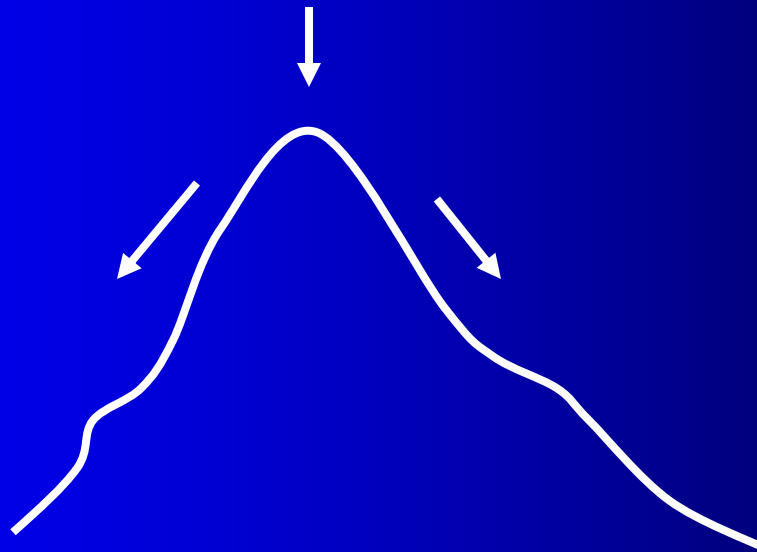


Stream Geomorphology

A decorative graphic element consisting of a blue gradient shape that starts as a thin arc on the left and curves downwards and to the right, ending as a solid blue triangular area in the bottom right corner.

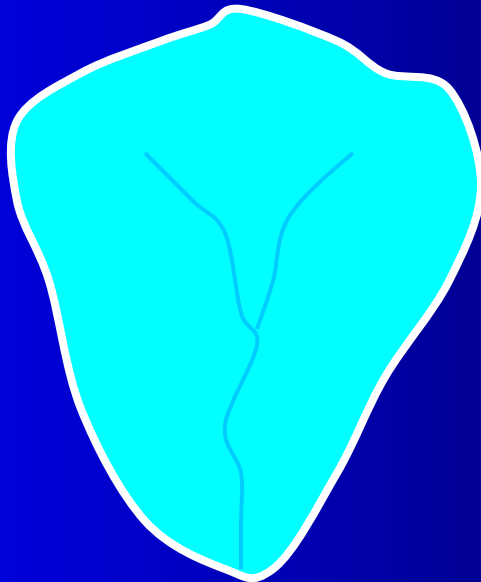
Watershed

- The line that demarcates the topographic “shedding” of the water across the landscape.



Catchment

- The area of a landscape within the watershed boundary that routes water to the river network.



