

# **TRADITIONAL ABORIGINAL PLANT RESOURCES**

IN THE KALUMBURU AREA:

ASPECTS IN ETHNO-ECONOMICS.



I.M. CRAWFORD

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**Traditional Aboriginal Plant Resources  
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I.M. Crawford

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Cover    Manuella Punan poisoning fish with the bark of Danba  
          (*Barringtonia acutangula*) in a billabong on the Drysdale River.

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## Preface

This paper is the first in an intended series which will describe the natural resources available to the Aborigines in the north Kimberley area of Western Australia. The aim is to reconstruct the economic basis of traditional society. Ethno-botany is a useful starting point, since plant resources provided a large proportion of the food intake and thus their distribution was a major influence on the structure of Aboriginal life and culture. Until complementary studies on the marine and animal resources have been completed, the overall picture will remain vague in detail, although I think that it emerges in broad outline.

At this point, it is useful to define three terms which I have used in this paper. During the early to mid-dry season, Aborigines whose territories were in the riverine areas were able to harvest large quantities of root crops while the men burnt the grasses and spinifex in communal hunting. The potential food available to the local communities exceeded their potential consumption, so groups living in less affluent areas joined them. I have termed the situation where socialization took place to harvest superfluous resources 'abundance socialization'. Abundance socialization is characterized by intensive activity, with trade in objects, ritual ceremonies and dances.

Throughout the other seasons of the year, the local territory was usually able to produce enough food for its population, but with little or no surplus. In the Kalumburu and inland areas, these periods included the months at the end of the wet season and beginning of the dry season when the root crops were only just reaching maturity, the mid to late dry season when root crops were scarce, but some fruits and seeds were the dominant plant resources and when hunting produced much of the food. Socialization was minimal and I have termed this situation 'equilibrium isolation'.

The third situation I have called 'deficiency socialization'. According to Aborigines, this was a condition which could occur if the food resources fell below the equilibrium level. Then Aborigines were forced to move to regions which were in less desperate straits, and for the inland people, this meant migration to the coast. Aborigines stressed that this was not the normal situation, but for people living inland from Kalumburu, the late dry season and mid-wet season were periods when food was short and when the society's ability to survive within its territory was marginal. Particularly in the wet season, if heavy and continuous rains prevented hunting, groups might be forced to migrate. When deficiency caused migration, this was not a period of intensive social activity: one strategy for survival in a deficiency period was to remain inert and thus to reduce to a minimum the food requirements.

It is interesting to look at other north Kimberley situations. To the west is the Admiralty Gulf area, where an extensive mainland coast was augmented by reefs and islands, and where marine resources were abundant. Although these were available at all seasons, access to the islands and reefs was restricted to the wet

season because the islands lacked fresh water and once the south-east trade wind started to blow, the turbulent waters were dangerous. Thus the period of abundance socialization there took place in the wet season. To the east in the Forrest River area, plentiful supplies of fruits and seeds apparently provided the basis for abundance socialization in the wet season. Thus within a few kilometres the food resources were differently distributed and the Aboriginal societies modified their behaviour accordingly. These three contrasting situations serve as a warning that it will not be easy to generalize on the economics of Aboriginal society as a whole. Nevertheless having identified the factors which operated in one society, and recognizing that the different distribution of resources will have conditioned the societies which lived in other areas, we are in a position to predict the way in which other societies operated — at least within a general region.

## Traditional Aboriginal Plant Resources in the Kalumburu Area: Aspects in Ethno-economics

I.M. Crawford\*

### Introduction

In traditional times, plant foods formed an extremely important part of Aboriginal diets in northern Kimberley, as well as serving as medicines, ichthyocides and the raw materials for the production of implements and ornaments. Despite their importance, very little information has been published on plant utilization by Aborigines living a traditional lifestyle in the bush, and of the few plants which have been mentioned in descriptions of Aboriginal life, only one, the waterlily, has previously been identified (Basedow 1929: 151). Generally, Aborigines are described as living on roots or 'yams', fruits and seeds. As an indication of the variety which exists under such general terms, this paper identifies 47 species of root crops and 49 species of fruit or seed used as food together with 11 species of medicinal plants, 6 species used to poison fish, and 24 species used to make implements. More would undoubtedly be found if fieldwork were carried out over a wider area.

Working on this project in the Kalumburu district proved extremely rewarding and easy. That such a rich field for investigation existed was first shown when, during two afternoons, my wife collected 40 different plant specimens with Mary Pandilow near an excavation site called Tamarinda 30 km north of the mission. In June 1972, while I was staying at the mission collecting data on Aboriginal sites, I collected a further 41 specimens and a year later I spent a further fortnight during which I collected 118 specimens and spent more time discussing the distribution of plants in their particular environmental locations, and their importance in traditional times. I spent another fortnight at Kalumburu in late December 1973 to early January 1974 specifically to collect plant specimens during the wet season. In all, 142 different species were collected, many of them several times.

All of the plants were collected under the guidance of Mary Pandilow. Although Mary was born on the former mission station called Pago 30 km north-east of Kalumburu, she subsequently lived for some years in the bush with her parents.

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\* Head, Division of Human Studies, Western Australian Museum, Francis Street, Perth, Western Australia 6000.

Later she was sent to Beagle Bay Mission, about 400 km south-west of Pago for schooling. Her father's clan estate is located about 15 km south-east of Kalumburu, but she regards the Kalumburu-Pago area as her own country and knows it well. During World War II, she and all of the Aborigines left the mission at Kalumburu and lived in the bush for about three years. After the war, few Aborigines continued with the traditional way of life, but Mary returned to the bush for personal reasons and lived there for about two years during the early 1960s. She still goes for occasional holidays in the bush, sometimes for several weeks at a time.

### Food Collecting

The settlement at Kalumburu lies in the valley of the King Edward River on its northern bank. Up river, there are wide alluvial plains, now largely cleared for cattle, and these are bordered by basalt and sandstone ranges, with small lateritic plateaux. Below the settlement, the river enters a gorge before entering the sea 5 km away. During the north-west monsoon season when over 1000 mm of rain drenches the country, the river is deep and torrential: during the dry season it is confined to a large pool with only a small flow of water.

Traditional plant foods are no longer a significant element in the diets of the Aborigines now based at Kalumburu Mission, although favoured fruits and roots are still collected in their seasons. Most of the children recognize edible fruits, gums and seeds and will gather these while they are walking in the bush, but they appear to know little about root foods which are now seldom collected. On picnics men fish with their spears, while the women and children fish with lines or gather shellfish. Occasionally the men harpoon a dugong or turtle, and very rarely they kill a kangaroo, but 'bush tucker' forms only a supplement to a European diet.

This paper is based on information provided by older Aborigines who once lived in the bush. They have taken me out from the mission and shown me plants which had some usefulness in traditional times. Direct observation of Aborigines living the traditional lifestyle was not possible and for this reason, there was no opportunity to compile statistical data on the relative importance of each food plant as a resource. My impression was that most of the plants listed here would have provided only an occasional meal, and even that would have involved a good deal of searching. The exceptions were the tubers of *gunu* (*Dioscorea bulbifera* variant) which could be found readily near Kalumburu, and *djabaru* (*Ampelocissus acetosa*) which was also common. Near Pagom bara (*Ipomoea*) was readily available and produced a big return for little digging. The waterlily *miani* (*Nymphaea gigantea*) is said to have been a major food source but it is not abundant near Kalumburu. The much sought after yam, *ganmanggu* (*Dioscorea bulbifera* variant) which features in Aboriginal descriptions of the past life in the bush, is also quite rare. Further south, *gungguru* (*Cycas ?media*) is plentiful and to the west at

Mitchell Plateau dangana (*Livistona* palms) are common, but there are few at Kalumburu. Glai (*Buchanania obovata*) and mandjara (*Vitex glabrata*), which at Forrest River Mission are sufficiently plentiful to support inter-tribal meetings (Gribble 1932: 20 and 62), are not common at Kalumburu. In the immediate vicinity of Kalumburu the impression that plant foods are difficult to find probably results from post-settlement clearing and pasture improvements. The alluvial flats contain the best soils, and it is reasonable to suppose that they were once very productive of traditional food crops. Now such food plants are very rare in that area.

From the descriptions of earlier observers we know that in traditional societies the task of collecting plant foods fell largely on the women and children. Dr Phillis Kaberry (1939: 1-8) has given a graphic description of women's day-to-day activities at Forrest River Mission, 200 km south-east of Kalumburu, and the Rev. J.R.B. Love (1936: 66-78) has left a similar account of Worora women living nearly 300 km to the south-west. It is reasonable to infer that the situation at Kalumburu was essentially similar to those they have described. Both Kaberry and Love stress the fact that women produced the bulk of the food, and Love commented that if food production were left in the hands of the men, the families would be hungry three days out of four (Love 1936: 68). Plant foods were not the only sources exploited by the women, for they also took shellfish, small game and even large game when they could catch it, but plants provided the staple part of the diet. However, as will be shown later, the impression given by the statements of Love and Kaberry needs some qualification, for while the women produced the bulk of food for most of the year, at certain times, particularly from January to March and from September to November, plant foods were very scarce and then the camps were more heavily dependent on hunting and thus primarily on the skills of the men.

Both Kaberry and Love commented on the camaraderie which existed between women when they were collecting food, and the impression given both by their descriptions and by conversations with Aborigines is that women invariably worked together in groups. Whereas a man might go hunting alone, a woman seldom went far from her companions. Several reasons may be adduced for this pattern. If a woman went off alone, her peers would suspect an illicit love affair. A woman needed assistance when attempting to collect food and at the same time control small children, and also during menstruation, when she was physically isolated from the camp and confined within a separate enclosure called *daudamara*, she and her family were dependent on the other women in the group contributing a share (Kaberry 1939: 100).

When the women set out to forage, they would invariably carry a bark container called *wanda*, often referred to now as a *coolamun*. This is supported on the hip and by strings (nowadays with a leather belt) over the shoulder (Figure 3). In traditional times, women had two forms of digging sticks, a short form about 70 cm long for prising rocks out of the way and a long form about 100 cm in

length used for digging in soft soils. The long form also served as a prop and walking stick. After World War II, rods of iron replaced both form of wooden stick, and as these rods are usually only about 70 cm long, they are too short to serve as walking sticks and are carried in the wanda (Figure 1). The iron rod is flattened at one end and is invariably called a 'wire'. In the wanda with the 'wire' there may be an iron tomahawk with a home-made handle and a rounded pebble for pounding seeds or tubers. At the return from the foraging trip, which like the Arnhem Land trips documented by McCarthy and McArthur (1960: 189-94) would average about five hours, there would be a variety of foods and other produce in the wanda. In the dry season after a typical foraging expedition the women might return with several varieties of tuber, edible gum to mix in with other foods, perhaps a few boab (baobab) nuts, and some bark from the river gums which they would later burn to make ashes to mix with food, or if available, with chewing tobacco.

Most excursions these days are made to the seashore. Women may still carry their wanda although this may be supplemented by or replaced with a billy for tea, together with a 'wire'. The most significant technological innovation is the fishing line. Women are now expected to catch fish, crabs and to collect shellfish. Excursions up river also produce fish, together with freshwater turtles and perhaps a freshwater crocodile. On inland expeditions, women may collect tubers, fruits and seeds, but these plant foods are now incidental to animal foods. On any expeditions, women also collect bark for wandas, wood for spear shafts, clubs or axe handles, ochre if they go near a quarry, bamboo if they find a tall clump and perhaps some paperbark for wrapping food for cooking. Both men and women watch out for the hives of the native bee and collect honey whenever they can.

The basic technique for locating plants is keen observation. The women are remarkably observant and seem to recognize small, and to the outsider, inconspicuous plants in almost any stage of growth. These days, women may glimpse plants only fleetingly from the back of a Land Rover, but they remember what they have seen and are able to return months later when the plants are ready for harvesting. For example, when we wanted to collect *gulalard*, Mary took me to a tree about 8 km from the mission where she said that she had seen the flowers of the creeper some months earlier. A careful search revealed the remains of the creeper, now reduced to a withered stem and dried leaves, buried among grasses and other vegetation. Mary followed the stem back to the point where it disappeared into the ground and then dug up the roots. Even had the creeper entirely disappeared, she would still have known approximately where to dig. In the past, she said, women depended upon memorizing the precise locations of plants because the bush fires often completely destroyed the leaves and stems. In country with which they are not familiar the women move from one dense patch of vegetation to another. They have a general idea of the plants they might find because they know what kinds of plants grow in such conditions elsewhere. However, there are times when they will dig in a promising spot even when all of





Figure 1 Digging for yamu in the bed of the King Edward River in a stony area classified as rururd. The steel rod has replaced the traditional digging stick.



Figure 2 Manuella Punan collecting edible gum from a daranggal tree (one of the kurrajongs). The gum is mixed with other foods.



#### TRADITIONAL ABORIGINAL PLANT RESOURCES

the above ground indications such as leaves or stems have gone, and then the finds may be unexpected. Mary first found *djanggara* roots for me by chance when she was prospecting at the base of a boab tree. But on the whole, the women have a clear sense of what they will find at any one spot, which is based on the repeated experience of collecting the same plants at the same places over many years.

Many of the fruits and some of the tubers were eaten raw, often where they were found. Because the men set out to hunt and not to forage, their consumption of plant foods was less than that of the women and children. Some of the small fruits, and *guraba* the plant gall, were regarded as exclusively children's food and were not usually taken by adults of either sex. Men might take fruits when they came across them, but they regarded digging for tubers as quite beneath their dignity. The imbalance in the diets of men on the one hand and women and children on the other was rectified in various way. There were restrictions which prohibited children from consuming some foods, particularly the bitter tubers, and the men applied short-term restrictions to women and children if they believed that the women were not bringing a reasonable portion of the plant foods back to base where the men could have a share. Women and children also caught small animals and reptiles which they often ate on the spot.

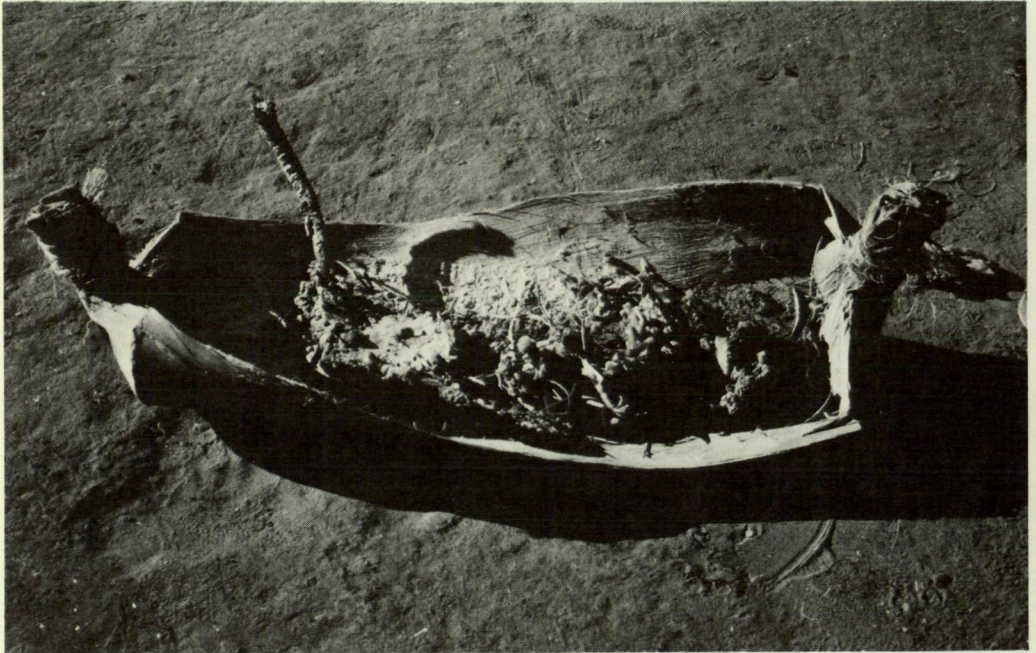


Figure 3 Wanda or carrying dish. Women take these on their foraging expeditions, carrying them under one arm and supported by belts which go across the body and over the opposite shoulder.





Figure 4 Aboriginal women were adept climbers. Where footholds were lacking, they cut toeholds.

### Food Preparation

As mentioned previously some fruits and tubers required no preparation and were often eaten where they were found. However, as some plant foods were unpalatable or poisonous in their natural state, Aborigines had developed a variety of methods for treating them. They also preserved some plant foods. The general term for the preparation of plant food was **banila**.

The majority of the root crops were baked for a few minutes in hot ashes or sand before they were eaten. The term for this kind of cooking was **wiradj** or **galer**. The heat produced a hard shell where the skin which encased the tuber was scorched, and Aborigines removed this. They would pulverize the more fibrous roots by hammering them with a round pebble (called **wundiri**) on an anvil stone (called **dandjara**). This action was called **dugurr**.

Several tubers are, in their nature state, excessively bitter. **Gela** was the term meaning bitter, and the process of converting a tuber from its bitter state to an edible condition was called **wulangai**. Three bitter tubers were **gunu** (*Dioscorea bulbifera* var. *rotunda*), **gandungai** (*Tacca leontopetaloides*) and **langanggu** (*Tacca maculata*). **Gunu** tubers were scorched over a fire so that the dark skin shrivelled, and this was removed. The tubers were then cut into slices about 1 cm thick, and these were liberally coated with wet ashes made from the bark of the river gum trees. The slices of tuber were then cooked in a 'bush oven', called **rangala** (Figure 7). This consisted of a hole in the ground lined with paperbark. Aborigines placed the raw food, together with pre-heated stones and sometimes leaves for flavour in the hole which they sealed with a covering of paperbark and soil. Inside, the food was both baked by the heat from the stones and steamed with the water vapour. Aborigines used the bush oven to cook large pieces of meat and large tough tubers. **Gunu** was usually adequately cooked after one baking which lasted overnight or about 12 hours. **Gandungai**, which was more bitter, was cooked twice, each time with fresh ashes, and **langanggu** required a third baking (Figures 9-13). When the oven was opened, the ashes were always carefully washed off the tubers. As an alternative to ashes, Aborigines made lime by burning sea shells in a large fire which they kept burning for 3-4 days. The chemical processes activated by the heat, moisture and ashes have not yet been analysed. Aborigines in Queensland also ate *Tacca leontopetaloides*, but they prepared it quite differently: they ground up the tubers, soaked them in fresh water, and cooked the resultant white mash (Roth 1901: 16, under syn. *T. pinnatifida*). In Arnhem Land, a similar technique was used in the preparation of *Dioscorea bulbifera* var. *rotunda*, the Kimberley **gunu** (Specht 1958: 486 under syn. *D. sativa*).

Aborigines used a different technique to prepare the yellow, caustic bulb **alamard** which belongs to the lily family. They scorched the bulb in an open fire until the outside was thoroughly blackened and carbonized. They then removed it from the fire and hammered it on an anvil. During this process the bulb remained cohesive as it has a rubbery texture, and the blackened outside was thoroughly

mixed with the uncooked yellow inside parts. The bulb was then re-scorched and re-hammered until all of the yellow had been blackened, when it was fit for eating (Figure 5).

Aborigines pulverized seed foods on stone anvils before they ate them. They usually put three or four strands of string around the periphery of the anvil stone to prevent pieces of seed flying off and on to the ground (Figure 6). Small grass seeds were ground rather than hammered. Aborigines baked kurrajong seeds (*Brachychiton*) before they ground them. As the kurrajongs ripen at the beginning of the wet season, the baked seeds could be stored as emergency supplies on days when hunting was unsuccessful. Where kurrajongs were abundant, baked seeds were cached away. However, at Kalumburu, the kurrajongs were not a major source of food.

