

*Sound Watershed Consulting*

*Creating Functional Water Environments*



# *Potential Benefits of Explicit Riparian Management*

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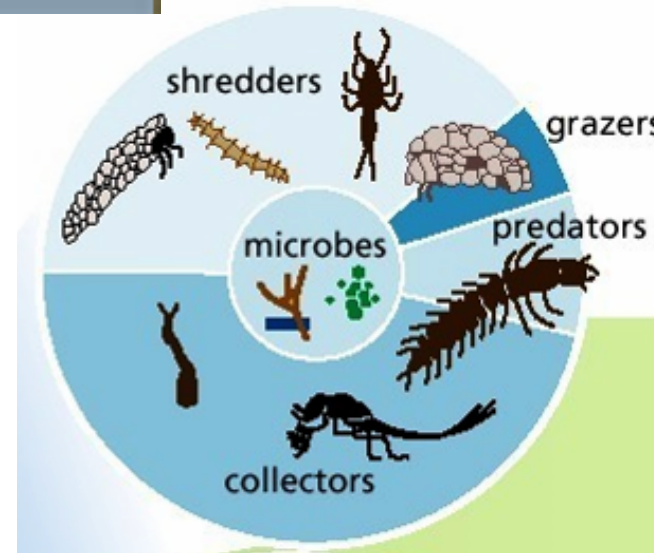
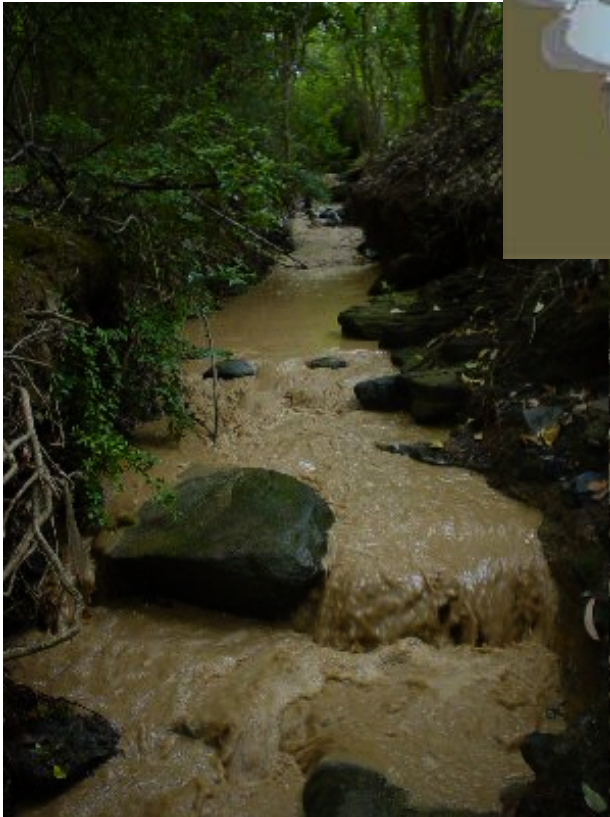
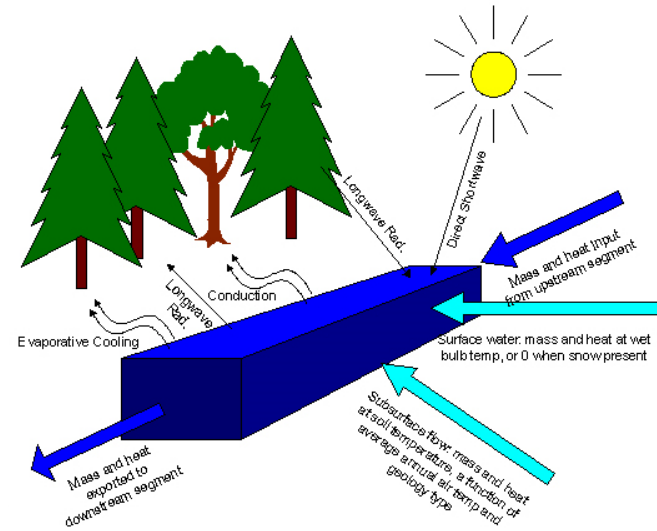
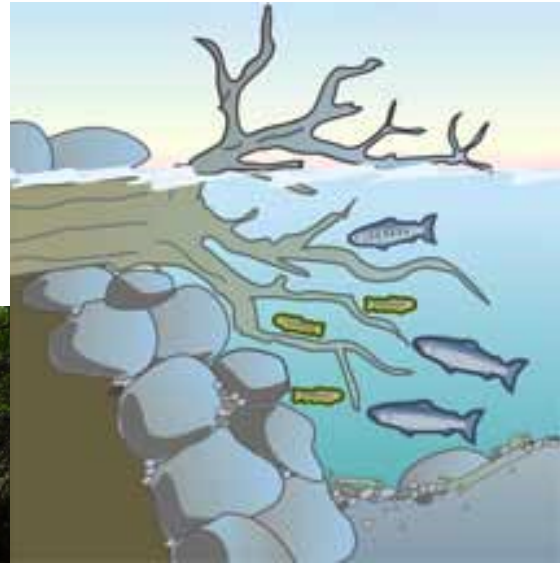


