



Manaaki Whenua  
Landcare Research

# Soil & water conservation in New Zealand

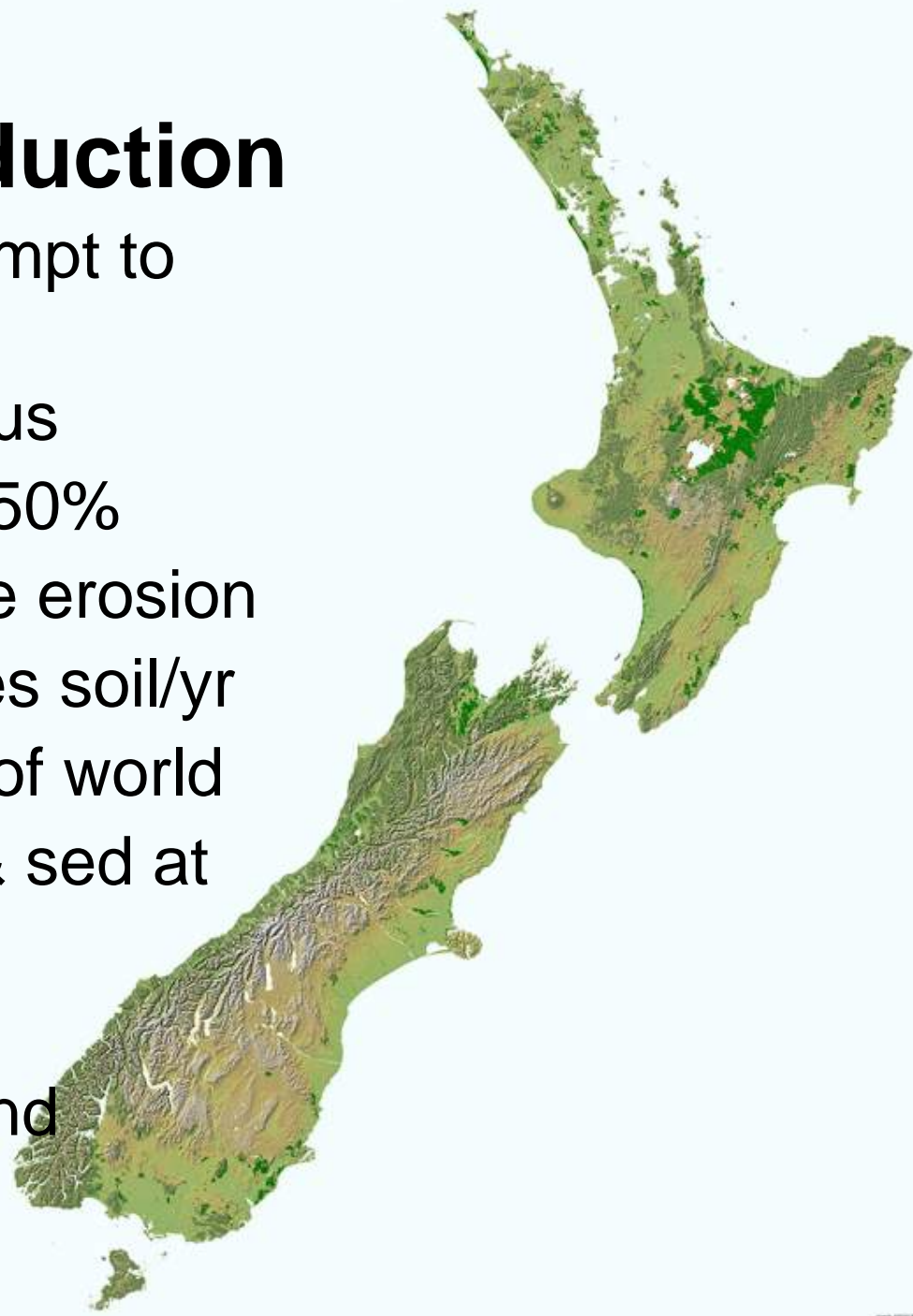
Dr Chris Phillips  
Landcare Research

## in this talk .....

- Introduction
- Historical background of S&WC
- Some pictures
- What things are like now
- Successes
- Take home messages

# Introduction

- Agriculture & Forestry v. impt to NZ economy – 20% GDP
- NZ is hilly and mountainous
- Mod - sl erosion effects >50%
- 10% has severe - extreme erosion
- NZ loses 200-300M tonnes soil/yr
- Rate 10x faster than rest of world
- Annual cost soil erosion & sed at least \$127M
- 85% population urban
- Half people live in Auckland





# Limitation of talk

Mostly about soil conservation,  
water conservation will be about floods and flood  
protection

not “water conservation” in terms of recycling water  
and domestic potable water consumption or  
conservation we see in cities.

i.e. what was traditionally known as water & soil  
conservation



# Questions to consider

- How successful has soil & water conservation been?
- What have been some successes?
- Is S&WC still important in New Zealand?
- Where is the expertise?
- Is New Zealand still a leader?
- How does S&WC work in NZ?
- The RMA and legislation is it working?
- Policy & practice links?



