

On Eels, Dolphins, and Echidnas: Nyulnyulan Prehistory through the Reconstruction of Flora and Fauna

Claire Bower

Rice University and Centre for Language Change, Australian National University

1 Introduction¹

The Dampier Peninsula is a piece of land shaped like an isosceles triangle on Australia's north-west coast. It is approximately 180 miles (north-south) from base to tip, and approximately 100 miles along its base. In the period prior to the European settlement of Australia in 1788, the Dampier Peninsula was

¹ It gives me great pleasure to present this paper to Jay, who has a keen interest in marsupials and other exotica from this side of the Wallace Line. I can only apologise that the range of *Phascolarctos Cinereus* or *Vombattus ursinus* does not extend as far as the North of Western Australia, and hence they do not feature in this paper. My research on Bardi (on which part of this paper is based) has been funded by the Australian Institute of Aboriginal and Torres Strait Islander Studies and the Endangered Language Fund; their support is gratefully acknowledged.

inhabited by several groups of Aboriginal people speaking languages belonging to the Nyulnyulan family. Most resource exploitation involved fishing, shell-fish gathering and hunting for dugong, turtle, and stingray.

The Dampier Peninsula is not the only location where Nyulnyulan languages are spoken, however. The family extends inland several hundred miles along the Fitzroy River. There were also speakers of Nyulnyulan languages in the Derby area, on the eastern side of King Sound (see Figure 1).

<<Figure 1 about here.>>

Speakers of Nyulnyulan languages were thus spread over an area which covers diverse flora and fauna; Bardi, Jawi and Nyulnyul people are essentially 'sea people', gaining most of their nutritional needs from hunting turtle and fishing and living exclusively near the coast (Smith 1983). Nyikina people, on the other hand, are 'inland' people and lived off kangaroo and other 'bush' game, and freshwater fish from the Fitzroy River.

The languages of the Nyulnyulan family are closely related to one another, perhaps as diverse as the Romance family, and would seem to have split from each other recently. However, there are no known close relatives to the family; the nearest languages geographically (Worrorra and Ngarinyin to the north, Bunuba to the east, and the Marrngu and Ngumpin-Yapa subgroups

of Pama-Nyungan to the south) show no features which would clearly relate them to Nyulnyulan (Bowern 2004b). A family tree is given in Figure 2.

<<Figure 2 about here>>

Given the differences in flora and fauna in the areas in which speakers of Nyulnyulan languages live, reconstructing lexicon in these semantic fields should provide clues to the recent history of the speakers of these languages. Here I present a survey of reconstructions of flora and fauna terminology, concentrating on the animals which have a range which does not include all the areas where Nyulnyulan languages are currently spoken. There are no published archaeological surveys of the Dampier peninsula and to my knowledge there has been no investigation of the linguistic prehistory of this group. This paper is therefore a contribution in that direction.

2 Summary of sound systems and sound changes

An overview of historical phonology and Nyulnyulan sound is necessary so that we might distinguish true cognates from loans. Nyulnyulan languages have about twenty phonemes. A chart of the consonants and vowels is given in Figure 2. Voicing is not contrastive and there are no fricatives. The phoneme inventories of all Nyulnyulan languages are identical, with two exceptions:

Bardi and Warrwa have contrastive vowel length for /i/, /a/ and /u/, and Bardi has an additional vowel /o/.

<<Figure 3 about here>>

A description of Bardi sound changes was presented in Bowern (2004a), so only a brief summary of the most important Nyulnyulan changes will be given here, particularly those which are diagnostic of loans. First, all languages except for Bardi and Warrwa have lost contrastive vowel length, as shown in (1) and (2).² Warrwa shows intervocalic lenition of *k to *w; otherwise, there are no further important sound changes in Eastern Nyulnyulan languages.