# Riparian Functions

<b>Beneficial Functions of the Riparian Zone</b>	
<b>Biotic-Nutrients</b>	Food Supply Nutrient Cycling
<b>Heat</b>	Thermal Controls on Water Temperature Microclimate
<b>Water</b>	Hydromodification
<b>Wood</b>	Streambed Modification (pools & spawning gravels) Cover
<b>Sediment</b>	Surface Runoff Stream-Adjacent Landsliding Bank and Channel Stabilization



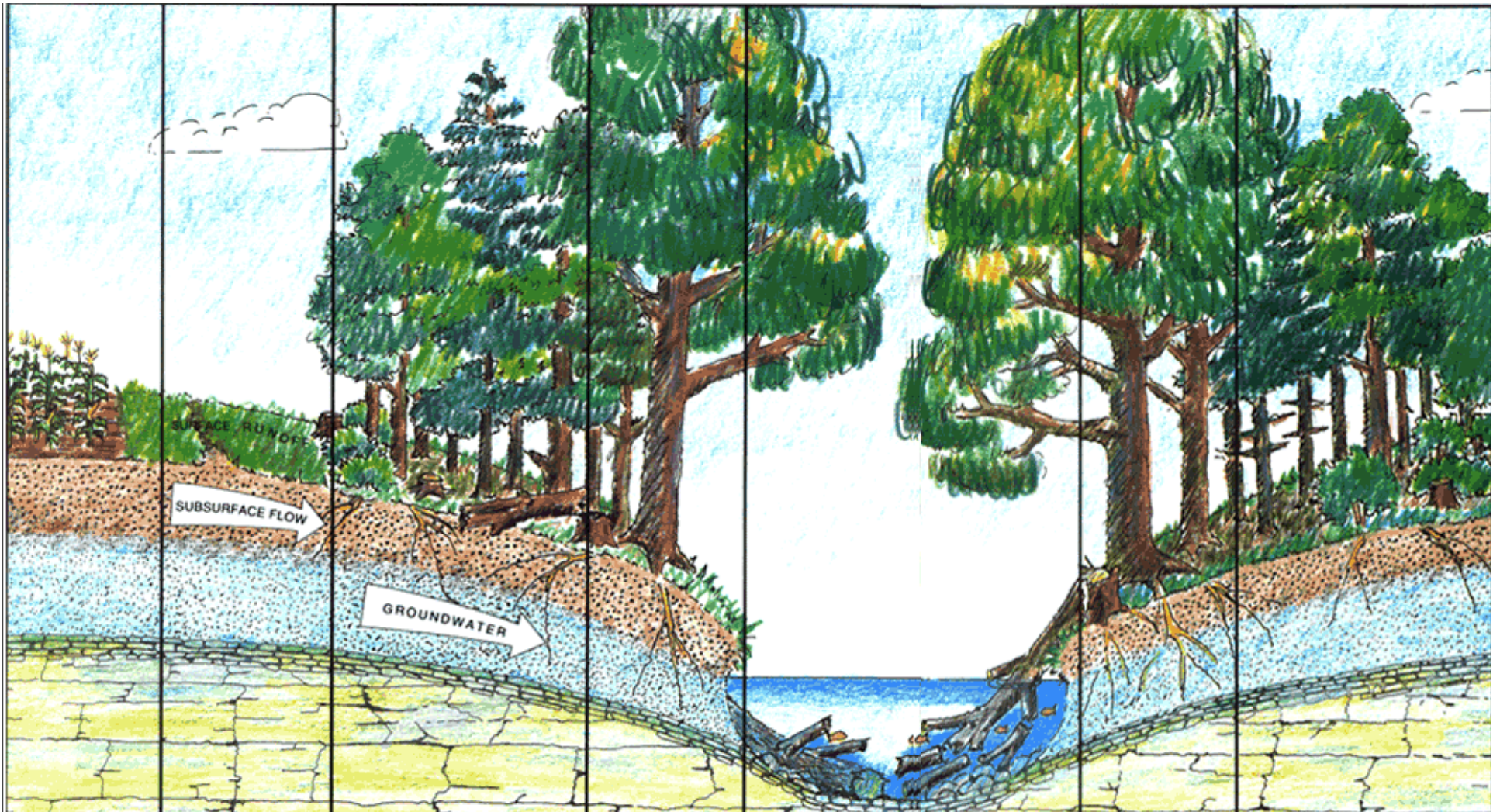
# Functions





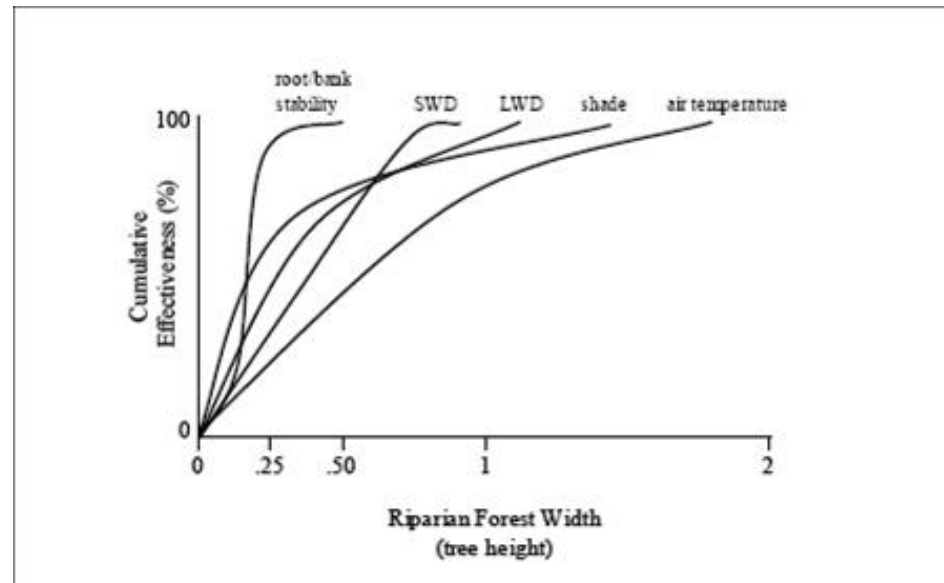


# Stream Buffers



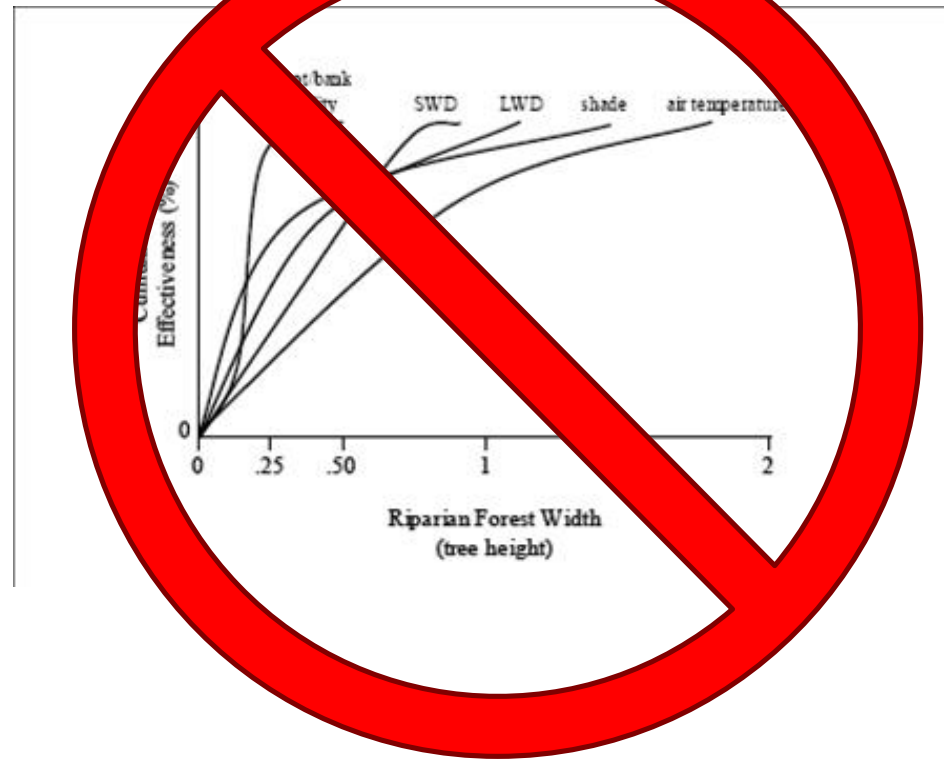


There are variations in the buffer width necessary to meet each function, and these variations depend on many factors