Fruits were generally eaten raw, but three important exceptions were **gandala**, **glai** and **mandjara**. They were seasonally important because they matured in the wet season (**wundju**) and when cooked would keep for several weeks. Like the kurrajong seeds, they could be stored and eaten when other food sources had failed. **Gandala** (*Persoonia falcata*) produced an edible fruit and kernel about 1.5 cm long. The skin was not eaten but easily separated from the fruit and seed. The flesh adheres tenaciously to the seed, but it can be chewed. Aborigines say that they sometimes swallowed the fruit and seed whole without any preparation; however, it was more usual for them to pulverize the fruit and seed together by hammering them on an anvil. The resultant mixture resembles chewing gum for it can be stretched without breaking. It would keep in this state for several weeks, and could be eaten without further preparation. Alternately it could be mixed with the gum from the **daranggal** tree and dipped in water sweetened with honey (Figure 2). Prepared **gandala** has a pleasant flavour, but the texture is extremely gritty from the broken shells of the kernels. **Glai** was prepared in the same way. **Mandjara** fruit are smaller than those of **glai** and **gandala**. The round black fruit may have been sun-dried, but cooking was essential and was done in a bush oven for about 20 minutes. Cooked **mandjara** fruit were hammered and formed into a ball. In this state, they kept well.

Aborigines mixed foods to improve their flavours. Additives were gums from the kurrajongs and acacias, or water sweetened with honey (nowadays with sugar). **Daranggal** gum was dissolved in water and then mixed with honey to form a sweet for children. Gums were mixed with the 'bush apples', **ngawarri** (*Eugenia* affin. *armstrongii*) and **ngara ngudu gal** (*Eugenia grandis*), or with **gandala** fruit. The pith of boab nuts was dipped in sweetened water before it was eaten, particularly if it were old and tart. During the wet season, when most root crops were old and sour, the people are said to have gathered the bulbs of **manganda** and **walanda** (species of *Microstemma*) which were made palatable by being pulverized and mixed with green ants. Green ants were also used in a medicinal drink claimed to be effective against colds. The ants impart a distinct lemon flavour to water.





Figure 5 Mary Pandilow pounding the tubers of alamard (*Typhonium liliifolium*).





Figure 6 Pounding kurralong seeds. The coil of string prevents the seeds from scattering.



Figure 7 Preparation of a 'bush oven' or rangala. In this case unheated stones have been placed in the bottom of the cooking pit.





Figure 8 A fire has been lit above the stones. This will be allowed to burn until the wood has been reduced to coals.



Figures 9-13 show stages in cooking the tuber langanggu using a bush oven as illustrated in Figures 7 and 8.

Figure 9 The tubers (bottom centre), are cut into segments.



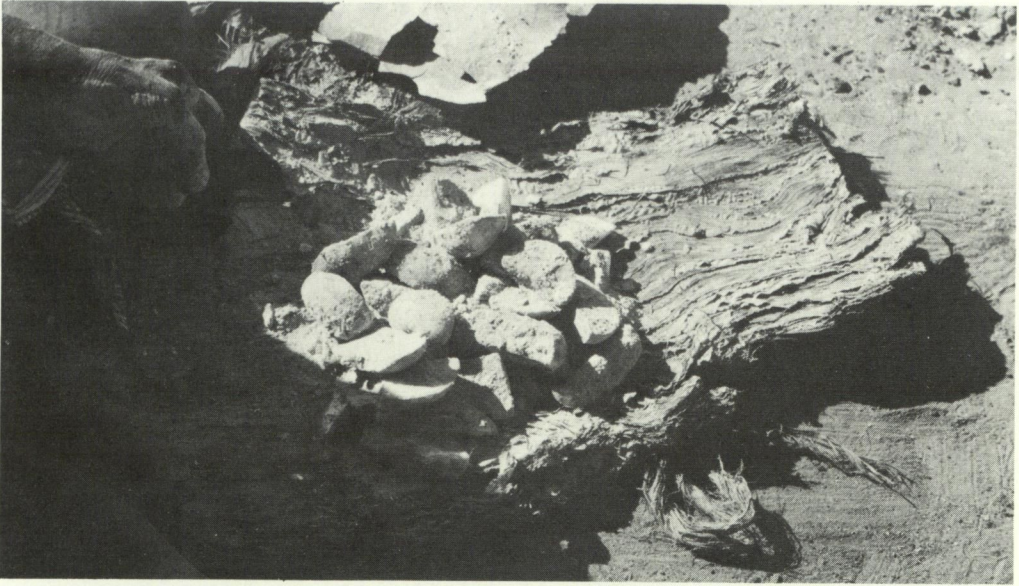


Figure 10 The segments are coated with wet ashes from the burnt bark of a river gum.



Figure 11 The segments are then placed in the oven over the coals.





Figure 12 The segments are then covered with paperbark, earth and ashes. Remains from preparation (paperbark, tin and river gum ashes) visible bottom left.





Figure 13 The oven is left sealed for about 12 hours. Here Mary Pandilow opens it.

### Classification of Plants

Aborigines do not classify plants into related groups in a way comparable with the Linnean binomial system used by European botanists, but usually apply a separate name to each plant which appears different to them. However, the correspondence between species (as named and recognized by botanists) and plants named separately by Aborigines is very close, although not of course identical. In the case of food plants, Aborigines sometimes apply separate names to subspecies and thus recognize finer divisions than the botanists, but in the case of plants which are not useful, Aborigines are more inclined to use one name for several species. Specht (1958) cited examples where Aborigines applied one name to food plants which were botanically different species, but within the category of useful plants I came across only two examples of the same Aboriginal name being applied to different species: the term **malara** was applied to two species of *Gardenia* which produce a resin used as a bonding material, and the word **widji** was used for three different species of *Fabaceae* which were all used as ichthyocides. This word is probably a generic term for a group of fish poisons.

In many cases, the Aboriginal classification recognizes finer distinctions than the botanical one, principally because Aborigines have separate names for plants which in botanical terms are regional variants of the same species. Examples in this paper are as follows: **lunduru** and **ngambiri** (two variants of *Curculigo ensifolia*); **bulga**, **guranggali**, **nanggiridji** and **walinjiri** (four variants of *Boerhavia diffusa*); **mili**, **ngulwana**, **wanggalu** and **wegu** (four variants of *Vigna lanceolata*); **malindjarr** and **wiana** (two variants of *Cochlospermum fraseri*); **banggiya** and **yundu** (two variants of *Planchonia australis*); **lau ula** and **wurrwa** (two variants of *Ipomoea graminea*) and **gandjidard** and **yumba** (two variants of *Ipomoea ?muelleri*). Aborigines are naturally concerned with root formations when these are edible, and in the case of **gunu** and **ganmanggu** (both *Dioscorea bulbifera*) the distinction is of fundamental importance: **gunu** (probably *D. bulbifera* var. *rotunda*) produces a black round tuber which is poisonous if it is not very carefully cooked with special ashes, whereas **ganmanggu** (probably var. *elongata*) has a long white tuber which can be eaten without any preparation. To a small extent, the difference between the Aboriginal and botanical classifications also reflects the state of botanical knowledge for the north Kimberley area. C.A. Gardner's report of 1923 remains the most comprehensive description of the plants in the region, although fieldwork by the Western Australian Herbarium is now providing much of the collecting needed for thorough botanical understanding. Given the present state of knowledge, plants which the Aborigines regard as different are sometimes referred to by botanists as the one species when it is likely that they will eventually recognize them as two. An example of this situation is *Vitex glabrata*, a species which Aborigines separate as two plants — **mandjara** which produces in January a black fruit which must be baked before it is eaten, and **yauru** which produces in March a green fruit which is edible raw.

All of the important edible plants are known by several different names, and each of the linguistic groups represented at Kalumburu has a set of these. Only the term commonly used at Kalumburu is presented in this paper. There are cases in which the Aboriginal term used by one group of Aborigines has been adopted and used by another group for a different plant. The term *yinga* is used at Kalumburu for an unidentified species of *Ipomoea*, but the same name was given to a plant collected at Port Warrender, 100 km to the west in Wunambal country by a Wunambal man and this was identified as *Ipomoea brasiliensis*. An even more extreme example is the use of the term *arnu* which at Kalumburu refers to the tuber of the white water lily (*Nymphaea* sp.) and at Forrest River refers to the tuber of the rush *Eleocharis ?sphacelata* which at Kalumburu is called *djabren*. The practice of transferring the name of one plant to another similar plant growing in a different region may well have been common in the past, and for this reason the Aboriginal names recorded here may well not have the same application in other parts of Kimberley.

### The Climatic Cycle and Harvest-season Indicators

The non-Aboriginal inhabitants of Kimberley usually recognize two seasons, the 'wet' which commences with the monsoonal rains in late December, and the 'dry' which commences in about May. Aborigines at Kalumburu recognize seven divisions in the annual cycle. They also nominate the calendar months to which the seasons approximately correspond, although they point out that the weather patterns vary from year to year, and thus the seasons might be a month or so earlier or later in any one year. Kaberry (1935: 409-10) said that the Forrest River and Lyne River Aborigines had terms for nine seasons, but she did not detail them. However, she recorded that the Lunga people who lived about 300 km south of Kalumburu nominated five seasons, and these bear some resemblance to the divisions recognized at Kalumburu (Kaberry 1939: 11). Nekes and Worms (1953) gave details of six seasons named by Aborigines further south and west, and although none of the terms is identical with the terms used at Kalumburu, there are common elements in the way the year was divided.

The seasons recognized at Kalumburu are as follows:

#### Yirma

May to August. The so-called winter commenced when the south-east winds blew steadily. It was the period of the year when the men burnt the long grasses and spinifex. They did this partly to facilitate walking and partly to drive game, but the regrowth of the grasses and spinifex encouraged grazing animals to return and thus improved the hunting opportunities. The women collected roots crops and a few fruits and seeds. It was regarded as a pleasant time of the year with plenty of food, and it was the period when ceremonies were held. Early explorers recorded seeing Aboriginal fires at this time of the year (e.g. King 1827, Martin 1864: 19).

**Yuwala**

September to November. This was the hot period in the year, sometimes called 'summer'. Root crops became scarce as those more readily found had already been harvested, and the remainder were difficult to find especially if burning had destroyed the foliage. Thomson (1949: 17-19) recorded the same situation in Arnhem Land.

**Djaward**

Mid-November to late December. This was the approach of the rainy season, and the weather was very hot and unsettled. Lightning flashed frequently and there were small rain storms. Many of the edible fruits ripened so it was a period of relative plenty. At Kalumburu the fruits were not sufficiently common to support inter-tribal meetings as they were at Forrest River 200 km to the east.

**Wundju**

January to February. Wundju was the term for the wet season when heavy rains fell almost daily. Often the rainfall exceeded 25 mm per day, and occasionally a cyclone would strike. The Aborigines regarded it as a very miserable period. The rivers were in flood and the ground waterlogged. The old root crops from the previous dry season were rotten and sour, and the new season's crops had not yet formed. Hunting supplied most of the food, but sometimes it rained so heavily and continuously that hunting was impossible. People built shelters from paperbark or from the bark of the eucalypt which they called *wanda*, or they lived in caves. Groups living inland sometimes visited their relatives who lived on the coasts during these lean months.

My own experience of the *wundju* season was not quite as unpleasant as I had expected from the Aboriginal accounts. At the mission, Aborigines have adequate food and shelter, and they have little trouble keeping their fires alight because these are protected by sheets of iron from the rain and are occasionally revived with kerosene when they do get wet. In these conditions, it is difficult to envisage the problems of living solely on supplies obtained from the bush. Indeed, during this period, wild animals seemed to me to be much more active than during the dry season, and thus would have appeared in traditional times to have been relatively abundant. During my stay, men and boys went out hunting with spears on many days, and on one occasion the women and children caught a kangaroo which was trapped by a flood. The women spent long hours fishing with lines with very good results. Walking conditions were cool, but very wet. It became extremely humid whenever the sun broke through the low-lying clouds. Many Aborigines suffered from infected cuts; one can imagine this being a major cause of debility in traditional times.

**Maiaru**

Late February to March. This season is sometimes called 'autumn' because the leaves are said to fall from the trees. The rains eased, but there was still little to eat.

**Bande manya**

April. The period when Aborigines say 'everything is ripening'. **Bande manya** was the period when the first of the new season's root crops reached maturity, thus ending the lean months of the wet season.

**Goloruru**

End of April. This is the season when the south-east trade wind began to blow. Progressively more root crops reached maturity.

As well as recognizing the sequence of seasons described above, Aborigines recognized another calendar which consisted of a series of indicators, each of which signalled that a particular food resource was available or in optimum condition. In the examples below, the indicators are the flowers of species of plants and other natural phenomena, and they indicate the season for taking marine and freshwater foods. Aborigines say that the flowers 'gave the sign' for the Aborigines to go and collect these foods.

Indicator	Food to be Harvested
Flowers of <b>liandu</b> ( <i>Verticordia cunninghamii</i> )	Oysters, particularly <b>malindji</b> ( <i>Crassostrea echinata</i> ) and <b>banalba</b> (not identified), crabs and turtle eggs
Flowers of Woollybutt ( <i>Eucalyptus miniata</i> )	Crabs and hermit crabs (called <b>ingawal</b> )
Flowers of Bush Almond or <b>langanda</b> ( <i>Terminalia</i> sp.)	Fish called <b>gadai</b> (not identified), parrotfish and sting-ray livers
Flowers <b>yauru</b> and <b>mandjara</b> ( <i>Vitex glabrata</i> )	Bream
March flies	Freshwater crocodile eggs
Fast-running clouds ( <b>mung gunu</b> )	Turtle eggs

**Classification of the Environment**

Kalumburu is situated in a broad valley surrounded by basalt and sandstone ranges. In the centre of the valley, the King Edward River runs into a large permanent pool above the mission. The river has extensive flood plains, but most of the land is above flood level and consists of leached sand, gravel and patches of boggy soil. Rising above the valley floor are outcrops of rock, and higher still are the ranges. The river runs from the pool through a gorge down to the sea where the coast is bordered by mangroves, rock and sand. The relationship of these ecological systems is indicated in the schematic diagram (Figure 14).



TRADITIONAL ABORIGINAL PLANT RESOURCES

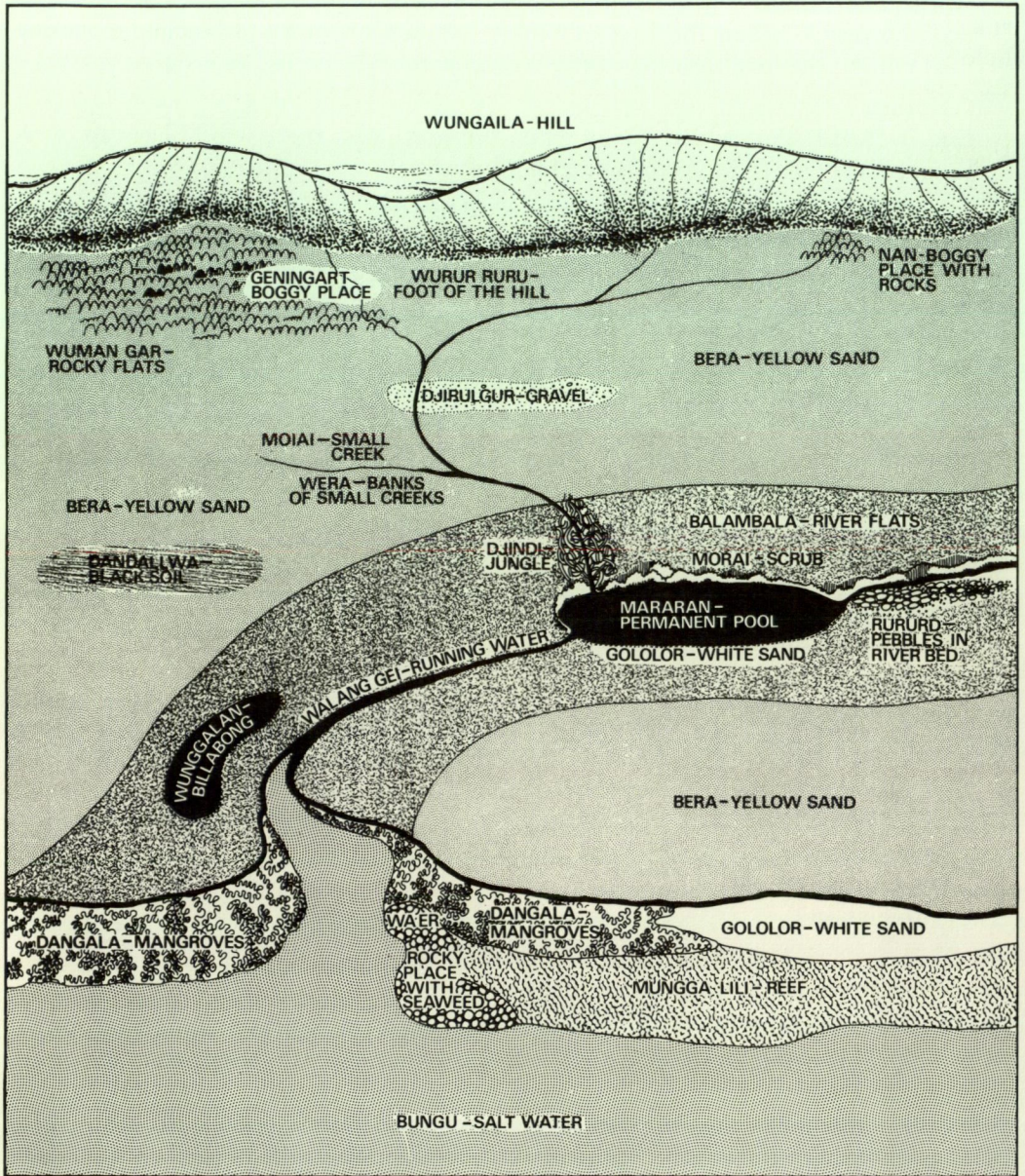


Figure 14 Schematic diagram showing relative distribution of land systems in Kalumburu area.

The Aboriginal division of the environment into different ecological systems is complicated. It draws its terminology principally from the words for different soils, but also uses terms for vegetational units. The principal terms are set out below, but in practice there are subtle variations according to the colour of the soil, the proximity of the water table and the degree of soil mixing.

### Djindi

The term **djindi** is translated by Aborigines as 'jungle', and it refers to the dense vegetation found near permanent fresh water. It includes tall trees such as *Barringtonia acutangula*, paperbarks and a large fig, and at a lower level, the water pandanus, vines and ground plants. Except where the trees have been chopped down, scrub and bushes are rare, but do occur along the drier margins of the **djindi**. The soil type associated with the **djindi** is called **djudji** and is a deep red clay. Aborigines refer to it as a companion soil to that found in the basalt hills. During the height of the annual floods, the **djindi** usually is completely inundated. It is an exceptionally rich environment for Aborigines, as it produces large quantities of root crops during the dry season, particularly **gandungai** and **gunu** and during the wet season, it has useful fruits and seeds, particularly **anbamar** (?*Securinega melanthesoides*), **gagalum** (*Cucumis melo*), **ongu** (*Ficus racemosa*) and **bandari** (*Eugenia* sp.). Thus there is plant food to be found in the **djindi** at almost all times of the year (cf. Gardner's category 'River Forrest', 1923: 16-17).

### Morai and Wera

**Morai** is the term for the scrub and thick bush near river banks, and **wera** is the term for the banks of small creeks. The **morai** supports a similar vegetation to the **djindi**, but the trees are more scattered and the undergrowth is thicker. In the **wera**, tall trees are rare and are replaced by river gums and kurrajongs which survive the dry period in the middle of the year. Underneath the trees, the vegetation is low but dense with grasses and small ground plants. The edible plant foods are similar in both systems, and include the much sought-after root **ganmanggu**. Other common root crops are **wiridjagu** (*Cartonema parviflorum*), **ngambiri** (*Curculigo ensifolia*), **gandungai**, **nugu** (*Hibiscus rhodopetalus*) and **yugali** (*Cayratia trifolia*). The two systems share many plants with the **djindi**, and like it they produce edible fruits and seeds during the wet. Important resources were the kurrajongs, **djalad** and **daranggal**, figs, **ngawarri** and **ngauwingai** (*Buchanania florida*).