Basin Characteristics

- **Drainage Area**

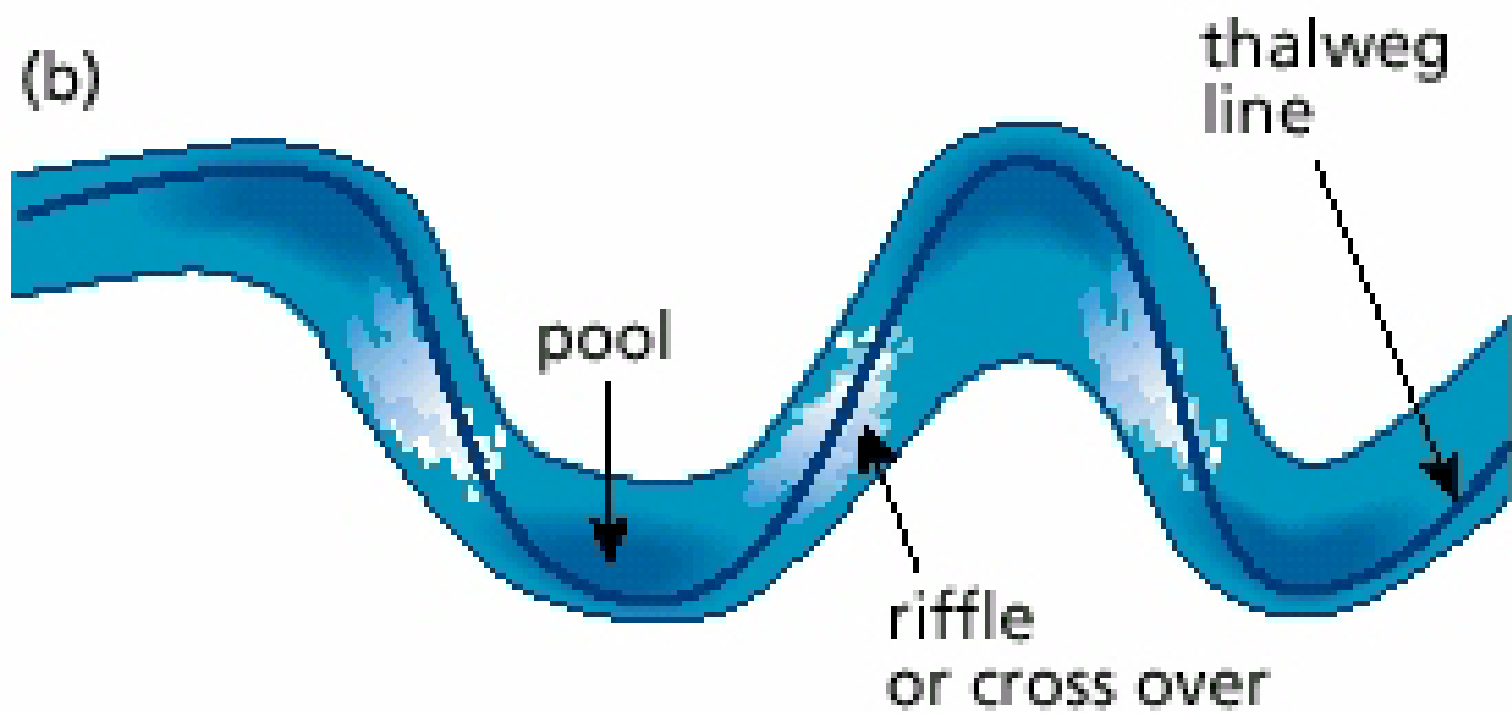
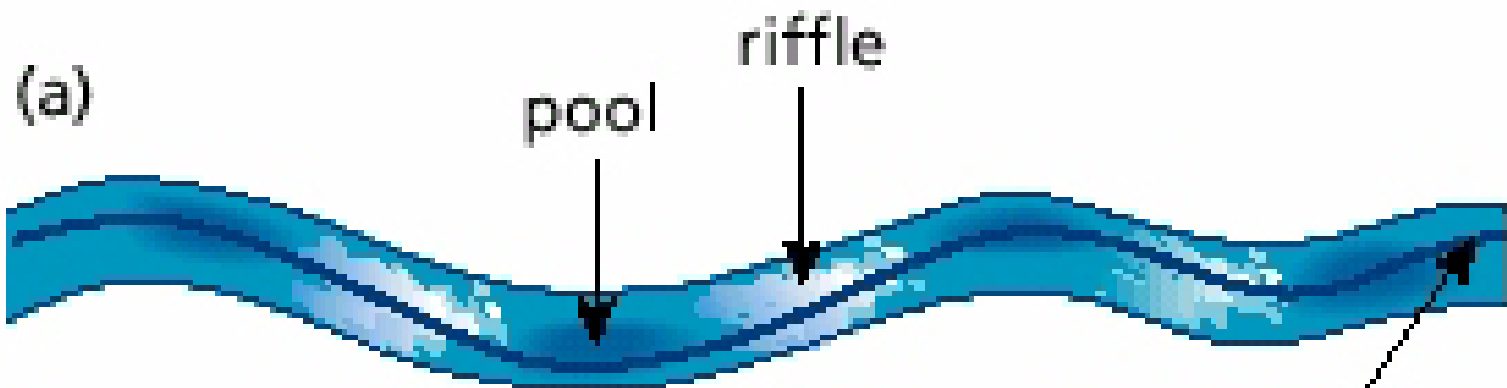
- Area from ridge to ridge that contributes to the water supply of the stream
- Usually determined from topographic maps

