## Antecedent conditions bedrock morphology ground water climate sediments/soils vegetation land use (thresholds set) External influences Land use Land use Climatic conditions Alteration of: Alteration of: biology sediments / soils sediments / soils biology temperature forest management, cultivation, logging and fire cultivation, changes in introduction of trapping, grazing, surface mining, surface mining, evaporation, beneficial species, roads cultivation roads infiltration. reduction in grazing and runoff and cultivation morphology hydrology hydrology morphology increased runoff, cultivation, ditches, wind cultivation, ditches, decreased runoff, levees, roads, bridges, changes in geometry changes in geometry of flow, available changes in levees, roads, bridges, of flow, available surface mining, direction and surface mining, disruption of stream sediment in flow, and evaporation sediment in flow, and smoothing of stream longitudinal profiles ground-water levels longitudinal profiles ground-water levels precipitation increase in amount decrease in amount increase in intensity decrease in intensity change in seasonality change in seasonality Internal adjustments subsurface morphology subsurface morphology hydrology hydrology disadjustments of stream smoothing of stream decreased infiltration, longitudinal profiles, increased infiltration, longitudinal profiles, increased discharge lateral shifts in channel, decreased discharge lateral shifts in channel to surface changes in hydraulic to surface geometry (i.e., concentration of flow, increased depth of flow) sedimentology biology sedimentology biology changes in sediment changes in sediment reactions to changes availability (excess must in hydrology, sediments, type on valley floor reactions to changes (more erodiblé or less be stored), changes in & morphology; in hydrology, sediments, sediment type (sus-pended and bedload) nfiltration), changes in natural influx of new & morphology; deterioration of vegetation, decrease in beneficial animals available sediment species, beneficial animals for transport **Consequences** 1) Weakened soil structure; 2) Change in sediment type 1) Local decrease in sediment erodibility; 2) Improved soil structure; 3) Changes in sediment type; 4) Dispersed flow; 5) Decreased runoff; 6) Decreased flashiness of flow; on valley floor; 3) Concentrated flow; 4) Increased runoff; 5)Increased flashiness of flow; 6) Increase in gradient; 7) Decreased gradient; 8) Improved vegetation 7) Decreased vegetation > Leading to < 1)Overabundance of sediment relative to water; 2)Decreased Increased erodibility of alluvial valley floor; Increased discharge per unit area; 3) Increased energy slope energy slope; 3) Decreased discharge; 4) Altered flow geometry Erosion or modification of channel to handle increased discharge and sediment yield Deposition to modify channel or valley floor