### Mararan, Wunggalan, Rururd and Moial

These terms refer to different types of freshwater pools. During the dry season, they provided much of the plant food of the Aborigines, but not during the wet season. **Mararan** is the term for the large permanent or semi-permanent pools, and where these are less than two metres deep, the blue waterlily may occur

(*Nymphaea gigantea*). Billabongs and seasonal rock pools are called **wunggalan**, where the bottom is silty. These support **djabren** (*Eleocharis ?sphacelata*), a rush with an edible tuber. Where the bottom is rocky, the small white waterlily called **arnu** (*Nymphaea* sp.) grows. **Rururd** is the stony bed of either creeks or rivers which dry out quite early in the dry season. **Moial** is the gravelly bed of small creeks which also dry out rapidly.

### Balambala

**Balambala** is the term for the flood plain. At Kalumburu it consists of rich silt derived in part from the weathering of the basalts further inland. The flats may be inundated for short periods during the height of the wet season floods. It is now difficult to estimate the full importance of the **balambala** at Kalumburu because the flats have been cleared, ploughed, and sown with introduced pasture plants. Formerly it supported an open forest of river gums with grasses and other ground plants beneath them.

A conspicuous edible plant in the **balambala** is **alamard** (*Typhonium liliifolium*); its caustic bulb can be rendered edible by careful preparation (see above). There are other root crops, varietes of *Ipomoea*, *Boerhavia* and *Vigna*. **Gilu** (*Solanum dioecium*) is one of the rare dry season fruits.

### Bera

**Bera** is the term for leached sand, which is an extensive formation in the general region (cf. the Pago land system of Speck 1960). It is largely derived from weathered sandstone (**wumangarr**), and the plant array has much in common with that of the sandstones (see Wumangarr below). It supports an open forest of eucalypts, acacias and grevilleas. The soil is poor, and many of the plants listed as growing in the **bera** only grow where there is some admixture of gravel, or where the underlying rocks hold moisture during the dry season. The acacia, **walgali**, was probably one of the more important crops in the pure **bera**, while near gravels, **ngara ngudu gal**, **glai**, and **langanda** (*Terminalia* sp.) provided significant amounts of food. Growing near rocks, **djabaru** (*Ampelocissus acetosa*), and **gunu** were important.

### Djirulgur

Near Kalumburu are isolated patches of laterite and derived lateritic gravel (cf. Foster land system of Speck 1960). The gravels in particular support trees and bushes which fruit early in the wet season. Further inland than Kalumburu, and further west at Mitchell Plateau, the laterites are more extensive and support cycads (*Cycas ?media*) and cabbage palms (*Livistonia*) which were both very significant as food resources, but near Kalumburu both are absent. The fruits which were produced in quantity were **glai**, **gandala**, **langanda** and **ngauwingai** (cf. Gardner's category 'Northern sclerophyllous woodland', 1923: 19-20). Where laterite and sand are mixed the soil is called **badala**.



### Geningard

Geningard is water-logged sandy soil formed in pockets where outcrops of sandstone prevent effective drainage. Geningard provided a relatively small number of edible plant species, all producing root crops, but individuals of each species are abundant and so the system was of seasonal importance. Principal foods were **gumbia** (a legume), **lau ula** (*Ipomoea graminea*), **nalangga** (?*Vigna* sp.), **ngulwana** (*Vigna lanceolata*), **manganda** (*Microstemma tuberosum*), **gumburr** (*Hypoxis marginata*), **lunduru** and **ngambiri**, **nugu** and **wiana** (*Cochlospermum fraseri*).

### Dandauwa

Dandauwa refers to the black soil patches which are a special feature of the Kimberley soil assemblage. They are composed of heavy black clays which remain wet and boggy well into the dry season and then dry and crack. They support only grasses but where they are permanently wet, as for example by a spring, pandanus palms will grow. The principal food from the dandauwa is freshwater crab, and the only plant foot of note is **andan**, a pandanus.

### Wumangarr

Wumangarr is the term for sandstone which in this area forms both hills and low rocky outcrops (cf. Buldiva land system of Speck 1960). Nothing actually grows on the rocks (called **aru**), but in the small crevasses where humus has built up, the soils are quite rich. Because of the underlying rock, these soils may be moist. They are also well shaded. The most important fruits and seed are **bindjili** (*Ficus platypoda*) which clings to very small cracks in the rocks, **mandjara** and **yauru** (*Vitex glabrata*), the kurrajongs **bondjor** (*Brachychiton* sp.) and **djalad** (*Brachychiton diversifolium*), and **glai**. The root crops are not on the whole prolific, but exceptions are **djabaru**, **bara** and **mili** (*Vigna lanceolata*).

### Wunggaila

The term **wunggaila** refers to the basalts and their associated rich clayey soils (cf. Barton and Napier land systems of Speck 1960). Many of the basalts are exceptionally rich although very small in extent. They are often confined to pockets of soils between boulders but despite such restrictions on space, the root crops they support are very important. **Bulga** (*Boerhavia diffusa*), **gumbia** and **baladerr** (*Glycine ?tomentosa*) all produce well.

### Wuru Wuru

This term refers to the foot of the hills where the drainage is poor and consequently the soils remain damp. The soils often include a high proportion of clay (called **nan**). Only root crops are available, and of these, **gumbia** and **gulalard** (both legumes), and **wurrwa** (*Ipomoea graminea*) are the most significant.

### Gololor

**Gololor** refers to water-washed sand, found either as the banks of freshwater rivers or as beach drifts and dunes. Although **gololor** is extremely poor soil, it is

able to support a surprisingly rich vegetation because of the proximity of water. Trees are scarce, but include the productive species **djungeri** (*Adansonia gregorii*), the kurrajongs **daranggal** and **djalad** (*Brachychiton paradoxum* and *B. diversifolium*), the edible acacia **walgali** (*Acacia tumida*) and **wander** (*Canarium australianum*). **Bara** is the most productive of the root crops, but **ngulwana** and **walinjiri** (*Boerhavia diffusa*) are also important.

### Dangala and Nermen

**Dangala** and **nermen** are the mangroves. They produce no edible plant foods, but they provide varieties of shellfish, teredo worms and crabs. Aborigines find them good fishing places.

### Gial

**Gial** are very small places where freshwater springs flow immediately adjacent to the sea. They are extremely rich environments with dense patches of rushes and pandanus palms. The outstanding food plant of the **gial** is **nandjirr** (*Flemingia involucrata*) but almost any of the plants which grow in the **gololor** may also grow in **gial**.

## Implications of this Study

Archaeologists have usually imagined that food supplies were a major factor controlling the populations of prehistoric communities. That assumption has not ruled out other factors, such as warfare, pestilence and disease, or the operation of internal mechanisms such as foeticide, infanticide or social controls which reduce fertility, but the basic assumption has been that a population will expand to a point of equilibrium with its food resources. A further assumption is that, as man developed new technologies which gave him better methods of exploiting his resources, or even enabled him to control the production of food, his population would have increased. Recently however, ethno-archaeologists have suggested that food supplies were not critical in the control of population levels. Of particular relevance are the statements by Woodburn (1968: 1970) on the Hadza of East Africa. He says that the Hadza were never short of plant food, although the foraging range varied slightly from season to season and year to year (1968: 52-54). Lee's research among the !Kung Bushmen exposes a picture of even greater abundance of plant food in that society where hard times meant no more than an extended journey to collect the limitless supply of mongongo nuts. Neither the Hadza nor the !Kung Bushmen fully exploited their resources, and both groups had such copious supplies that they were able to share them with neighbouring agricultural groups whose crops had failed, and still suffer no malnutrition (Lee 1968: 40, Woodburn 1968: 54). In view of these reports, at the symposium on 'Man the Hunter' held in Chicago in 1966, the consensus of opinion was that

food did not limit population in hunting and food gathering societies. The discussion turned on an analysis of the other factors which might have operated to control populations in such societies (Lee and de Vore 1968: esp. pp. 244-45). It is interesting to compare the situation of Aborigines in north Kimberley, with that of the Hadza. Both groups inhabit very similar environments, and of the principal food-producing plants listed by Woodburn, seven are common to the Aboriginal diet in Kimberley, including the mutually important boab tree.

Kimberley Aborigines justifiably boast of their skills in living in the bush, saying 'I will never starve, the bush is my home'. In their accounts of the past, factors other than shortages of food were important in controlling population levels. A common cause of death was fighting and raiding, and many people were speared by other Aborigines, often for causes which were so trivial that they have now been forgotten. Fear of being speared kept Aborigines within their home territories much of the time. There may be some danger of over-estimating the actual importance of deliberate killings as a cause of death in the total population, for these were dramatic events which have been preserved in the oral traditions while other factors have been forgotten. Marriage patterns are thought to have kept the birth rate down, and infanticide was practiced although mainly when the family group already had as many children as it wanted (Cawte 1964: 182, Kaberry 1939: 54, 107 and 156). Accidents were a hazard in the bush, and the Aborigines' inability to set broken bones often led to permanent disabilities (Love 1936: 201). Burns, especially to children, were regarded as a special hazard, as Aborigines used fires to warm themselves at night and children were liable to roll into them. Blindness seems to have been fairly common in old people. However, many of the modern diseases which afflict the Aborigines were unknown. As a whole the Aboriginal population seems to have been very healthy in the past but has suffered badly from the introduced diseases of leprosy, venereal disease and influenza.

But in conflict with the confidence of individual Aborigines in their abilities to survive in the bush, and in contrast with the experiences of some research workers in other parts of the world, Aborigines acknowledge that food shortages did sometimes occur. These constituted crises which imposed restrictions on the Aboriginal populations. The land resources of the Kimberley Aborigines were not limitless. Unlike the !Kung Bushmen or the Hadza, the Aborigines could not overcome food shortages by foraging further afield because Aboriginal society limited the range of the individual. Groups could move to nearby territories only if these were occupied by friendly neighbours. Nobody could move far before he encountered hostility. Besides, a poor wet season followed by poor development of root crops and restricted pasturage for the herbivorous animals would have similarly affected all of the Aboriginal groups in northern Kimberley, and movement from one territory to another would have served no purpose unless it meant a movement to different ecological systems which had responded more favourably to the particular year and season. In normal times, the sick, old and weak were

carried from camp to camp, and this practice continued for years in individual cases. But during a bad period at the most critical time of the year, the old and weak perished because they could not move on and the group could no longer carry them. Aborigines on the west coast tell a myth about the lizard ancestors (two brothers) who travelled with their old mother until she was incapable of going on. They strangled her and buried her body rather than leave her to die alone. Woodburn records an example of abandonment among the Hadza, despite their apparent affluence (Lee and de Vore 1968: 91). Sahlins has argued that mobility is at the core of the hunter-food gatherer way of life, and that 'senilicide' is a necessary sacrifice for its maintenance (Sahlins 1972: 34). What is clear is that on the rare occasions when food was very short, the weakest elements in the Kimberley Aboriginal societies, as in many other hunting and food gathering societies, perished.

The seasonal distribution of edible plants imposed patterns on the spatial distribution of Aborigines in traditional times, and thus on the organization of Aboriginal society, although any attempt to reconstruct the details of these patterns is difficult because of the lapse of time since traditional society was a functioning reality. Aborigines last lived in the bush during World War II when they fled from the mission after the Japanese had bombed it and adjacent military installations, and five Aborigines were killed. Even then, there was some access to European supplies, evidenced now in the litter of tins on the sites of wartime camps. Individuals and small parties lived longer in the bush or went back temporarily for personal reasons, but since the war there have always been European sources of food which could be drawn on in time of critical shortage. Also any reconstruction of past patterns must rest largely on the statements made by Aborigines recalling the past, and while their memories of events are remarkably clear, it is difficult to establish any quantitative assessment of the food supplies seasonally or environmentally.

Aborigines state, and often repeat, that people preferred to stay in their own countries, called *gra*, and that they did not move out of them except in special circumstances (cf. Stanner's stress on Aboriginal socializing, Stanner 1965: 2). A *gra* is a large tract of land: the *Gandjal gra* which includes Kalumburu covers an area of 65 000 ha (250 square miles). Within the *gra* there may have been smaller units of the order found by Hiatt among the Anbara (who are situated on the west side of the mouth of the Blyth River in the Northern Territory) (Hiatt 1968: 101); certainly smaller areas within the *gra* are named and these cover smaller sites such as campsites and mythologically named sites, but the normal foraging range was the *gra*. The social unit inhabiting the *gra* was exogamous, and thus fulfils the requirements of the horde as defined by Radcliffe-Browne and upheld by Stanner (Stanner 1965). Although the boundaries of all of the *gra* in the general region of Kalumburu have not been plotted precisely, only the time and effort involved has prevented this, for the territories are well defined and the boundaries usually follow the highest line in high country or follow the edges of

Aboriginal ecological zones. Thus a knowledge of the Aboriginal land classificatory system is a pre-requisite for the mapping of the *gra* territories, a point already made by Pilling (1968: 187) on the basis of his experience with the Tiwi on Melville Island.

Any one *gra* encompassed a variety of ecological systems, and thus was potentially capable of producing adequate food supplies throughout the year. All of the ecological systems described in this paper occur in the Gandjal territory, although it was regarded as especially rich in riverine and deficient in hill systems. In contrast, Mary Pandilow's father's country, Yawalungai, was much more mountainous but lacked good riverine systems. Perhaps because its soils were less productive, it was larger (in the order of 78 000 ha or 300 square miles). The *gra* territories of Gandjal, Budjanungga, Yawalungai, Galarungai, Dauwingdjinoor, Wurrial and Langgarigonor together constitute the territory of the Bremorai (lit. 'bush') 'tribe', and a number of tribes allied to form a larger unit, the Kunin 'nation' which extended over north-east Kimberley.

In general terms, during the dry seasons Aborigines lived in the valleys, particularly near the rivers and freshwater pools. When the rains eased in April and May, they came down from the hills and rocks to the sandy soils and started to exploit the first of the root crops reaching maturity in the well drained sandy areas. By June and July, they were digging up the root crops in the alluvial plains and the banks of the creeks and rivers. They commenced burning spinifex and cane grass to facilitate walking, and to stimulate regrowth which attracted the kangaroos. Hunting drives took place during burning. The valleys were burnt later, if at all, because the fires destroyed the leaves and stems of the root crops and made the women's task of locating plant foods more difficult. They preferred to delay the harvest of the waterlily tubers until the warmer weather in August and September when the waters were shallower and less chilling.

As the weather became hotter, Aboriginal activities were more strictly confined to the major valleys. The ephemeral pools were poisoned for fish before they dried up. Once they were gone, water was scarce except in the large permanent pools in the valleys. The country, now thoroughly burnt and dry, looked barren, and most of the animals sought shelter from the sun drying the heat of the day. In November, the dry lightning displays forewarned of the coming rains, and small localized storms brought some relief from the oppressive heat. A few of the fruits ripened and provided a change of diet.

When the rains came in December, the rivers and pools ceased to attract Aborigines, for the water plants were immature and their tubers too deep for the women to reach. Camps, for which the general term is *madaia*, were moved back from the rivers to well drained soils, gravels and rocks, often up to the hills. The valleys were not totally abandoned, for the trees and bushes growing near the rivers bore fruits and seeds and the flood plains were rich in game. Trees growing in the gravels and rocky areas, particularly *gandala*, *glai*, *mandjara* and *yauru* provided important fruits, and the varieties of *kurrajongs* produced seed crops

which could all be stored against those days when persistent heavy rain prevented hunting and gathering. A few root crops were available, particularly **bulga** which grew in the basaltic hills. The roots of **glai**, **ngauwingai**, **malindjarr** (*Cochlospermum fraseri*) and **wiana**, and the growing shoots of the **dangana** palm were probably taken for preference during the wet seasons before the first of the tubers reached maturity in April.

Although the **gra** were largely self-supporting territories within which Aborigines preferred to remain, there were times when food resources were temporarily inadequate or when social pressures dictated movements beyond the **gra** boundaries. For example, Mary explained that in her father's **gra**, the critical period was the wet season, **wundju**, when plant foods were scarce. If hunting proved unproductive, her parents might then travel to the coast to visit her father's two sisters who had gone to live on their husband's **gra**. Fish, shellfish and crabs which were the staples near the sea were less seasonally affected, so her parents fared better sharing these limited resources than facing possible starvation in the hills. The coastal dwellers returned these visits during the times when the inland's food resources were richest. They visited when the root crops, which were scarce in the poorer sands of the coastal areas, were plentiful in the inland river valleys, when hunting drives produced large quantities of game, and when camp-fires could be kept going to provide light and warmth for singing and dancing. This was regarded as the prime season for social visits and ceremonies.

Aborigines had felt the need to travel beyond their **gra** boundaries on certain of the occasions. Given the prevailing traditions of fighting and spearing, people going outside their own borders needed to live under the protection of trusted relations. Access to different **gra** territories was only possible through the rights conferred by women, for on her marriage, a woman went to live on her husband's **gra** but she retained rights to her own **gra** and extended privileges of its use to her husband and his close kin. According to Stanner (1965), a man was assured of a special welcome protection in the clans of his mother, his mother's mother, his father's mother and his wife. In Kimberley this welcome was also extended by his sister's husband and probably his daughter's husband. Nevertheless there could be reasons why even these territories were closed to a man: Mary's mother had run away from her tribal group, the **Gambre**, after the death of her second husband, and a return to her territory would have led to bloodshed. By contrast if a marriage were well arranged, a woman brought rights of access not just to more **gra** territories, but to different ecological systems. Marriage arrangements could thus increase the ability of a woman and her family to survive bad seasons when food was scarce. It also allowed them to participate in ceremonial occasions when they could live in the **gra** of her blood relations and with their protection. In this area of Kimberley, the reciprocal movement of women between the coast and the inland territories seems to have been favoured; further inland the pattern seems to have been of movement between riverine and mountainous territories, but this has yet to be confirmed.

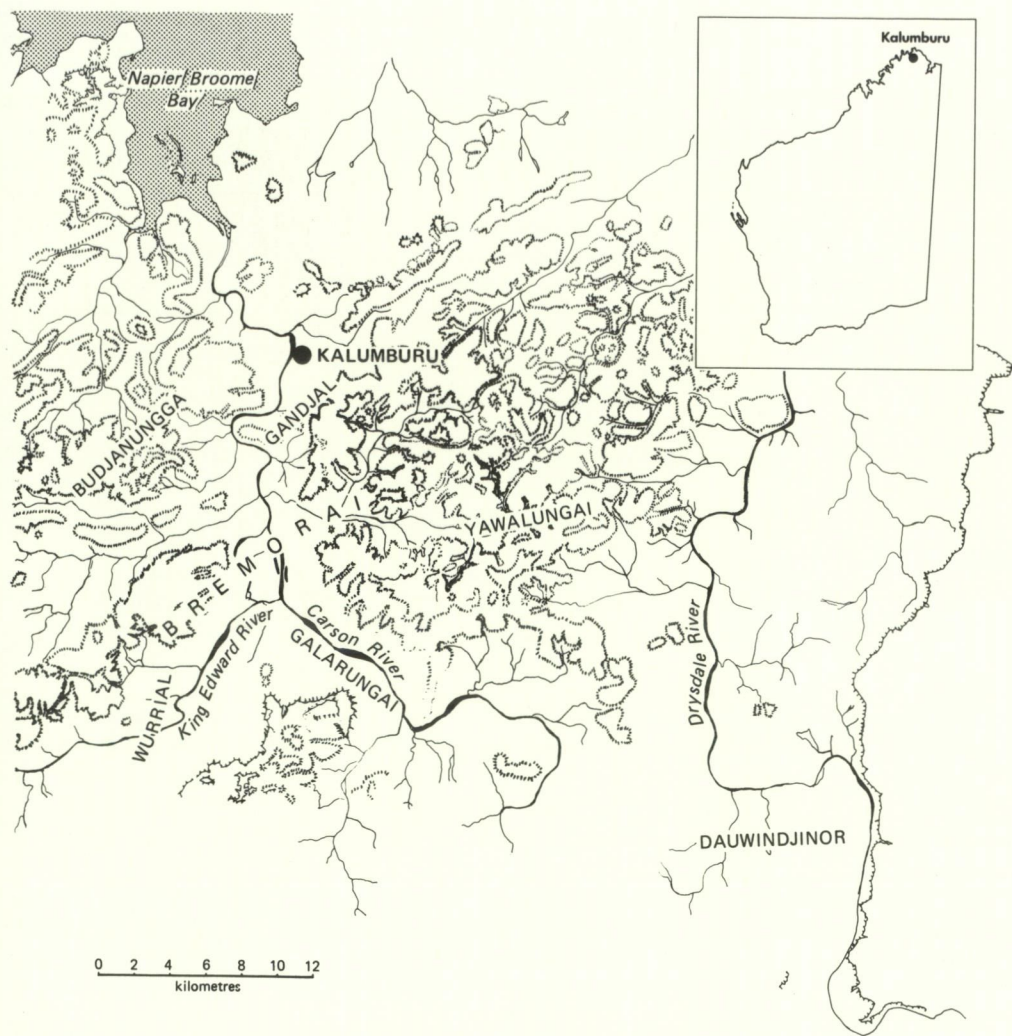


Figure 15 Map showing clan territories of the Bremorai people, Kalumburu area.