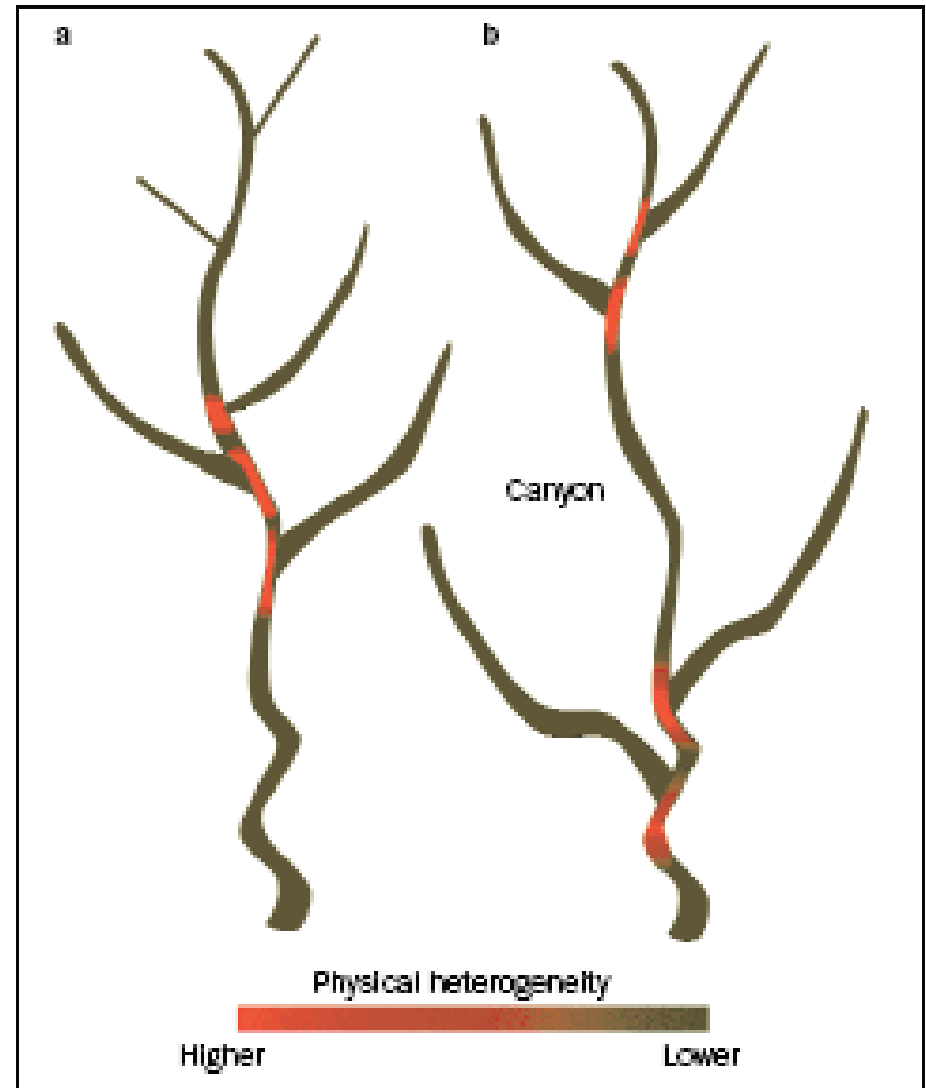
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## Longitudinal Variation

Managing for longitudinal variation requires an understanding of how different ecosystem processes act to form and maintain habitats throughout the channel network.







Longitudinal controls on exchange functions AND lateral controls are important in maintaining the watershed-scale ecosystem structure that maintains aquatic habitats.