² Sources for language data are as follows: Bardi, my own field notes, Metcalfe (nd), Aklif (1999); Nyulnyul, McGregor (1996), Nekes and Worms (1953); Nimanburru, Nekes and Worms (1953); Jabirr-Jabirr, Nekes and Worms (1953); Yawuru, Hosokawa (1991), Nyikina, Stokes (n.d.), Nekes and Worms (1953); Warrwa, McGregor (1994), Nekes and Worms (1953). Karajarri and Mangala belong to the Marrngu subgroup of Pama-Nyungan; data are from McKelson (nd) and Nekes and Worms (1953). Data for Walmajarri (Ngumpin-Yapa, Pama-Nyungan) are from Hudson and Richards' (1990). I have also consulted

(1)	Proto-Nyulnyulan:	*waamba	‘man’
	Bardi	<i>aamba</i>	
	Nyulnyul	<i>wamb</i> ³	
	Jabirr-Jabirr	<i>wamb</i>	
	Nyikina	<i>wamba</i>	
	Yawuru	<i>wamba</i>	
	Warrwa	<i>wa(a)mba</i>	
(2)	Proto-Nyulnyulan:	*jiiba	‘boomerang’
	Bardi	<i>jiiwa</i> ⁴	

dictionaries of Worrوران languages (Clendon (2001) for Worrوران and Coate (1974) for Ngarinyin).

³ Nyulnyul also apparently loses contrastive vowel length, but some words in the sources are transcribed with long vowels. Most of them are monosyllabic, so it is probable that they reflect lengthening within a monosyllabic closed syllable. Compare, for example, *wamb* (with a heavy coda and short vowel) with *jiib* (long vowel and single consonant in the coda). Alternatively, such transcriptions could reflect Nekes and Worms’ (1953) sporadic habit of etymologizing in their orthography.

⁴ Lenition of *b > w is regular intervocalically following a stressed syllable; see below.

Nyulnyul	<i>jib, jīb</i>
Jabirr-Jabirr	<i>jib</i>
Nyikina	<i>jiba</i>
Yawuru	<i>jiba</i>
Warrwa	<i>jiba</i>

Nyulnyul and Jabirr-Jabirr lose final vowels. This also occurs in the Western dialects of Bardi. See the cognates for *waamba ‘man’ above, and also the following:

- (3) Proto-Nyulnyulan: *wiinduku ‘curlew’ (*Burhinus grallarius*)
- | | |
|----------|---|
| Bardi | <i>iindu</i> (*w > ∅ / _#; *k > ∅ / V_V; V _a V _a > V _a) |
| Nyulnyul | <i>winduk</i> (loss of final vowels; loss of vowel length) |
| Nyikina | <i>winduku</i> (loss of final vowels) |

Bardi loses initial w and y. See *wiinduku and *waamba above, also

- (4) Proto-Western Nyulnyulan: *yangan(a) ‘close(by)’
- | | |
|---------------|---------------|
| Bardi | <i>angan</i> |
| Nyulnyul | <i>yangan</i> |
| Jabirr-Jabirr | <i>yangan</i> |

In Bardi, *agu and *abu (and *awu) monophthongize to o in unstressed syllables. In stressed syllables, *agu and *abu have reflexes of both awu (e.g. *baburr ‘cicatrice’ > *baworr*) and o (e.g. *magurri ‘road’ > *morr*); cf. also *nola* ‘club’ from *nawula. It is possible that monophthongization is blocked in originally disyllabic words, but this is still to be confirmed.

(5)	Proto-Nyulnyulan:	*-kabu ‘ABLATIVE case’
	Bardi	-go
	Nyulnyul	-gab
	Yawuru	-gab <u>u</u>
	Nyikina	-gab <u>u</u>
	Warrwa	-gaw <u>u</u>

Stops are lenited to glides between vowels (also in Bardi). This feeds a rule of glide loss when the glide does not follow a stressed vowel and the vowels are identical; the resulting VV sequences are simplified to V. Compare (6), and also *baawa* ‘child’ (< *baaba) for an example of a glide remaining. The development of other Vowel-Glide-Vowel sequences is complex and not relevant here.

(6) Western Nyulnyulan *burruku ‘kangaroo’

Bardi *boorroo* (/burruku/ > /burruu/ > /burru/)

Nyulnyul *burruk* (final vowel lost, no further changes).

