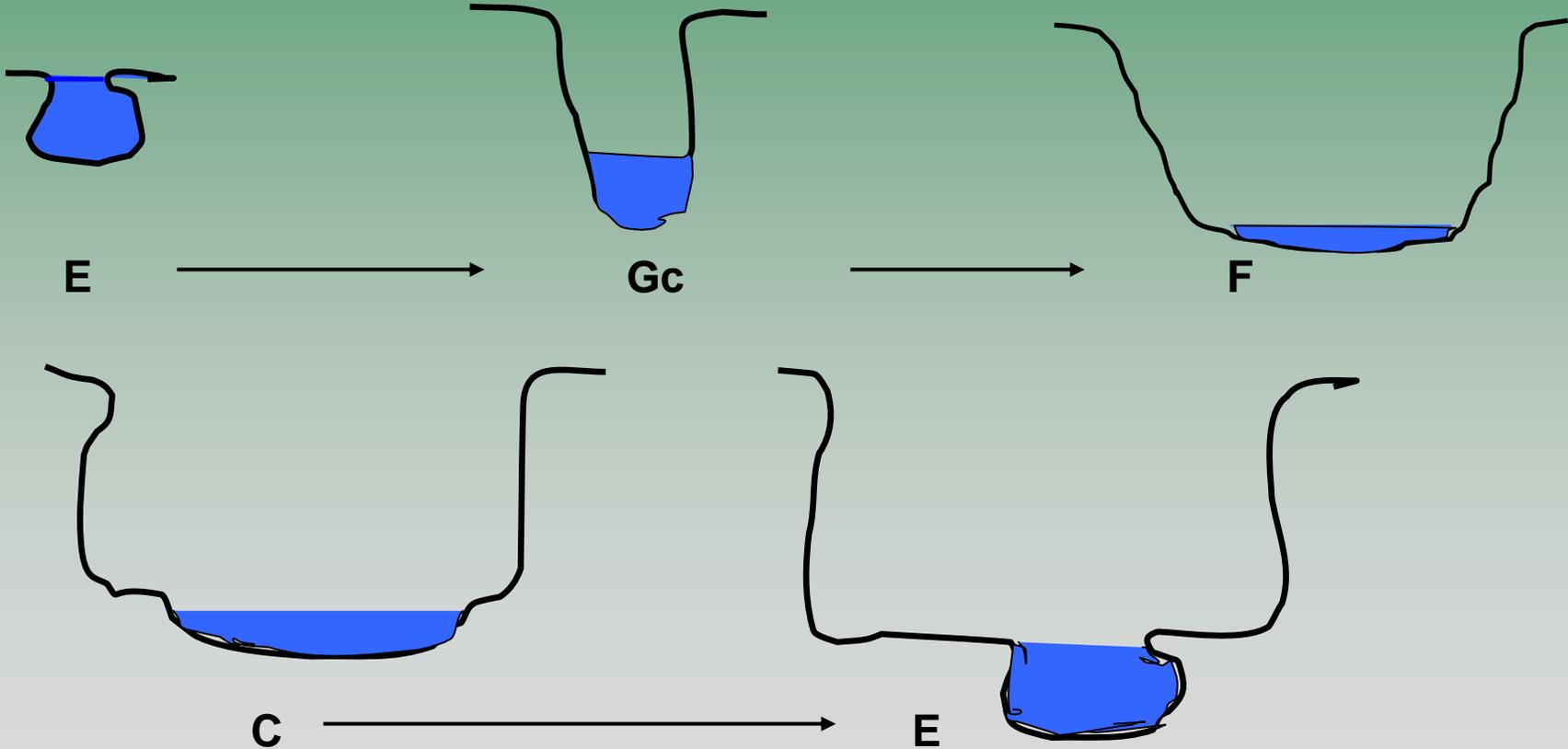


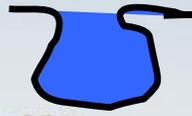
# Vegetation Succession & Geomorphic Thresholds