- **Drainage Density**

- Length of perennial channels divided by drainage area

Basin Characteristics

- Stream length
 - Channel length
 - Thalweg length



Drainage Patterns

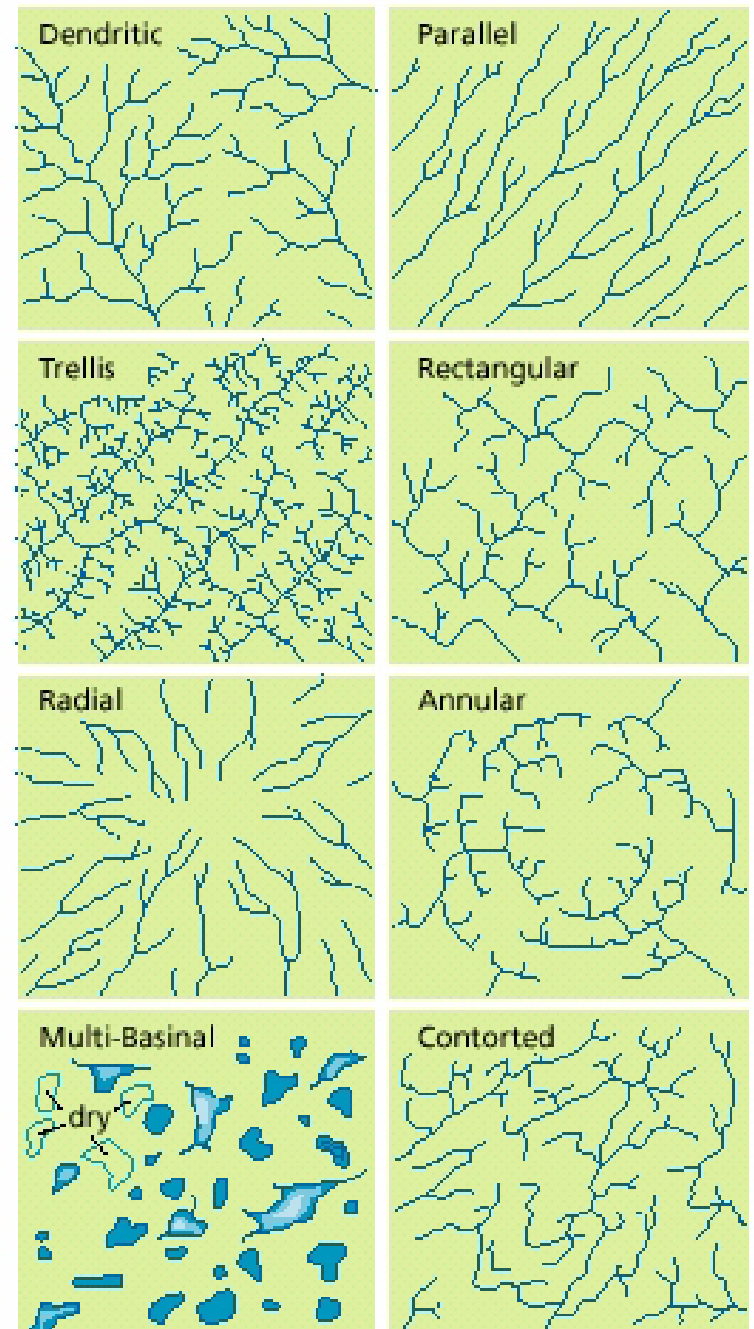
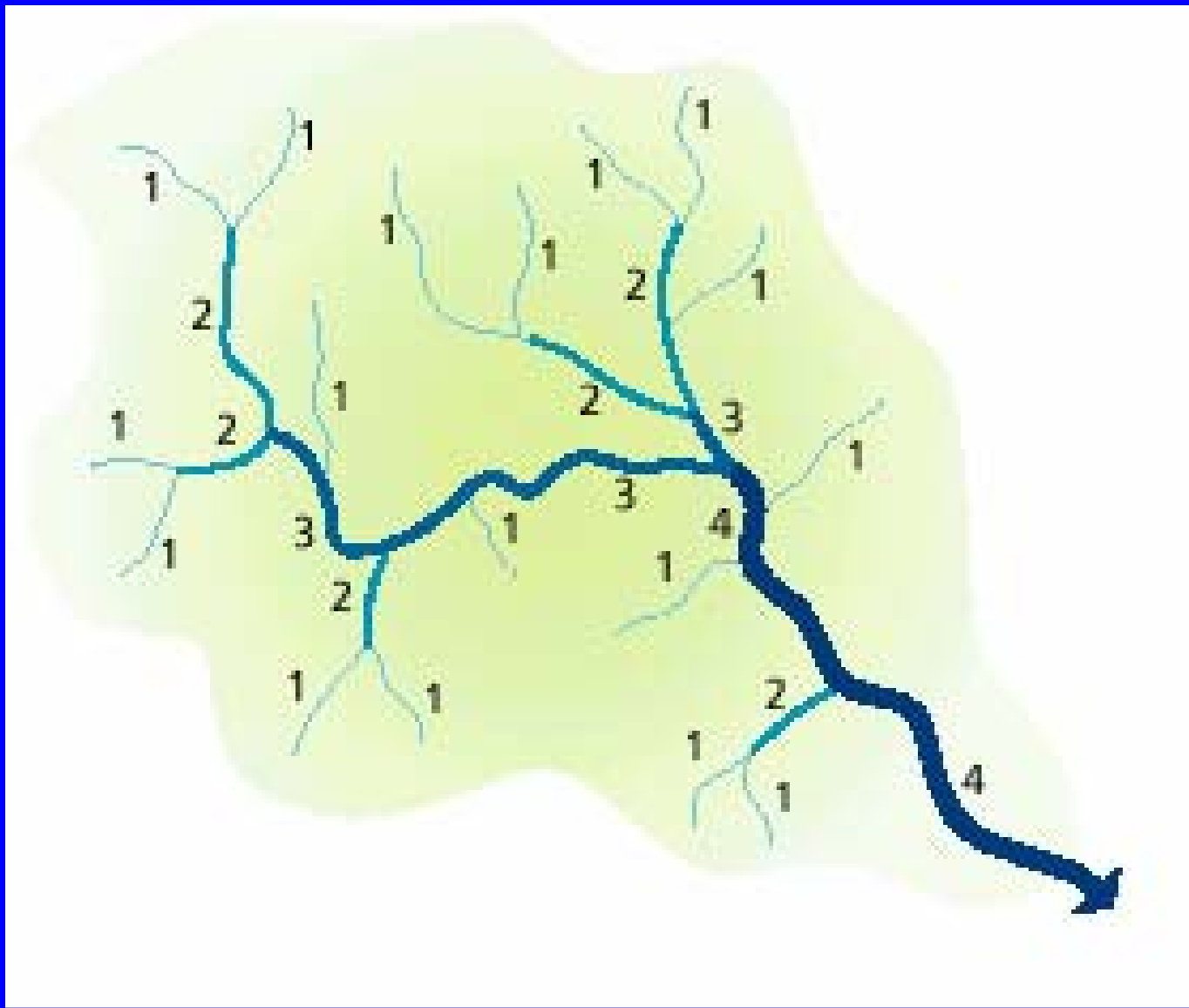


Figure 1.20: Watershed drainage patterns

Stream Network- Order

- **Stream order** (Strahler 1952)
 - Perennial streams without tributaries are termed first-order
 - When two streams of equal order come together, the downstream reach is increased one order