Further minor changes will be noted where relevant.

3 Recently introduced fauna

When Europeans settled in the Kimberley region, they brought with them many species of plants and animals previously unknown to the Indigenous people of the region. They included, of course, sheep, cattle, horses, cats and dogs, but also bamboo, mangos, tamarind, and palms. Speakers of Nyulnyulan languages borrowed names for such items wholesale from either English or Kriol⁵. This is

⁵ Kriol is the English-based creole which was formed on Roper River station in the Northern Territory in the early 1880s, and spread to westward with the expansion of the cattle industry. Many words for items related to cattle and station life are originally from languages in the Northern territory, and are borrowed into Kimberley languages through Kriol rather than from the original source language. Thus *yawarda* ‘horse’ is said to be a Nhanta word for kangaroo, and *yarraman*, another widespread word for horse in the Central Desert areas, from the Kurna for kangaroo. Alongside *kapurti* ‘tea’ (English ‘cup of tea’) there is *nalaja*, from Jaminjung.

true for all introduced trees with the exception of *bamboo*, which is of unknown etymology:

(7) 'bamboo'

Bardi *bamboo*, *gabool*⁶, Nyulnyul *gabul*, *gabal*, Jabirr-Jabirr *gabul*, Nyikina
kiloowal

Introduced animals also usually have their Kriol or English names. Some examples are given in (9). The words for 'dog' and 'cat' are exceptions. The word for dog appears reconstructible to Proto-Nyulnyulan as *yiila (see (8)), while 'cat' is *minyaw*, from English 'meow'.⁷ Some languages in the area have a word for 'cat' based on English 'pussy-cat'. Most of these languages have a

⁶ The second form is given in Nekes and Worms (1953) and is obviously a loan from Nyulnyul. The Bardi reflex should be *gawool* or *gol*. The word *bamboo* is also widely used as the word for a didgeridoo in this region. The didgeridoo was not traditionally played in this area and was 'imported' in recent times from the North-East, with the *junba* ceremonies (Moyle 1981).

⁷ Presumably Proto-Nyulnyulan *iila meant something other than 'dog'; perhaps 'dingo'.

requirement that words be at least two syllables long, so *minyaw* and *putyikat* are licit words, whereas *kat* would not be.

(8) **yiila* ‘dog’ (?)

Bardi *iila*, Nyulnyul *yiil, yil*, Yawuru *yila*, Nyikina *yila*, Warrwa *yiila*,

(9) *yawarda* ‘horse’: widespread in the Kimberley, originally from Nhanta

‘kangaroo’, spread through Kriol

gogoonja(y) ‘sheep’; also pan-Kimberley, spread with farming. In Kriol

booloman ‘bullock’. Kriol

There is therefore a precedence for the borrowing of words for novel plants and animals in these languages. It should be noted that this is not the only way of naming newly encountered items. For example, in Bardi ‘policeman’ is frequently based on the word for ‘bitter’ (*liinyja*), and *gaari* ‘alcohol, grog’ seems to be borrowed from the Nyulnyul word for salty water (Bardi *gaara*).

4 The reconstructions

We can reconstruct some terminology to Proto-Nyulnyulan with considerable confidence as to the meaning. However, the number of secure reconstructions in these domains is at present rather small. Most often, the records are not comprehensive enough for us to find cognates of more obscure words. In other

cases, the words are simply not cognate. A typical set of ‘correspondences’ is given in (10); every word is different, and there is doubt about the real meaning of the Yawuru word.

(10) ‘whip snake’ (*Demansia sp*)

Bardi *arriri*

Yawuru *lawrr*⁸, *wurlkudany*

Nyikina *bindin*

Warrwa *baardarr*

4.1 Widespread areal vocabulary

There are Wanderwörter which are widespread in the Kimberley and cannot be reconstructed to Proto-Nyulnyulan with any confidence. Some of these words are also found in Kimberly English and it is not always clear whether they spread in pre-contact times or more recently. Some examples are given in

⁸ *Lawurr* is also given for ‘brown snake’, so *lawrr* is probably a typographical error and/or semantic misfiling.