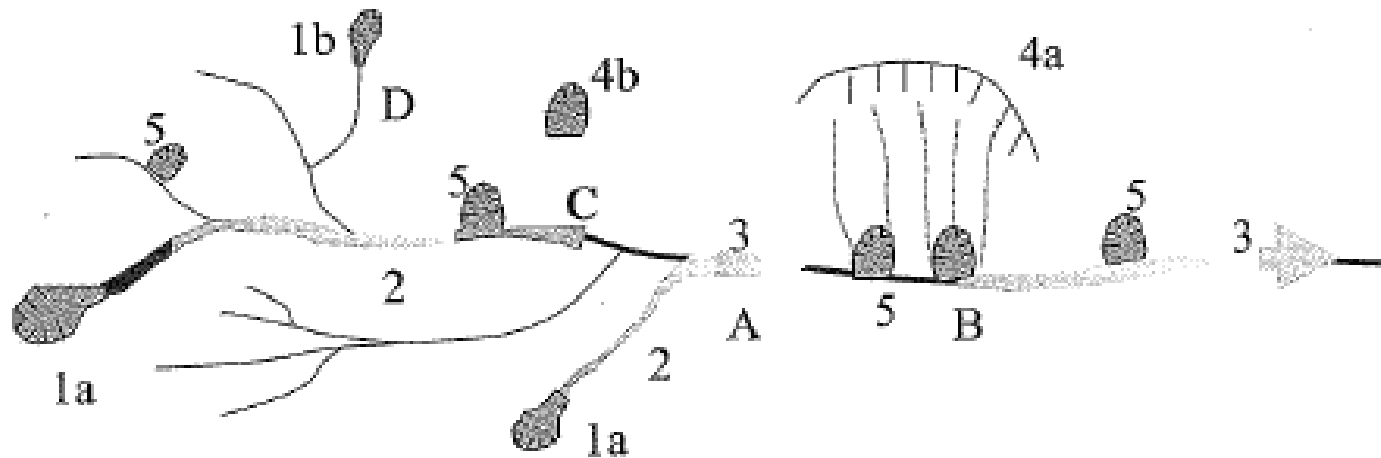


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# Width AND Length



# Process Cascades



## Initiation of cascade

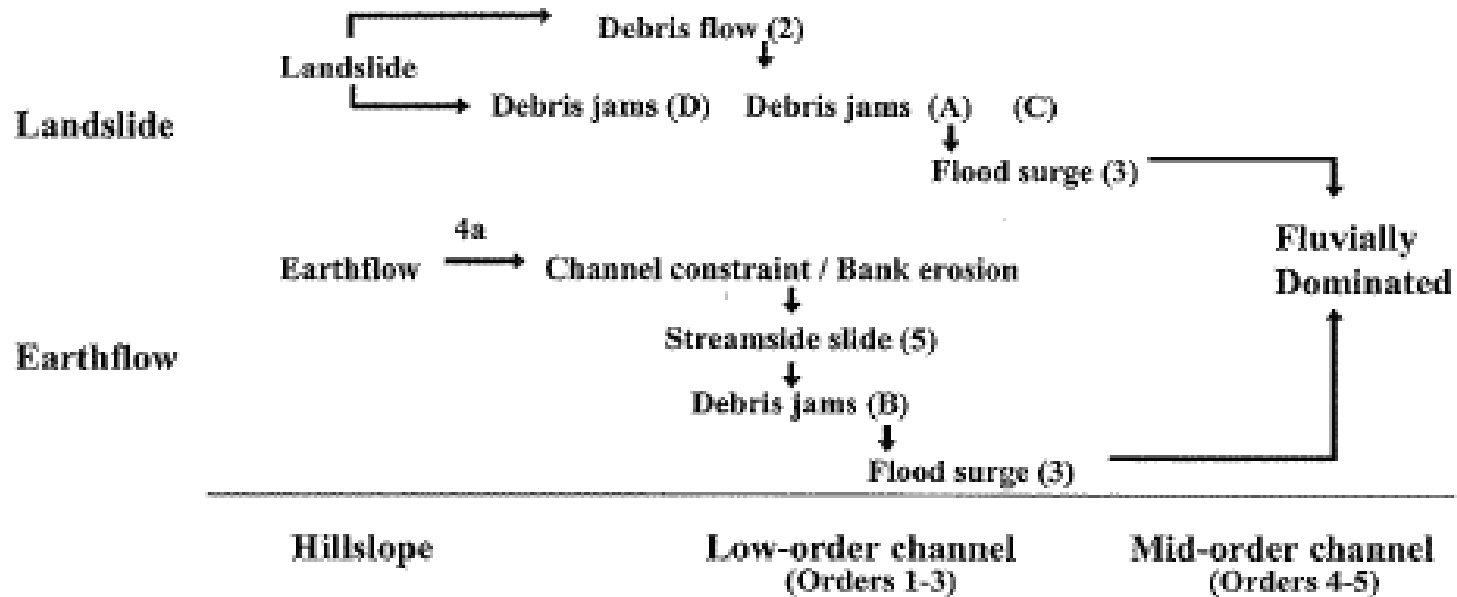


Figure 6. Representation of initiation of process cascades developed according to the process cascade.



