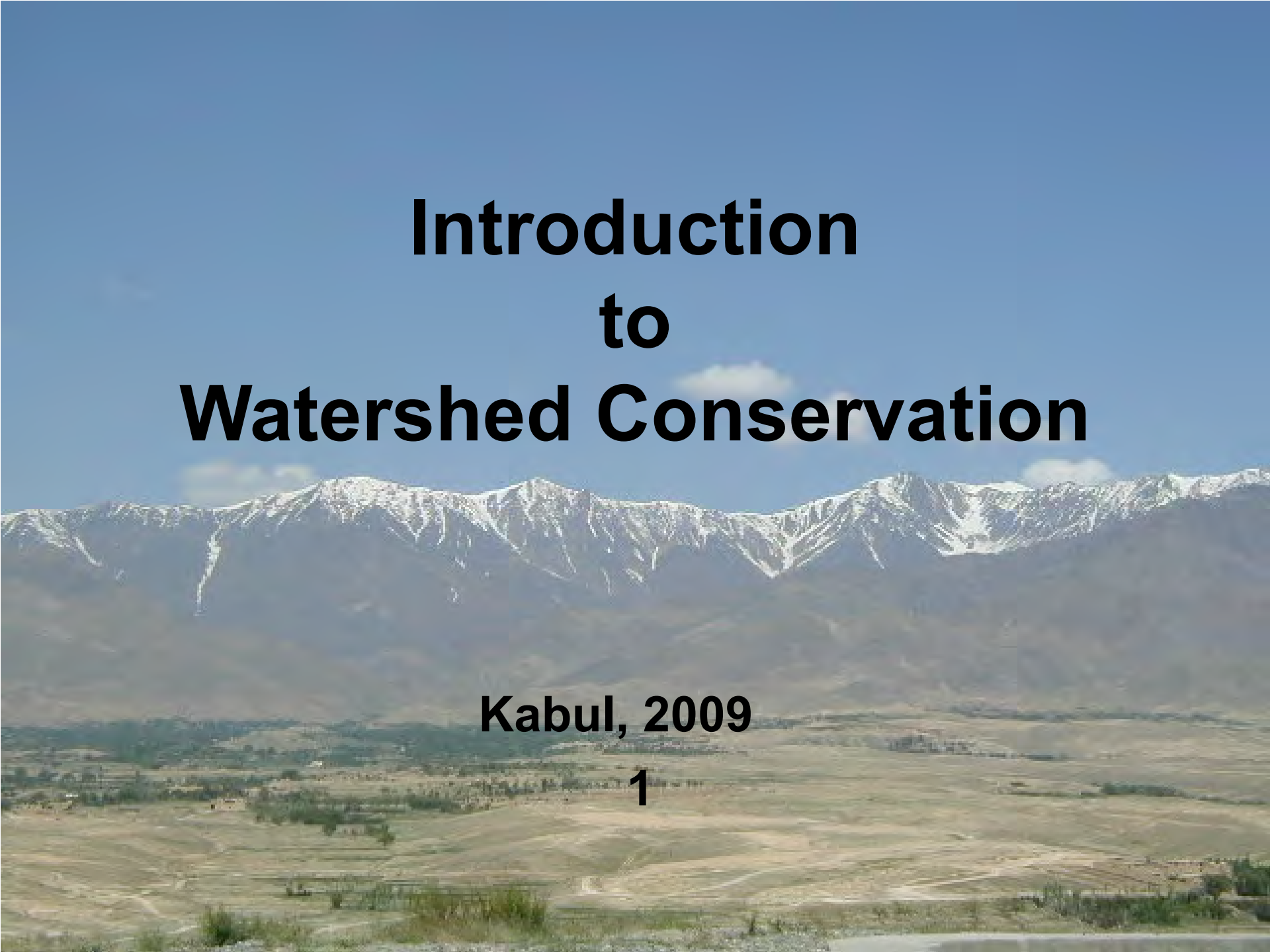


Introduction to Watershed Conservation

Kabul, 2009

Watershed Overview

Water and Soil – *It is important!*

What happens in our watershed affects our water and affects our soil.