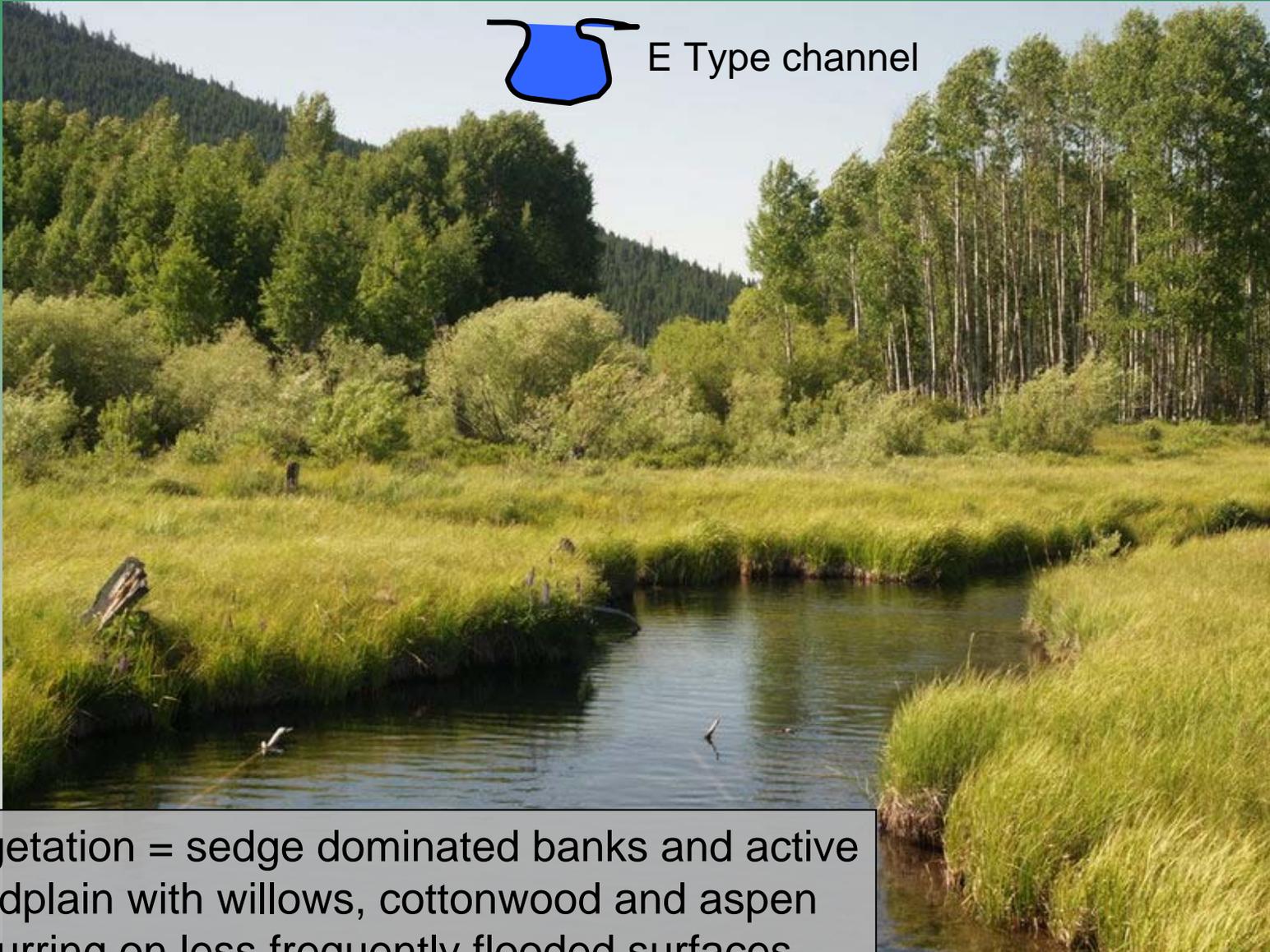
# Channel Evolution Model

(Schumm 1984, Rosgen 1996)



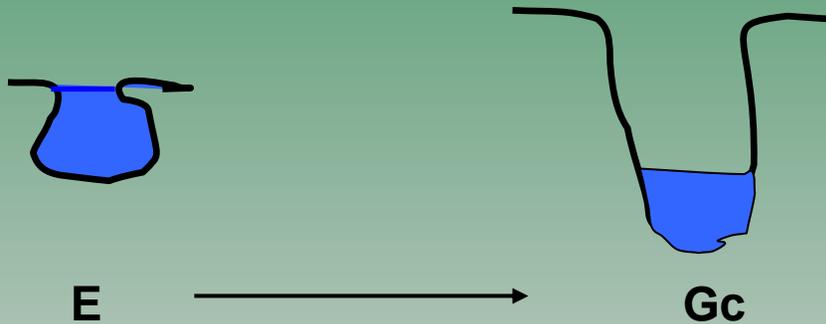


E Type channel



Vegetation = sedge dominated banks and active floodplain with willows, cottonwood and aspen occurring on less frequently flooded surfaces

