



Geographical concepts for a floodplain and catchment

Part 1 : identifying features

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Photos by Jeanie Clark, unless otherwise acknowledged.

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Geography applied to Jeparit's River Detectives site and its surrounds.

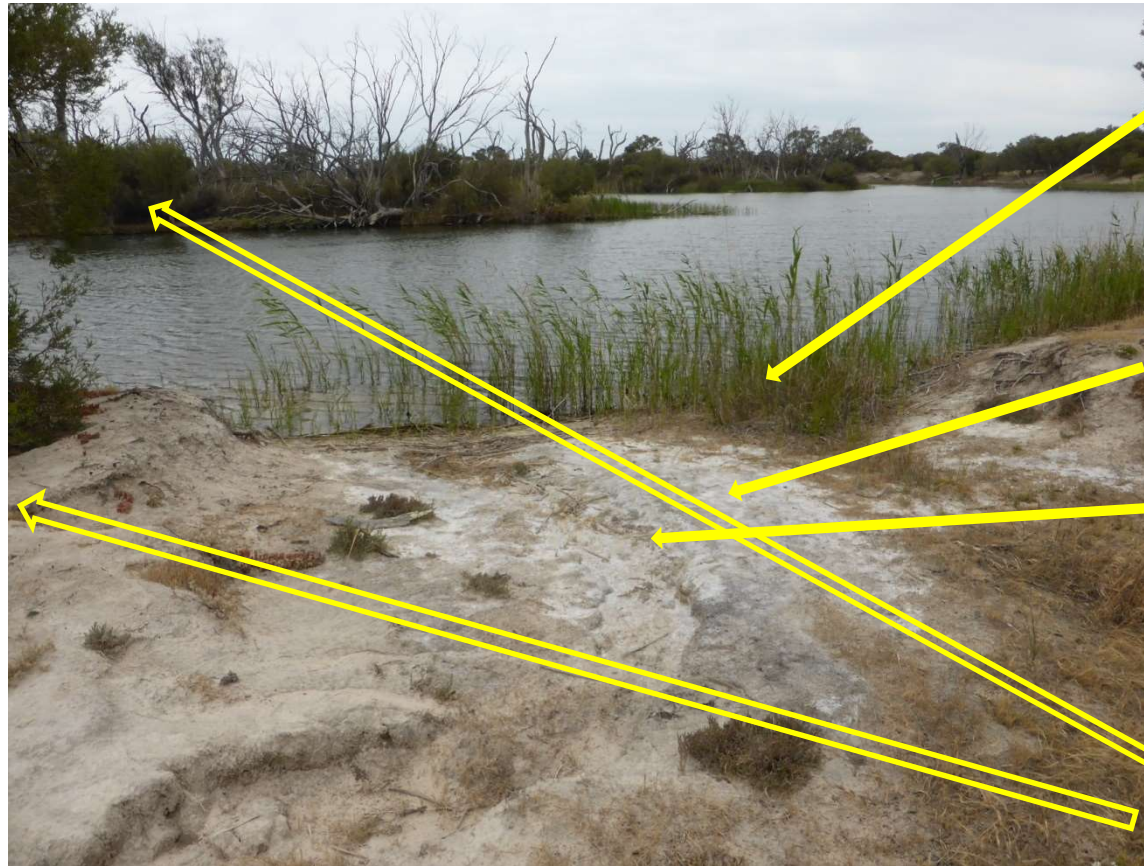
This ppt (part 1) responded to these aims requested from a teacher:

To use these key geographical concepts in situ:

- natural features
- interconnection
- geographical challenges
- compass bearings
- finding coordinates on a map

The natural landform features of the Jeparit Showgrounds site

Scale?
Small
area,
Very
local.



Interconnections of
landform feature
with plants?

Bank under water –
reeds.

Bank – bare where
eroded of topsoil

Mini-stream – no
topsoil

Verge – shrubby
plants and big trees

- A riparian zone site – **landform running along a stream**. These have three main parts:
- **Water** – the river part, where the bank is under water
- **Bank** – **steeper** slope down to the river water's edge.
- This bank is a depression as a natural **mini-stream** outlet for the wetland/ swampland behind it. The wetland to the river is a very mini-catchment along the River.
- **Verge** - **flatter, higher** land above the bank .
- **Interactions:** Each is a mini-environment that may suit different living things.

The natural features of a floodplain - local scale Geography.

The Wimmera River Floodplain in flood January 2011.

Water in a floodplain provides important breeding grounds for native plants and animals, including riparian trees and shrubs, waterbugs, fish and birds.



