provided in Figure 7. Clear periods of frication can be observed upon the release of the oral occlusion. Spectrogram shows 0–7000 Hz. Duration of selection window is 670 ms.

47 Heavily fricated releases of /k/ were generally only identified for male speakers in the data.