

Flora of the proposed farm-visit site on the Lethbridge farm, Kununurra.

A.N. Start¹.
2001.

Background.

On 7 September 2001 I made an inventory of the flora on this site. I was aided in the field by Mr Richard Lethbridge who both defined the area and assisted with specimen collection. September is well in to the dry season so that (except on the margins of wetlands and areas that are watered artificially) most annual species are dead. Even some perennial forbs, sedges and grasses die back to dormant buds. Nevertheless, most taxa are identifiable from dead remains.

Methods.

The area was divided into five zones based on overtly distinct vegetation community types. Not surprisingly, they correlated with differences in soil, hydrological and topographic characters. Table 1 lists the characteristics of the five zones.

Zone	Situation
A	Dam and its surrounding damp zone. Part mowed grassland with occasional shrubs and trees.
B	Creek-line below the dam. Open woodland of coolibah (<i>E. microtheca</i>) over grasses
C	Intensively managed strip adjacent to the driveway. Open wood/shrubland over mowed grasses
D	slope to east of the creek and south of zone A. Open grassland. Herbs on remnant scalds
E	slope to west of the creek and dam. Open wood/shrubland over perennial and annual grasses

Each zone was searched intensively and a sample of every taxon was collected. The five collections were separately sorted so that a list for each was generated. Taxa that could not be identified in the field were pressed for subsequent determination.

Table 2 lists all species by zone. Exotic species are flagged. Those introduced intentionally for ornamental or production purposes are distinguished from weeds that have naturalised.

Discussion.

A total of 101 species was recorded. The most diverse habitat was the dam (Zone A) where 50% of all species were found, despite it being the smallest zone area. Despite it being the largest zone area, the least diverse was the grassland (Zone D) in which 26% of species occurred.

No species that are declared by the Minister as "species that are likely to become extinct or are rare" (ie threatened) or listed by Department of Conservation and Land Management as priority species (ie of conservation concern) were found.

As one might expect on a farm, the more intensively managed strip alongside the driveway differs markedly from the more natural vegetation communities because it is mowed, and planted with introduced species (including ornamental and fruit trees) which are watered.

¹ PO Box 453, Kununurra, Western Australia 6743.

The dam and its surrounds is an artificial wetland. Although there have been deliberate introductions (including locally native *Pandanus* and waterlilies as well as exotic species like coconuts), native wetland species have colonised the site adding to the aesthetic and biodiversity values of the area.

The hydrology of the creek line below the dam appears not to have been significantly affected by the dam because:

- having a very small catchment and a significant grade, it would always have been dry except briefly after storms and
- land to either still provides a source of run-off.

Nevertheless the vegetation along the creek appears to have been modified by an episode of severe erosion (like the land to its east, see below). Careful management has restored vegetation cover but it is still an area of relatively low species diversity dominated by black spear-grass *Heteropogon contortus* and the exotic passion-vine *Passiflora foetida*.

The large area of grassland east of the creek and south of the intensively managed driveway strip had obviously been severely eroded and its vegetation degraded, if not largely eliminated, in the past. Resting and careful management in recent years have done much to re-establish vegetation, thus checking erosion, but low species diversity, the abundance of annual grasses and species such as black spear-grass, and the mulla mulla, *Ptilotus exaltatus*, are indicative of its past condition.

The area to the west of the creek is the most botanically diverse of the three more or less natural zones. It still carries perennial grasses such as *Chrysopogon fallax* and *Sorghum plumosum* as well as a variety of indigenous shrubs. Its more sandy soils may have helped buffer it from the degradation on the other side of the channel.

Three of the intentionally introduced species are of concern as potential environmental weeds. They are neem (*Azadirachta indica*), leucaena (*Leucaena leucocephala*) and a morning glory, *Ipomoea carnea*. Neem, a small tree, is being detected with increasing frequency in riverine habitats on the banks of the Ord and in numerous other situations, including Mirima National Park. Along with leucaena and belly-ache bush, it is one of the most serious woody weed threats in the Kununurra/lower Ord area. The morning glory is a shrub which has the potential to be a serious weed in riverine habitats. The only other known patch in this area (from which Mr Lethbridge obtained his founder stock) has recently been eradicated by the Shire of Wyndham East Kimberley in conjunction with the Department of Agriculture.