Water

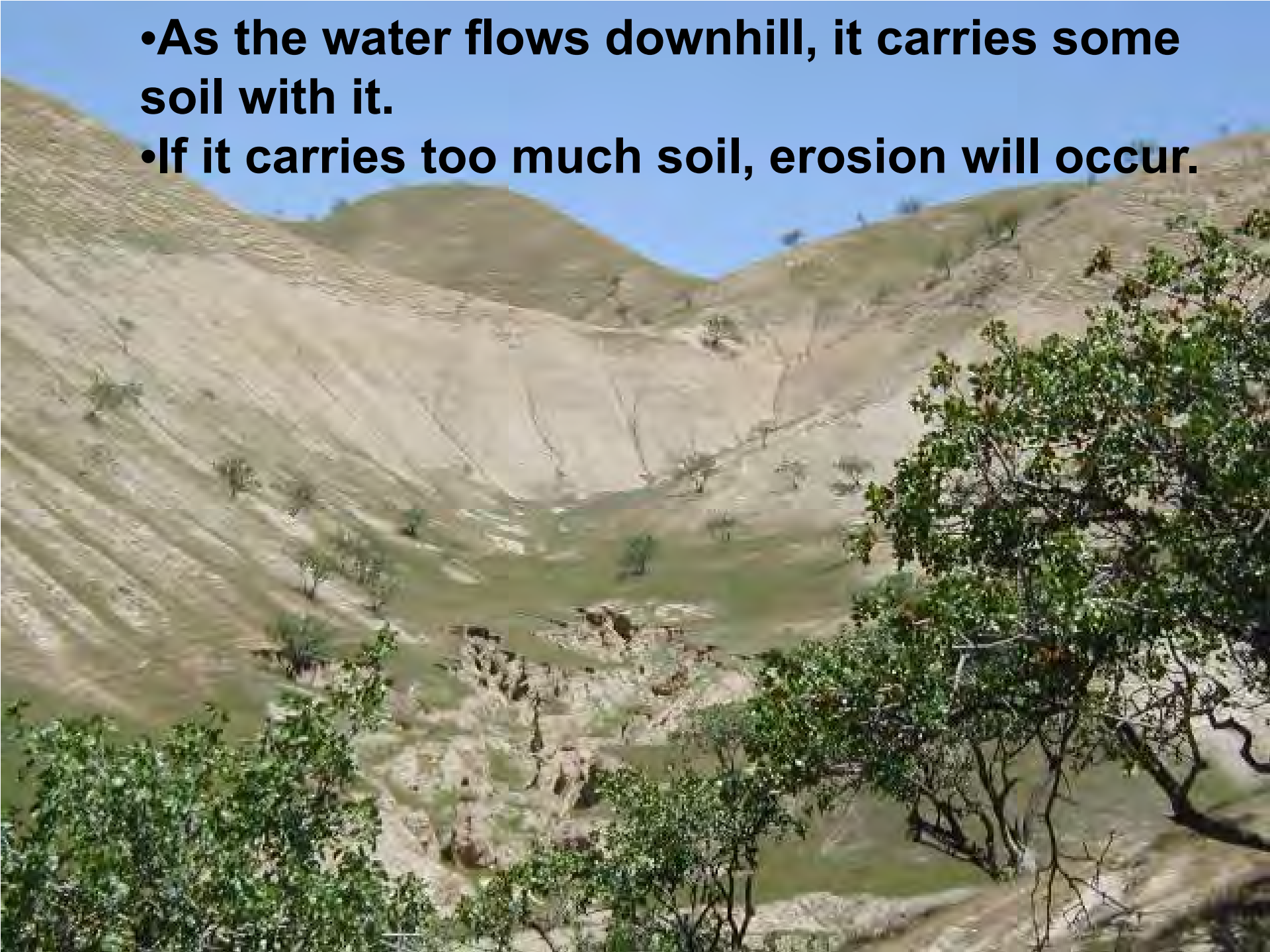
It is very important to our lives

Sometimes we do not have enough

Sometimes we have too much

As snow melts at the tops of the mountains or rain falls on the land, the water both soaks into the ground as well as flows over the ground and then down into the rivers and streams.