# Process Cascades

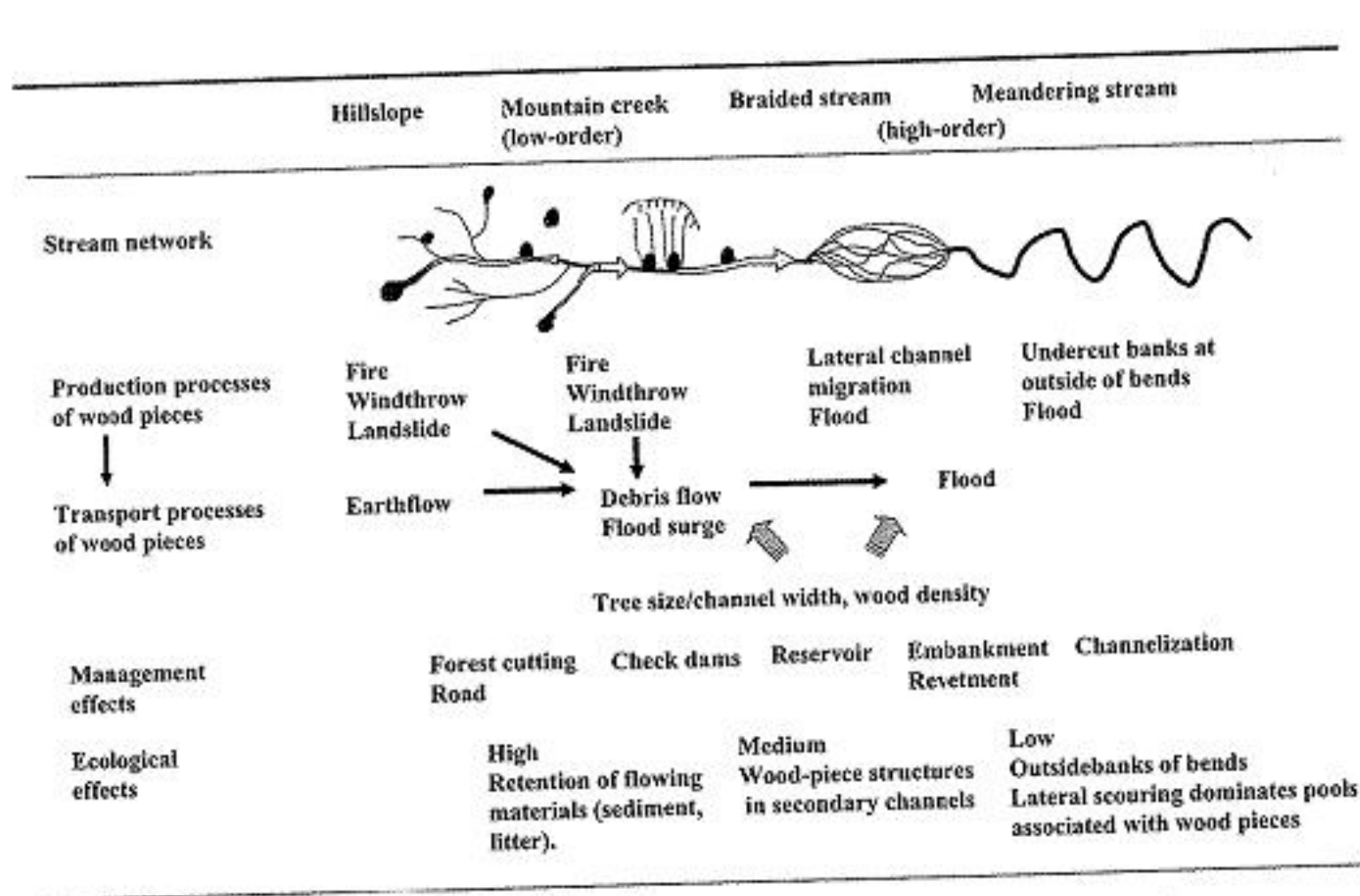
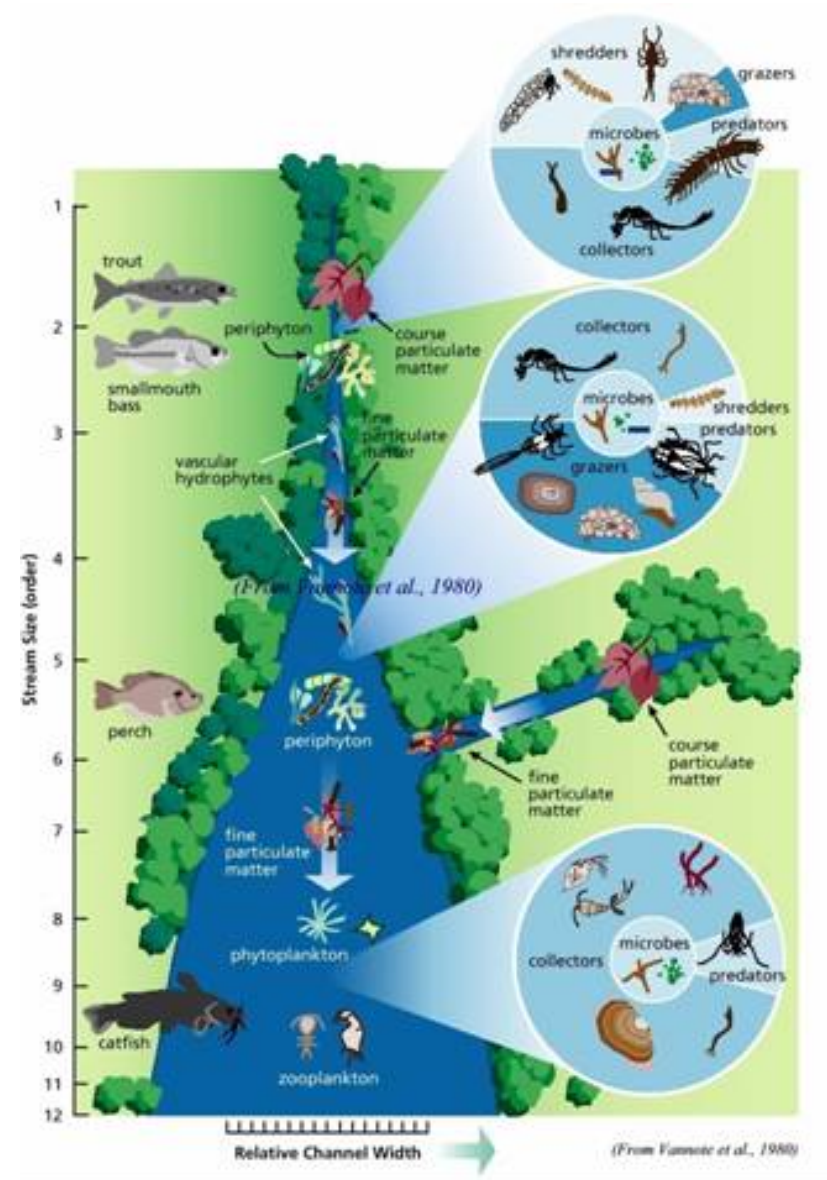


FIGURE 10. A framework for applying results in different geographic and management settings.



