

Ephemeral Drainages

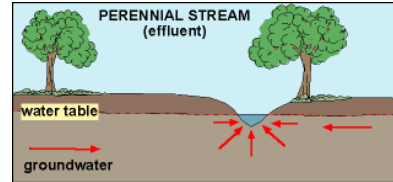
Drainages characterized by flowing water only during or immediately following rainfall events

- sometimes also known as Arroyos or Dry washes

Matt Haberkorn
Phoenix College

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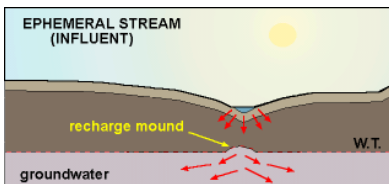
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Perennial streams always connected to groundwater

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Ephemeral drainages are never connected to groundwater.

20 to 50% of arid lands groundwater recharge comes through ephemeral drainage channel material as a result of summer rainfall.

At least 14 times more miles of ephemeral drainages than perennial or intermittent waters in Arizona.

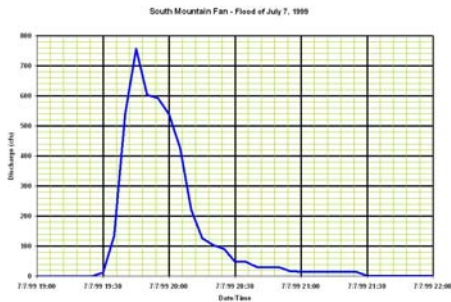
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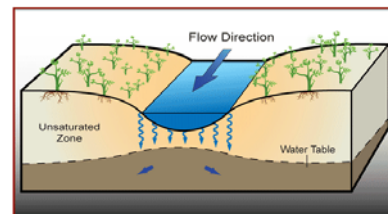
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Average Sonoran Desert wash flows 0 to 3 times annually
Violent flows that quickly rise and fall, usually lasting only a few hours.

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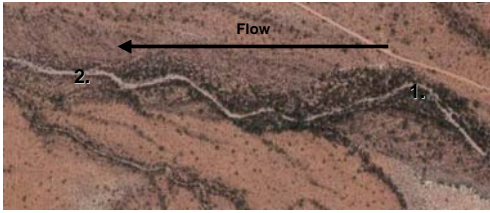
Flows rise quickly because of sudden torrential rainfall

Flows drop quickly because flowing water quickly flows away or is lost into the ground.

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Transmission losses



Sites 1. and 2. are flood monitoring stations.
 Floods starting at site one will decrease in volume by the time site two is reached.
 Flood water is lost to sediments in the stream channel.

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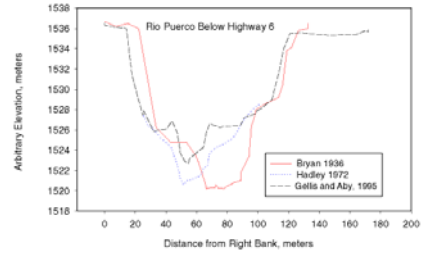
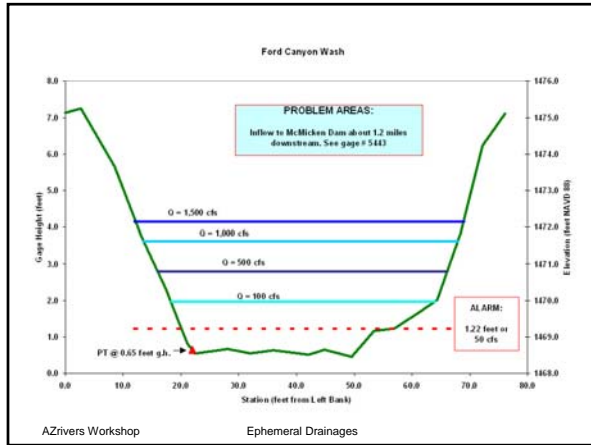


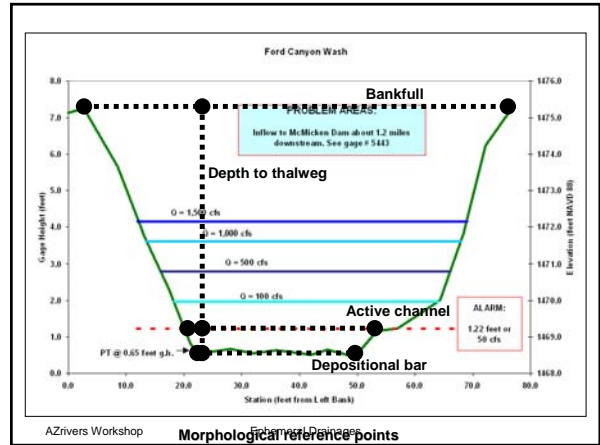
Figure 12. Replicate surveys of the Rio Puerco channel downstream of Highway 6.

Flash floods through ephemeral drainages can be violent
 Violent floods can cause major erosion and channel adjustments

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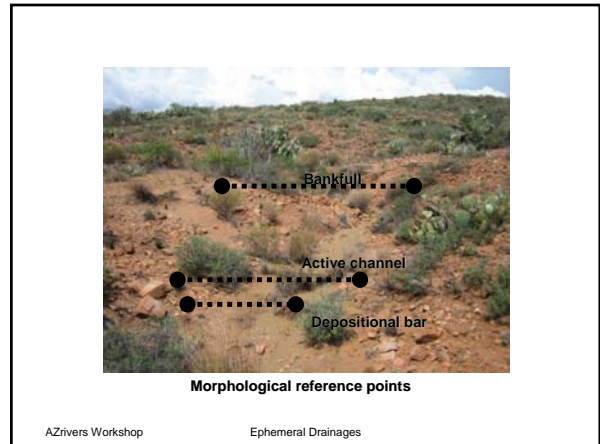
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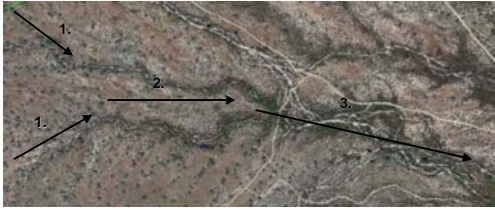
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Morphological reference points



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Morphological reference points



Basic channel morphology
1. Rill – 2. Entrenched Channel – 3. Braided Channel

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Rill

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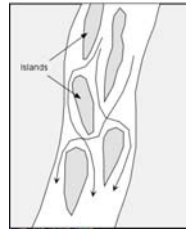


Entrenched channel

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Braided Channel



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Different vegetation types will occupy the different channel reference zones and different channel morphologies

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