- The water is used by plants, by livestock, and by people.
- Eventually it finds its way to a lake, a wetland or the ocean.
- Water is returned to the clouds from plants, and from lakes and wetlands.



- As the water flows downhill, it carries some soil with it.
- If it carries too much soil, erosion will occur.

Soil

When soil is gone, it is gone

Too much erosion and the plants will not grow

- It is also very important to important to our lives.
- Plants need soil.
- Live stock and people eat plants.

Erosion can also threaten:

- Buildings
- Bridges
- Roads
- Agriculture
- Water Supply
- Ecology
- Others?

Erosion can be good or bad

Natural Erosion

- Caused by rain, wind and flow action of rivers and streams
- Gradual
- Can be often be ***managed*** unless a large storm has occurred

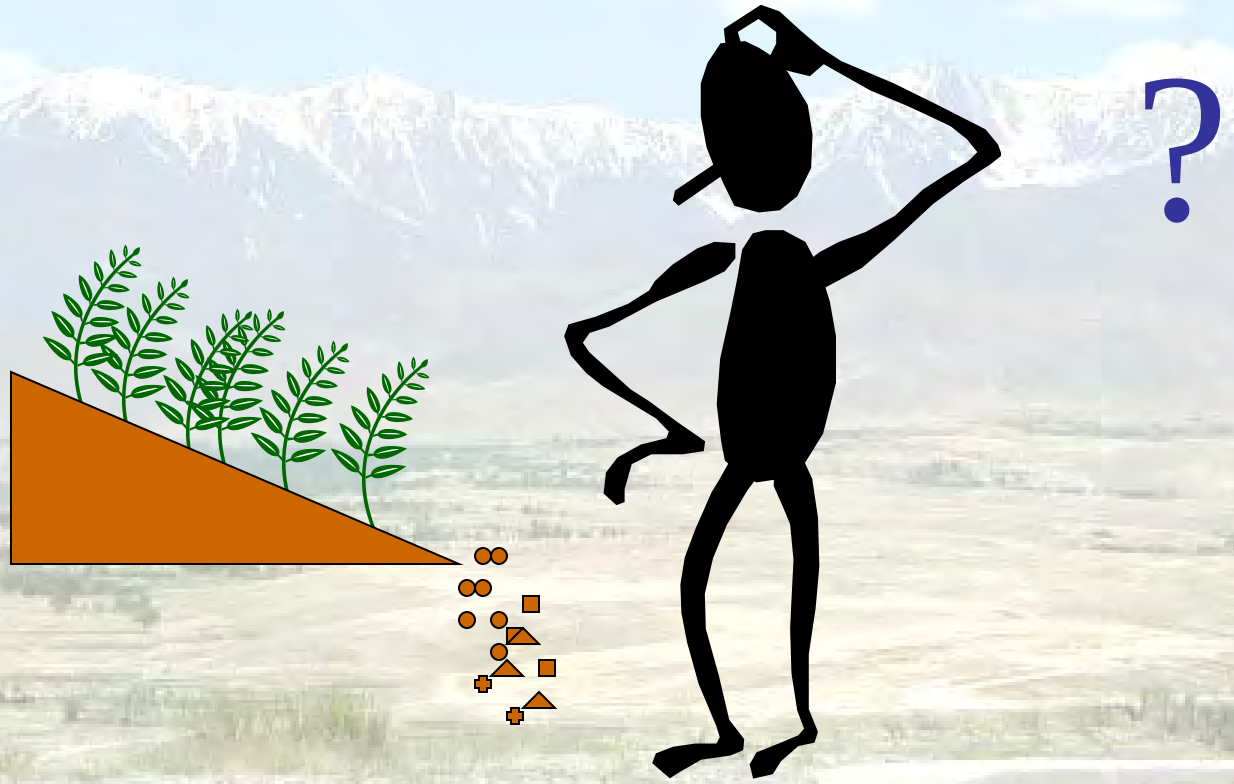
Man-Made Erosion

- Caused by overgrazing, poor farming practices, fire, construction activities, etc