Stream Network- Order



Stream Network- Link Magnitude

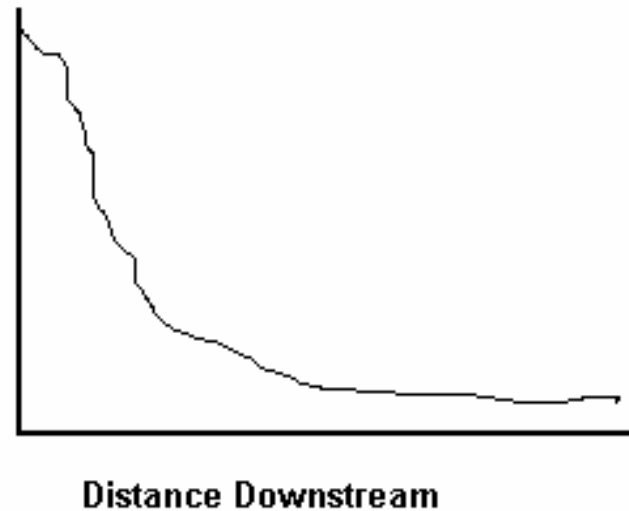
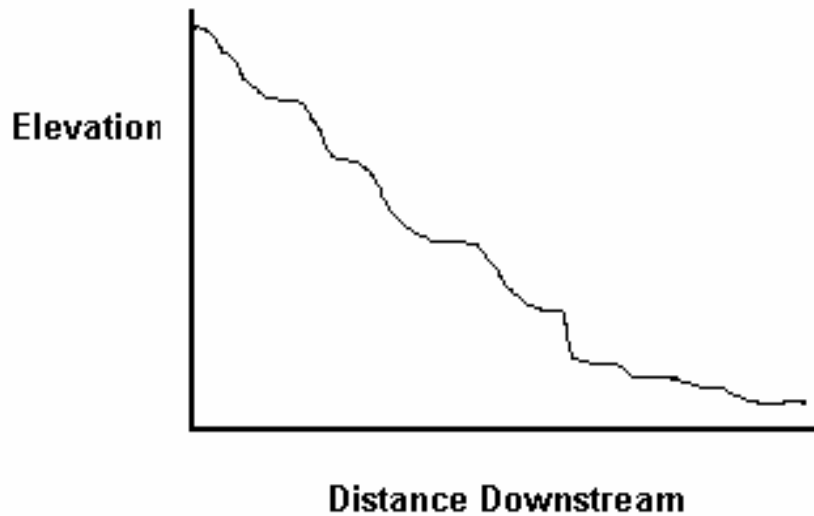
- **Link Magnitude** (Shreve 1966)
 - Each junction is a link
 - Link magnitude is the sum of the links
 - Exterior link magnitude includes the lower channel (n)
 - Interior link magnitude is 1 less than exterior link magnitude ($n-1$)