(11) and (12) below.

- (11) 'boab' (*Adansonia gregorii*)

Bardi *larrgidi*, Yawuru *larrgardi*, Nyikina *larrkardiy*, Warrwa *larrkardiy*

Bunuba *larrgariy*

*kaardku? 'bloodwood tree' (*Eucalyptus polycarpa*)

Bardi *gaardga*, Yawuru *kardku*, Nyikina *kardkoo*

Karajarri *kardku*

- (12) 'goanna' (probably *Varanus gouldii*)

Bardi *baarni*, Nyulnyul *baarni*, Jabirr-Jabirr *barni*, Jukun *barni*, Nyikina

barniy, Warrwa *bani*,

Ngarinyin *barni*

'scorpion'

Bardi *baarni*, Nyulnyul *baan* Jabirr-Jabirr *baan* Yawuru *barn* (black ant),

Nyikina *baan*, Warrwa *baarn*

Ngarinyin *ban*

*juurru 'snake, biting "critter"'

Jawi *jurr*, Bardi *joorroo* [juurru] (also ‘shark’), Nyulnyul *ju(u)rr*, Jabirr-
Jabirr *jurr(u)*, Yawuru *dyurru*, Nyikina *joorroo* (also ‘mosquito’), Warrwa
juurru

Karajarri *jurru*, Mangala *jurru*, Walmajarri *jurru*

**linykurra* ‘saltwater crocodile’ (*Crocodylus porosus*)

Bardi *linygoorr*, Yawuru *linykurra*, Nyikina *linykurra*

Karajarri *linkura*, Mangala *linkura*

Such items are thus unhelpful for reconstructing prehistory at this stage.

4.2 Reconstructions to Proto-Nyulnyulan

The following are examples of words which can be reconstructed to Proto-Nyulnyulan and which do not show semantic shift. I have also included some words which are sporadically attested but likely to be old (in that they show the correct correspondences and appear in languages which are not contiguous, and are therefore unlikely to be shared because of borrowing).

(13) **biininy* ‘maggot’

Bardi *biini*, Nyulnyul *bininy*, Nyikina *bininy*, Warrwa *birniny*

- (14) *buya(buya) ‘ant’
Bardi *booy, boowi*, Jabirr-Jabirr ‘boia’ *buya*, Yawuru *buyabuya*,
- (15) *dar(r)iyal ‘cockatoo (black)’ (*Calyptorhynchus banksii*)
Bardi *dariyal* (also *liirramar*), Nyulnyul *dariyal*, Yawuru *dariyal*,
Nyikina *dariyal*
- (16) *jaliny marr ‘pelican’ (*Pelecanus conspicillatus*)
Jawi ‘thullingmurra’ (i.e. *jalingmarra*), Bardi *jalingmarr*, Nyulnyul
jarlinymarr, Nimanburu *djaliny mar*, Jabirr-Jabirr *djaliny mar*, Yawuru
*jaliny marr*⁹,
(Nyikina *mayarda*, Warrwa *mayarda*)¹⁰
- (17) *karrabulu “‘left-handed’ kangaroo’ (*Onychogalea unguifer*)
Bardi *gorrolo*, Nyulnyul *garraburl*, Yawuru *karrabul*, Nyikina
karrabooloo
- (18) *kulamana ‘(frill necked) lizard’ (*Chlamydosaurus kingii*)
Bardi *guluman*, Nyulnyul *kuluman*, Jabirr-Jabirr *kuluman*, Yawuru
gulamana, Nyikina *gulamana*, Warrwa *gulamana*
- (19) *kunkunbiny ‘bream, perch’

⁹ A further word *bilari* (a loan from Karajarri) is also recorded in the old sources for Yawuru.

¹⁰ The last two words are borrowings from Worrorra *mayarda* ‘pelican’.