# History

- 1941 – SC&RC Act
- 1940's-1960's-1980's
  - Catchment control schemes
  - Flood control schemes
  - On-farm works – production focus
- W&SC Act 1967 - NWASCA
- 1980's major reforms
- 1991 Resource Management Act
  - Effects – downstream not source
- 2000 focus on ICM - linking
- 2005 farm plans, env plans



# Soil & water conservation in NZ

the way it was.....





# Soil & water conservation in NZ

the way it was.....



**Soil con & grass –  
that's all you needed!**



# Soil & water conservation in NZ

the way it was .....





# Soil & water conservation in NZ

the way it was .....





# Successes

- Improved our understanding
- Catchment flood protection schemes
  - development of floodplains
- East Coast forestry project
- Move towards integrated approaches
  - Uplands linked to lowlands
- Regionalisation?
- Communication/engagement



# Understanding & knowledge

**Where erosion is and how much**



An aerial photograph of a rugged mountain range. The mountains are mostly bare, with some patches of light-colored material, possibly snow or rock, on their slopes. A river valley is visible in the foreground, with a winding river and some green vegetation. The text "Not all steep bare country is eroding" is overlaid on the image.

**Not all steep bare country is eroding**







An aerial photograph showing a wide, braided river channel with multiple sub-channels and gravel bars. The river flows from the top center towards the bottom center of the frame. The surrounding landscape is a patchwork of agricultural fields in various shades of brown, tan, and green. To the right of the river, there are several long, straight, light-colored strips, possibly salt flats or industrial areas. The text "Understanding & knowledge" is overlaid in the upper portion of the image.

**Understanding & knowledge**

**Manage gravel-bed rivers**



An aerial photograph of a flood plain, showing a patchwork of agricultural fields in various shades of green, brown, and blue. A circular area in the center is divided into several sectors, with some sectors colored in a light pinkish-brown, indicating a specific development or planning zone. The text "Understanding & knowledge" is overlaid in the upper left quadrant.

**Understanding & knowledge**

**Allowed significant development  
on flood plains**



# East Coast Forestry Project

1. Soil protection
2. Sediment reduction
3. Source control over flood management

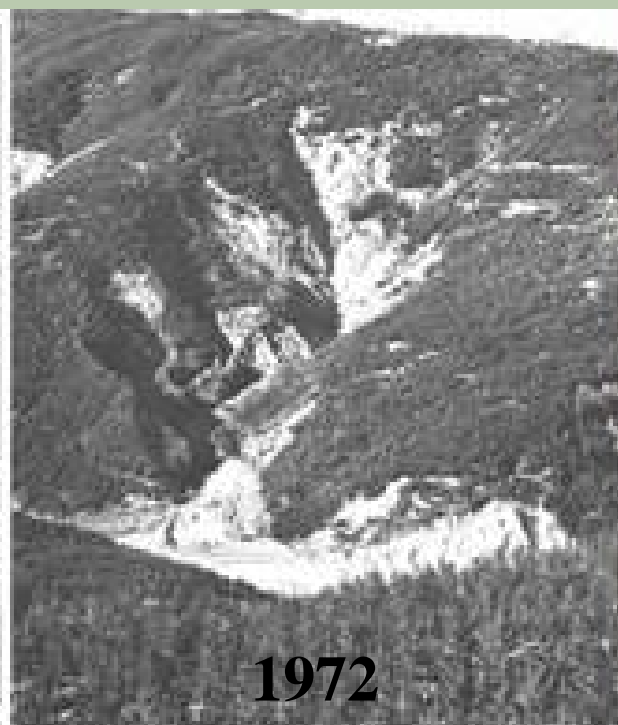
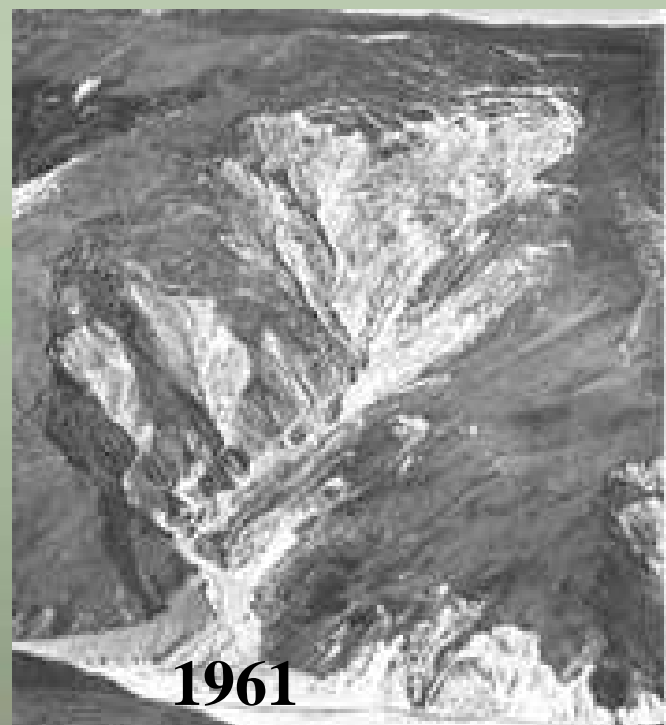