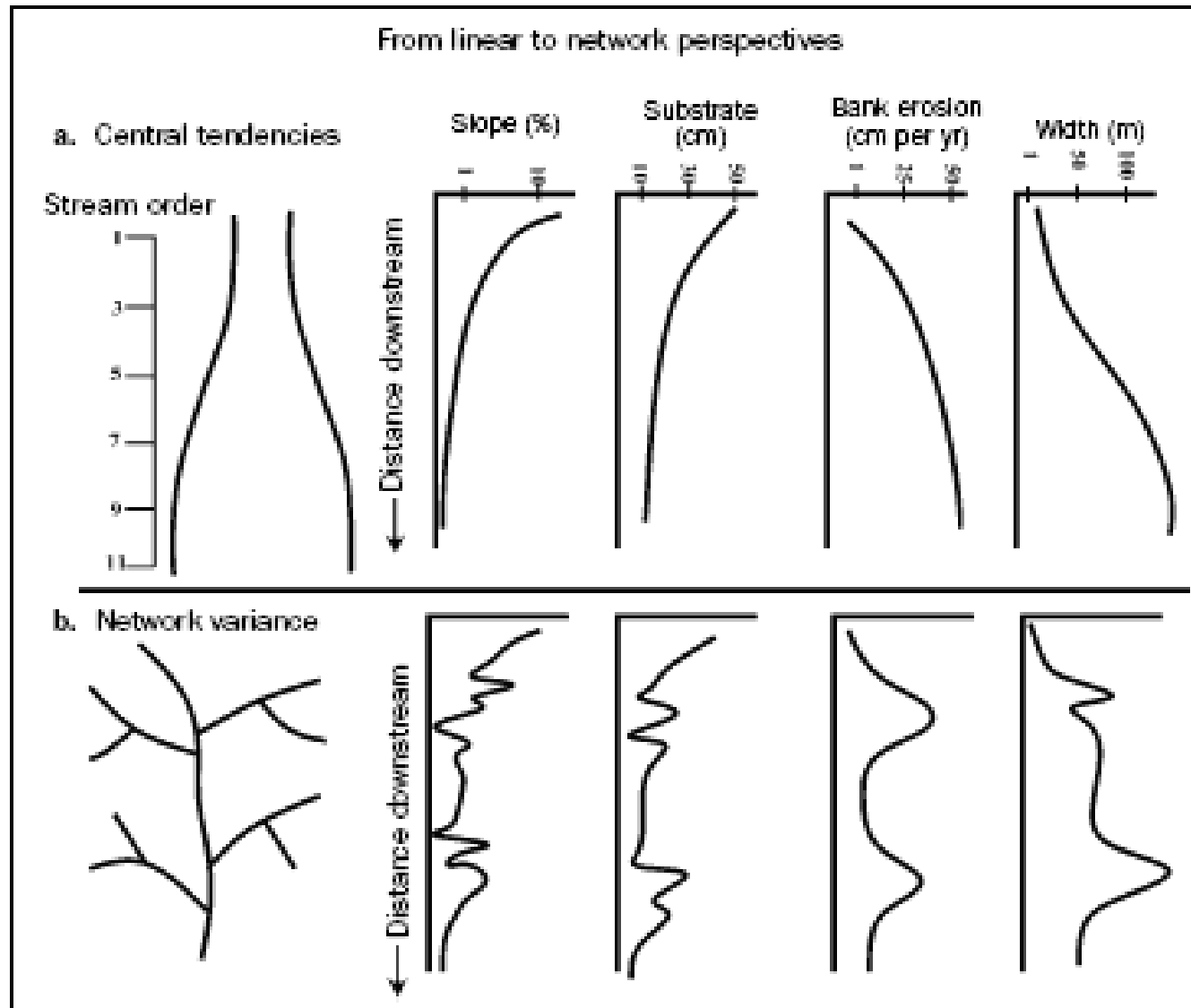
# Longitudinal Variation

- River Continuum v. Network Dynamics
- Geomorphic Context is Important
- Biological Hotspots





# Longitudinal Process Variations







Disturbances are an important mechanism for establishing conditions that support riparian functions

- Stand structure
- Vegetative succession
- Wood recruitment
- Nutrient exchange
- Thermal regulation



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**Width AND  
Length  
AND  
Process**



Riparian zones can buffer a stream from direct management impacts, and they alter the disturbance regimes in ways that can affect both short-term and long-term evolution of riparian areas.