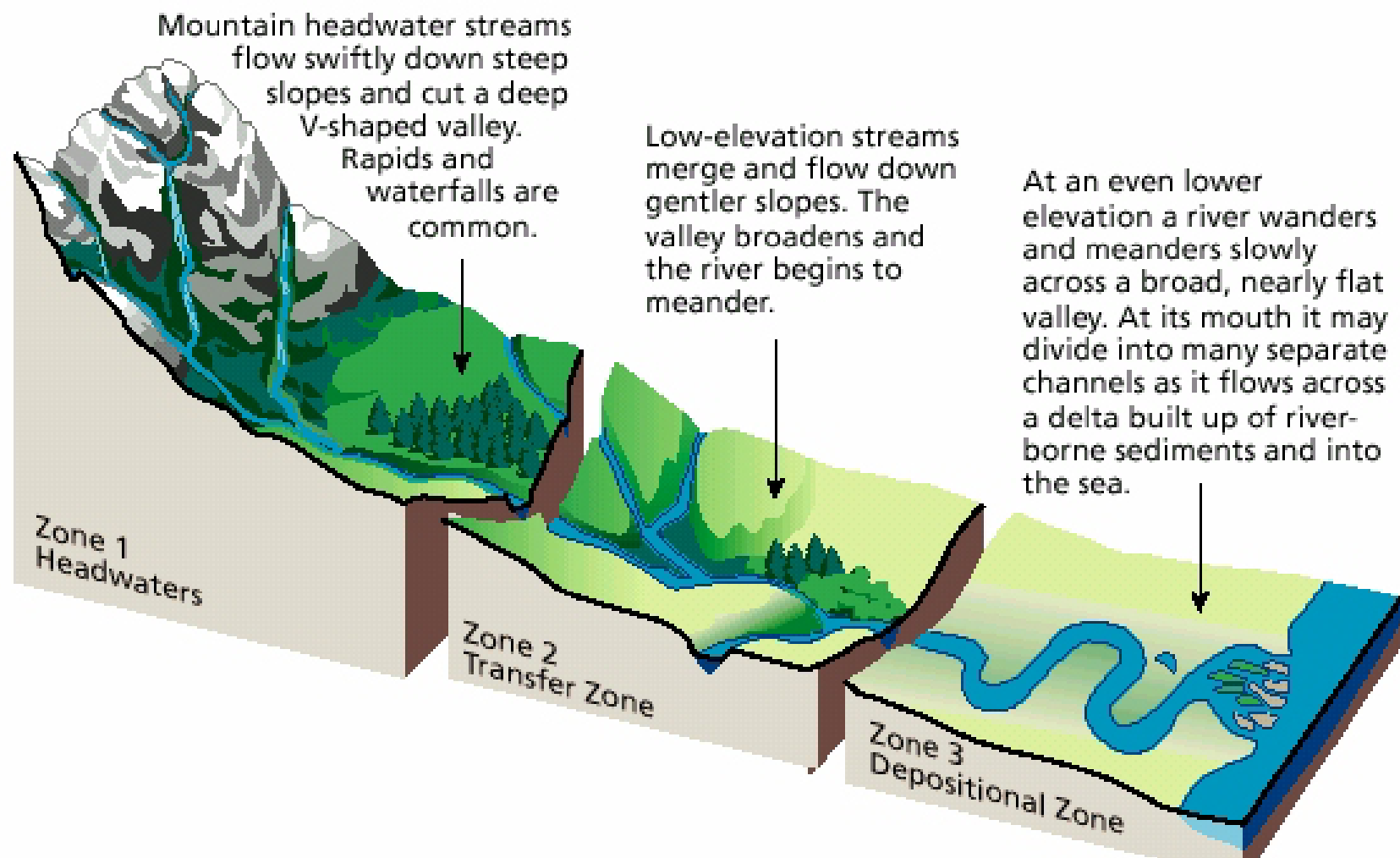
Longitudinal Profiles

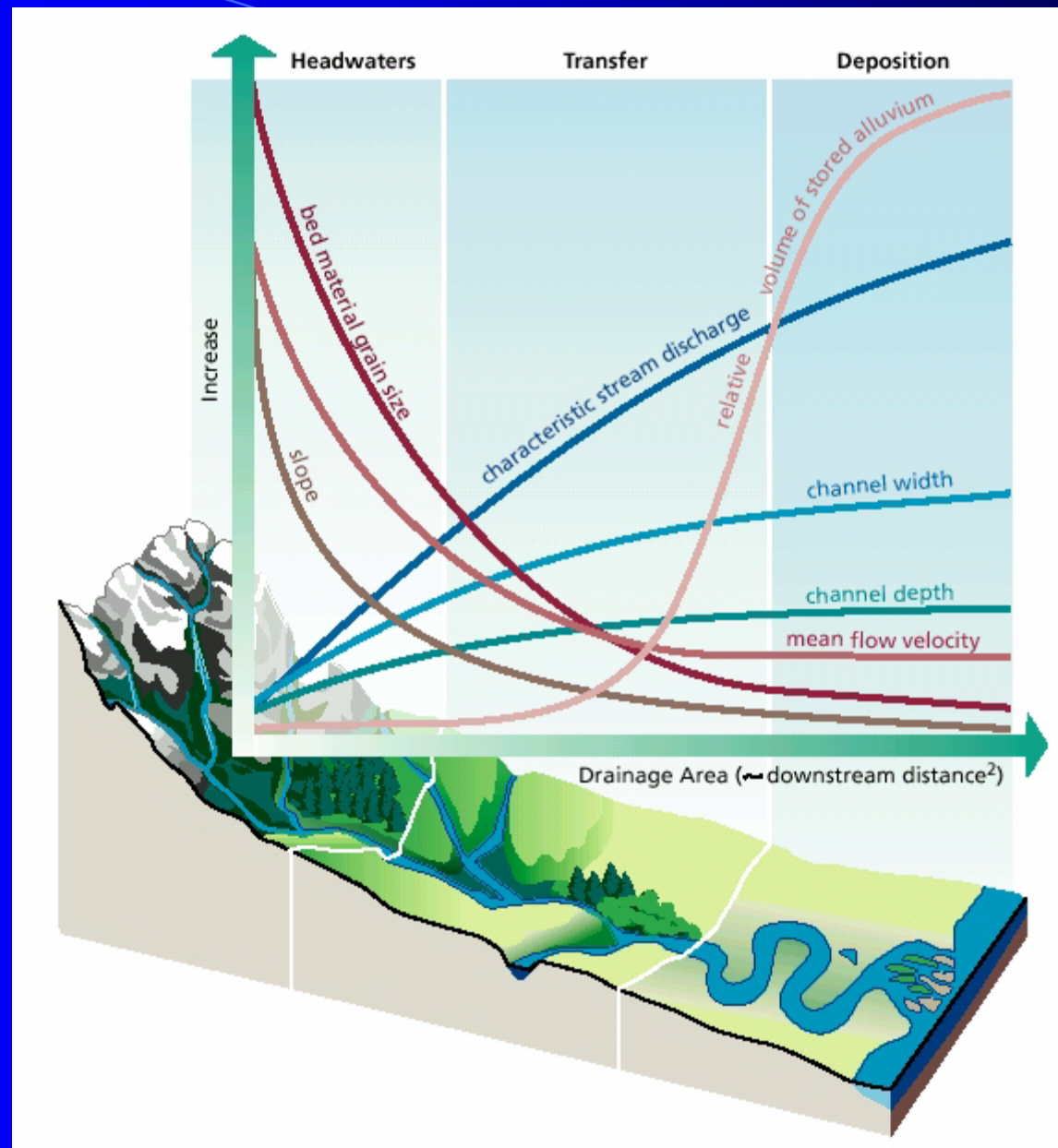
- Diagrammatic representation of change in elevation with distance
- Steeper slopes in the headwaters
 - Slope expressed as percent or degrees ($100\% = 45 \text{ degrees}$)