# Channel Evolution Model (Schumm 1984, Rosgen 1996)



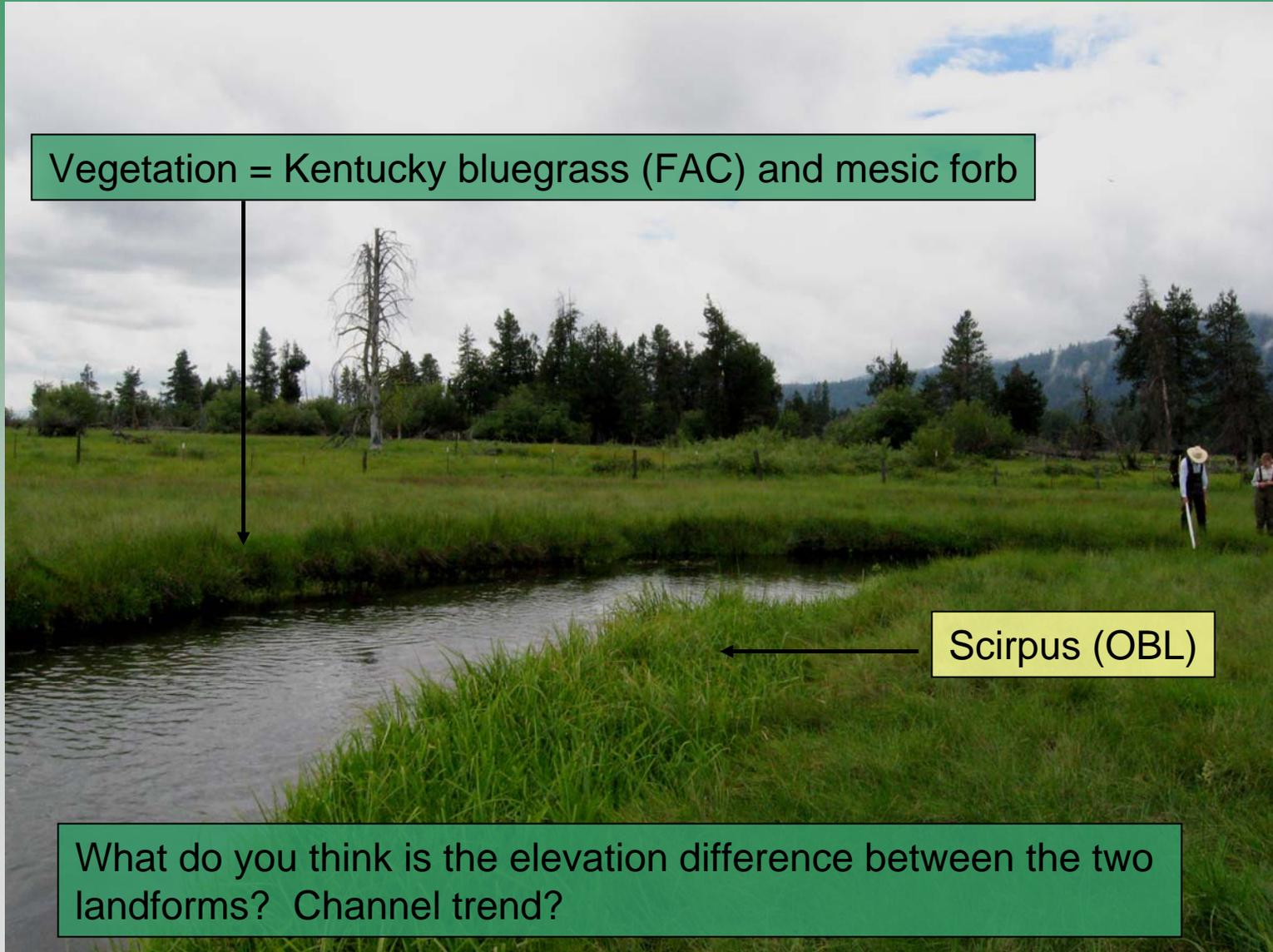
What happens between E and G?

Bank Height Ratio increases and vegetation responds: move from OBL to FACW and FAC.

Vegetation = Kentucky bluegrass (FAC) and mesic forb

Scirpus (OBL)

What do you think is the elevation difference between the two landforms? Channel trend?