## TRADITIONAL ABORIGINAL PLANT RESOURCES

Table 1 Fruits and Seeds

Aboriginal name	Identification	Season
Anbamar	<i>Securinega melanthesoides</i>	Djaward-Wundju
Andan	<i>Pandanus</i> sp.	Yuwala
Bandari	<i>Eugenia</i> sp.	Wundju
Banggiya	<i>Planchonia australis</i>	Djaward-Wundju
Bindjili	<i>Ficus platypoda</i>	Yirma
Bondjor	<i>Brachychiton</i> sp.	Yuwala-Djaward
*'Creeper', 'Gooseberry'	<i>Passiflora foetida</i>	Wundju
Dalu	<i>Brachychiton</i> sp.	Yirma
Daranggal	<i>Brachychiton paradoxum</i>	Yuwala-Djaward
Darrar	<i>Panicum ?capillipes</i>	Yirma
Djabaru	<i>Ampelocissus acetosa</i>	Maiaru-Bande manya
Djalad	<i>Brachychiton diversifolium</i>	Yuwala-Djaward
Djumbu	<i>Cynanchum pendunculatum</i>	Yirma
Djungeri	<i>Adansonia gregorii</i>	Maiaru-Yirma
Gagalum	<i>Cucumis melo</i>	Yirma
Gandala	<i>Persoonia falcata</i>	Djaward
Gandjandjal	<i>Pandanus aquaticus</i>	Bande manya
Gara	<i>Grewia polygama</i>	Yirma
Gilu	<i>Solanum dioecium</i>	Yirma
Glai	<i>Buchanania obovata</i>	Djaward
Langanda	<i>Terminalia</i> sp.	Djaward-Yirma
Lariyara*	<i>Terminalia</i> sp.	Wundju
Lowal lowal	Euphorbiacea?	Wundju
Madunba	<i>Amyema sanguineum</i>	Yirma
Mandjara	<i>Vitex glabrata</i>	Djaward
Mandural	<i>Terminalia discolor</i>	Yirma
Mangarr	<i>Planchonella arnhemica</i>	Djaward-Wundju
Miani	<i>Nymphaea gigantea</i>	Yirma-Yuwala
Miawal	<i>Ondinea purpurea</i>	Yirma
Milalba	<i>Panicum delicatum</i>	Yirma
Mindji	<i>Ficus opposita</i>	Yuwala
Minggul	not identified	Yuwala
Nanggalu	<i>Capparis umbonata</i>	Djaward
Nangi	<i>Pouteria sericea</i>	Yuwala
Ngara ngudu gal	<i>Eugenia grandis</i>	Djaward
Ngawarri	<i>Eugenia affin. armstrongii</i>	Yuwala
Ngauwingai	<i>Buchanania florida</i>	Djaward
Ongu	<i>Ficus racemosa</i>	Djaward-Wundju
Walara	<i>Mimusops elengi</i>	Yirma
Walgali	<i>Acacia tumida</i>	Yirma
Wander	<i>Canarium australianum</i>	Yirma-Djaward
Wiliwa	<i>Grewia</i> sp.	Djaward
Yalu	<i>Terminalia grandiflora</i>	Wundju-Goloruru



Table 1 (continued)

Aboriginal name	Identification	Season
Yamban	<i>Pandanus</i> sp.	Yuwala
Yangai	<i>Grewia</i> sp.	Koloruru
Yangu	<i>Antidesma ghaesembilla</i>	Djaward-Wundju
Yauru	<i>Vitex glabrata</i>	Maiaru
Yilau*	<i>Gardenia ?edulis</i>	Yirma
Yundu	<i>Planchonia australis</i>	Djaward-Wundju

\* Probably not a traditional food

Table 2 Root Crops

Aboriginal name	Identification	Season
Alamard	<i>Typhonium liliifolium</i>	Yirma-Yuwala
Aliyu	<i>Ipomoea</i> sp.	Yirma-Yuwala
Arnu	<i>Nymphaea</i> sp.	Yirma-Yuwala
Baladerr	<i>Clycine ?tomentosa</i>	Yirma-Yuwala
Baniyu	<i>Murdannia graminea</i>	Yirma-Yuwala
Bara	<i>Operculina brownii</i>	Goloruru-Yuwala
Buargu	<i>Commelina ensifolia</i>	Yirma-Yuwala
Bulga	<i>Boerhavia diffusa</i>	Wundju-Yirma
Djabaru	<i>Ampelocissus acetosa</i>	Goloruru-Yuwala
Djabren	<i>Eleocharis? sphacelata</i>	Yirma-Yuwala
Djanggara	<i>Portulaca pilosa</i>	Wundju-Yirma
Gandjidard	<i>Ipomoea ?muelleri</i>	Yirma
Gandungai	<i>Tacca leontopetaloides</i>	Goloruru-Yuwala
Ganmanggu	<i>Dioscorea bulbifera</i>	Goloruru-Yuwala
Gimaru	<i>Cyperus bulbosus</i>	Yirma-Yuwala
Gingu	<i>Colocasia antiquorum</i>	Yuwala
Gulalard	legume	Yirma-Yuwala
Gumbia	<i>Eriosema chinense</i>	Yirma-Yuwala
Gumburr	<i>Hypoxis marginata</i>	Wundju
Gunu	<i>Dioscorea bulbifera</i>	Goloruru-Yuwala
Gurangali	<i>Boerhavia diffusa</i>	Wundju-Yirma
Langanggu	<i>Tacca maculata</i>	Goloruru-Yuwala
Lunduru	<i>Curculigo ensifolia</i>	Yirma-Yuwala
Lau ula	<i>Ipomoea graminea</i>	Yirma-Yuwala
Malindjarr	<i>Cochlospermum fraseri</i>	any time, pref. taken Wundju
Manganda	<i>Microstemma tuberosum</i>	any time
Miani	<i>Nymphaea gigantea</i>	Yirma-Yuwala
Miawal	<i>Ondinea purpurea</i>	Yirma
Mili	<i>Vigna lanceolata</i>	Yirma-Yuwala
Nalangga	<i>Vigna</i> sp.	Yirma-Yuwala

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Table 2 (continued)

Aboriginal name	Identification	Season
Nandjirr	<i>Flemingia involucrata</i>	Yirma
Nanggiridji	<i>Boerhavia diffusa</i>	Yirma-Yuwala
Ngambiri	<i>Curculigo ensifolia</i>	Yirma-Yuwala
Ngulwana	<i>Vigna lanceolata</i>	Yirma-Yuwala
Nugu	<i>Hibiscus rhodopetalus</i>	Yirma-Yuwala
Wiana	<i>Cochlospermum fraseri</i>	any time, pref. taken Wundju-Bande manya
Walanda	<i>Microstemma</i> sp.	Wundju-Bande manya
Walinjiri	<i>Boerhavia diffusa</i>	Yirma-Yuwala
Walangga	<i>Buchanania obovata</i>	any time, pref. taken Wundju-Bande manya
Wanggalu	<i>Vigna lanceolata</i>	Yirma-Yuwala
Wegu	<i>Vigna lanceolata</i>	Yirma-Yuwala
Wiridjagu	<i>Cartonema paviflorum</i>	Goloruru-Yuwala
Wurrwa	<i>Ipomoea graminea</i>	Yirma-Yuwala
Yamu	<i>Thysanotus tuberosus</i>	Yirma-Yuwala
Yangun	<i>Aponogeton elongatus</i>	Yirma
Yinga	<i>Ipomoea</i> sp.	Yirma-Yuwala
Yugali	<i>Cayratia trifolia</i>	Yirma-Yuwala
Yumba	<i>Ipomoea ?muelleri</i>	Yirma-Yuwala

Table 3 Plants Associated with Food and its Preparation

Aboriginal name	Identification	Use
Bandaran	<i>Melaleuca cf. argentea</i>	bark used to wrap food for cooking
Berrngul	? <i>Chrysopogon cf. pallidus</i>	crushed ends used to dip honey
Dangana	<i>Livistona</i> sp.	edible growing shoot
Daranggal	<i>Brachychiton paradoxum</i>	exudes edible gum
Gadji	<i>Flagellaria indica</i>	battered ends used to dip up honey
Galal	<i>Eucalyptus</i> sp.	bark ashes used in cooking
Guraba	plant gall	eaten by children
Lolord	<i>Acacia dunnii</i>	leaves used in cooking
Malara	<i>Gardenia megasperma</i>	leaves used in cooking
Walula	<i>Terminalia</i> sp.	exudes edible gum

Table 4 Medicinal Plants

Aboriginal name	Identification	Use
Andan	<i>Pandanus</i> sp.	aerial roots used for colds and headaches
Bambra	<i>Grevillea viscidula</i>	caustic sap used to make body scars
Baruru	<i>Eucalyptus</i> sp.	bark and leaves used to cure colds and headaches
Bindji windjil	<i>Lobelia</i> sp.	bush tobacco, chewed with ashes
Bunu	<i>Hypoestes floribunda</i>	native powder
Bunu bunu	<i>Stemodia lythrifolia</i>	scented plant used to treat headaches
Dilngeri	<i>Petalostigma quadriloculare</i>	fruit used to treat toothache and sore eyes
Mangarr mangal	<i>Acacia leptocarpa</i>	for sore eyes
Ngamul ngamul	<i>Sarcostemma australe</i>	sap used to induce lactation
Ngula	<i>Clerodendrum ovalifolium</i>	bush tobacco, chewed with ashes
Waramburr	<i>Tinospora smilacina</i>	vine used as ligature
Yangal	<i>Eruthrina vespertilio</i>	bark used to treat headaches and sore eyes

Table 5 Ichthyocides

Aboriginal name	Identification	Where used
Danba	<i>Barringtonia acutangula</i>	fresh water
Leini	<i>Tephrosia phaeosperma</i>	salt water
Widji	<i>Tephrosia purpurea</i>	fresh and salt water
Widji	? <i>Crotolaria</i> sp.	fresh water
Widji	<i>Indigofera</i> affin. <i>brevidens</i>	fresh and salt water
Yundu	<i>Planchonia australis</i>	fresh water

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Table 6 Plants for Making Implements

Aboriginal name	Identification	Use
Bandaran	<i>Melaleuca cf. argentea</i>	paperbark used as a mat, as wrapping and to cover shelters
Baruru	<i>Eucalyptus</i> sp.	bark used to make carrying dishes and for wet season shelters, trunk for didjeridus
Bimarr	<i>Banksia dentata</i>	seed stem used as a paint brush
Bondjor	<i>Brachychiton</i> sp.	bast used to make string
Daranggal	<i>Brachychiton paradoxum</i>	bast for string and belts
Djalad	<i>Brachychiton diversifolium</i>	bast for string
Djulurd	<i>Acacia stigmatophylla</i>	hook for womerah and shaft for spear
Djungeri	<i>Adansonia gregorii</i>	bast of roots for string
Gamagurd	<i>Phragmites karka</i>	bamboo for spears
Gunan	<i>Premna acuminata</i>	fire sticks
Laba	<i>Thespesia populneoides</i>	fire sticks and spear shafts
Larmi	<i>Drosera petiolaris</i>	crushed leaves for body decoration
Liandu	<i>Verticordia cunninghamii</i>	wood for clubs
Lirimbi	<i>Typha domingensis</i>	fibres around seeds for body decorations
Malara	<i>Gardenia megasperma</i>	resin used as fixative
Malara	<i>Gardenia ?pyriformis</i>	resin used as fixative
Mangada	<i>Calytrix microphylla</i>	wood used as pressure-flake stone
Mar	<i>Nauclea coadunatus</i>	canoe tree
Wander	<i>Canarium australianum</i>	canoe tree
Wiliwa	<i>Grewia</i> sp.	wood for spears
Wuluru	<i>Acacia gonocarpa</i>	wood for spear shafts
Yangal	<i>Erythrina vespertilio</i>	wood for womerah and shield
Yirulumal	not identified	bast for string, and wood for fire sticks

Table 7 Fruits and Seeds Seasonally and Environmentally Distributed

<i>Environment Season</i>	Wunggaila Wuman garr Wuru ruru	Djirulgur	Bera	Gololor	Geningard Dandauwa	Balambala Djindi Morai Wera	Mararan Moial Rururd Wanggalan	
Djaward	bondjor djalad glai mandjara wander yundu	gandala glai langanda	banggiya gandala glai langanda mangarr ngara- ngudu gal wiliwa	anbamar daranggal djalad manggalu wander wiliwa		anbamar daranggal djalad mangarr ngauwingai ong u yangu yundu		December
Wundju	lowa lowal yundu	gandala langanda	banggiyu gandala langanda mangarr wiliwa yundu	anbamar wiliwa		anbamar bandari 'creeper' lariyara mangarr ong u yalu yangu yundu		January- February
Maiaru	djungeri yauru	langanda	djabaru langanda	djabaru djungeri		djabaru djungeri halu		February- March
Bande manya	djungeri	langanda	djabaru langanda	djabaru djungeri		djabaru djungeri yalu	gandjandjal	April
Goloruru	djungeri	langanda	langanda	djungeri		djungeri yalu yan gai		end of April
Yirma	bindjili djumbu djungeri gilu mandural wander	gara langanda	gara langanda madunba walgali yilau	dalu djungeri walara walgali wander	gagalum	dararr djungeri gagalum gilu milalba	miani miawal	May-August
Yuwala	bondjor djalad minggul wander		nang i ngawarri	daranggul djalad wander	andan	daranggal djalad wander	miani yamban	September- November
	Hills	Laterite	Leached Sand	Sand	Swamp	Bush	Fresh water	<i>Season Environment</i>

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Table 8 Root Crops Seasonally and Environmentally Distributed

Environment Season	Wunggai Wuman garr Wuru ruru	Djirulgur	Bera	Golor	Geningard Dandauwa	Balambala Djindi Morai Wera	Mararan Moial Rururd Wunggalan	
Djaward								December
Wundju	bulga djanggara wiana walangga	walangga	djanggara malindjarr walanda walangga	djanggara	gumburr manganda wiana	guranggali guranggali walangga		January- February
Maiaaru	bulga djanggara wiana walangga	walangga	djanggara malindjarr walanda walangga	djanggara	manganda wiana	guranggali walangga		February-March
Bande manya	bulga djanggara wiana walangga	walangga	djanggara malindjarr walanda walangga	djanggara	manganda wiana	guranggali walangga		April
Goloruru	bara bulga djanggara ganmanggu gunu		djabaru djanggara langanggu	bara djabaru djanggara gunu		djabaru gandungai ganmanggu gunu wiridjagu		end of April
Yirma	aliyu baladerr baniyu bara buargu bulga djanggara ganmanggu gulalard gumbia gunu nugu walanggu wurrwa yugali	baladerr baniyu wegu	aliyu djabaru djanggara langanggu	bara buargu djabaru djanggara gandjidard gimaru gunu mili ngulwana walinjiri ying a yugali	buargu gumbia lau ula lunduru nalangga nandjirr ngulwana nugu	alamard baniyu djabaru gandungai ganmanggu guranggali gunu lau ula nanggiridji ngambiri hugu wiridjagu yugali yumbu	arnu djabren miani miawal yamu yangun	May-August
Yuwala	aliyu baladerr baniyu bara buargu ganmanggu gulalard gumbia gunu nugu walanggu warrwa yugali	baladerr baniyu wegu	aliyu djabaru langanggu	bara buargu djabaru gimaru gunu mili ngulwana walinjiri ying a yugali	buargu gumbia lau ula lunduru nalangga ngulwana nugu	alamard baniyu djabaru gandungai gunu lau ula nanggiridji ngambiri nugu wiridjagu yugali yumba	arnu djabren gingu miani yamu	September- November
	Hills	Laterite	Leached Sand	Sand	Swamp	Bush	Fresh water	Season Environment

## Plant Descriptions

The order adopted here follows the standard botanical system of Engler and Prantle.

## Typhaceae

*Typha domingensis* Pers.

Aboriginal name **Lirimbi**

Description A bullrush. The seeds are surrounded with fibres resembling cotton wool.

Use: The fibre is used as a body decoration.

Locality: **Wunggalan**

## Pandanaaceae

*Pandanus aquaticus* Warb.

Aboriginal name **Gandjandjal**

Description This is the smallest of the three species of pandanus, and is known as the river pandanus.

Preparation Although the seed has an edible kernel, this was not usually taken for food as the return did not repay the labour. It was rather a potential source in case of emergency.

Season **Bande manya**

Locality **Mararan**

*Pandanus* sp.

Aboriginal name **Andan**

Description This is the common pandanus which grows in boggy soils which are rich in clay and near water. It has edible seeds and fruit, and the aerial roots were used to make medicines.

Preparation The heads of fruit were taken and cooked over coals or hot ashes. The fibres which surround the seed were removed, but the pith was eaten. Inside the seed is an edible kernel which resembles an almond.

The aerial roots were used as a basis for medicine for the treatment of colds and headaches. The roots were pulverized, then soaked in water. The water was applied externally.

Season **Yuwala**

Locality **Dandauwa and Balambala**

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*Pandanus* sp.

Aboriginal name

**Yamban**

Description

This species is distinguished from **andan** by a different break-up formation of the fruit, and it is less common than **andan**. The fruit and seeds are eaten.

Preparation

The fruit and seeds are prepared as **andan**.

Season

**Yuwala**

Locality

**Moial**

References

McArthur (1960: 108) described Aborigines crushing and eating the kernel of *Pandanus whitei*. Tindale (1925: 77) said that it was eaten, but not with much relish, on Groote Eylandt. Maiden (1888: 535 and 1889: 50) quotes Leichardt as saying that he frequently found remains of pandanus seeds at Aboriginal camps near Port Essington. Basedow (1929: 153) said that the Roper River tribes made a toddy by leaving the pandanus fruit in water until they fermented. Specht (1958: 483) reported that Aborigines ate parts of the fruit, and Woolston (1973: 98) has recorded information on the preparation techniques and actions signifying ownership of individual trees on the Wellesley Islands.

**Aponogetonaceae**

*Aponogeton elongatus* Benth.

Aboriginal name

**Yan gun**

Description

A water lily with yellow flowers and distinctly different leaves below and above water. It has an edible tuber.

Preparation

Cook the tubers in ashes, peel the skin off.

Season

**Yirma**

Locality

**Wunggalan**

**Areceaceae**

*Livistona* sp.

Aboriginal name

**Dangana**

Description

The Cabbage Palm.

Preparation

Cut the growing shoot of the palm out, strip back the leaves and eat the soft part. It can be eaten all the year round, and tastes good. It can be baked.

Season

Anytime

Locality

**Wumangarr** in crevices in rock (**aru**).

Comment

Cabbage palm groves occur on Mitchell Plateau and according to informants, was the principal plant food in that



area, but the variant growing near Kalumburu appears to be a smaller plant.

References Maiden (1888: 524, 1889: 40); Specht (1958: 485).

## Poaceae

*?Chrysopogon cf. pallidus* (R. Br.) Steud.

Aboriginal name **Berrngul**

Description A grass used to dip up honey when this is very runny.

Locality Found in **bera**, **gololor** and **wunggaila**.

*Panicum ?capillipes* Benth.