- More damaging than natural erosion
- Puts the watershed out of balance
- May need ***rehabilitation techniques***

We need to use the right management practices and the right rehabilitation techniques in the correct locations.

We need to know what sort of management strategies work best in what parts of the watershed.

We need to be able to select appropriate rehabilitation treatments when management alone is not sufficient.



To accomplish this, we need to:

- Be able to assess the condition of the watershed.
- Understand how the parts of a watershed should behave naturally.
- Understand what suitable goals are for each watershed.
- Understand the sort of management practices and rehabilitation treatments that may be appropriate

And

We need to realize that any management practices or rehabilitation treatment has to be acceptable to those who use the land

There can be many problems in a watershed

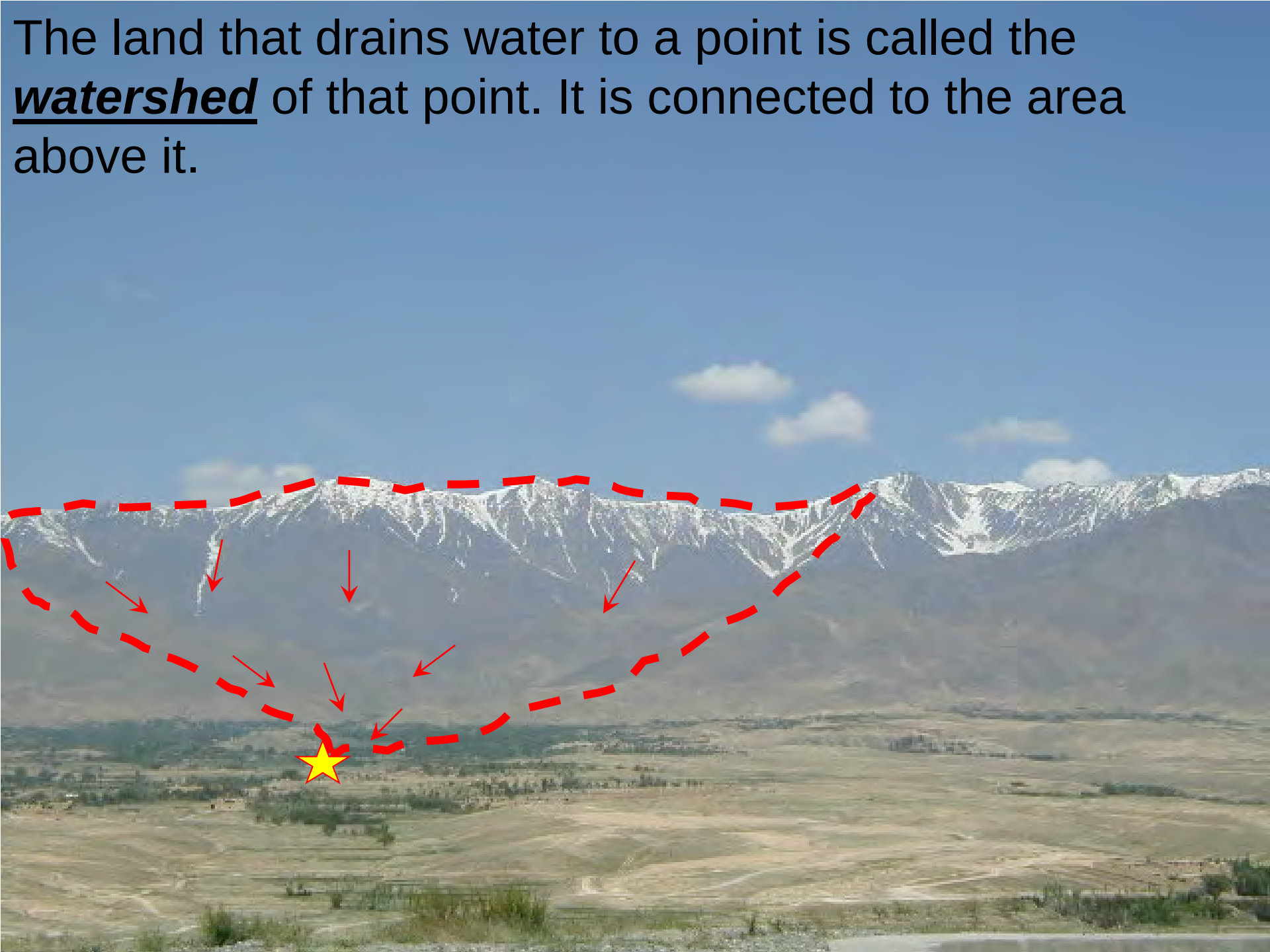
Problems:

- A lack of trees and grasses
- Too much soil erosion
- Not enough water
- Water is of bad quality

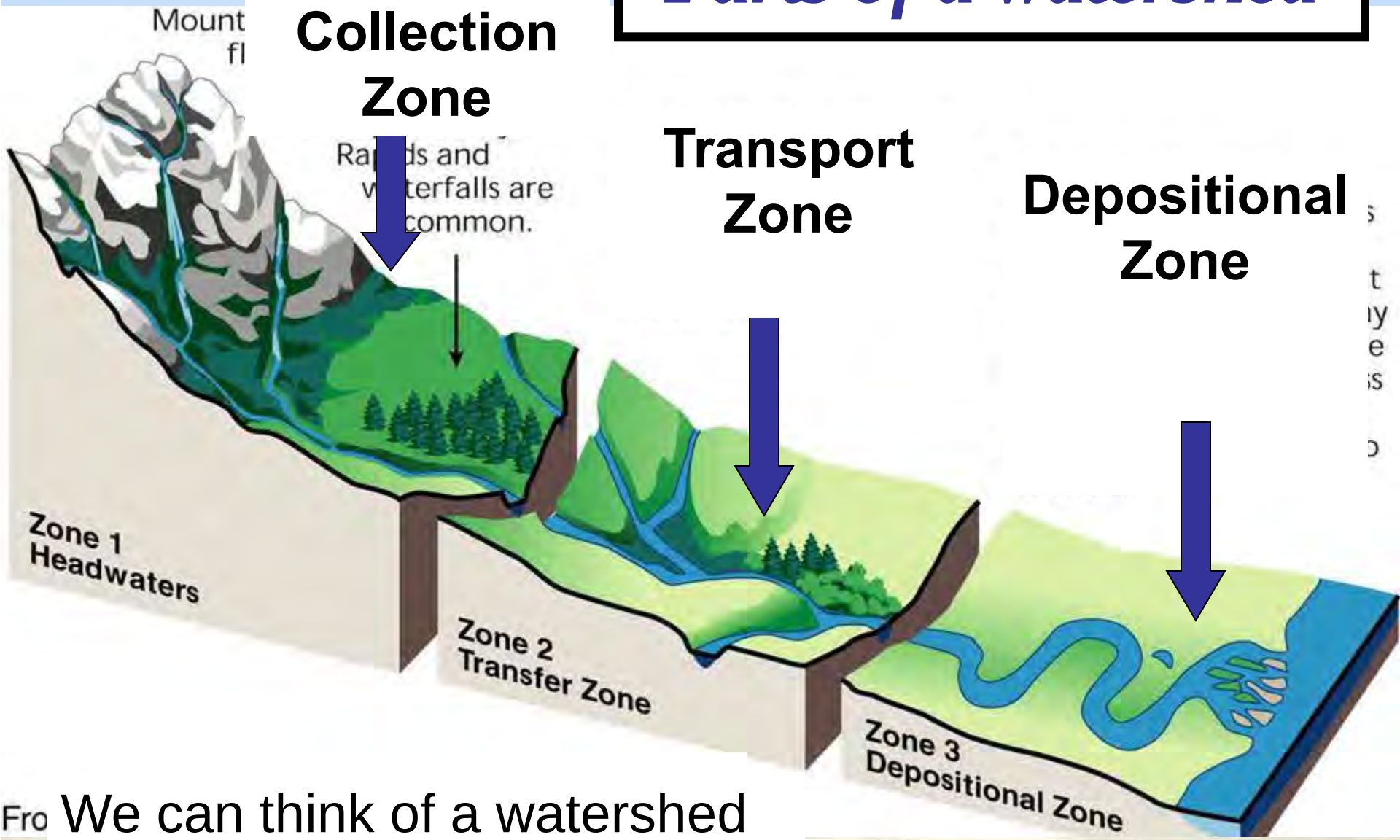
These problems can affect people and the environment