Wimmera River at Jeparit flowing into Lake Hindmarsh by Phil Colquhoun

Find:

- the **floodplain** and notice how much vegetation is found on it (spatial association).
- the **main stream** – not so easy when it is in flood.
- many **meanders** – and some that form into **billabongs** with **islands** in their middle
- **backswamps** – the one beside the Showgrounds site has been marked with the arrow.

The formation of natural features of meanders in a floodplain

A floodplain stretches between **valley walls**.

At Jeparit, the valley walls are:

- on the east, the **high land** (where the town sits)
- on the west where **River Road** runs.

Typical features are shown on the diagram Fig 7.

A **main stream** is where the stream cuts its deepest path.

The path of the strongest current **erodes** the banks.

Less noticeable is **deposition** from the slower current.

These creates most **floodplain** features.

The action of the strongest current is shown on Fig 42.

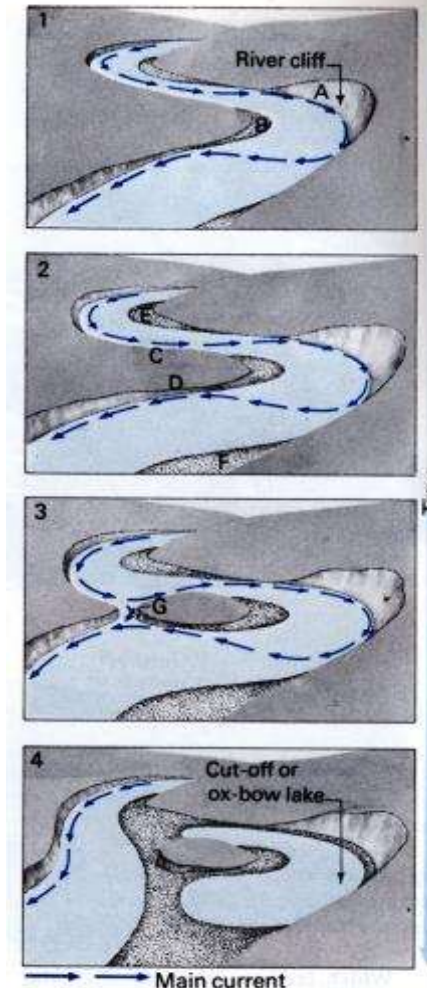
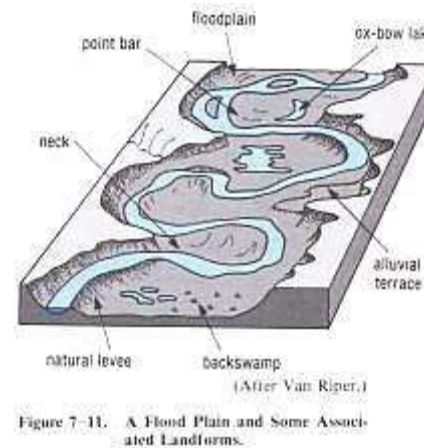


Fig. 42

Diagram sources.

Fig 42: Crisp, "Rivers" 1979, p 38

Fig7: Paine & Darmanin "Systems in Physical Geography" 1982 p 123

Fig 42: Crisp, "Rivers" 1979, p 38

Over a long time, the river cuts soil from its **banks** by **erosion**, especially in floods. While its gentler flowing waters **deposits silt** from upstream.

Erosion forms **cliff banks**; deposition forms **slip-off slopes or point-bars** opposite.

The steep cliffs form on the outside bends and have **deep pools** below them.

The gentle slopes form on inside bends and have **sandy bars** into the water.

It is dangerous to jump into a river off the cliff; much safer to enter on the sandy bar.

Over more time and more erosion , the meander narrows to form a **neck** (on Fig 7).

Then in one big **flood**, the neck will be cut through (on fig 42 diag 3 at G).

The main stream's channel becomes **straighter** by this (on Fig 42 diag4).