Channel Characteristics

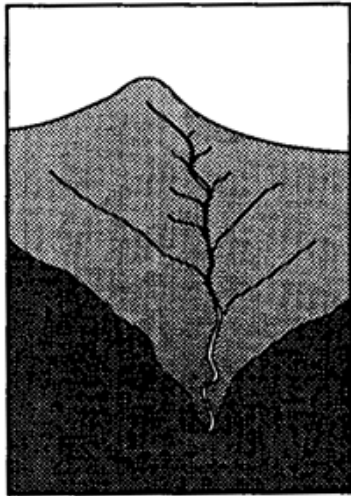
Longitudinal Profiles







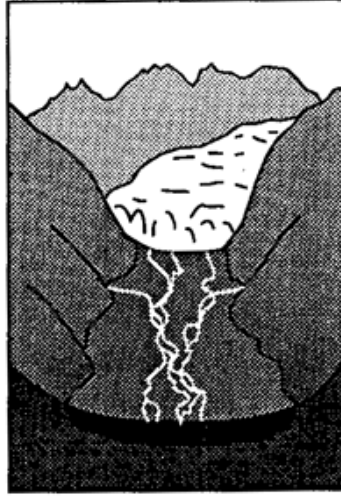
Valley Wall/Headwater



V-Shaped Valley, Moderate Gradient



Active Glacial Valley



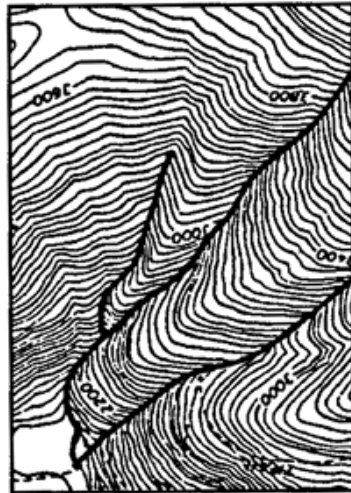
Alluviated Mountain Valley



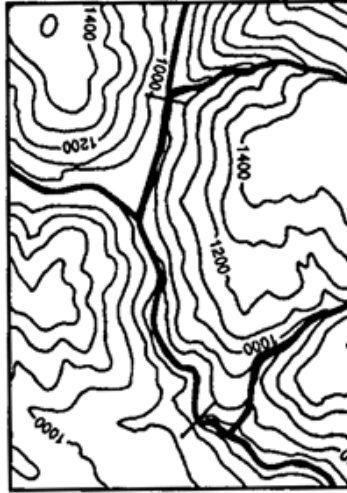
Alluviated Lowlands



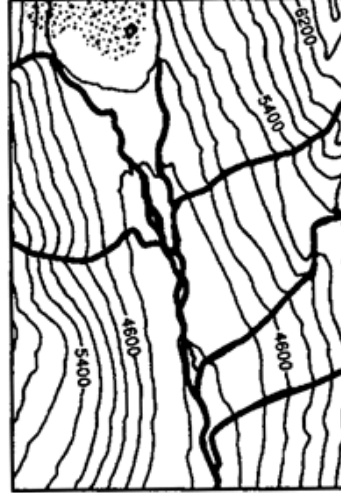
H3



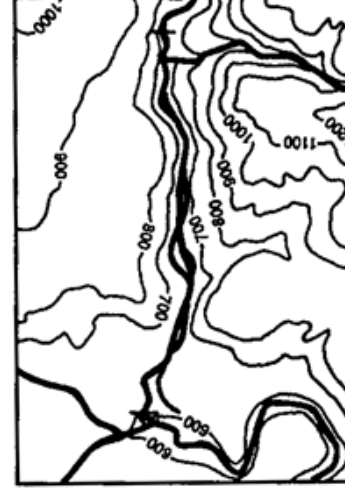