# State-and-Transition Model



State 1 = reference state

Is this a new state?  
What attributes must be considered?





G type channel

Vegetation: remnant Baltic rush, Nebraska sedge CT transitioning to Kentucky bluegrass / dry forb

# State-and-Transition cont.



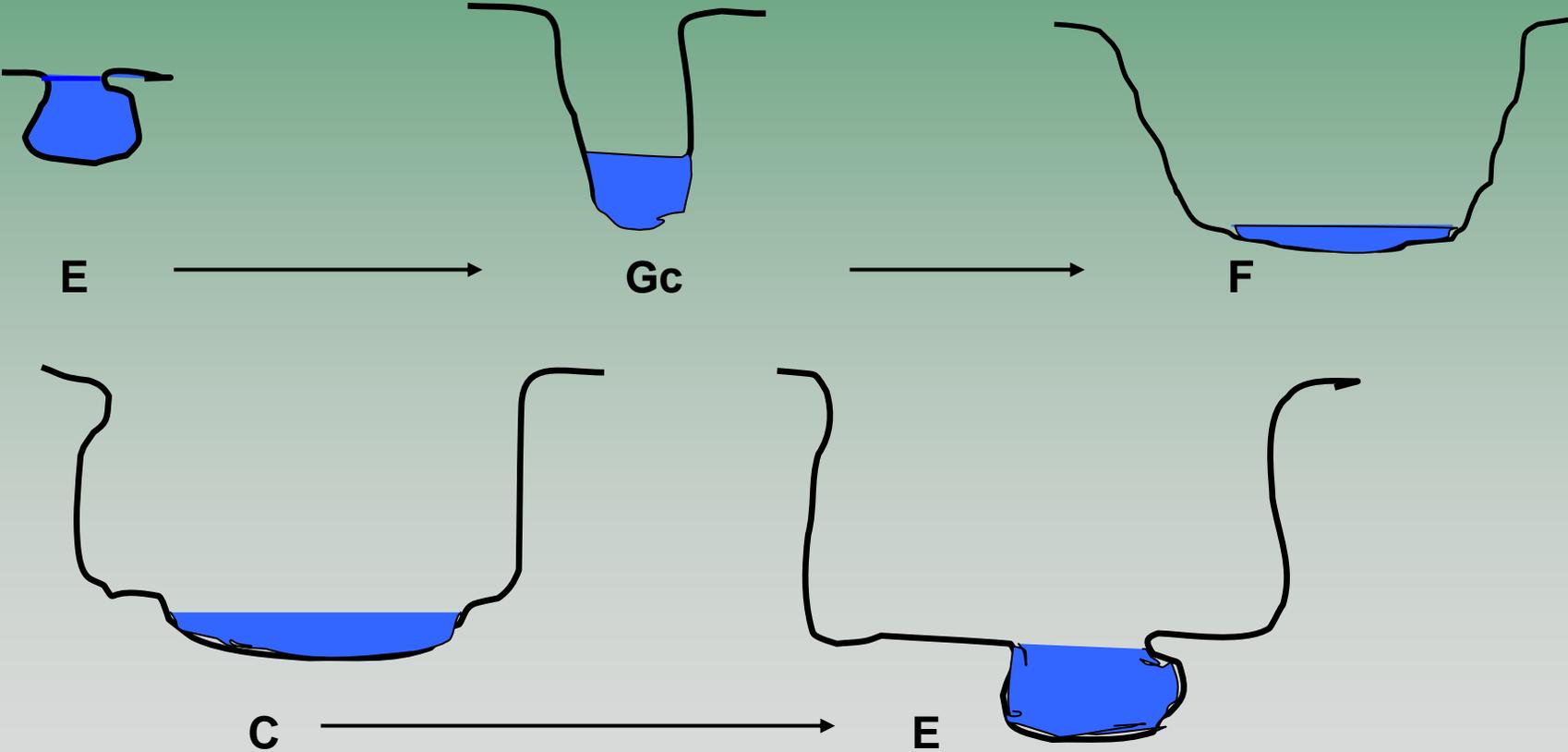
← Phase within State 1?  
Transitional type?

New State? →

What attributes must  
be considered?