PROBLEM	Effect
There is a lack of trees and grasses	• Grazing is limited • More erosion
There is too much soil erosion	• Plants do not grow • Water quality affected
There is not enough water	• It is hard to irrigate • Hard to provide water for livestock
The water is of bad quality	• Drip irrigation can not be done • People become sick

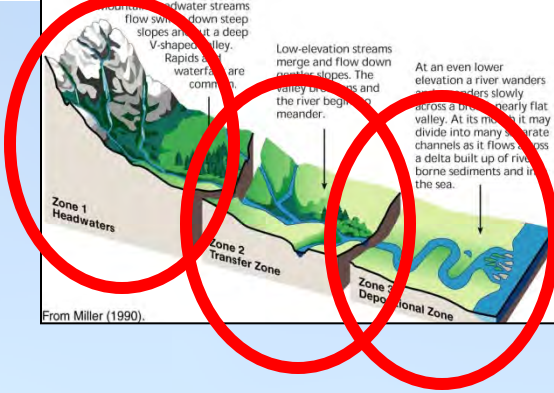
The land that drains water to a point is called the ***watershed*** of that point. It is connected to the area above it.



Parts of a watershed



We can think of a watershed as three parts

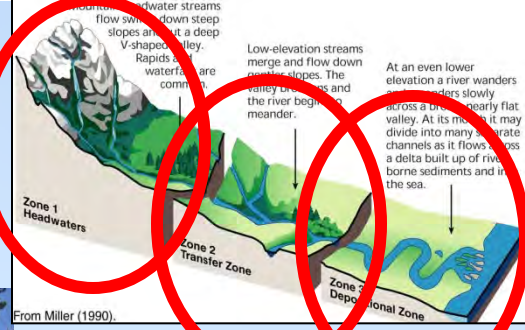


The *collection zone* or headwaters is at the top of the watershed.

The *deposition zone* is at the end of the end of the watershed.

The *transfer zone* is in the middle of the watershed.

Each zone has a different behavior

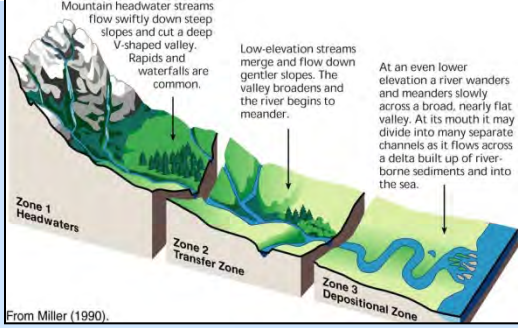


This is where the water is collected for the rest of the watershed. It has the steepest slope and the thinnest layer of good soil.