Aboriginal name **Darrar**

Description A grass with edible seed. The collector sat on the ground, and pulled the heads of the stems towards her, stripping the seeds by hand into her lap. She then freed the seeds from the husks by rubbing them between her palms. She separated the husks from this mixture by allowing handfuls of seed to fall into her lap, while she blew the husks away. She did not grind the seeds while I was present.

Season **Yirma**

Locality **Balambala**. The specimens collected came from the creek at the old Pago Mission.

References Grass seeds were apparently a rare element in the diets of Aborigines in Kimberley. Love (1936: 77) says that the women did not eat any grass seed. The large grinding dishes which were used south of Kimberley are not part of the material culture of the northern Kimberley people. However, Basedow (1929: 151), Easton (1922: 26), Gribble (1930: 179-180 and 1932: 15) and Kaberry (1939: 11) all refer to the consumption of grass seeds. Gribble (1930: 179-180) says that Aboriginal women collected 'darra' from ant nests, but this was not observed at Kalumburu. Two grass seeds, **darrar** and **milalba**, were eaten near Kalumburu. Both ripen early in the dry season when many root crops are available, and as the collection and preparation of the grass seeds are obviously long processes, grass seeds may have been of minor importance.

*Panicum delicatum* Hughes

Aboriginal name **Milalba**

Description and

Preparation **As darrar.**

Season **Yirma**

Locality **Balambala**

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<i>Phragmites karka</i> (Retz.) Steud	
Aboriginal name	Gamagurd
Description	Bamboo.
Use	Used principally as a part of the shaft of spears.
Locality	Mararan

Cyperaceae

<i>Cyperus bulbosus</i> Vahl	
Aboriginal name	Gimaru
Description	A small plant with grass-like leaf and a small onion-like bulb beneath.
Preparation	Cook the bulb in hot sand for a few minutes.
Season	Yirma-Yuwala
Locality	Gololor

<i>Eleocharis ?sphacelata</i> R. Br.	
Aboriginal name	Djabren
Description	A rush which grows in lagoons and swamps. It has small tubers located deep in mud.
Preparation	The tubers are cooked in ashes or hot sand.
Season	Yirma-Yuwala
Locality	Wunggalan
References	According to Gribble (1932: 18), 'arno' is the name given at Forrest River to the common rush with tuber. The 'arnu' which I collected does not correspond with that description which would however fit djabren, and Aborigines at Kalumburu confirmed that the Forrest River people use the word arnu for the plant which Kalumburu people call djabren. Specht (1958: 484) and Woolston (1973: 96-97) both refer to the consumption of the tubers of <i>E. dulcis</i> .

Araceae

<i>Colocasia antiquorum</i> Schott	
Aboriginal name	Gin gu
Description	A waterlily. It has a large edible rhizome.
Preparation	This rhizome is caustic before it is cooked. Aborigines cooked it in a bush oven overnight.
Season	Yuwala
Locality	Rururd

<i>Typhonium liliifolium</i> Schott	
Aboriginal name	Alamard
Description	A lily growing in the flood plain. It has red flowers.

Preparation	The bulb needs very careful preparation, for in its raw state, it will cause very bad burns to the mouth. The bulbs are put well down in an open fire and left for approximately 10 minutes until the outsides are thoroughly blackened. The bulbs are then removed and hammered individually until the moist yellow centres and blackened exteriors are thoroughly mixed. Pounding produces a moist paste which is then returned to the fire for further cooking. After about six minutes this is again removed and re-pounded, and re-cooked and re-pounded a third time by which stage very little yellow remains and the specimen looks deep green-black in colour. The texture dries considerably during cooking and becomes rubbery. It is then hammered flat until it is about 1 cm thick and oval in form. This is re-cooked and re-hammered twice and finally shaped into a sausage form. This is called <b>nguni</b> . It is said that two or three specimens could then be amalgamated to make a long loaf. Both in its raw form and after preparation <b>alamard</b> appears to have good keeping properties.
Season	<b>Yirma-Yuwala</b>
Locality	<b>Balambala</b>

**Flagellariaceae***Flagellaria indica* L.

Aboriginal name	<b>Gadji</b>
Description	A creeper with long stems resembling a bamboo.
Preparation	The end of the stem is battered, and then used to dip up honey when this is located deep in a hollow tree.
Locality	<b>Wumangarr</b>
References	Specht (1958: 485) gives uses in Arnhem Land.

**Commelinaceae***Cartonema parviflorum* Hassk.

Aboriginal name	<b>Wiridjagu</b>
Description	A small plant, with a dried, prickly appearance. It has white flowers. The plant has small tubers at the root.
Preparation	The tubers are cooked in hot ashes for a short period and are then ready to eat.
Season	Eaten during dry season <b>Goloruru</b> to <b>Yuwala</b> .
Locality	Found in <b>morai</b> .
Reference	Specht (1958: 485).

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*Commelina ensifolia* R. Br.

Aboriginal name	<b>Buargu</b>
Description	A small plant with blue flowers and edible roots.
Preparation	The roots are cooked in hot ashes.
Season	<b>Yirma-Yuwala</b>
Locality	<b>Gololor, wunggaila, geningard</b>
Comment	There was some discussion among Aborigines as to whether this plant was <b>buargu</b> or <b>baniyu</b> ( <i>Murdannia graminea</i> ). It was known to Wunambal informants as a food source, but was not used as such by the people of the Kalumburu area.

**Commelinaceae**

*Murdannia graminea* (R.Br.) Bruckn.

Aboriginal name	<b>Baniyu</b>
Description	A small plant with white flowers. The roots are swollen, and radiate from the central stem about 15 cm below ground surface.
Preparation	The roots are cooked in hot ashes.
Season	<b>Yirma-Yuwala</b>
Locality	<b>Balambala, wunggaila and Djirulgur</b>
Comment	There was some confusion and discussion as to the correct term for this and <b>buargu</b> . This confusion may result from the use of different terms by Aborigines in different areas.

**Liliaceae**

*Thysanotus tuberosus* R.Br.

Aboriginal name	<b>Yamu</b>
Description	Small waterlily with edible tuber and hard shell.
Preparation	Cooked in hot ashes. When ready, the shell split open.
Season	<b>Yirma-Yuwala</b>
Locality	<b>Rururd</b>

**Amaryllidaceae Hypoxidaceae**

*Curculigo ensifolia* R.Br. Form 1

Aboriginal name	<b>Lundurur</b>
Description	A small plant with leaves about 30 cm long and small yellow flowers. It has a long skinny root which is edible.
Preparation	The root is cooked in hot ashes or sand.
Season	<b>Yirma-Yuwala</b>
Locality	<b>Geningard</b>

*Curculigo ensifolia* R.Br. Form 2

- Aboriginal name **Ngambiri**  
 Description Recognized by Aborigines as a variant of **lunduru**. It is smaller than **lunduru**.  
 Preparation As **lunduru**.  
 Season **Yirma-Yuwala**  
 Locality **Wera**  
 Comment Aborigines say that there is a third, and larger form of **lunduru** called **arlur** which grows on the Drysdale River. It was not collected.  
 References Spech (1958: 486).

## Amaryllidaceae

*Hypoxis marginata* R.Br.

- Aboriginal name **Gumburr**  
 Description A small plant about 15 cm high, with yellow flowers and an edible bulb.  
 Preparation Eaten raw.  
 Season **Wundju**  
 Locality **Geningard**

## Taccaceae

*Tacca leontopetaloides* (L.) Kuntze

- Aboriginal name **Gandungai** (lit. testicles), also called **djilgi** (lit. groin).  
 Description The plant produces a single long flower stem about 50 cm high which terminates in a head of flowers resembling an onion flower. The leaves are produced at ground level. The plant has a tuber about the size of a potato, but with a distinctive kidney shape.  
 Preparation This plant must be carefully cooked as it is inedible raw. The tuber is split into quarters resembling orange segments (that is, it is split longitudinally). A hole is prepared with stones in the bottom. Over these, a fierce fire is lit, and this is left burning for about 40 minutes after which the burning wood is removed leaving a layer of coals above the stones. Three or four handfuls of wet soil are put on the coals. The tuber segments are liberally coated with very wet **yulan** ashes. The hole is then covered with paper-bark and sand and left for eight hours. After this length of time, the pieces of **gandungai** are still too hot to hold. On the following day, the Aborigines wash the segments of tuber, recoat them with fresh ashes and replace them in

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the 'bush oven'. On the next morning, they are taken out, and after washing, are ready for eating.

Season	<b>Goloruru to Yuwala.</b>
Locality	<b>Djindi, morai and wera.</b>
Comment	There were age restrictions on the consumption of <b>gandungai</b> , and only those people who had reached middle age were allowed to eat it. The preparation of <b>gandungai</b> is obviously difficult, but its importance lies in the fact that it was relatively easy to find in the late dry season. It is said that <b>gandungai</b> can be made into damper which will keep for months.
References	Roth (1901: 16) described a different method of preparation used by Aborigines in Queensland for the same plant. Specht (1958: 487).

*Tacca maculata* Seem.

Aboriginal name	<b>Langanggu</b>
Description	The plant grows a tall flower stalk with a flower-head resembling that of an onion. The leaves grow symmetrically on either side of the stalk and the leaves are divided. The plant produces a tuber which is only edible after preparation.
Preparation	As for <b>gandungai</b> , except that <b>langanggu</b> requires three cookings, rather than two.
Season	<b>Goloruru-Yuwala</b>
Locality	<b>Bera</b>

**Dioscoreaceae**

*Dioscorea bulbifera* L. (*D. sativa*)

There are two distinct plants under this identification. **Ganmanggu** (probably var. *elongata*) produces a long white tuber which resembles a parsnip. **Gunu** (probably var. *rotunda*) produces a rounded tuber with a dark coloured skin. Aborigines are able to separate the two forms by examining the formation of the stem of the creeper: **ganmanggu** has a stem with a round section, whereas **gunu** has a stem with a dumb-bell shaped section. The differences in stem form are not obvious during the growing stages.

**Ganmanggu**

Description	The so-called 'yam'. The tuber which is long, white and hairy is to be found at the end of a vine stem. It is particularly difficult to find during the dry season, for the leaves wither and drop off the vine. Aborigines recognize the vine by the seed pods which are small, light brown and butterfly shaped. After they have seen the seed pods in the trees,
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Aborigines follow the vine stem back to the point where it enters the ground. It is usually rotten and breaks easily, so that the tuber cannot be found by following the stem into the ground. Aborigines dig in the area until they find the small hair roots which lead to the tuber. It is one of the favourite foods of the bush, 'The best tucker in the world' (Mary).

Preparation	Can be eaten raw, but may be cooked in hot ashes or sand.
Season	<b>Goloruru to Yuwala</b>
Locality	Usually found in <b>wera</b> , less commonly in <b>morai</b> , <b>wumangarr</b> and <b>wunggaila</b> .
Comment	<b>Ganmanggu</b> is a plant of great significance to Aborigines. They have names for each part of the tuber. They re-bury the nodule from the top of the tuber as they recognize that this will grow into a new tuber in the following year ( <b>djila</b> = to replant). If the tuber breaks during excavation, and in fact this usually happens as it is very brittle, the part remaining in the ground is left to regrow.
References	The plant is widely distributed and is included in most descriptions of Aboriginal diets in the north of Australia, e.g. Maiden (1888: 505, 1889: 22), Specht (1958: 486), Tindale (1925: 77). Crawford (1968) recounts myths and illustrates yams from cave paintings and spirit beings associated with yams.
<b>Gunu</b>	
Description	A creeper found growing on the ground or in bushes and trees. The leaves dry by June, but usually remain attached to the stem of the creeper. There are bulbous growths on the stem.
Preparation	The tuber is round, black and hairy. Aborigines scorch the skin and hairs in an open flame, and then scrape them off. They cut the tubers into thin slices, about 1 cm thick, and liberally coat them with wet ashes derived from the burnt bark of the river gums. They cook the slices of tuber in 'bush ovens'. <b>Gunu</b> must be cooked for several hours, and is usually cooked overnight. The ashes, which are very bitter must be washed off the tubers before they are eaten.
Locality	Usually found in the <b>djindi</b> , but also occurs in <b>wunggaila</b> and <b>gololor</b> .
Comment	Only mature adults were permitted to eat this tuber.
References	Specht (1958: 486) described a totally different technique for preparing this tuber in Arnhem Land.

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Moraceae

*Ficus racemosa* L.

- Aboriginal name **Ong u**  
 Description This is a fig which grows on the water's edge in **djindi** country. The fruit are produced on little knobby stems on the old branches, well away from the leaves.  
 Preparation The fruit is eaten raw.  
 Season **Djaward-Wundju**  
 Locality **Djindi and morai**  
 References Maiden (1888: 514, 1889: 31) refers to a method of cooking unripe fruit, but this was not mentioned at Kalumburu.

*Ficus opposita* Miq.

- Aboriginal name **Mindji**  
 Description A fig tree with edible fruit.  
 Preparation The fruit is eaten raw.  
 Season **Yuwala**  
 Locality **Djindi**  
*Ficus platypoda*

*Ficus platypoda* (Miq.) Miq.

- Aboriginal name **Bindjili**  
 Description A fig tree with edible fruit.  
 Preparation The fruit is eaten raw.  
 Season **Yirma**  
 Locality Found growing in rocky places such as **wumangarr**.  
 References Specht (1958: 488).

Proteaceae

*Banksia dentata* L.f.

- Aboriginal name **Bi marr**  
 Description A banksia. The axis of the cone is used as a paintbrush for the application of body decorations.  
 References McArthur (1960: 110) refers to women and children sucking the nectar from the flowers of *Banksia dentata*, but this was not favoured at Kalumburu. Also see Specht (1958: 489).

*Persoonia falcata* R.Br.

- Aboriginal name **Gandala**  
 Description Small tree with edible fruit.  
 Preparation Aborigines separate the skin from the fruit and the seed by squeezing it. The white flesh sticks tenaciously to the seed,

and both can be swallowed whole. It is more usual to hammer them until well pulverized. It has then a stretchiness which resembles chewing gum, but the broken up seed shell gives it a very gritty texture. It is said that the flavour improves with cooking before it is hammered, and it could be prepared in the same way as *mandjara*. The fruit may also be sun-dried, cooked in ashes, hammered and then stored in paperbark. It would then be eaten mixed with the *daranggal* gum, and dipped in water sweetened with honey.

Comment	Once it has been prepared, <i>gandala</i> would keep for several weeks. It was apparently an important food source in the Kalumburu area.
Season	Djaward-Wundju
Locality	Djirulgur-bera
References	Maiden (1889: 51), Roth (1901: 15), Specht (1958: 489).

*Grevillea viscidula* C.A. Gardn.

Aboriginal name	Bambra
Description	A small tree with a fruit, the sap of which causes deformation of the skin.
Use	Used to make tribal marks.
References	Gardner (1923: 44) refers to the use of this tree by Aborigines to prevent the healing of tribal marks.

### Loranthaceae

*Amyema sanguineum* (F. Muell.) Danser

Aboriginal name	Madunba
Description	A mistletoe. The fruit is eaten raw.
Season	Yirma
Locality	Bera

*Dendrophthoe acacioides* (Benth.) Teigh.

Description and use: as *Amyema sanguineum*.

### Nyctaginaceae

• *Boerhavia diffusa* L. Form 1

Aboriginal name	Bulga
Description	A ground creeper with edible root.
Preparation	.. Cooked in a 'bush oven' for a short time.
Season	Wundju-Yirma
Locality	Wunggaila

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*Boerhavia diffusa* L. Form 2  
 Aboriginal name **Gurangali**  
 Description A ground creeper with small pink flowers and edible tubers.  
 Preparation As form 1.  
 Season **Wundju-Yirma**  
 Locality **Balambala, bera and gololor**  
 Comment This plant is not eaten at Kalumburu, but Wunambal people said that they ate it.

*Boerhavia diffusa* L. Form 3  
 Aboriginal name **Nanggiridji**  
 Description A small, but abundant plant which is said to develop an edible tuber.  
 Preparation Aborigines cook the tubers in ashes or hot sand.  
 Season **Yirma-Yuwala**  
 Locality **Balambala**

*Boerhavia diffusa* L. Form 4  
 Aboriginal name **Walinjiri**  
 Description The plant, when green looks like a briar.  
 Preparation The roots are cooked in hot ashes.  
 Season **Yirma-Yuwala**  
 Locality **Gololor**  
 Reference Specht (1958: 489).

**Portulacaceae**

*Portulaca pilosa* L.  
 Aboriginal name **Djanggara**  
 Description A very small plant growing at the base of baobab trees. It has an edible tuber.  
 Preparation The tubers are cooked in hot sand and the skin cleaned off before they are eaten.  
 Season **Wundju-Yirma**  
 Locality **Kololor, wumangarr and bera in shaded places.**

*Nymphaea gigantea* Hook.  
 Aboriginal name **Miani**  
 Description Blue waterlily, the tubers and seeds and stalks of which are edible.  
 Preparation The tubers are collected by wading in small pools. The tuber is cooked in the hot sand. When old, the tubers have hard shells which have to be broken up. The seeds are ground up to make a white flour, and this is cooked between lolord (*Acacia dunnii*) leaves.

- Season  
Locality  
References
- Yirma-Yuwala**  
**Mararan**
- There are innumerable references to Aborigines eating lily roots, and presumably these refer to this species. Basedow (1929: 151) stated: 'One of the regular articles of vegetable diet in the tropics is the tuber of the waterlily, which is gathered by the score and roasted in ashes: it tastes almost like a potato with perhaps a distinctive flavour about it resembling that of the Jerusalem artichoke.' In the northern Kimberley, the species most frequently eaten is the beautiful *Nymphaea stellata* (syn. *N. gigantea*) which is variously known as 'kapa', 'kadge' or 'toki'. In 1917, Stuart (1923: 110) came across a party of six women on the Patrick River near Cambridge Gulf. They were 'gouging bulbs from the bottom of the swamp' and each had a **coolamun** with about 2 kg of bulbs, probably in this species. Gribble (1932: 17-18) describes the preparation of the seeds: 'A fire is made on sandy ground, stones are heated, and then the fire being removed, a hole is dug into the hot sand. At the bottom of the hole, dampened paperbark is placed, and the pods put in; they are then covered with more damp paperbark, and the whole covered with hot sand and ashes. When sufficiently baked, the pods are shelled and the seeds pounded on millstones. The flour, which is very white and fine, is made into cakes and baked in the ashes. The seed of the waterlily is very nutritious.' The stalks can also be eaten. See also Specht (1958: 490).
- Nymphaea* sp.
- Aboriginal name **Arnu**
- Description The white waterlily.
- Preparation Aborigines cook the tuber in ashes, clean the stem away before eating them.
- Season **Yirma-Yuwala**
- References Gribble (1932: 18) says of 'arno': 'This is the small black nut at the root of the ordinary rush that grows in all the lagoons'. His description fits **djabren**.
- Ondinea purpurea* den Hartog
- Aboriginal name **Miawal**
- Description A small water plant with purple flowers. It has edible tubers and seeds.
- Preparation The seed is eaten raw. The tubers, which are only about 3 cm long, are lightly cooked in hot ashes.



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Season	The plant grows in shallow creek beds where these are gravelly. Both the seeds and the tubers are available in the early part of the dry season, <b>yirma</b> .
Locality	In gravel in creek beds, <b>moial</b> .

**Menispermaceae**

<i>Tinospora smilacina</i>	Benth.
Aboriginal name	<b>Waramburr</b>
Description	A creeper.
Use	It is used as a ligature on a person when they have been spiked by a stonefish, and is said to ease the pain. Aborigines say they let the person who has been spiked sleep but not drink before sunset. It can also be used in the case of snake bite (use not witnessed).
Locality	<b>Gololor</b>

**Capparaceae**

<i>Capparis umbonata</i>	Lindl.
Aboriginal name	<b>Nanggalu</b>
Description	A tree, the green coloured fruit of which is edible. The fruit is big and round like a mango.
Preparation	The fruit is eaten raw.
Season	<b>Djaward</b>
Locality	<b>Gololor</b>

**Droseraceae**

<i>Drosera petiolaris</i>	R. Br.
Aboriginal name	<b>Larmi</b>
Description	A small insectivorous plant, used to make 'cotton wool' used in body decorations.
Preparation	The plant is hammered to transform it into the desired texture.
Locality	<b>Bera</b>

**Mimosaceae**

<i>Acacia dunnii</i>	(Maiden) Turrill
Aboriginal name	<b>Lolord</b>
Description	The large leaves are used to wrap up food when this is to be cooked in a 'bush oven' or in ashes. For example, lily seeds are so wrapped.
Locality	<b>Bera</b>

*Acacia gonocarpa* F. Muell.Aboriginal name **Wuluru**

Description A large bush, the stems of which are used to make the hard wood shafts for spears.

