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## **Vegetation dynamics and interactions with flows in dryland channels**

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Presence of vegetation in channels has major effects on hydraulics and on erosion and deposition dynamics, especially in ephemeral-flowing channels in drylands where plants may grow on the channel bed as well as on the banks. The plants can alter the flow velocities and patterns of flow, including the location of erosion and deposition. The plants themselves provide resistance through both aerial parts and roots and they interact with the flows to increase sedimentation. Levels and frequencies of flow vary markedly in dryland channels and plant species commonly demonstrate distinct zonation related to these flow dynamics, channel bed elevation and substrate. Channel flow and availability of water may encourage growth, but large flood events may damage or destroy vegetation by various mechanisms, including removal and burial. Quantitative data are needed on the conditions for growth, the effects of differing flows on a range of species and the thresholds for destruction. In addition, rates of regrowth after damaging floods are required to provide the basis for modelling and the timescales of recovery. Evidence and measurements from a series of sites and monitored plots on channels in SE Spain over a period of 25 years are analysed to quantify these dynamics and interactions. The implications for the functioning and management of such channels are discussed.