Water and eroded sediment moves through this area

Water and sediment stops here It has the flattest slope and the thickest layer of good soil.

Each zone has a different strategy



Collection Zone →

- Keep the soil where it is and encourage infiltration

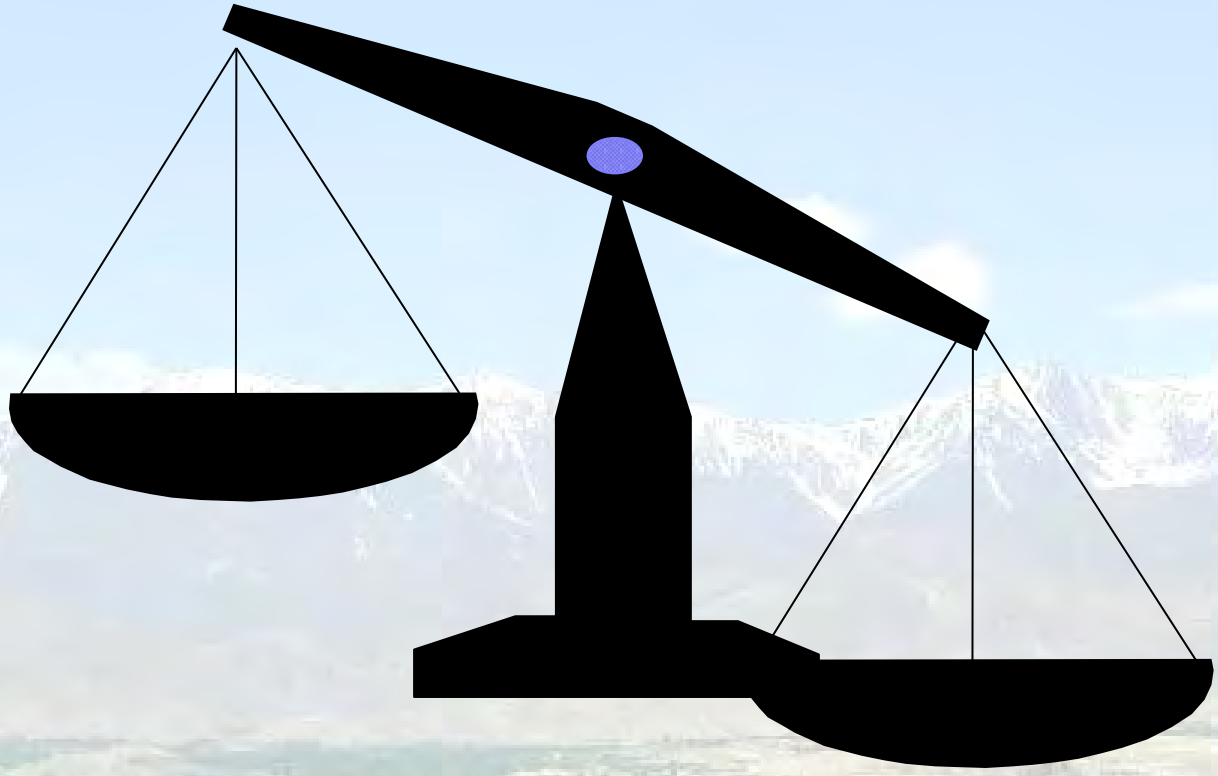
Transport Zone →

- Let the water and sediment flow through
- Protect and strengthen the banks

Deposition Zone →

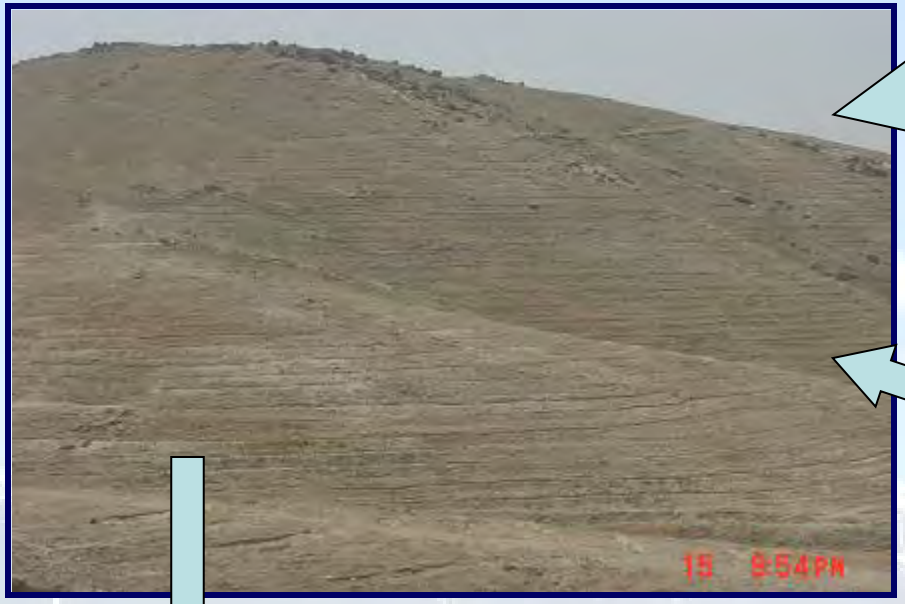
- Keep the soil from being blown away by the wind
- Keep too much sediment from being deposited
- Manage and use

If the strategy is not being met in one zone, it may affect a lower zone.



A problem in an upper zone can cause the entire watershed to become out of balance