# Mangatu Forest









# Mangatu Forest – Tarndale Slip

**c. 1960**



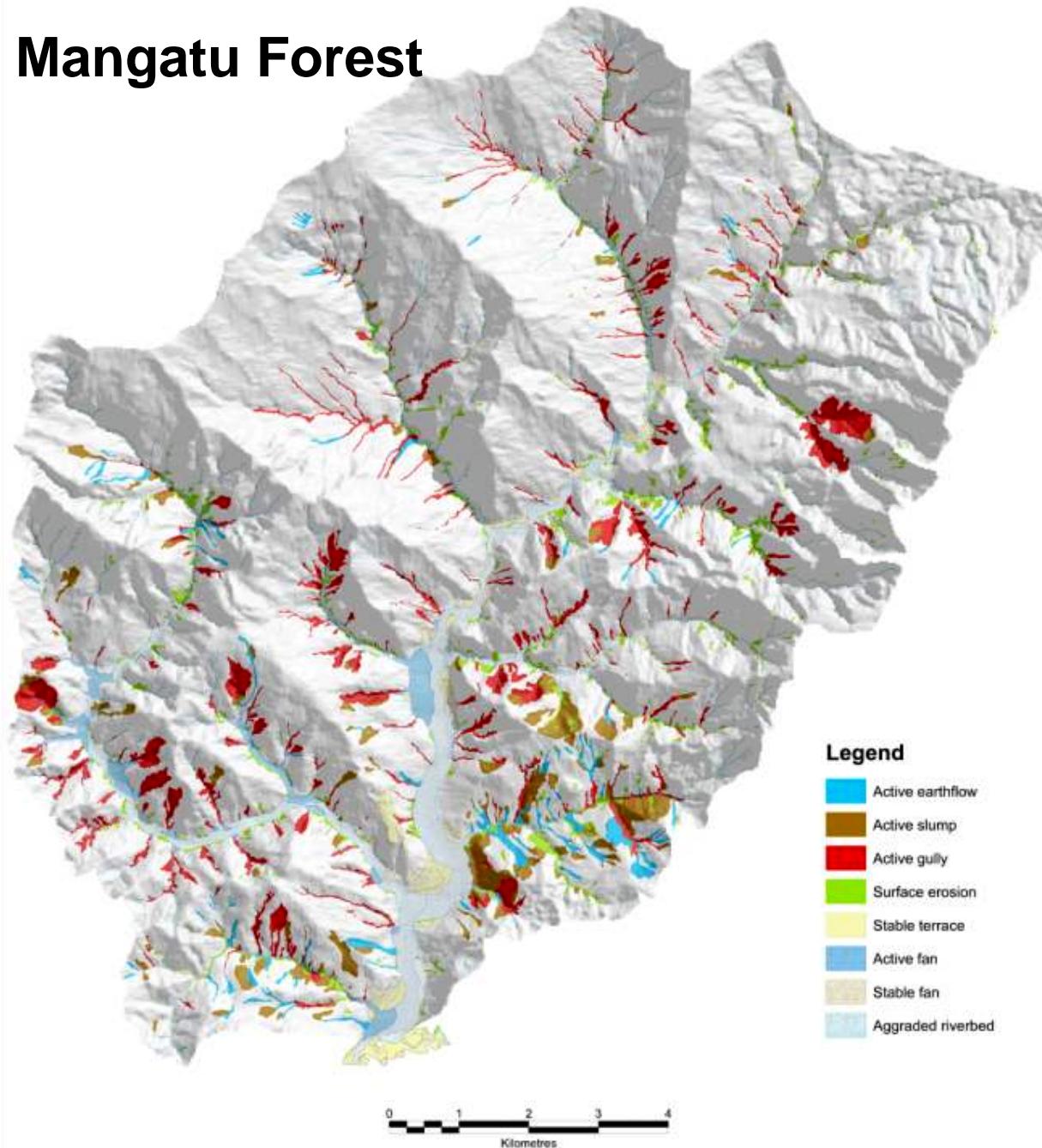