Locality **Bera**

References Woolston (1973: 100).

*Acacia stigmatophylla* Benth.Aboriginal name **Djulurd**

Description A large bush. The stems are used to make the hooks for woomerahs, and to make the hard wood shafts for spears.

Locality **Bera***Acacia tumida* F. Muell.Aboriginal name **Walgali**

Description A tree with edible seed and seed pod.

Preparation The seed pod can be eaten raw, or alternately the pod can be cooked in ashes when the seed only is eaten. The seeds are a favourite food for parrots and cockatoos.

Season **Yirma**Locality May occur almost anywhere, but most commonly in **bera** and **gololor**.*Acacia leptocarpa* Benth.Aboriginal name **Mangarr mangal**

Description A small acacia tree with yellow flowers. Common in sandstone areas. A medicinal plant.

Preparation Aborigines say they used to hammer the green leaves and then soak them in water. They applied the water externally. It is good for sore eyes.

Locality **Wumangarr**

References This tree was used as the raw material for implements in Arnhem Land (Specht 1958: 490).

## Fabaceae

*Erythrina vespertilio* Benth.Aboriginal name **Yan gal**

Description The Coral Tree. The timber is used to make woomerahs, and the bast, which has a pleasant scent, is used medicinally for the treatment of headaches and sore eyes.

Preparation As a medicine: the bast and bark are soaked in water, which is then applied externally.

Locality **Morai and wera.**? *Crotalaria* sp.Aboriginal name **Widji**

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Description A small bush used to poison fish.  
 Preparation The roots are placed in fresh water.  
 Comment The word **widji** is used to include at least four different plants of the Fabaceae family which have fish-stunning properties.

*Indigofera* affin. *brevidens* Benth.

Aboriginal name **Widji**  
 Description A ground cover plant with purple flowers. The roots are used to poison fish.  
 Preparation Aborigines hammer the roots before putting them in fresh or salt water.  
 Locality **Wumangarr**

*Glycine ?tomentosa* Benth.

Aboriginal name **Baladerr**  
 Description A creeper with edible root.  
 Preparation The roots are cooked in ashes, then hammered with a stone to make them soft.  
 Season **Yirma-Yuwala**  
 Locality **Wunggaila and djirulgur**

*Flemingia involucrata*

Aboriginal name **Nandjirr**  
 Description A long skinny root.  
 Preparation Aborigines clean the root by scraping it with a piece of wood. They roast it in hot sand, then hammer it flat and eat.  
 Season **Yirma**  
 Locality **Gial**

*Tephrosia phaeosperma* Benth.

Aboriginal name **Leini**  
 Description A small bush which grows about 80 cm high and which has silver-grey leaves and purple flowers. The roots are used as a fish poison.  
 Preparation The roots are hammered to release the poison and then wrapped in paperbark. When the tide is out, they are placed under the rocks on the reef where the fish come. The fish jump around and can be speared (not witnessed).  
 Locality **Wumangarr and gololor.**

*Tephrosia purpurea* Pers. *sensu lato*

Aboriginal name **Widji**  
 Description A ground plant with purple flowers. The roots are used as a fish poison.

- Preparation The roots are hammered, then put into fresh or salt water.  
 Locality **Balambala**
- Vigna lanceolata* Benth. Form 1  
 Aboriginal name **Ngulwana**  
 Description A creeper found growing at the base of baobab trees. It has an edible root.
- Preparation The root is cooked in ashes for a few minutes, and the skin removed. If the root is too hard, Aborigines hammer it.  
 Season **Yirma-Yuwala**  
 Locality **Gololor and geningard.**
- Vigna lanceolata* Benth. Form 2  
 Aboriginal name **Wanggalu**  
 Description A ground creeper which has small blue flowers resembling sweet pea flowers. The root is carrot-shaped. Similar to *wegu* (see below).
- Preparation The roots are cooked in ashes or in a flame.  
 Season **Yirma-Yuwala**  
 Locality Grows on rocky hillsides in red clayey soil — **Wunggaila.**
- Vigna lanceolata* Benth. Form 3  
 Aboriginal name **Wegu**  
 Description A creeper with an edible root.  
 Preparation The roots are cooked in ashes or in a flame.  
 Season **Yirma-Yuwala**  
 Locality **Djirulgur**
- Vigna lanceolata* var. *filiformis* Benth.  
 Aboriginal name **Mili**  
 Description A plant with a small yellow pea flower and bean-like pod. It has long skinny roots which are slightly swollen.
- Preparation The roots are cooked in ashes or hot sand, then doubled over and hammered.  
 Season **Yirma-Yuwala**  
 Locality **Gololor**
- Vigna* sp.  
 Aboriginal name **Nalangga**  
 Description Long, thin root.  
 Preparation Cooked in hot sand, then hammered.  
 Season **Yirma-Yuwala**  
 Locality **Geningard**
- Eriosema chinense*  
 Aboriginal name **Gumbia**  
 Description A small plant with a single stem about 40 cm high. The root resembles a carrot. There are regional variants recog-

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	nized by Aborigines. When found in swampy places (geningard), the plant is small and called <b>gumbia</b> . In rocky country ( <b>wumangarr</b> ) it is larger and called <b>banumbu</b> , and near the foot of the hill ( <b>wuru-ruru</b> ), it is called <b>marmbu</b> .
Preparation	Cooked in either a flame or in ashes. Remove the skin.
Season	<b>Yirma-Yuwala</b>
Locality	<b>Geningard, wuru-ruru, wumangarr.</b>
Legume	
Aboriginal name	<b>Gulalard</b>
Description	A creeper with yam-like roots.
Preparation	The roots are cooked in ashes.
Season	<b>Yirma-Yuwala</b>
Locality	<b>Wuru-ruru, grows in nan (clay).</b>

**Burseraceae**

*Canarium australianum* F. Muell.

Aboriginal name	<b>Wander</b>
Description	A tree, the trunk of which can be used to make canoes, and which has an edible seed.
Preparation	The seeds are roasted.
Season	<b>Yirma-Djaward</b>
Locality	<b>Gololor and wumangarr</b>
Note	Two specimens collected appeared to be slightly different, and there may be two species.
References	According to Woolston (1973: 96) the seeds were eaten on Mornington Island.

**Euphorbiaceae**

*Antidesma ghaesembilla* Gaertn.

Aboriginal name	<b>Yangu</b>
Description	A small tree growing in the thickets near water. The edible fruit are very small and turn deep red when ripe. They consist largely of seed.
Preparation	Eaten raw
Season	<b>Djaward-Wundju</b>
Locality	<b>Djindi</b>
Comment	Eaten mostly by children.

**Euphorbiaciae ?**

Aboriginal name	<b>Lowa lowal</b>
Description	A small tree growing in the hills and sandstone country. It has an edible red berry with turns black when ripe.
Preparation	Eaten raw.

Season	Wundju
Locality	Wumangarr
<i>Petalostigma quadriloculare</i> F. Muell.	
Aboriginal name	Dilngeri. Fruit is wildjari.
Description	The Quinine tree is used for medicinal purposes.
Preparation	For toothache: Aborigines hold the fruit in the mouth. For sore eyes: Aborigines put the bark in water and add a drop to the eye, or a berry in a mug of water is good for sore eyes, and as an antiseptic wash (not witnessed).
References	Maiden (1889; 1889: 198) gives an analysis of the bark.
<i>Securinea melanthesoides</i> (F. Muell.) Airy Shaw	
Aboriginal name	Anbamar
Description	A bush growing to 4 m high. It has very small yellow flowers and small white fruit which resemble in flavour to the lilypilly fruit.
Preparation	Fruit is eaten raw.
Season	Djaward to wundju
Locality	Djindi, wera and gololor

### Anacardiaceae

There are two forms of *Buchanania* which are very similar. Both produce edible fruit, and in young specimens, have an edible root. The root, although edible throughout the year, was apparently only collected during the rainy season and it is therefore one of the few root crops available during the wet season.

#### *Buchanania florida* Schau.

Aboriginal name	Ngauwingai. Walangga is the root.
Description	A tree with edible fruit. The fruits are larger than glai ( <i>B. obovata</i> ) and not as sweet. The root of young specimen is edible.
Preparation	(1) The fruit is eaten raw. (2) The root is cooked in a fire so that the bark is scorched. Hammer the root to make it soft, and if it is available mix with gum.;
Season	The fruit — djaward. The roots can be eaten at any season but were usually taken wundju-pandemanja.
Locality	Morai

#### *Buchanania obovata* Engl.

Aboriginal name	Glai. Walangga is the root.
Description	A tree with edible fruit, and roots. The wood is used to make shields. (1) The fruit may be eaten raw after it has fallen from the tree. Alternately, the fruit may be sun-dried, hammered and then stored in a paperbark wrapping.

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- It is then eaten with honey. (2) The root is treated as the root of *B. florida*.
- Season The fruit — **djaward**. The root as **ngauwingai**.  
 Locality **Djirulgur, wunggaila, bera and wumangarr**.  
 References Gribble (1932: 20, 62) writing of Forrest River Mission refers to 'a small green plum called "glay"', and this is presumably the same plant as **glai**. Gribble says that 'glay' and 'goondie' (identified at Kalumburu as **mandjara**) were both abundant and could provide the staple for inter-group meetings. He describes the preparation of 'glay' as follows: 'The natives grind the whole fruit, nut and kernel, on their millstones, and eat it as one eats porridge. The mass is very gritty, owing to the particles of nut, but the kernel has a pleasant flavour'. Gribble also narrates a myth in which 'Bogeen', a wallaby, first showed the people how to smash up 'glay' and eat it. This myth is known at Kalumburu where the name of the wallaby is given as 'Bagi'. Specht (1958: 492) gives Arnhem Land reference.

**Vitaceae**

*Ampelocissus acetosa* (F. Muell.) Planch.

Aboriginal name **Djabaru**

Description The native grape. This is a vine which has edible fruit and tubers.

Preparation The fruit: when ripe, the fruit are eaten without preparation. The tubers: these are swollen roots up to 60 cm long. When a woman first finds the tuber, she peels the skin off to find out whether it is the new season's growth, or an old root. If it is new season's growth, she digs out one root and cooks it to test it. If it is alright, she calls other women to help because there is a lot of digging involved. During the time the women are digging, they are not allowed to drink any water. The tubers are cooked either over a fire or in ashes.

Season The fruit mature in the middle of the wet season, **maiarubande manya**. The tubers are dry season food, available **goloruru** to **yuwala**.

Locality Found almost anywhere, but the flavour is said to vary according to the soil. Usually taken for preference in **djindi, gololor** or **bera** near rocks.

References Specht (1958: 493).

*Cayratia trifolia* Domin.

Aboriginal name **Yugali**



Description	A creeper which grows up into trees. It has an edible root.
Preparation	The root is roasted in a fire for about an hour. If it is not properly cooked, it will give a person an itchy mouth.
Season	<b>Yirma-Yuwala</b>
Locality	Collected in <b>gololor</b> , but grows almost everywhere. Nominated localities were <b>bera</b> , <b>wunggaila</b> , <b>wumangarr</b> and <b>morai</b> .
References	Specht (1958: 493).

### Tiliaceae

#### *Grewia polygama* Roxb.

Aboriginal name	<b>Gara</b>
Description	A small tree with edible fruit.
Preparation	When ripe, the fruit is yellow and is eaten without preparation.
Season	<b>Yirma</b>
Locality	<b>Djurulgur</b> and <b>bera</b>
References	Gardner (1923: 62) says that the Aborigines ate this fruit which was also supposed to cure dysentery. Tindale (1925: 78) notes that the Aborigines of Groote Eylandt ate <i>Grewia polygama</i> , sometimes as a treatment for diarrhoea. Maiden (1888: 517) and (1889: 34) refers to this as 'plain current'.

### Tiliaceae

#### *Grewia* sp. (*G. orientalis* of Bentham)

Aboriginal name	<b>Yan gai</b>
Description	Fruit on a vine.
Preparation	When the fruit is ripe, it turns yellow-brown in colour. It can be eaten without preparation, but alternately it can be smashed up, when it looks like chewing gum.
Season	<b>Goloruru</b>
Locality	<b>Djindi</b>
Reference	Specht (1958: 493).

#### *Grewia* sp.

Aboriginal name	<b>Wiliwa</b>
Description	A bush about 4 m high. It has black fruit which are edible, and the wood can be used to make spears.
Preparation	Eaten raw.
Season	<b>Djaward</b> to <b>wundju</b>
Locality	<b>Bera</b> and <b>gololor</b>

**Malvaceae***Hibiscus rhodopetalus* (F. Muell.) Benth.Aboriginal name **Nugu**

Description A creeper with white flowers which turn pink. The edible root resembles a parsnip both in shape and taste.

Preparation The root is cooked in ashes.

Season **Yirma-Yuwala.**Locality **Balambala, geningard, morai and wuru-ruru.** Grows in nan (clay).*Thespesia populneooides* (Roxb.) KostelAboriginal name **Laba**

Description A small tree. The wood is used to make fire sticks and for the hardwood shafts for spears.

Locality **Gololor****Bombacaceae***Adansonia gregorii* F. Muell.Aboriginal name **Djungeri**

Description The baobab tree called in Kimberley the boab or bottle tree. The seeds and pith are edible and the bast from the roots is used to make string.

Preparation The seeds and pith: Aborigines at Kalumburu extracted the pith and ate it in small quantities, or dipped it in water which had been sweetened with honey (now with sugar). The bast from the roots: this was made into string in the same way as the bast from brachychitons.

Season **Maiaru to yirma**Locality **Gololor, wumangarr and balambala**

References Fitzgerald (1916-17: 175) said that the pith and seeds were made into a kind of bread. Gribble (1932: 21) was quite emphatic that the correct time to harvest the nuts was when they were green before the seeds became hard and the pith became tart. Both Fitzgerald and Tomkinson (1957: 44) noted that water may be found at the bases of the main branches, but enquiries at Kalumburu indicated that while this is true, trees which retain water are very scarce. Daisy Bates (ms VIII 1: 74) said that the sap from the bark was edible, and Gardner (1923: 66) said that Aborigines dissolved the sap in water to make a drink. However, Aborigines at Kalumburu said that they did not eat the sap.



Figure 16 Mary brought back a section of boab tree root about 70 cm long. Here she uses a stone to separate the bast from the wood of the root.





**Figure 17** The bast peels off the root as a mass of fibres which Mary further hammered, and then she picks out small amounts to make string.



**Figure 18** She takes two strands of fibre, and holding two ends in her left hand rolls the fibre by pushing her hand forward over her leg. This action makes two thin threads of twine.





Figure 19 She then quickly pulls her hand back so that the two strands are rolled together to form a two-ply thread.

## Sterculiaceae

*Brachychiton diversifolium* R. Br.

- Aboriginal name **Djalad**  
 Description A kurrajong tree. It has edible seeds, the bark may be used to make belts, and the bast to make string.  
 Preparation The seeds are baked in hot ashes or sand. Care has to be taken to avoid letting the fine powder which surrounds the seed blow into one's eyes. The seeds are then pounded on an anvil stone.  
 Season **Yuwala to djaward**  
 Locality **Gololor, morai and wumangarr**  
 References McArthur (1960: 108) observed Aborigines at Port Bradshaw eating the seed raw after they had crushed it. Gribble (1932: 21) noted it as a source of food at Forrest River, and said that Aborigines were 'careful to wash the seed before taking it to their millstones for grinding'. (Specht (1958: 494).

*Brachychiton paradoxum* Schott

- Aboriginal name **Daranggal**  
 Description Another species of kurrajong tree. It exudes edible gum, produces edible seeds and the bark can be used to make string.  
 Preparation The gum: this is dissolved in water which has been sweetened with honey. After it has stood for about an hour, it softens and is jelly-like. The sweet is usually made for children. After the gum has been softened, it can be allowed to re-set, and it may then be kept as an emergency food supply to be used during the period of heavy rains. Aborigines then heat it near a fire, and then pound it and the roots of **walngga** together.  
 The seeds are prepared in the same way as **djalad**.  
 Season **Yuwala to djaward**  
 Locality **Morai and gololor**  
 References McArthur (1960: 108), Specht (1958: 494) said that the seeds were eaten either raw or baked. Woolston (1973: 96) said that the seeds were baked on the Wellesley Islands.

*Brachychiton* sp.

- Aboriginal name **Bondjor**  
 Description Another species of kurrajong tree. It grows in rocky places on sandstone. The seeds are edible, and the bast is used to make string.  
 Preparation As the other kurrajongs.

Season	Yuwala to djaward
Locality	Wumangarr
<i>Brachychiton</i> sp.	
Aboriginal name	Dalu
Description	A deciduous tree growing to about 3 m. The seeds grow in conspicuous pods. Some had ripened in August, and burst open to reveal the black shiny seeds which can be eaten raw. The pods were red when they opened.
Preparation	The seeds can be eaten raw.
Season	Yirma
Locality	Gololor

## Cochlospermaceae

<i>Cochlospermum fraseri</i> Planch. Form 1	
Aboriginal name	Malindjarr
Description	A bush with yellow flowers and edible root. Known as the cotton wool plant because the fibres which surround the seeds resemble cotton wool. When the girls were growing up, the people used to hit them on the shoulder blades to make their breasts develop and resemble the fruit of the malindjarr plant.
Preparation	The roots of small plants can be dug up. Aborigines cook the root over a fire to scorch the bark, and remove it. They hammer the root if necessary to make it soft.
Season	Any time, preferably taken in wundju-bande manya.
Locality	Bera

<i>Cochlospermum fraseri</i> Planch. Form 2	
Aboriginal name	Wiana
Description	A bush which resembles malindjarr and is presumably a regional variant of it. It has an edible root.
Preparation	As malindjarr.
Season	Any time, preferably taken in wundju-bande manya.
Locality	Geningard and wuru-ruru.
References	Specht (1958: 495) records the use of the kapok in body decoration in Arnhem Land.

## Passifloraceae

<i>Passiflora foetida</i> L.	
Aboriginal name	'Creeper', 'Gooseberry'
Description	A passionfruit vine, thought by Aborigines to have been introduced by Europeans.
Preparation	The fruit is eaten raw.

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Season                    **Wundju**  
 Locality                 **Djindi**

**Lecythidaceae**

*Barringtonia acutangula* Gaertn.

Aboriginal name    **Danba**

Description         A tree which grows near the edge of permanent water. It has red flowers. The bark is brown, but when battered it produces a red sap which is used to poison fish.

Preparation         The bark is collected and taken to a freshwater pool. It is then pounded and thrown into the water, where it produces a dark stain. Eventually the fish which seek to avoid the polluted water are driven to one end of the pool and are then easily collected.

Season                 **Yuwala to djaward.**

Locality              **Djindi and mararan.**

Comment             If you swim under the **danba** tree where it hangs over water, your skin will become very itchy.

*Planchonia australis* (F. Muell.) Kunth. Form 1

Aboriginal name    **Banggiya**

Description         A small tree with edible fruit.

Preparation         The fruit is eaten raw. It is squeezed so that the flesh separates from the skin, but many fibres remain attached in the skin. The flesh contains the seeds which are not eaten.

Season                 **Djaward-Wundju**

Locality              **Bera, gololor**

*Planchonia australis* (F. Muell.) Kunth. Form 2

Aboriginal name    **Yundu**

Description         A large bush about 3 m high. It produces an edible fruit which resembles a small mango, and the bark can be used to poison fish.

Preparation         (1) The fruit — this can be eaten without preparation. (2) The bark — this should be wrapped in paperbark and placed in a freshwater pool.