V1



U4

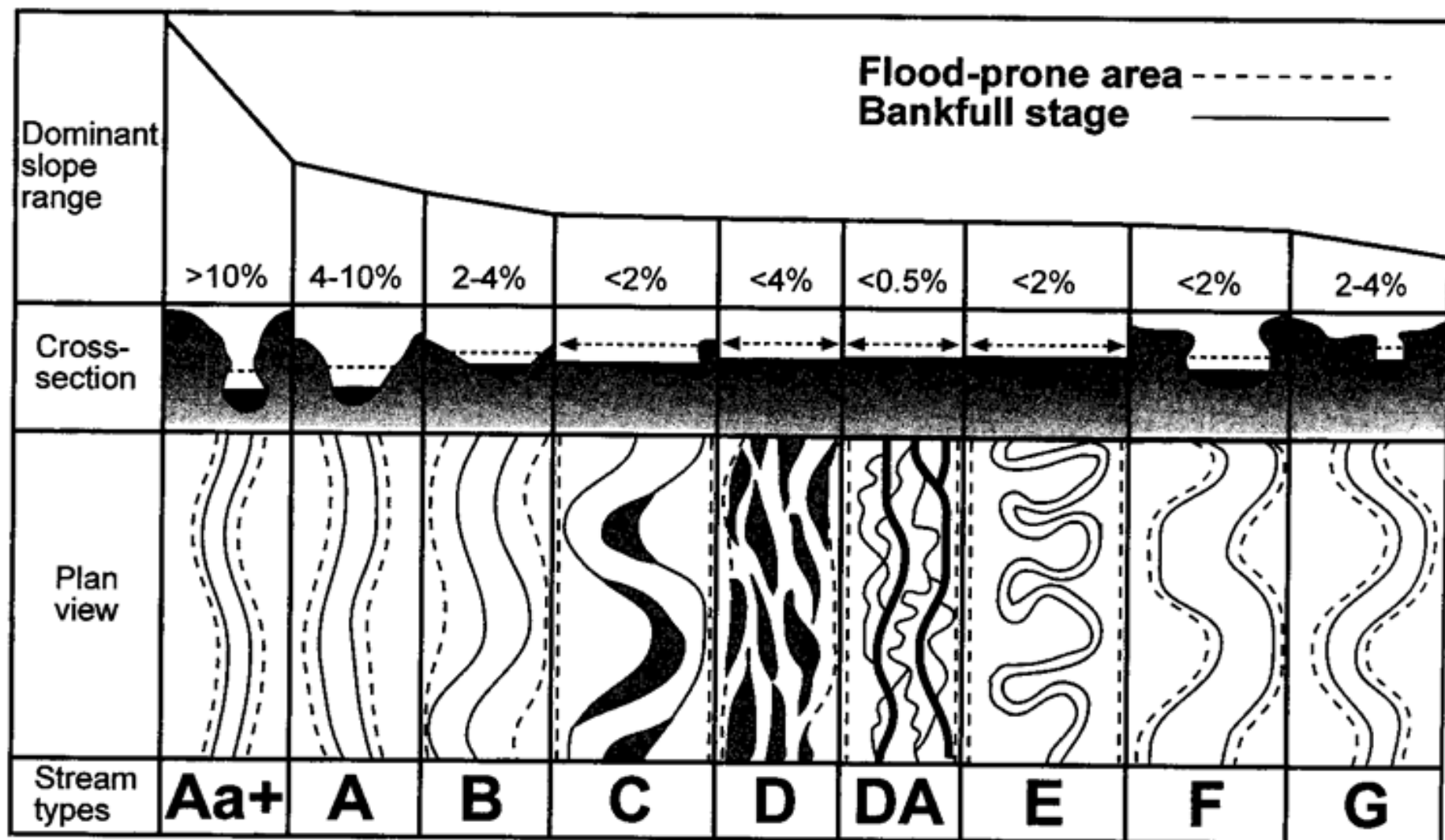


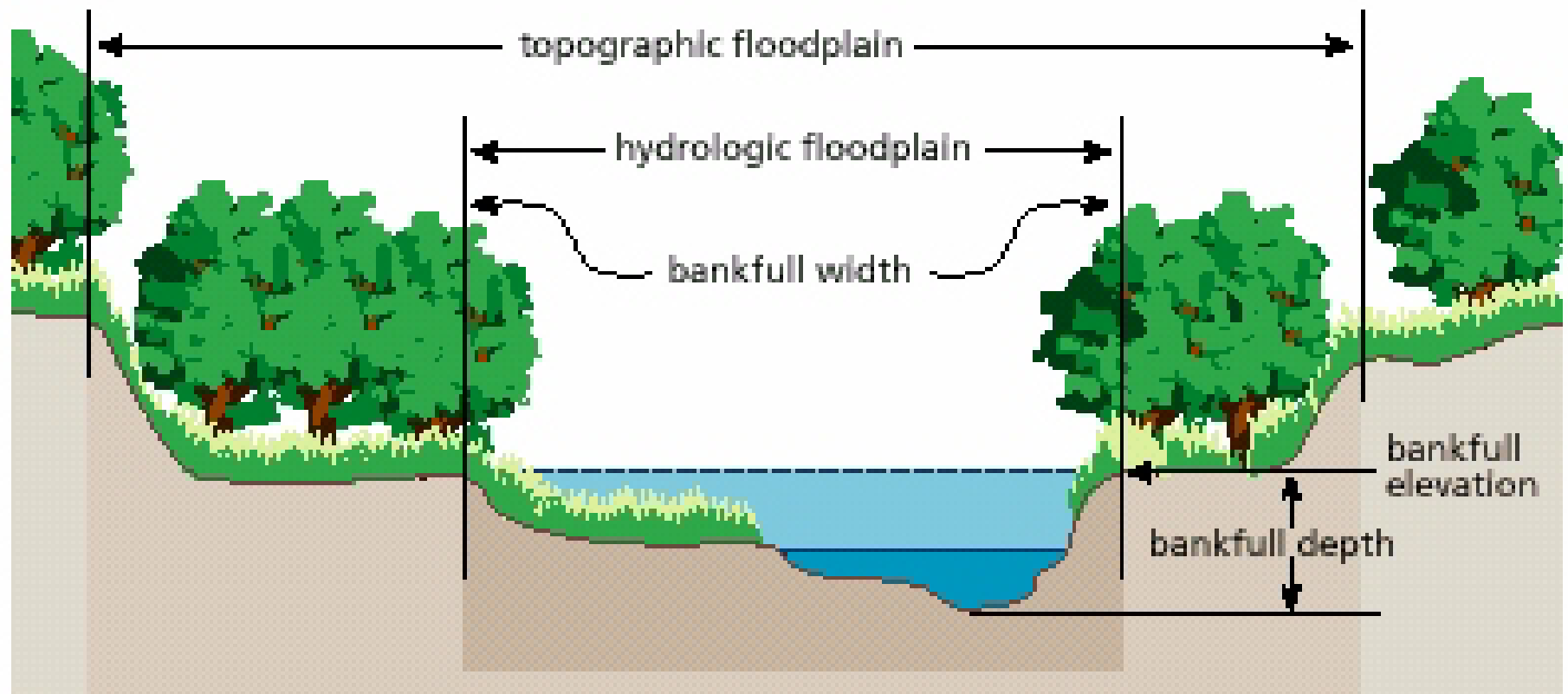
V4



F2







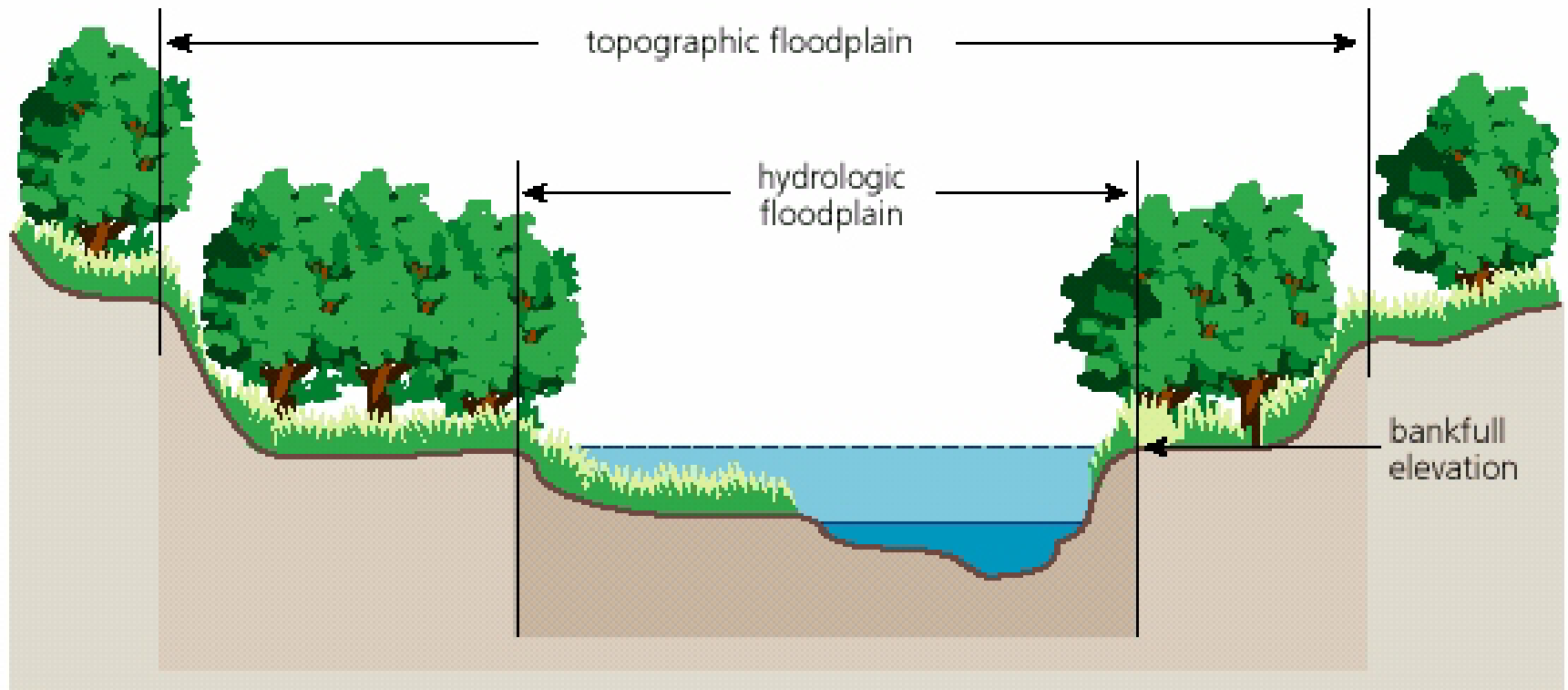


Figure 1.20: Hydrologic and topographic floodplains. The hydrologic floodplain is defined by bankfull elevation. The topographic floodplain includes the hydrologic floodplain and other lands up to a defined elevation.

Flood Recurrence Interval

- The average length of time within which a specific magnitude of flood will occur once.
- Predicted from the historic record and/or the site-specific runoff and climatic conditions of the contributing watershed.

Flood Recurrence Interval

- Important factors include variations in storm duration and the intensity of rain, rain-on-snow, and snow melt events.
- A one-in-200-year flood event is an event that has an average recurrence interval of 0.005.