**c. 2000**



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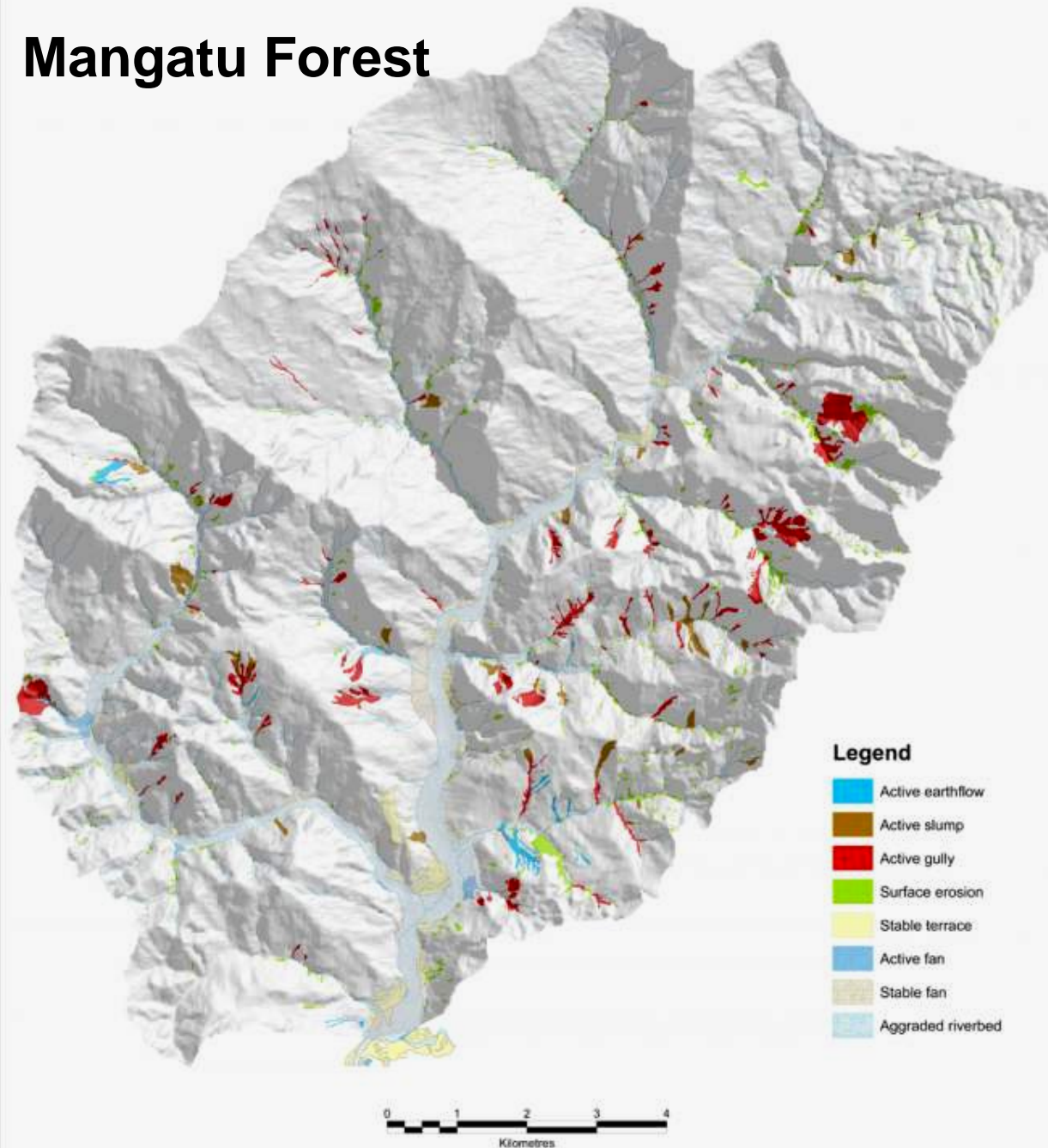