Conclusion.

The area is floristically diverse. The diversity reflects:

- an array of habitat types
- management to restore degraded land and other farm practices
- construction of a dam
- intentional introductions and
- weed invasions

Family	Species	Voucher	A	B	C	D	E	Form	Origin
Amaranthaceae	Gomphrena celosoides		1		1	1		herb	exotic
Amaranthaceae	Ptilotus concinus					1		herb	native to area
Amaranthaceae	Ptilotus exaltatus			1			1	herb	native to area
Apocynaceae	Carissa lanceolata				1	1	1	shrub	native to area
Arecaceae (Palmae)	Cocos nucifera		1					tree	planted
Asteraceae	Blumea aff. diffusa		1					herb	native to area
Asteraceae	Eclipta prostrata		1					herb	exotic
Asteraceae	Emilia sonchifolia		1					herb	exotic
Asteraceae	Pterocaulon serrulatum		1	1			1	herb	native to area
Asteraceae	Pterocaulon sphacelatum			1				herb	native to area
Asteraceae	pungent daisy	ANS 1419	1	1	1	1	1	herb	native to area
Asteraceae	Tridax procumbens		1					herb	exotic
Asteraceae	Veronia sp.?	ANS 1424	1					herb	exotic
Bignoniaceae	Dolichandrone heterophylla						1	shrub	native to area
Bombacaceae	Adansonia gregorii		1	1			1	tree	native to area
Boraginaceae	Ehretia saligna				1		1	shrub	native to area
Caesalpiniaceae	Bauhinia cunninghamii		1	1	1	1	1	tree	native to area
Capparaceae	Capparis lasiantha				1			vine	native to area
Capparaceae	Capparis sepiaria				1			shrub	native to area
Chenopodiaceae	Salsola kali			1				herb	native to area
Combretaceae	Terminalia platyptera						1	tree	native to area
Convolvulaceae	Ipomoea pes-caparis				1			vine	planted
Convolvulaceae	Ipomoea carnea				1			shrub	exotic
Convolvulaceae	Bonamia sp	tape p39	1	1	1	1	1	herb	native to area
Convolvulaceae	Ipomoea coptica			1		1		vine	native to area
Cyperaceae	Cyperus sp	ANS 1422	1					grass or sedge	native to area
Euphorbiaceae	Flueggea virosa		1		1			shrub	native to area
Euphorbiaceae	Phyllanthus maderaspatensis		1		1			herb	native to area
Euphorbiaceae	Phyllanthus reticulatus		1		1			shrub	native to area
Goodeniaceae	Velleia panduriformis						1	herb	native to area
Lauraceae	Cassytha capillaris		1	1	1			parasitic vine	native to area
Lauraceae	Cassytha filiformis		1	1				parasitic vine	native to area
Loranthaceae	Amyema benthamii		1		1	1	1	parasitic shrub	native to area
Loranthaceae	Lysiana subfalcata				1			parasitic shrub	native to area
Malvaceae	Sida acuta				1			woody herb	exotic
Malvaceae	Abutilon andrewsianum				1			woody herb	native to area