Bardi *goonkoomboo*, Yawuru *kunkunbiny*

- (20) *kunkunung(g)u ‘pufferfish’ (*Arothron* sp)

Bardi *goonkoonoongg(oo)*, Yawuru *kungkunungu*

- (21) *kurlibil ‘turtle’ (generic term)

Bardi *goorlil*, Nyulnyul *gorlibirl*, Yawuru *kurlibil*, Nyikina *gulibil*

- (22) *kurridi ‘dingo’ (*Canis dingo*)

Jawi *kurridinyjun*¹¹, *gurrid*, Bardi *goorridi*, Nyulnyul *kurrid*, Jabirr-Jabirr

kurrid, Yawuru *gurirdi*, Jukun *kurird*, Nyikina *gurridi*, Warrwa *gurridi*

- (23) *langkurr ‘possum’ (generic name)

Jawi *langgurr*, Bardi *langgurr*, Nyulnyul *langkurr*, Yawuru *langkurr*,

Nyikina *langkurr*

- (24) *malawira ‘curlew’ (probably *Esacus neglectus*)¹²

Nyulnyul *malawir*, Nyikina *maliwira*

- (25) *mangkayarra ‘scrub turkey, bustard’ (*Eupodotis australis*)

Nyulnyul *manggirra*¹³, Jabirr-Jabirr *barrgar*, Yawuru *jarrgi; barlgara*,

Jukun *manggiyarra*, Nyikina *mangkayarra*, Warrwa *mangaayarra*

¹¹ I suspect this is actually the phrase *kurridi injoon* ‘he said *kurridi*’ or ‘he called it *kurridi*’. The source is Bird (1915), a wordlist compiled by a missionary with no training in linguistics.

¹² Compare also *wiinduku in (3) above.

- (26) *nimanburru ‘flying fox’ (*Pteropus scapulatus*)
Bardi *niimanboorr(oo)*, Jawi *nimunboo*; *nimanbor*, Nyulnyul *nimanbur*,
Yawuru *nimanbur(r)u*
- (27) *waggVdi ‘crow’ (*Corvus ceciliae*)
Jawi *anggidi*, Bardi *waggid(i)*, Nyulnyul *wangki(r)d*, Jabirr-Jabirr
waggid,
Proto-Eastern Nyulnyulan: also *javarri¹⁴
Yawuru *dyavarri*, Jukun *wangkidi*, Nyikina *waggarna*, *javarri*, Warrwa
waanggidi.
- (28) *wiiliny ‘caustic bush’ (*Sarcostemma viminale*)
Bardi *iiliny* (yellow paint which comes from the bark of poison pod
trees), Yawuru *wiliny*, Nyikina *wiliny*

In summary, many of the words reconstructible to Proto-Nyulnyulan are generic terms (*kurlibil, *buya, *langkurr, etc) or species which are widespread in Australia (*kulamana, *jaliny marr, etc) and not specific to one part of the Dampier Peninsula. There are also a few species which are reconstructible but

¹³ From the sound changes, the Nyulnyul form is probably a loan from Bardi (or a Bardi word assigned to the wrong language in Nekes and Worms (1953)).

¹⁴ *Javarri* is also found in Karajarri. The direction of borrowing is not certain.

which are nonetheless only attested in a few languages. In addition to the words discussed in (13) to (28), there are a number of other relevant generic common nouns which can also be reconstructed, including ‘meat’, ‘fish’, and ‘tree’.

4.3 Reconstructions to single branches

In addition to the terms which may be reconstructed to Proto-Nyulnyulan, there are also words which can be traced to either Proto-Eastern or Proto-Western Nyulnyulan only. The words correlate, perhaps unsurprisingly, with environment: for the Western Nyulnyulan languages we can reconstruct sea terms which have no cognates in the (inland) Eastern languages, while in the Eastern languages there are more reconstructible terms for fresh-water and desert species. The words in (29) to (41) are reconstructible to Proto-Western Nyulnyulan only:

(29) *wardaburra ‘dugong’ (*dugong dugon*)

Jawi *urdorr*, Bardi *odorr*, Nyulnyul *wardabal*, Nimanburu *wadabar*

(30) *jarrkabiny ‘frog species’

Bardi *jarrgawiny*, Nimanburu *dyergabinj*, Jabirr-Jabirr *dyergabinj*

(31) *wawoo(r)lmarra ‘male kangaroo’

Bardi *wawoormarra*, *wolmarr*¹⁵, Nyulnyul *wolmarr*, Jabirr-Jabirr *wolmarr*

- (32) *lilarlila ‘?’