Season                 (1) The fruit is ripe in December-January, i.e. **djaward-wundju**. (2) The poisoning of fish is carried out late in the dry season, i.e. **yuwala**.

Locality              **Bera**, but adjacent to rocks; also grows in **morai** and **wunggaila**.

References           Gardner (1923: 69) said that it was known as 'Mangaloo' among the Drysdale River Aborigines.



## Combretaceae

*Terminalia discolor* F. Muell.Aboriginal name **Mandural**

Description A tree with edible fruit. The fruit is yellow and can be eaten.

Preparation Fruit is eaten raw.

Season **Yirma**Locality **Wumangarr***Terminalia grandiflora* Benth.Aboriginal name **Yalu**

Description A small tree which produces an edible nut.

Preparation Aborigines crack the shell and eat the kernel inside.

Season **Wundju to goloruru.**Locality **Balambala**References Specht (1958: 496) describes a 'native almond' as *T. grandiflora*.*Terminalia* sp.Aboriginal name **Lang anda**

Comments Referred to as 'bush almond'. The tree flowers in about August and the nut is ready from Christmas time to middle of year.

Preparation Aborigines break the shell and eat the kernels. When fruit is wet, they leave it. The kernels can also be roasted in the fire like peanuts.

Season **Djaward-Yirma**Locality **Bera and djirulgur.***Terminalia* sp.Aboriginal name **Lariyara**

Description A large tree which produces a red fruit.

Preparation Eaten raw by children.

Season **Wundju**Locality **Djindi**

Comment According to Fr. Sanz, this fruit was not eaten by Aborigines until one of the missionaries tasted it and found it palatable. Adult Aborigines at Kalumburu agreed that the old people did not eat this fruit.

*Terminalia* sp.Aboriginal name **Walula**

Description A small tree which produces edible gum.

Preparation The gum can be eaten without preparation, but may be mixed with **walungga** roots.Locality **Wumangarr**

**Myrtaceae**

*Calytrix microphylla* A. Cunn.

Aboriginal name **Mang ada**

Description A small tree like a conifer. The wood is used to make the stick used in pressure flaking stone spearheads. To pressure flake stone is **lindidj**.

Locality **Wumangarr** growing in crevices in rocks.

*Eugenia* affin. *armstrongii* Benth.

Aboriginal name **Ngawarri**

Description This is the so-called 'little bush apple' which has red fruit which ripens in September and can either be eaten raw or cooked or mixed with **daranggal** gum.

Locality **Morai and bera.**

Season **Yuwala**

*Eugenia grandis* (Blume) Wight

Aboriginal name **Ngara ngudu gal**

Description Called 'bush apple'. The fruit is ripe in December-January.

Preparation Fruit is eaten raw.

Season **Djaward**

Locality **Bera** with some gravel.

References Tindale (1925: 77) says that Aborigines on Groote Eylandt ate a species of *Eugenia*, the fruit of which resembled an apple. Gardner (1922: 84) mentions that the Aborigines of the Drysdale River ate the fruit of *Eugenia grandis*.

*Verticordia cunninghamii* Schau.

Aboriginal name **Liandu**

Description A bush with pink flowers which grows up to 4 m high. 'The wood is stronger than iron. A thick piece is very useful' for digging stick.

Locality **Bera**

*Eucalyptus* sp.

Aboriginal name **Galal**

Description A river gum, the white bark of which is used to make the ashes used in cooking.

Preparation The bark is burnt to produce a white ash.

Locality **Djindi and morai.**

*Eucalyptus* sp.

Aboriginal name **Baruru**

Description A stringybark.

Uses (1) The bark is cut off and used to make a carrying dish called **wanda**. (2) The bark was used to make shelters

during the rainy season. Three or four sheets of bark were collected, bent in two, then placed in a line. (3) The bark is said to have medicinal properties, either chewed or soaked in water to produce a drink. (4) When the trunk is hollow it is cut to make the *didjeridu*.

- Locality Found everywhere, but especially in *wunggaila* and *bera*.
- Eugenia* sp.  
 Aboriginal name **Bandari**  
 Description A tree which has a white apple-like fruit in the rainy season.  
 Preparation Eaten raw.  
 Season **Wundju**  
 Locality **Djindi, morai, wera.**
- Melaleuca cf. argentea* W.V. Fitzg.  
 Aboriginal name **Bandaran**  
 Description A paperbark. One of the two paperbark trees growing on the Kalumburu Pool.  
 Use The bark is used for cooking, as a mat, as wrapping, to cover shelters.  
 Locality **Mararan**  
 References Specht (1958: 497-498) gives Arnhem Land uses for paperbark.

### Sapotaceae

- Mimusops elengi* L.  
 Aboriginal name **Walara**  
 Description A big tree, the fruit of which can be eaten when they turn red.  
 Preparation Fruits are eaten raw.  
 Season **Yirma**  
 Locality **Gololor and wunggaila.**
- Planchonella arnhemica* (F. Muell.) van Royen  
 Aboriginal name **Mangarr**  
 Description A tree with round fruit.  
 Preparation Eaten without preparation. Eaten on the eastern side of Kalumburu, but not at Kalumburu itself.  
 Season **Djaward-Wundju**  
 Locality In *bera* and *morai*.  
 References Specht (1958: 498) for Arnhem Land use.
- Pouteria sericea* (Ait.) Baehni  
 Aboriginal name **Nang i**

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Description	A tree which is said to have black fruit which resemble olives.
Preparation	Eaten raw especially by children (not witnessed).
Season	<b>Yuwala</b>
Locality	<b>Bera</b> , but near a creek.
Reference	Specht (1958: 498).

**Asclepiadaceae**

*Cynanchum pedunculatum* R. Br.

Aboriginal name	<b>Djumbu</b>
Description	A creeper with tiny white flowers. The seed pod is said to be edible but was not available on the plant found. The seed pod has woolly fibres and seeds inside it, but these are not edible. Only the pod itself can be eaten.
Season	<b>Yirma</b>
Locality	<b>Wunggaila</b> and <b>wurururu</b>

*Microstemma tuberosum* R. Br.

Aboriginal name	<b>Manganda</b>
Description	Grass-like plant which has a round edible bulb.
Preparation	The bulb can be eaten raw but during the rainy season when other foods are scarce, the old people are said to have mixed it with green ants. It seems to be available almost continuously throughout the year, and mature specimens were collected in <b>yirma</b> and <b>wundju</b> .
Season	Throughout the year, preferably taken <b>wundju-bande manya</b> .
Locality	<b>Geningard</b>

**Asclepiadaceae**

*Microstemma* sp.

Aboriginal name	<b>Walanda</b>
Description	Like <b>manganda</b> , but slightly larger.
Preparation	As <b>manganda</b> .
Season	As <b>manganda</b> .
Locality	<b>Bera</b> , but near water.

*Sarcostemma australe* R. Br.

Aboriginal name	<b>Ngamul-ngamul</b>
Description	A leafless plant which has small white flowers.
Preparation	The plant has a white caustic sap which resembles milk. When a mother lacked milk for her baby, the old people used to warm the plant and put it on the mother's breasts or put the sap on the breasts (not witnessed).

- Locality Found growing among rocks in sandstone country, often near caves. **Wumangarr**.
- References Woolston (1973: 99) says that the plant was used medicinally on Mornington Island. Lothian (1960: 32) says that Aborigines used the sap to cure eye troubles including sandy blight.

## Convolvulaceae

*Ipomoea graminea* R. Br. Form 1

- Aboriginal name **Lau ula**
- Description A creeper with edible tubers and large whitish trumpet-shaped flowers.
- Preparation The tubers are cooked in ashes.
- Season **Yirma-Yuwala**
- Locality **Geningard, balambala**
- Reference Specht (1958: 499).

*Ipomoea graminea* R. Br. Form 2

- Aboriginal name **Wurrwa**
- Description A creeper with large whitish trumpet flowers. This is recognized by Aborigines as a regional variant of **lau ula**.
- Preparation Aborigines cook the tubers in ashes, and peel the skin off.
- Season **Yirma-Yuwala**
- Locality **Wurururu in nan (clay)**.

*Ipomoea ?muelleri* Benth. Form 1

- Aboriginal name **Gandjidard**
- Description A creeper with edible tubers which resemble **para**.
- Preparation Aborigines cook the tubers in ashes, and if they are too hard, hammer them before eating.
- Season **Yirma**
- Locality **Gololor**

*Ipomoea ?muelleri* Benth. Form 2

- Aboriginal name **Yumba**
- Description A ground creeper which produces an edible root or tubes. It is similar to **wuning art**.
- Preparation The tubers are cooked in hot ashes.
- Season **Yirma-Yuwala**
- Locality **Wera, balambala**.

*Ipomoea* sp.

- Aboriginal name **Aliyu**
- Description A creeper with large tubers. Consumption of the tubers is said by some Aborigines to cause vomiting and headaches,

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but other say that, if consumed in small quantities, no ill effects result.  
 Preparation The tubers are cooked in ashes.  
 Season Yirma-Yuwala  
 Locality Bera, but where it remains wet, for example adjacent to rock, wumangarr.

*Ipomoea* sp.  
 Aboriginal name Yinga  
 Description A creeper which has a slightly swollen root, the fleshy part of which is edible.  
 Preparation Aborigines cook the roots in ashes, and when done, strip the fleshy parts from the fibrous parts by using their fingers. Only the fleshy parts are edible.  
 Season Yirma-Yuwala  
 Locality Grows only in gololor by the high water mark. This specimen was collected at Pago. N.B. A specimen collected in Port Warrender and identified by Wunambal men as yinga was identified by the Western Australian Herbarium as *Ipomoea brasiliensis* (1). Sw. and is clearly a different plant to the yinga collected at Pago.

*Operculina brownii* Oostr.  
 Aboriginal name Bara  
 Description A creeper which produces a tuber, commonly referred to as the 'bush potato'.  
 Preparation Aborigines roast it in the fire for five minutes.  
 Locality Gololor where this has water at no great depth, and wumangarr.  
 Season Goloruru to yuwala.  
 Comment This creeper can grow to a large size and bear a prolific crop. From one plant, Mary and I dug up about 7 kg in less than 15 minutes and left about two-thirds of the ground around the stem untouched.

Verbenaceae

*Premna acuminata* R. Br.  
 Aboriginal name Gunan  
 Description A small tree, the wood of which is used to make fire sticks.  
 Locality Bera  
*Clerodendrum ovalifolium* (A. Juss) Baker  
 Aboriginal name Ngula  
 Description A bush on small tree with whitish flowers. Used as tobacco.

Preparation           Aborigines chewed the leaves with ashes.  
 Locality              Wumnagarr

*Vitex glabrata* R. Br.

The aborigines distinguish between two different trees which are not separated botanically:

1 Yauru

Description           A tree with small mauve flowers. The fruit is green in colour when ripe.

Preparation           The fruit is eaten raw, and gives a black stain to the teeth and tongue (not witnessed).

Season                 Maiaru

Locality              Wumangarr

2 Mandjara

Description           A tree with small white flowers. When ripe, the fruit turns black and falls to the ground.

Preparation           Aborigines collect the fruit only after it has fallen. They put criss-crossed pieces of paperbark in a hole in the ground. They put three to four handfuls of fruit in, then hot stones, then more fruit and so on. They cover with paperbark and sand, and cook for a short time (about 20 minutes).

The fruit can be sun-dried and then resembles a sultana. In this state, it will keep for a long time.

Season                 Djaward

Locality              Wumangarr

References           Mandjara is the 'goondie' referred to by Gribble as an important source of food at Forrest River Mission (1932: 20, 62). Specht (1958: 499) gives Arnhem Land references. See also Woolston (1973: 98).

**Solanaceae**

*Solanum ?dioicum* W.V. Fitzg.

Aboriginal name      Gilu

Description           A small plant with purple flowers and edible fruit.

Preparation           When the fruit is ripe, it falls to the ground. It can then be eaten without preparation.

Season                 Yirma

Locality              Balambala and wunggaila.

**Acanthaceae**

*Stemodia lythrifolia* F. Muell.

Aboriginal name      Bunu-bunu

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Description	A small plant with a blue flower and pungent scent. It grows in rocky country near caves. It is used as a medicine.
Preparation	Used for smelling and as a medicine. To prepare it as a medicine, Aborigines put it in water until the water has acquired flavour. They apply over the head as a treatment for headaches.
Locality	Found in <b>morai, wumangarr</b> .

*Hypoestes floribunda* R. Br.

Aboriginal name	<b>Bunu</b>
Description	'Native Powder.' This is a small plant found among rocks.
Preparation	Aborigines used to dry the plant in the sun. The leaf must be used very dry, then it is crushed and rubbed on a rock surface to make it into powder.
Locality	<b>Wumangarr</b>

**Rubiaceae**

*Gardenia ?edulis* F. Muell.

Aboriginal name	<b>Yilau</b>
Description	A small tree with fruit which is said to turn yellow when it is ripe.
Preparation	Eaten raw.
Season	<b>Yirma</b>
Locality	<b>Bera</b>
Comment	It is said that this fruit was not eaten before one of the missionaries tried it.

*Gardenia megasperma* F. Muell.

Aboriginal name	<b>Malara</b>
Description	A fig-like tree. It produces gum and the leaves are used in cooking.
Preparation	(1) The growing point of the branch used to be hammered and this produced gum used for fixing spear heads. (2) The leaves can be used for cooking in the same way as lolord especially for <b>milalba, darrar</b> and <b>mandjara</b> .
Locality	<b>Wumangarr</b>

*Gardenia ?pyriformis* Benth.

Aboriginal name	<b>Malara</b>
Description	A small tree which produces resin in the growing shoot.
Preparation	As <i>G. megasperma</i> .
Season	<b>Yirma-Yuwala</b>
Locality	<b>Wumangarr</b>
Comment	This is one of the very few examples where Aborigines have given the same name to two botanical species. The



uses of these two plants were not known to many, and this may be a case where the same Aboriginal name has been applied in similar species by different Aboriginal groups.

### Rubiaceae

*Nauclea coadunatus* (Sm.) Druce

Aboriginal name **Mar**

Description A tall tree growing near the river. It has a single tall trunk and distinctive dark foliage.

Use The trunk was used to make canoes.

Locality **Djindi, morai.**

### Cucurbitaceae

*Cucumis melo* L. var. *agrestis* Naud.

Aboriginal name **Gagalum**

Description Native cucumber. A small round fruit.

Preparation Cooked by boiling now, but in the old days in paperbark in hot sand.

Season **Yirma**

Locality Found widely where ground is moist, especially **djindi, morai, wera and nan.**

References Tindale (1925: 78) notes that Aborigines on Groote Eylandt were fond of a small native cucumber, and it was also a part of the diet on the Wellesley Islands according to Woolston (1973: 96).

### Lobeliaceae

*Lobelia* sp.

Aboriginal name **Bindji-windjil**

Description A very small plant with blue flowers. The so-called 'bush tobacco' of Kimberley.

Preparation It can be chewed, not smoked.

Locality **Geningard** and near the sea.

Comment Some members of the *Lobelia* family produce a soluble alkaloid called lobeline which is one of the nicotine groups of alkaloids.

### Not Identified

Aboriginal name **Minggul**

Botanical name not identified

Description A small tree which is said to bear a yellow fruit resembling an olive.

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Preparation	The fruit is eaten raw.
Season	<b>Yuwala</b>
Locality	<b>Wumangarr</b> , in cool places, often associated with cypress pines.
Aboriginal name	<b>Yirulumal</b>
Description	A tree, the bast ( <b>djudji</b> ) of which is used for string ( <b>bi</b> ) and the wood of which can be used to make fire sticks ( <b>gunan</b> ).
Preparation	Aborigines peel off the bark and then the bast from the bark. They pound the bast with stones to make it soft, then pull off fine threads. They wind the threads by rubbing them on their thighs. String made from <b>djudji</b> is used for making headbands, tying up swags, etc., and also for mopping up honey.
Locality	<b>Djindi</b>
Aboriginal name	<b>Guraba</b>
Description	A white plant gall resembling a gum nut in form. The central portion, which resembles a seed, is an insect larva. It is surrounded by layers which are pink and white.
Preparation	The hard outer shell is broken, and the larva is eaten raw.
Comment	<b>Guraba</b> is regarded as food for children, and is not usually taken by adults. There are said to be three kinds of <b>guraba</b> , but only one was collected.

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TRADITIONAL ABORIGINAL PLANT RESOURCES

Index of Aboriginal Plant Names

Aboriginal Plant Names	Identification	Page	Table	Figure
Alamard	<i>Typhonium liliifolium</i>	8, 22, 40-41, 81	2, 8	5
Aliyu	<i>Ipomoea</i> sp.	69-70, 82	2, 8	
Anbamar	<i>Securinega melanthesoides</i>	21, 55, 83	1, 7	
Andan	<i>Pandanus</i> sp.	23, 37, 38, 85	1, 4, 7	
Arnu	<i>Nymphaea</i> sp.	7, 22, 40, 49, 85	2, 8	
Baladerr	<i>Glycine ?tomentosa</i>	23, 52, 83	2, 8	
Bambra	<i>Grevillea viscidula</i>	47, 85	4	
Bandaran	<i>Melaleuca</i> cf. <i>argentea</i>	67, 84	3, 6	
Bandari	<i>Eugenia</i> sp.	21, 67, 84	1, 7	
Banggiya	<i>Planchonia australis</i>	16, 64, 83	1, 7	
Baniyu	<i>Murdannia graminea</i>	42, 42, 82	2, 8	
Bara	<i>Operculina brownii</i>	2, 23, 24, 70, 82	2, 8	
Baruru	<i>Eucalyptus</i> sp.	66-67, 84	4, 6	
Berrngul	? <i>Chrysopogon</i> cf. <i>pallidus</i>	39, 85	3	
Bi marr	<i>Banksia dentata</i>	46, 85	6	
Bindjili	<i>Ficus platypoda</i>	23, 46, 84	1, 7	
Bindji-windjil	<i>Lobelia</i> sp.	73, 84	4	
Bondjor	<i>Brachychiton</i> sp.	23, 62-63, 86	1, 6, 7	6
Buargu	<i>Commelina ensifolia</i>	42, 82	2, 8	
Bulga	<i>Boerhavia diffusa</i>	16, 23, 28, 47, 84	2, 8	
Bunu	<i>Hypoestes floribunda</i>	72, 81	4	
Bunu-bunu	<i>Stemodia lythrifolia</i>	71-72, 81	4	
'Creeper'	<i>Passiflora foetida</i>	63-64, 85	1, 7	
Dalu	<i>Brachychiton</i> sp.	63, 86	1, 7	6
Danba	<i>Barringtonia acutangula</i>	64, 83	5	
Dangana	<i>Livistona</i> sp.	3, 22, 28, 38-39, 81	3	
Daranggal	<i>Brachychiton paradoxum</i>	9, 21, 24, 47, 62, 66, 85	1, 3, 6, 7	2, 6
Darrar	<i>Panicum ?capillipes</i>	39, 72, 85	1, 7	
Dilngeri	<i>Petalostigma quadriloculare</i>	55, 83	4	
Djabaru	<i>Ampelocissus acetosa</i>	2, 22, 23, 56, 86	1, 2, 7, 8	
Djabren	<i>Eleocharis ?sphacelata</i>	17, 22, 40, 49, 83	2, 8	
Djalad	<i>Brachychiton diversifolium</i>	21, 23, 24, 62, 62, 85	1, 6, 7	6
Djanggarra	<i>Portulaca pilosa</i>	6, 48, 85	2, 8	
Djulurd	<i>Acacia stigmatophylla</i>	51, 84	6	
Djumbu	<i>Cynanchum pendunculatum</i>	68, 82	1, 7	
Djungeri	<i>Adansonia gregorii</i>	24, 58, 82	1, 6, 7	
Gadji	<i>Flagellaria indica</i>	41, 83	3	
Gagalum	<i>Cucumis melo</i> var. <i>agrestis</i>	21, 73, 82	1, 7	