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Malvaceae	Hibiscus pentaphyllus		1				1	woody herb	native to area
Malvaceae	Sida fibulifera		1	1				woody herb	native to area
Meliaceae	Azadirachta indica		1		1			tree	planted
Meliaceae	Khaya senegalensis				1			tree	planted
Menispermaceae	Tinospora smilacina		1	1				vine	native to area
Menyanthaceae	Nymphoides indica		1					aquatic herb	planted
Mimosaceae	Leucaena leucocephala				1			shrub or small tree	planted
Mimosaceae	Acacia farnesiana				1	1		shrub	native to area
Mimosaceae	Acacia hemignosta			1			1	shrub or small tree	native to area
Mimosaceae	Acacia holosericea			1			1	shrub	native to area
Mimosaceae	Acacia lysiphloia						1	shrub	native to area
Moraceae	Cultivated Mulberry				1			tree	planted
Moraceae	Ficus benamina				1			tree	planted
Moraceae	Ficus coronulata		1					tree	native to area
Moraceae	Ficus opposita		1				1	shrub or small tree	native to area
Myrtaceae	Eucalyptus microtheca		1	1				tree	native to area
Myrtaceae	Eucalyptus tectifera						1	tree	native to area
Myrtaceae	Melaleuca minutifolia						1	shrub	native to area
Myrtaceae	Melaleuca nervosa						1	shrub or small tree	native to area
Myrtaceae	Melaleuca viridiflora						1	shrub or small tree	native to area
Nyctginaceae	Boerhavia af gardneri			1		1		herb	native to area
Nymphaeaceae	Nymphaea (prob) violacea		1					aquatic herb	planted
Onagraceae	Ludwigia octovalvis		1					herb	native to area
Pandanaceae	Pandanus spiralis		1					tree	planted
Papilionaceae	Macroptilium lathyroides		1	1		1		shrub	exotic
Papilionaceae	Stylosanthes hamata		1	1	1	1	1	shrub	planted
Papilionaceae	Stylosanthes scabra		1	1			1	shrub	planted
Papilionaceae	Neptunia sp (sterile)				1	1		shrub	native to area
Papilionaceae	Sesbania cannabina		1	1		1		woody herb	native to area
Papilionaceae	Vigna sp	ANS 1423	1		1	1		vine	exotic
Passifloraceae	Passiflora foetida		1	1	1	1	1	vine	exotic
Poaceae	Chloris barbata		1	1	1	1	1	grass or sedge	exotic
Poaceae	Echinochloa colona		1					grass or sedge	exotic
Poaceae	Aristida holathera			1		1	1	grass or sedge	native to area
Poaceae	Bothriochloa sp		1					grass or sedge	native to area
Poaceae	Brachyachne convergens					1		grass or sedge	native to area

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Poaceae	Chrysopogon fallax				1		1	grass or sedge	native to area
Poaceae	Cynodon dactylon		1		1			grass or sedge	planted
Poaceae	Dichanthium fecundum			1		1		grass or sedge	native to area
Poaceae	Enneapogon purpurascens					1	1	grass or sedge	native to area
Poaceae	Eragrostis aff. tenellula		1		1		1	grass or sedge	native to area
Poaceae	Grass spp	ANS 1421	1					grass or sedge	?
Poaceae	Heteropogon contortus		1	1		1		grass or sedge	native to area
Poaceae	Isiaelima sp						1	grass or sedge	native to area
Poaceae	Phragmites karka		1					grass or sedge	planted
Poaceae	Sehima nervosum		1		1		1	grass or sedge	native to area
Poaceae	Sorghum plumosum					1	1	grass or sedge	native to area
Poaceae	Sorghum stipoideum			1				grass or sedge	native to area
Poaceae	Themeda triandra		1				1	grass or sedge	native to area
Poaceae	Triodia bitextura						1	grass or sedge	native to area
Poaceae	Urochloa mosambicensis					1		grass or sedge	exotic
Rhamnaceae	Ventilago viminalis				1			shrub or small tree	native to area
Rubiaceae	Gardenia af resinosa						1	shrub or small tree	native to area
Rubiaceae	Oldenlandia Sp.		1					herb	native to area
Rutaceae	Citrus sp. (lime)				1			shrub or small tree	planted
Rutaceae	Murraya sp. (cultivated variety)				1			shrub	exotic
Sapindaceae	Atalaya hemiglauca		1		1			shrub or small tree	native to area
Sapindaceae	Dodonaea physocarpa						1	shrub	native to area
Scrophulariaceae	Buchnera linearis						1	herb	native to area
Scrophulariaceae	Stemodia sp						1	herb	native to area
Solanaceae	Physalis minima					1		herb	native to area
Sterculiaceae	Waltheria indica						1	woody herb	native to area
Tiliaceae	Corchorus olitorius		1					woody herb	exotic
Tiliaceae	Grewia retusifolia		1					shrub	native to area
Tiliaceae	Triumfetta plumigera					1	1	woody herb	native to area
TOTALS	101 Species		50	27	37	26	40		

native (N = 70)
exotic (N = 15)
planted (n = 15)
unknown (n = 1)