Bardi *lilarlila* ‘pelican sp’, Nyulnyul *rlirlirlirl* ‘brolga’

- (33) *walabarrkija ‘seagull’

Bardi *olorryi* Nyulnyul *walabargadj*

- (34) *juuka ‘eel sp.’

Bardi *juuwa*, Nyulnyul *juk*

- (35) *gujil ‘baler shell’ (*Melo amphora*)

Bardi *goowil*, Nyulnyul *gujil*

- (36) *jikarda ‘shovel-nosed shark’ (probably *Rhinobatos Typus*)

Bardi *jiyarda*, Nyulnyul *jigad*

- (37) *yambarn ‘stingray sp.’ (probably *Aetobatus narinari*)

Bardi *ambarn*, Nyulnyul *yamban*

- (38) *karralkun ‘female turtle’

Bardi *garralgon*, Nyulnyul *garralgun*, Jabirr-Jabirr *garralgun*

- (39) *jumulkurr ‘jellyfish’ (*Chironex fleckeri*)

Bardi *joomoolgoorr*, Nimanburru *djumulgur*

- (40) *dinyidiny ‘grasshopper’

Bardi *dinyidiny*, Nyulnyul *dinydiny*, Nimanburru *dinydiny*

¹⁵ In Nekes and Worms (1953) only.

- (41) *lungkurda 'blue-tongued lizard' (*Tiliqua scincoides*)

Bardi *longgoord*, Nyulnyul *lungkurt*, Jabirr-Jabirr *lungkurd*

The following species may be reconstructed to Proto-Eastern Nyulnyulan only:

- (42) *karringkurl 'frog sp.'

Yawuru *karrangkul*, Nyikina *karringkoorl*

- (43) *ngakalyalya 'Major Mitchell cockatoo' (*Cacatua leadbeateri*)

Yawuru *ngakalyalya* Nyikina *ngakalyalya*

- (44) *ngamakarri 'corella' (*Cacatua sanguinea*)

Yawuru *ngamakarri*, Nyikina *ngamakarri*

- (45) *ngalyak 'lizard sp.'

Yawuru *ngalyag*, Jukun *ngalyak*, Warrwa *ngalyak*

- (46) *kurrulyu 'bird sp.'

Yawuru *kurrulyu* 'black swan', Nyikina *kooroolyoo* 'magpie goose'

- (47) *kuwaniya 'freshwater crocodile' (*crocodilus johnstonii*)

Yawuru *kuwaniya*, Nyikina *guwaniya*,

- (48) *jarramba 'cherabin' (*Macrobrachium sp.*)

Yawuru *dyarramba*, Nyikina *jarramba*, Warrwa *jarramba*

- (49) *kularrabulu 'freshwater turtle sp.'

Yawuru *gularrabulu*, Nyikina *kularrabulu*

(50) *winybudu ‘black ant’

Yawuru *winybudu*, Nyikina *winyboodo* ‘bull ant’

In each case, where known, the species have the range of the area where the languages are spoken. For example, freshwater crocodiles are not found on the Dampier peninsula (there are no permanent streams large enough); cherabin are a freshwater crayfish, and corellas are not found up the Dampier peninsula. Dugong are strictly saltwater creatures.

4.4 Reconstructions with semantic shift

A second group of words can be reconstructed to Proto-Nyulnyulan in form, but not in meaning. That is, while the sound correspondences are regular, one branch of the family has a different meaning from the other. In (51), *barrjaniny has the meaning of the most common macropod in the area; a rock wallaby on the Dampier peninsula and the larger river kangaroo in the east.