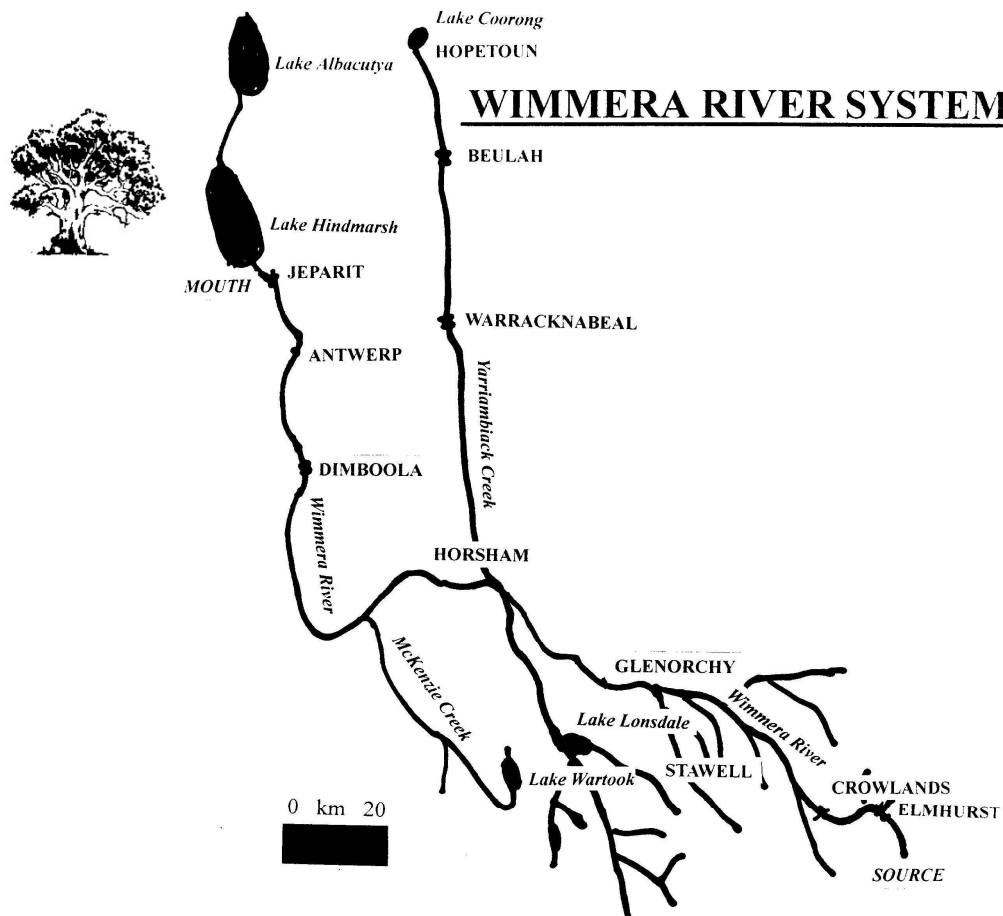
This is the stage of the billabongs beside and opposite the Showgrounds site.

Only high flows can now fill them. The **water is trapped**, making them more swampy.

The centre of their meanders have become **islands**.

There are islands in the billabongs beside and opposite the Showgrounds site.

The natural features of a river system – regional scale Geography.



Map . J. Clark 1997

A river system has 3 main parts:

Upper – where **tributaries** (small streams) feed into the main stream from the highest land.

Middle – where it runs across lower but still sloping land

Lower – where it runs slowly in very bendy meandering shapes and forms **marshes /swamps** form.

The Wimmera River has some unusual features:

- Most rivers empty into the sea. The Wimmera is **empties into lakes**.
- It has **distributaries** which take its water out of it. They are the Wimmera River System's creeks that head north - the Yarriambiack, Dunmunkle and Datchak.

The natural features of a catchment– regional scales in Geography.