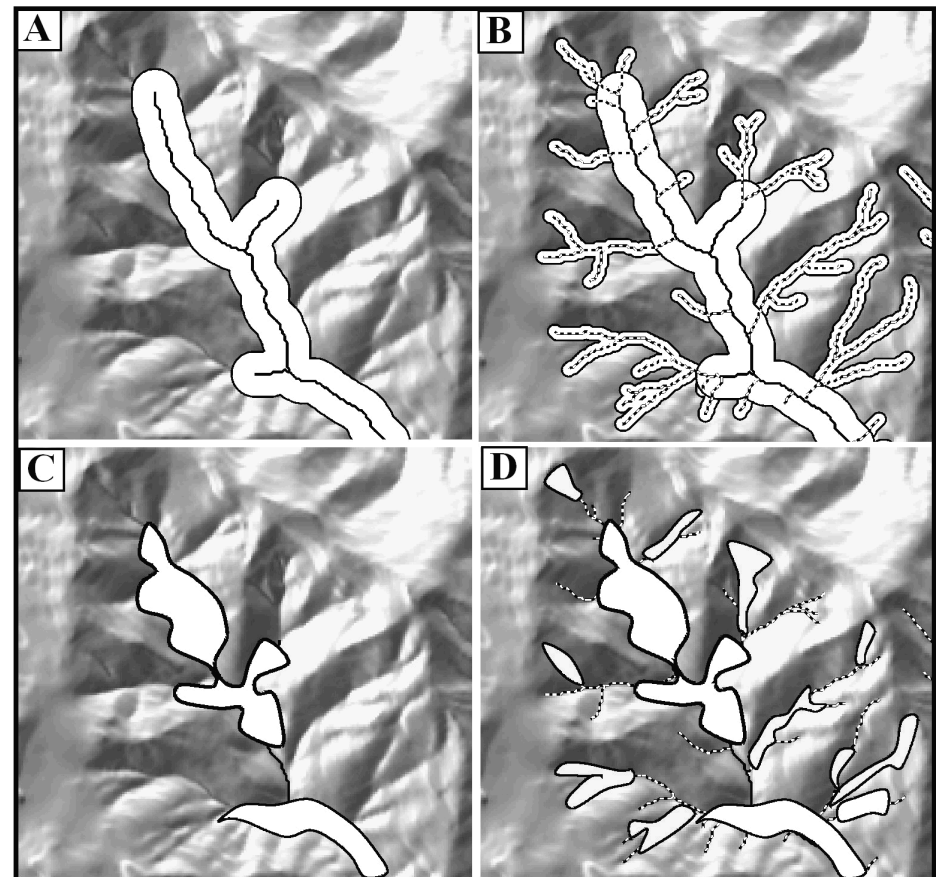
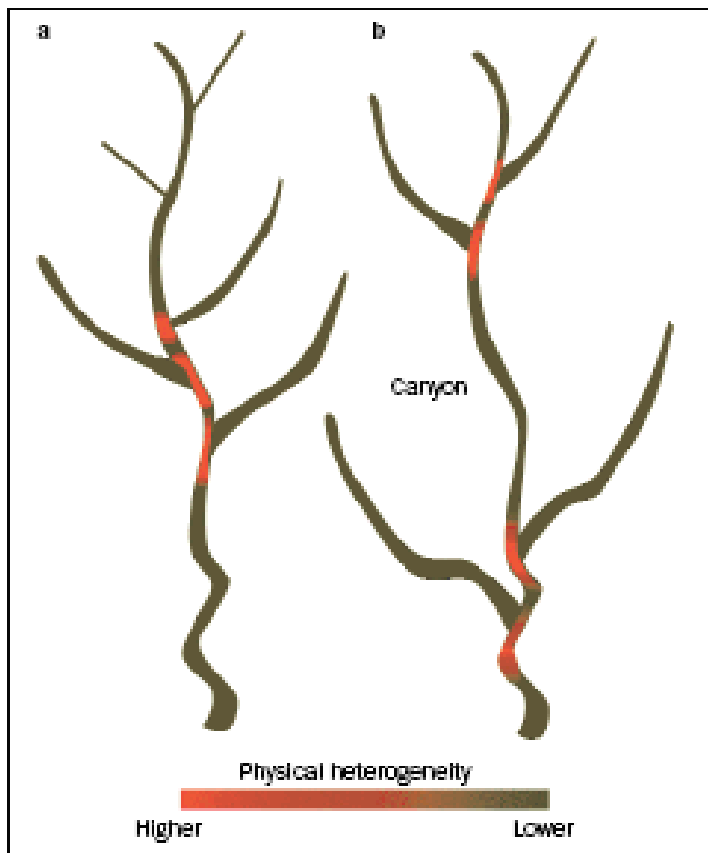


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**Width AND Length AND  
Process AND Structure**



Spatial context is important, as it influences functional response patterns.







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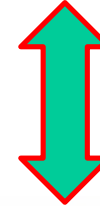
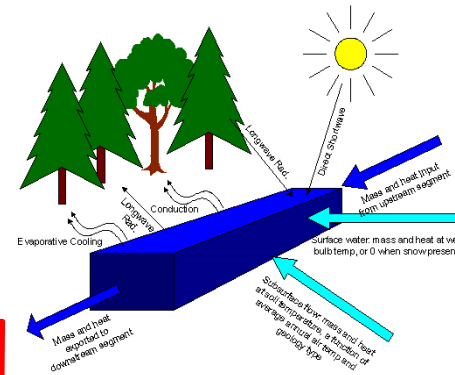
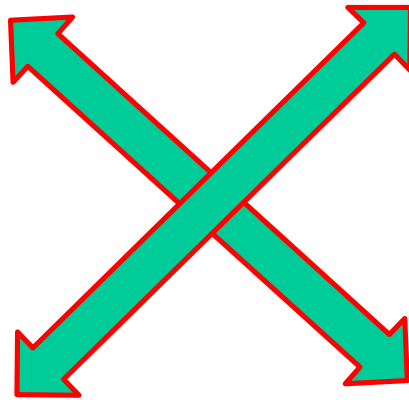
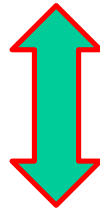
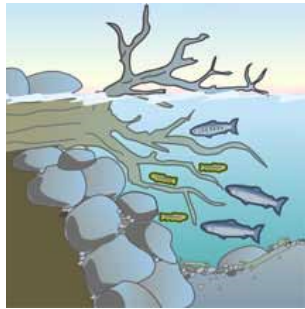
**Width AND Length AND  
Process AND Location  
AND Structure AND  
Spatial Context**



There are dynamic interactions among and between riparian exchange functions that alter the importance of exchange functions for any particular setting.



# Dynamic Functions





### Active and strategic riparian management can limit risks and benefit salmonids

- temperature regimes
- ecological productivity
- woody debris recruitment
- fuel loads and other disturbance risks
- Etc





### Active Management is

- More immediate
- More directed
- More explicit
- More effective???

than Passive Management