(51) *barrjaniny ‘rock wallaby (western Nyulnyulan)’, ‘river kangaroo

(*Macropus agilis*)’ (Eastern Nyulnyulan)

Proto-Western Nyulnyulan *burruku

Jawi *booroo*, Bardi *booroo*, Nyulnyul *burruk*, *baljarniny* ‘rock wallaby’,

Ngumbarl *barrjaniny* ‘river kangaroo’

Proto-Eastern Nyulnyulan: *barrjaniny

Yawuru *barrydyanyin*, Jukun *barrjanin*, Nyikina *barrjaniny*, *barrjana*,
Warrwa *barrjani*

In (52) and (53) the sound correspondences are exact, but the semantic shift is much wider. In (52), the sea languages have reflexes of *bajalbarra in the meaning of ‘dolphin’, while in the inland language Nyikina the meaning has shifted to ‘eel’ (terms for eels of various species in Nyulnyulan languages cannot be reconstructed, apart from *juuka, as in (34) above). Note that Mangala also has *bajalbarra* in the meaning ‘eel’ but I assume that this is a borrowing from Nyikina. In (53), only two languages attest the word *kandarra, but in very different meanings.

(52) *bajalbarra ‘dolphin’ (Western Nyulnyulan + Yawuru); Nyikina ‘eel’

Bardi *bayalbarr*, Nyulnyul *bajalbarr*, Jabirr-Jabirr *bajalbarr*, Yawuru
bajalbarra, Nyikina *bajalbarra*

(53) *kandarra

Bardi *gandarr(a)* ‘tiger shark’

Nyikina *kandarrkandarr* ‘green snake’ (exact species unknown)

Another possible example of a shift in meaning is the word for echidna (*Tachyglossus aculeatus*). In Bardi, *gamaranginy* is polysemous, and also means ‘grey catfish’. The words in Eastern Nyulnyulan languages appear to be loans; Yawuru’s *dyiribuka* is shared with Karajarri, Nyikina’s *ginanyji* is shared with Jaru and *garnajinangany* is shared with Mangala.

(54) ‘echidna’ (*Tachyglossus aculeatus*)

Proto-Western Nyulnyulan**kamaranginy*

Bardi *gamar(a)nginy* ‘echidna, grey catfish’, Nyulnyul *gamarangany*,

Nimanburu *gamaranginy*

Eastern Nyulnyulan:

Yawuru *dyiribuka*,¹⁶ Nyikina *garnajinangany*, *ginanyji*, Warrwa *ginanyji*

Mangala *ganadjinanany*, Karajarri *djiribuka*, Jaru *ginanji*

4.5 Other ‘problem’ words

As is perhaps usual in flora and fauna reconstructions, we have further words which resemble one another but are exceptions to established sound

¹⁶ *Jiri* is the Walmajarri and Warlpiri (and Yawuru, through borrowing) for ‘spine’ (Karajarri *yiri*), however neither Walmajarri nor Warlpiri use this word for echidna.

correspondences. For example, there is no set of correspondences which will produce all the Nyulnyulan words for ‘brolga’, although they are obviously ultimately ‘the same word’.

(55) ‘brolga’ (*Grus rubicundus*)

Proto-Western Nyulnyulan *kudawarrany?

Jawi *koodarrawan*, Bardi *goodarrowin*, Nyulnyul *kudulwany*, Yawuru
gurdurlwarany, Nyikina *koorrarka*, Warrwa *kurradga*

An further example is ‘owl’ – see (56). The Nyulnyul and Jabirr-Jabirr words (and Bardi *jingin*) would appear to go back to something like **jinggin*, but irregularly (and Bardi *jingin* is attested only in Nekes and Worms (1953) and was unknown to the speakers I asked). Yawuru and Bardi share *wiraj(oo)* but the word is a loan in Bardi and the source is unknown in both. Nyikina *jooli* is attested in Nekes and Worms (1953) and probably comes from Karajarri; Warrwa *dumbu* is a loan from a Worroran language; cf. Worrora *dumbi*. Possibly in this word we have an example of semantic shift, where a word denoting a particular species comes to designate the class as a whole.