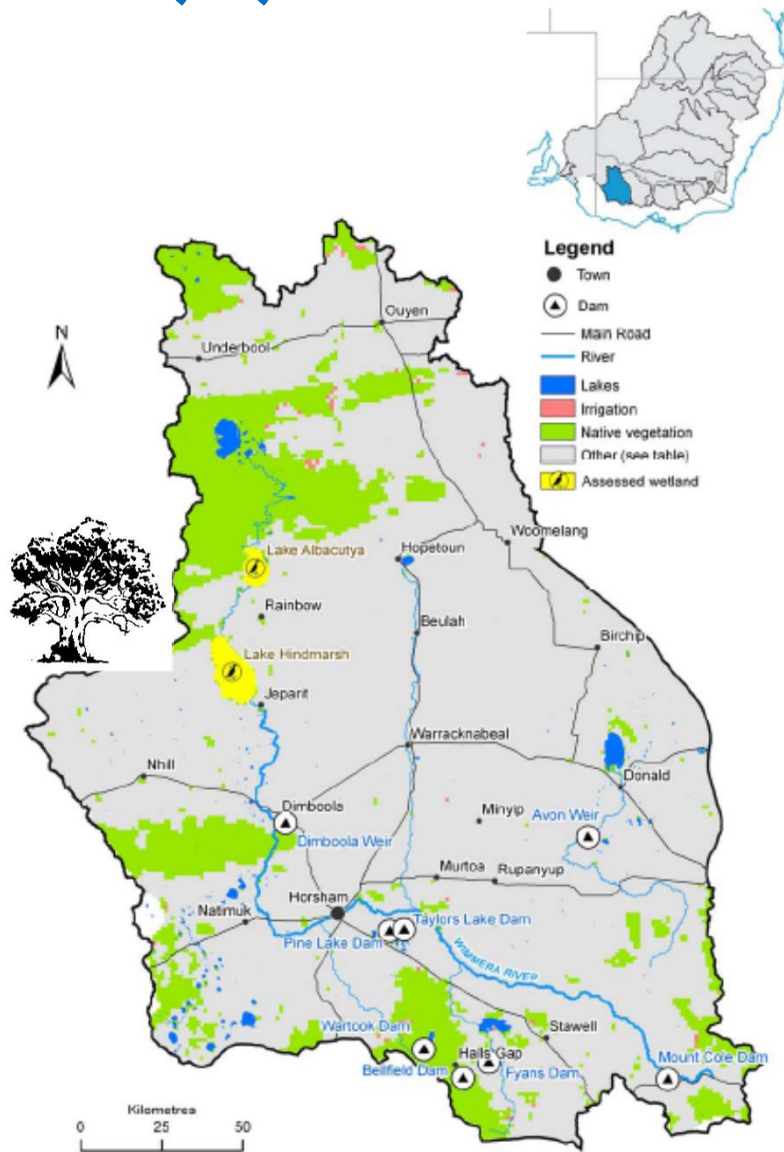


Figure 2-2. Map of dominant land uses of the Wimmera region with inset showing the region's location within the MDB. The assets shown are only those assessed in the study (see Chapter 7). A full list of key assets associated with the region is in Table 2-2.

Water connects features of :

- the **air** (rainfall) ;
- with the **land** (downhill slopes, valleys, depressions, and rocks and soil types) ;
- to **living things** (River Red Gum trees along their banks, swamps, birdlife, fish life and all the little life they need along the river and beside it).

Rivers flow downhill where the land (weaker rock and/or looser soil) is easiest to **erode** (wear away). Most eventually run into the sea.

The area where a river draws its water from is called a “**catchment**” or a “**Drainage Basin**”. Catchments nest inside bigger and smaller ones. The Wimmera is part of the **Murray Darling Drainage Basin (MDDDB)**.

Because the Wimmera ends in lakes, not the sea, it is a **closed system**.

What features can you identify in this RD site photo (2019)?

Suggested PPT PD
followups:

Geographic
Concepts Part 2

and
Jeparit Primary
School's
Waterwatch
Showgrounds Site
WIM940 –
A visual history of
its changes 1996-
2015



Evaluation document page follows

Please note that it is based on having completed parts 1 and 2 of the
Geographic Concepts PPT.



Geographical concepts applied to the JPS Showgrounds RD site T3 2020 date completed:

Thank you for taking the time to fill in this survey. The results will be used to plan and improve our events in the future and to attract funding for additional events. Your comments are confidential and will only be reported in summary form.

This topic was requested by Jeparit P.S. The ppt and site visit provides specific Jeparit information about the geography of a floodplain and catchment.

1. Before this training, what was your level of knowledge of the topic?

None Some Reasonable Good Excellent

2. How much has this training improved your knowledge of this topic?

Not at all Slightly Moderately Reasonably Considerably

3. Please note any additional aspects to this topic that you would have liked included.

4. After this training, how likely are you to include parts of this topic in your classroom activities?

Not at all Unlikely Uncertain Likely Definitely

5. Please briefly outline what you might do:

6. Please describe what limiting factors may prevent you from including these activities in your classroom?

7. Please assess how suitable this training was for you. If you did not use any part, please indicate this, by putting a line through it.

VL = Very Low L = Low M = Medium H = High VH = Very High

Part of the training	Quality of information					length				
Site visit	VL	L	M	H	VH	VL	L	M	H	VH
PPT part1 – floodplain and catchment concepts	VL	L	M	H	VH	VL	L	M	H	VH
PPT part2 – geographic concepts	VL	L	M	H	VH	VL	L	M	H	VH
Link to plants PPT	VL	L	M	H	VH	VL	L	M	H	VH

8. How could we improve training, like this?

9. What information or events (up to three) would you be most interested in your local RD - CMA delivering for RD teachers and schools?

Jeanie Clark, North and West Wimmera CMA River Detectives Facilitator July 2020

River Detectives, T3 2020.

Geographical concepts applied to the JPS Showgrounds RD site

Professional Development Webex & ppt Training Evaluation

A **DOCX** copy of this form has been attached on this email for you. Please **complete** this and **email** it back to me.

Your **feedback** on this **PD** is essential.

A **PD certificate** will be sent to you on my receipt of this.

Thank you

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