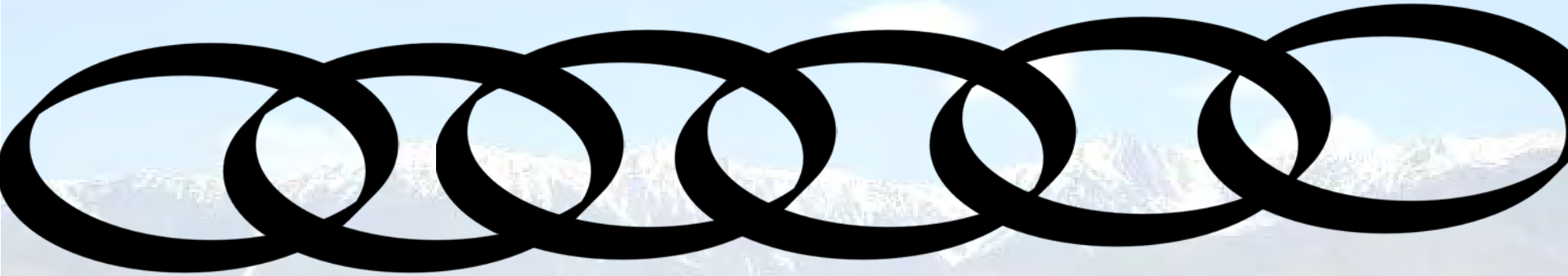
For example: loss of vegetation in the collection zone may affect the amount of water and its quality in the deposition zone



Even within the zone, it may become out of balance

- Overgrazing in the collection zone causes lack of vegetation
- Lack of vegetation causes soil erosion and loss of good soil
- Loss of good soil reduces the vegetation
- Lack of vegetation may encourage the herder to overgraze what is left

- A watershed is like a chain
- Each link is important
- If one link is broken, there will be problems for the entire chain



Trees, shrubs, forbs, grasses and wetland plants are very important in protecting the watershed.

The End ختم