Galal	<i>Eucalyptus</i> sp.	66, 84	3	
Gamagurd	<i>Phragmites karka</i>	40, 85	6	
Gandala	<i>Persoonia falcata</i>	9, 9, 22, 27, 46-47, 85	1, 7	
Gandjandjal	<i>Pandanus aquaticus</i>	37, 85	1, 7	
Gandjidard	<i>Ipomoea ?muelleri</i>	16, 69, 82	2, 8	
Gandungai	<i>Tacca leontopetaloides</i>	8, 21, 21, 43-44, 44, 86	2, 8	
Ganmanggu	<i>Dioscorea bulbifera</i>	2, 16, 21, 44-45, 83	2, 8	
Gara	<i>Grewia polygama</i>	57, 86	1, 7	
Gilu	<i>Solanum dioicum</i>	22, 71, 85	1, 7	
Gimaru	<i>Cyperus bulbosus</i>	40, 83	2, 8	
Gin gu	<i>Colocasia antiquorum</i>	40, 81	2, 8	
Glai	<i>Buchanania obovata</i>	3, 9, 22, 22, 23, 28, 55-56, 81	1, 7	
'Gooseberry'	<i>Passiflora foetida</i>	63-64, 85	1, 7	
Gulalard	not identified, legume	4, 23, 54, 83	2, 8	
Gumbia	<i>Eriosema chinense</i>	23, 23, 23, 53-54, 83	2, 8	
Gumburr	<i>Hypoxis marginata</i>	23, 43, 81	2, 8	
Gunan	<i>Premna acuminata</i>	70, 74, 86	6	
Gunu	<i>Dioscorea bulbifera</i>	2, 8, 16, 21, 22, 44-45, 83	2, 8	
Guraba	plant gall	6, 74	3	
Gurangali	<i>Boerhavia diffusa</i>	16, 48, 84	2, 8	
Laba	<i>Thespesia populneoides</i>	58, 84	6	
Langanda	<i>Terminalia</i> sp.	19, 22, 22, 65, 82	1, 7	
Langanggu	<i>Tacca maculata</i>	8, 44, 86	2, 8	9-13
Lariyara	<i>Terminalia</i> sp.	65, 82	1, 7	
Larmi	<i>Drosera petiolaris</i>	50, 83	6	
Lau ula	<i>Ipomoea graminea</i>	16, 23, 69, 69, 82	2, 8	
Leini	<i>Tephrosia phaeosperma</i>	52, 83	5	
Liandu	<i>Verticordia cunninghamii</i>	19, 66, 84	6	
Lirimbi	<i>Typha domingensis</i>	37, 86	6	
Lolord	<i>Acacia dunnii</i>	48, 50, 72, 84	3	
Lowa lowal	Euphorbiaceae?	54-55, 83	1, 7	
Lundururu	<i>Curculigo ensifolia</i>	16, 23, 42, 43, 81	2, 8	
Madunba	<i>Amyema sanguineum</i>	47, 84	1, 7	
Malara	<i>Gardenia megasperma</i>	16, 72, 85	3, 6	
Malara	<i>Gardenia ?pyriformis</i>	16, 72-73, 85	6	
Malindjarr	<i>Cochlospermum fraseri</i>	16, 28, 63, 63, 82	2, 8	
Mandjara	<i>Vitex glabrata</i>	3, 9, 16, 19, 23, 27, 47, 56, 71, 72, 86	1, 7	
Mandural	<i>Terminalia discolor</i>	65, 82	1, 7	
Mangada	<i>Calytrix microphylla</i>	66, 84	6	
Manganda	<i>Microstemma tuberosum</i>	9, 23, 68, 68, 82	2, 8	
Mangarr	<i>Planchonella arnhemica</i>	67, 85	1, 7	
Mangarr mangal	<i>Acacia leptocarpa</i>	51, 84	4	

## TRADITIONAL ABORIGINAL PLANT RESOURCES

Mar	<i>Nauclea coadunatus</i>	73, 85	6
Miani	<i>Nymphaea gigantea</i>	2, 21-22, 48-49, 85	1, 2, 7, 8
Miawal	<i>Ondinea purpurea</i>	49-50, 85	1, 2, 7, 8
Milalba	<i>Panicum delicatum</i>	39, 72, 85	1, 7
Mili	<i>Vigna lanceolata</i>	16, 23, 53, 83	2, 8
Mindji	<i>Ficus opposita</i>	46, 84	1, 7
Ming gul	not identified	73-74	1, 7
Nalangga	? <i>Vigna</i> sp.	23, 53	2, 8
Nandjirr	<i>Flemingia involucrata</i>	24, 52, 83	2, 8
Nanggalu	<i>Capparis umbonata</i>	50, 82	1, 7
Nanggiridji	<i>Boerhavia diffusa</i>	16, 48, 84	2, 8
Nangi	<i>Pouteria sericea</i>	67-68, 85	1, 7
Ngambiri	<i>Curculigo ensifolia</i>	16, 21, 23, 43, 81	2, 8
Ngamul-ngamul	<i>Sarcostemma australe</i>	68-69, 82	4
Ngara ngudugal	<i>Eugenia grandis</i>	9, 22, 66, 84	1, 7
Ngauwingai	<i>Buchanania florida</i>	21, 22, 28, 55, 81	1, 7
Ngawarri	<i>Eugenia</i> affin. <i>armstrongii</i>	9, 21, 66, 84	1, 7
Ngula	<i>Clerodendrum ovalifolium</i>	70-71, 86	4
Ngulwana	<i>Vigna lanceolata</i>	16, 23, 24, 53, 83	2, 8
Nugu	<i>Hibiscus rhodopetalus</i>	21, 23, 58, 84	2, 8
Ong u	<i>Ficus racemosa</i>	21, 46, 84	1, 7
Walanda	<i>Microstemma</i> sp.	9, 68, 82	2, 8
Walangga	<i>Buchanania florida</i>	55, 81	
Walangga	<i>Buchanania obovata</i>	55-56, 81	2, 8
Walara	<i>Mimusops elengi</i>	67, 85	1, 7
Walgali	<i>Acacia tumida</i>	22, 24, 51, 84	1, 7
Walinjiri	<i>Boerhavia diffusa</i>	16, 24, 48, 84	2, 8
Walula	<i>Terminalia</i> sp.	65, 82	3
Wander	<i>Canarium australianum</i>	24, 54, 82	1, 6, 7
Wanggalu	<i>Vigna lanceolata</i>	16, 53, 83	2, 8
Waramburr	<i>Tinospora smilacina</i>	50, 84	4
Wegu	<i>Vigna lanceolata</i>	16, 53, 53, 83	2, 8
Wi ana	<i>Cochlospermum fraseri</i>	16, 23, 28, 63, 82	2, 8
Widji	? <i>Crotalaria</i> sp.	16, 51-52, 83	5
Widji	<i>Indigofera</i> affin. <i>brevidens</i>	16, 52, 83	5
Widji	<i>Tephrosia purpurea</i>	16, 52-53, 83	5
Wildjari	<i>Petalostigma quadriloculare</i>	55	4
Wiliwa	<i>Grewia</i> sp.	57, 86	1, 6, 7
Wiridjagu	<i>Cartonema parviflorum</i>	21, 41, 82	2, 8
Wuluru	<i>Acacia gonocarpa</i>	51, 84	6
Wurrwa	<i>Ipomoea graminea</i>	16, 23, 69, 82	2, 8
Yalu	<i>Terminalia grandiflora</i>	65, 82	1, 7

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Yamban	<i>Pandanus</i> sp.	38, 85	1, 7	
Yamu	<i>Thysanotus tuberosus</i>	42, 84	2, 8	1
Yan gai	<i>Grewia</i> sp.	57, 86	1, 7	
Yan gal	<i>Erythrina vespertilio</i>	51, 53	4, 6	
Yangu	<i>Antidesma ghaesembilla</i>	54, 83	1, 7	
Yan gun	<i>Aponogeton elongatus</i>	38, 81	2, 8	
Yauru	<i>Vitex glabrata</i>	16, 19, 23, 27, 71, 86	1, 7	
Yilau	<i>Gardenia ?edulis</i>	72, 85	1, 7	
Yinga	<i>Ipomoea brasiliensis</i>	17, 70, 82		
Yinga	<i>Ipomoea</i> sp.	17, 70, 82	2, 8	
Yirulumal	not identified	74	6	
Yugali	<i>Cayratia trifolia</i>	21, 56-57, 85	2, 8	
Yumbu	<i>Ipomoea ?muelleri</i>	16, 69, 82	2, 8	
Yun du	<i>Planchonia australis</i>	16, 33, 64, 83	1, 7	

Index of Families

Acanthaceae

<i>Hypoestes floribunda</i>	Bunu	72	4
<i>Stemodia lythrifolia</i>	Bunu-bunu	71-72	4

Amarylidaceae Hypoxidaceae

<i>Curculigo ensifolia</i> form 1	Lunduru	16, 23, 42, 43	2, 8
form 2	Ngambiri	16, 21, 23, 43	2, 8
<i>Hypoxis marginata</i>	Gumburr	23, 43	2, 8

Anacardiaceae

<i>Buchanania florida</i>	Ngauwingai	21, 22, 28, 55	1, 7
	Walangga	55	
<i>Buchanania obovata</i>	Glai	3, 9, 22, 22, 23, 28, 55-56	1, 7
	Walangga	55-56	2, 8

Aponogetonaceae

<i>Aponogeton elongatus</i>	Yan gun	38	2, 8
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Araceae

<i>Colocasia antiquorum</i>	Gin gu	40	2, 8
<i>Typhonium liliifolium</i>	Alamard	8, 22, 40-41	2, 8

Arecaceae

<i>Livistona</i> sp.	Dangana	3, 22, 28, 38-39	3
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TRADITIONAL ABORIGINAL PLANT RESOURCES

<b>Asclepiadaceae</b>			
<i>Cynanchum pedunculatum</i>	Djumbu	68	1, 7
<i>Microstemma</i> sp.	Walanda	9, 68	2, 8
<i>Microstemma tuberosum</i>	Manganda	9, 23, 68, 68	2, 8
<i>Sarcostemma australe</i>	Ngamul-ngamul	68-69	4
<b>Bombacaceae</b>			
<i>Adansonia gregorii</i>	Djungeri	24, 58	1, 6, 7
<b>Burseraceae</b>			
<i>Canarium australianum</i>	Wander	24, 54	1, 6, 7
<b>Capparaceae</b>			
<i>Capparis umbonata</i>	Nanggalu	50	1, 7
<b>Cochlospermaceae</b>			
<i>Cochlospermum fraseri</i> form 1	Malindjarr	16, 28, 63, 63	2, 8
form 2	Wiana	16, 23, 28, 63	2, 8
<b>Combretaceae</b>			
<i>Terminalia discolor</i>	Mandural	65	1, 7
<i>Terminalia grandiflora</i>	Yalu	65	1, 7
<i>Terminalia</i> sp.	Langanda	19, 22, 22, 65	1, 7
<i>Terminalia</i> sp.	Lariyara	65	1, 7
<i>Terminalia</i> sp.	Walula	65	3
<b>Commelinaceae</b>			
<i>Cartonema parviflorum</i>	Wiridjagu	21, 41	2, 8
<i>Commelina ensifolia</i>	Buargu	42	2, 8
<i>Murdannia graminea</i>	Baniyu	42, 42	2, 8
<b>Convolvulaceae</b>			
<i>Ipomoea brasiliensis</i>	Ying a	17, 70	
<i>Ipomoea graminea</i> form 1	Lau ula	16, 23, 69, 69	2, 8
nea form 2	Wurrwa	16, 23, 69	2, 8
<i>Ipomoea ?muelleri</i> form 1	Gandjidard	16, 69	2, 8
form 2	Yumba	16, 69	2, 8
<i>Ipomoea</i> sp.	Aliyu	69-70	2, 8
<i>Ipomoea</i> sp.	Ying a	17, 70	2, 8
<i>Operculina brownii</i>	Bara	2, 23, 24, 70	2, 8
<b>Cucurbitaceae</b>			
<i>Cucumis melo</i> var. <i>agrestis</i>	Gagalum	21, 73	1, 7

## Cycadaceae

*Cycas media* 22

## Cyperaceae

*Cyperus bulbosus* Gimaru 40 2, 8  
*Eleocharis ?sphacelata* Djabren 17, 22, 40, 49 2, 8

## Dioscoreaceae

*Dioscorea bulbifera* form 1 Ganmangu 2, 16, 21, 44-45 2, 8  
 form 2 Gunu 2, 8, 16, 21, 22, 44-45 2, 8

## Droseraceae

*Drosera petiolaris* Larmi 50 6

## Euphorbiaceae

*Antidesma ghaesembilla* Yangu 54 1, 7  
*Petalostigma quadriloculare* Dilngeri 55 4  
*Securinea melanthesoides* Anbamar 21, 55 1, 7  
 ? genus Lowa lowal 54-55 1, 7

## Fabaceae

?*Crotalaria* sp. Widji 16, 51-52 5  
*Erythrina vespertilio* Yan gal 51, 53 4, 6  
*Glycine ?tomentosa* Baladerr 23, 52 2, 8  
*Indigo fera* affin. *brevidens* Widji 16, 52 5  
*Flemingia involucrata* Nandjirr 24, 52 2, 8  
*Tephrosia phaeosperma* Leini 52 5  
*Tephrosia purpurea* Widji 16, 52-53 5  
*Vigna lanceolata* form 1 Ngulwana 16, 23, 24, 53 2, 8  
 form 2 Wanggalu 16, 53 2, 8  
 form 3 Wegu 16, 53, 53 2, 8  
 var. *filiiformis* Mili 16, 23, 53 2, 8  
*Vigna* sp. Nalangga 23 2, 8  
 legume Gulalard 4, 23, 54 2, 8  
*Eriosema chinense* Gumbia 23, 23, 23, 53-54 2, 8

## Flagellariaceae

*Flagellaria indica* Gadji 41 3

## Lecythidaceae

*Barringtonia acutangula* Danba 64 5  
*Planchonia australis* form 1 Banggiya 16, 64 1, 7  
 form 2 Yundu 16, 33, 64 1, 7

TRADITIONAL ABORIGINAL PLANT RESOURCES

<b>Liliaceae</b>				
<i>Thysanotus tuberosus</i>	Yamu	42	2, 8	1
<b>Lobeliaceae</b>				
<i>Lobelia</i> sp.	Bindji-windjil	73	4	
<b>Loranthaceae</b>				
<i>Amyema sanguineum</i>	Madunba	47	1, 7	
<i>Dendrophthoe acacioides</i>	?			
<b>Malvaceae</b>				
<i>Hibiscus rhodopetalus</i>	Nugu	21, 23, 58	2, 8	
<i>Thespesia populneoides</i>	Laba	58	6	
<b>Menispermaceae</b>				
<i>Tinospora smilacina</i>	Waramburr	50	4	
<b>Mimosaceae</b>				
<i>Acacia dunnii</i>	Lolord	48, 50, 72	3	
<i>Acacia gonocarpa</i>	Wuluru	51	6	
<i>Acacia leptocarpa</i>	Mangar mangal	51	4	
<i>Acacia stigmatophylla</i>	Djulurd	51	6	
<i>Acacia tumida</i>	Walgali	22, 24, 51	1, 7	
<b>Moraceae</b>				
<i>Ficus racemosa</i>	Ong u	21, 46	1, 7	
<i>Ficus opposita</i>	Mindji	46	1, 7	
<i>Ficus platypoda</i>	Bindjili	23, 46	1, 7	
<b>Myrtaceae</b>				
<i>Calytrix microphylla</i>	Mangada	66	6	
<i>Eucalyptus</i> sp.	Baruru	66-67	4, 6	
<i>Eucalyptus</i> sp.	Galal	66	3	
<i>Eugenia</i> affin. <i>armstrongii</i>	Ngawarri	9, 21, 66	1, 7	
<i>Eugenia grandis</i>	Ngarangudugal	9, 22, 66	1, 7	
<i>Eugenia</i> sp.	Bandari	21, 67	1, 7	
<i>Melaleuca</i> cf. <i>argentea</i>	Bandaran	67	3, 6	
<i>Verticordia cunninghamii</i>	Liandu	19, 66	6	
<b>Nyctaginaceae</b>				
<i>Boerhavia diffusa</i> form 1	Bulga	16, 23, 28, 47	2, 8	
form 2	Guranggali	16, 48	2, 8	
form 3	Nanggiridji	16, 48	2, 8	
form 4	Walinjiri	16, 24, 48	2, 8	



**Nymphaeaceae**

<i>Nymphaea gigantea</i>	Miani	2, 21-22, 48-49	1, 2, 7, 8
<i>Nymphaea</i> sp.	Arnu	7, 22, 40, 49	2, 8
<i>Ondinea purpurea</i>	Miawal	49-50	1, 2, 7, 8

**Pandanaceae**

<i>Pandanus aquaticus</i>	Gandjandjal	37	1, 7
<i>Pandanus</i> sp.	Andan	23, 37, 38	1, 4, 7
<i>Pandanus</i> sp.	Yamban	38	1, 7

**Passifloraceae**

<i>Passiflora foetida</i>	'Creeper', 'Gooseberry'	63-64	1, 7
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**Poaceae**

? <i>Chrysopogon</i> cf. <i>pallidus</i>	Berrngul	39	3
<i>Panicum</i> ? <i>capillipes</i>	Darrar	39, 72	1, 7
<i>Panicum delicatum</i>	Milalba	39, 72	1, 7
<i>Phragmites karka</i>	Gamagurd	40	6

**Portulacaceae**

<i>Portulaca pilosa</i>	Djanggara	6, 48	2, 8
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**Proteaceae**

<i>Banksia dentata</i>	Bi marr	46	6
<i>Grevillea viscidula</i>	Bambra	47	4
<i>Persoonia falcata</i>	Gandala	9, 9, 22, 27, 46-47	1, 7

**Rubiaceae**

<i>Gardenia ?edulis</i>	Yilau	72	1, 7
<i>Gardenia megasperma</i>	Malara	16, 72	3, 6
<i>Gardenia ?pyriformis</i>	Malara	16, 72-73	6
<i>Nauclea coadunatus</i>	Mar	73	6

**Sapotaceae**

<i>Mimusops elengi</i>	Walara	67	1, 7
<i>Planchonella arnhemica</i>	Mangarr	67	1, 7
<i>Pouteria sericea</i>	Nangi	67-68	1, 7

**Solanaceae**

<i>Solanum dioicum</i>	Gilu	22, 71	1, 7
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**Sterculiaceae**

<i>Brachychiton diversifolium</i>	Djalad	21, 23, 24, 62, 62	1, 6, 7	6
<i>Brachychiton paradoxum</i>	Daranggul	9, 21, 24, 47, 62, 66	1, 3, 6, 7	2, 6

TRADITIONAL ABORIGINAL PLANT RESOURCES

<i>Brachychiton</i> sp.	Bondjor	23, 62-63	1, 6, 7	6
<i>Brachychiton</i> sp.	Dalu	63	1, 7	6
<b>Taccaceae</b>				
<i>Tacca leontopetaloides</i>	Gandungai	8, 21, 21, 43-44, 44	2, 8	
<i>Tacca maculata</i>	Langanggu	8, 44	2, 8	9-13
<b>Tiliaceae</b>				
<i>Grewia polygama</i>	Gara	57	1, 7	
<i>Grewia</i> sp.	Yan gai	57	1, 7	
<i>Grewia</i> sp.	Wiliwa	57	1, 6, 7	
<b>Typhaceae</b>				
<i>Typha domingensis</i>	Lirimbi	37	6	
<b>Verbenaceae</b>				
<i>Clerodendrum ovalifolium</i>	Ngula	70-71	4	
<i>Premna acuminata</i>	Gunan	70, 74	6	
<i>Vitex glabrata</i> form 1	Mandjara	3, 9, 16, 19, 23, 27, 47, 56, 71, 72	1, 7	
form 2	Yauru	16, 19, 23, 27, 71	1, 7	
<b>Vitaceae</b>				
<i>Ampelocissus acetosa</i>	Djabaru	2, 22, 23, 56	1, 2, 7, 8	
<i>Cayratia trifolia</i>	Yugali	21, 56-57	2, 8	