(56) owl (generic term)

Jawi *goolgoroolgoo*

Bardi *jingin*, *wiraj* (loan; initial *w is lost)

Nyulnyul *kulyutkulyut*, *kUrrawUrl*, *jinkin*

Jabirr-Jabirr *jinkin*

Jukun *jirrwil*

Yawuru *wiraju*

Nyikina *jooli*

Warrwa *dumbu*

Finally, we also have a few words where the meaning is completely different (cf. (57)). *Biyalbiyal* is a raft or catamaran made from mangrove logs; it is a highly poetic word in Bardi and is used in song poetry instead of *gaalwa*, the everyday word for mangrove raft.

(57) *biyalbiyal

Jawi *biyalbiyal*, Bardi (*jabiyang*), *biyalbiyal* raft made of mangrove logs;

poetic word

Yawuru *biyalbiyal* (mangrove sp)

Nyikina *biyal biyal* 'sawfish' (*Pristis pectinata*)

In Yawuru *biyalbiyal* is a species of mangrove, while in Nyikina it means ‘sawfish’. Such examples are interesting because they are so uncommon in this part of the country. They are more expected in places such as Arnhem Land, where there are frequent examples of plant/animal polysemy (e.g. Yan-nhaṅu *birrkpirrkjaninṅ*, which is both a tree species and a type of bird). Another rare example from Nyulnyulan is *wanangarri; *anangarr(a)* means ‘pumpkin-headed fish’ in Bardi (scientific name unknown), while *wanangarri* is ‘rock’ or ‘hill’ in Eastern Nyulnyulan languages. I assume in this case that the Eastern languages have preserved the original meaning and the Bardi fish is named after the rock meaning.

A final interesting example involves words for ‘bat’. Nyulnyul and Jukun have word *minyamina*. Yawuru and Nyikina have a compound word, but with different (untraceable) first elements. *Tjarti*, the first element in the Wangkajunga word, is the Mangala and Western Desert word for bat.

(58) ‘bat’ (generic?)

Nyulnyul *minyaminy*¹⁷

Yawuru *ngalminyamina*

¹⁷ Bardi *minyminy* is a species of parrot (*Aprosmictus erythropterus*); if it belongs to this family of words it is not directly cognate.

Jukun *minyaminya*

Nyikina *ngarraminaminya*

Walmajarri *ngaraminaminya*

Wangkajunga *tjartiminyaminya*

5 Discussion

The data are messy, but a few patterns emerge. Firstly, there are few borrowings of flora and fauna terms between Bardi and the Worroran languages with which speakers were in contact. This is surprising, since there are considerable traceable loans in other semantic fields, such as Bardi *wangalang(a)* ‘young man’ (Worrorra *wangala-nga*), which is marked as a loan into Bardi by the initial *w*, and which contains the Worrorra masculine gender marker *-nga*. Furthermore, the extensive vocabulary reconstructible to Western Nyulnyulan (only a portion of which was presented here) implies that speakers of Proto-Western Nyulnyulan were sea people and have remained so.

In contrast, Eastern Nyulnyulan is a mess. We see extensive borrowing from neighboring languages (e.g. Yawuru from Karajarri, Nyikina from Mangala, Warrwa from Worrorra). We can also reconstruct some borrowings to Proto-Eastern Nyulnyulan (e.g. **jawarri* ‘crow’ in (27) above). The loans appear to occur in a single direction, that is, into Eastern Nyulnyulan from the

surrounding languages. This is not true in general; there are borrowings in both directions in other semantic fields.

Therefore, we might draw the tentative conclusion that speakers of Eastern Nyulnyulan languages spread into an area already inhabited by speakers of Pama-Nyungan languages, and when they moved inland they encountered a new environment and borrowed the names for many new species from the previous inhabitants. In other cases (such as *bajalbarra), they applied an old name to a new animal.

Reconstructing Nyulnyulan flora and fauna terminology has provided some clues for tracing the history of speakers of the languages, and although more evidence is required, the distribution of loans is suggestive of a migration East and inland from the Dampier peninsula, rather than the reverse.

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