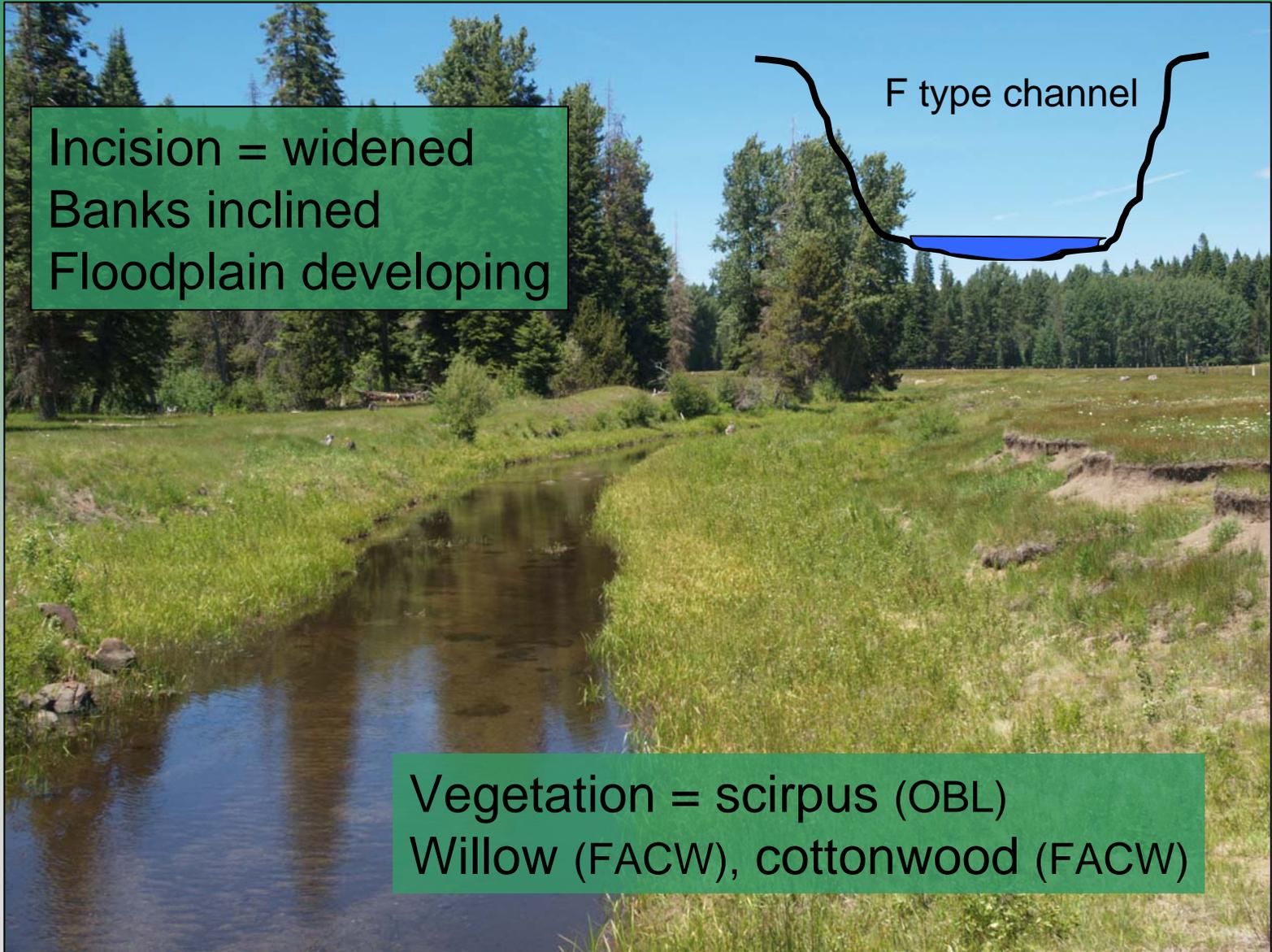
Lets review the channel evolution model



Incision = widened  
Banks inclined  
Floodplain developing

F type channel

Vegetation = scirpus (OBL)  
Willow (FACW), cottonwood (FACW)



F Channel type developing floodplain with OBL and FACW vegetation





How are these two stream reaches different from each other?

Vegetation at both Locations = OBL, FACW, and FAC species.



Different states?  
Again, what attributes do we need to consider?



Different States?

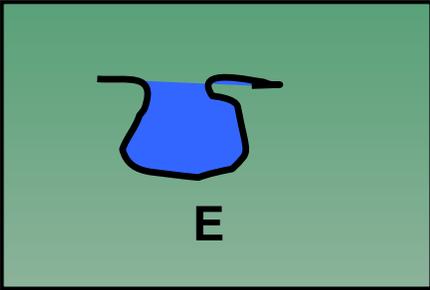
Channel Evolution Model suggests  
The upper photo depicts a condition  
that occurs prior to the lower photo.



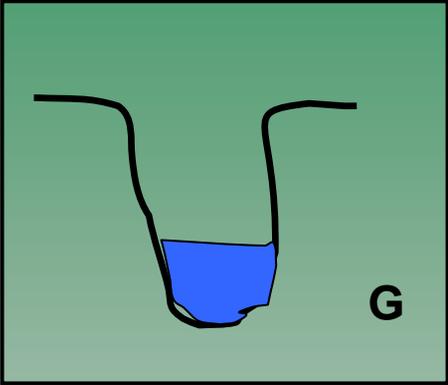
Is the lower photo depicting a third  
State or a phase within State 2 ?

Discussion?

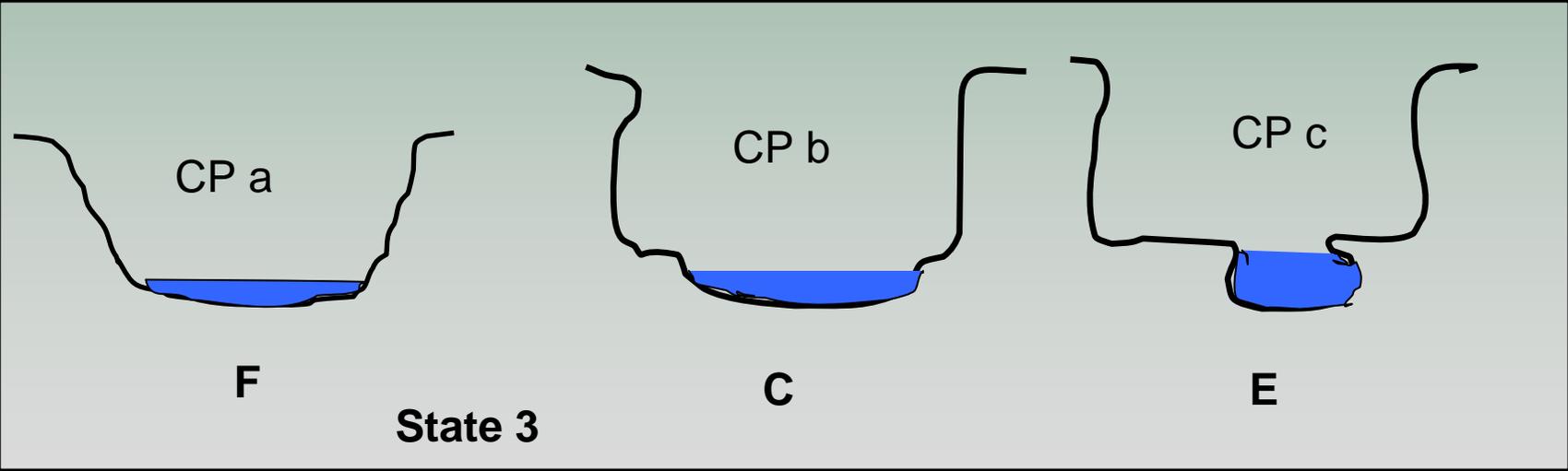
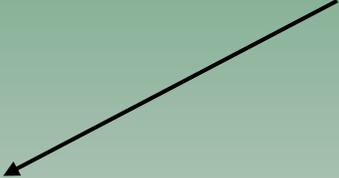
My Perspective



State 1



State 2



State 3

# Thoughts

- State 1: reference state
  - Channel connected to floodplain; water table supports OBL and FACW species
  - CP within State 1: bank height ratio increasing and vegetation reflects the lowering of the water table
  - May be additional CP caused by inappropriate grazing etc.

# Thoughts

- State 2 = entrenched G type channel
  - Banks are vegetated with FAC and FACW species
  - Banks are unstable
  - Channel widening necessary to develop floodplain

May be additional CP within this State that occur between “G” and “F” morphologies

# Thoughts

- State 3
  - CP a: F type channel that exhibits floodplain development and bank stabilizing vegetation (OBL and FACW)
  - CP b: C type channel that exhibits increasing sinuosity, point bar development and vegetation capable of holding banks during high flow events
  - CP c: E type channel similar in dimension to the reference state channel however no longer connected to the original floodplain

NOTE: in the example shown CP b may not develop

# Discussion ?