# Mangatu Forest



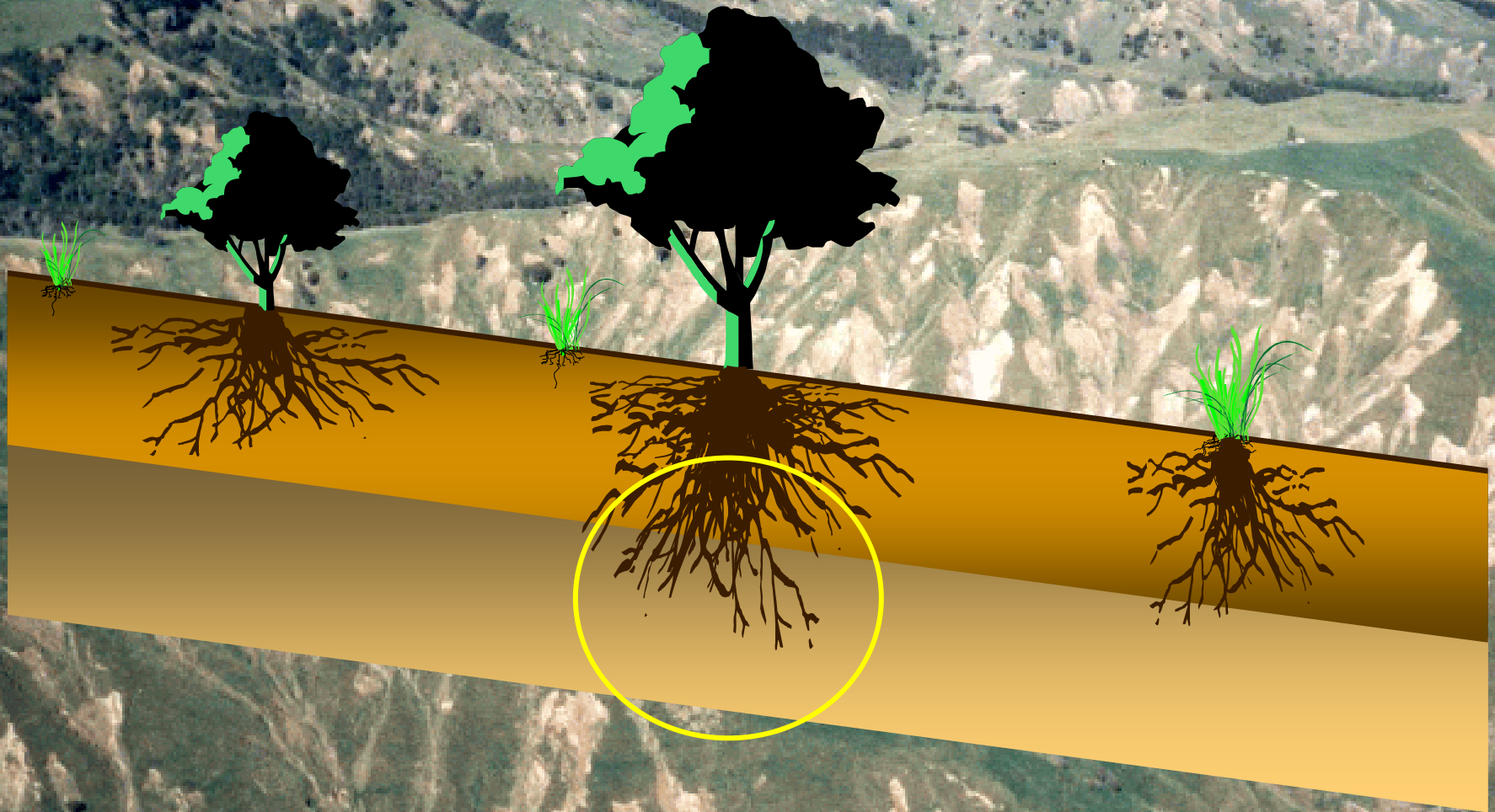


# Mangatu Forest





# Knowledge about vegetation & stabilisation



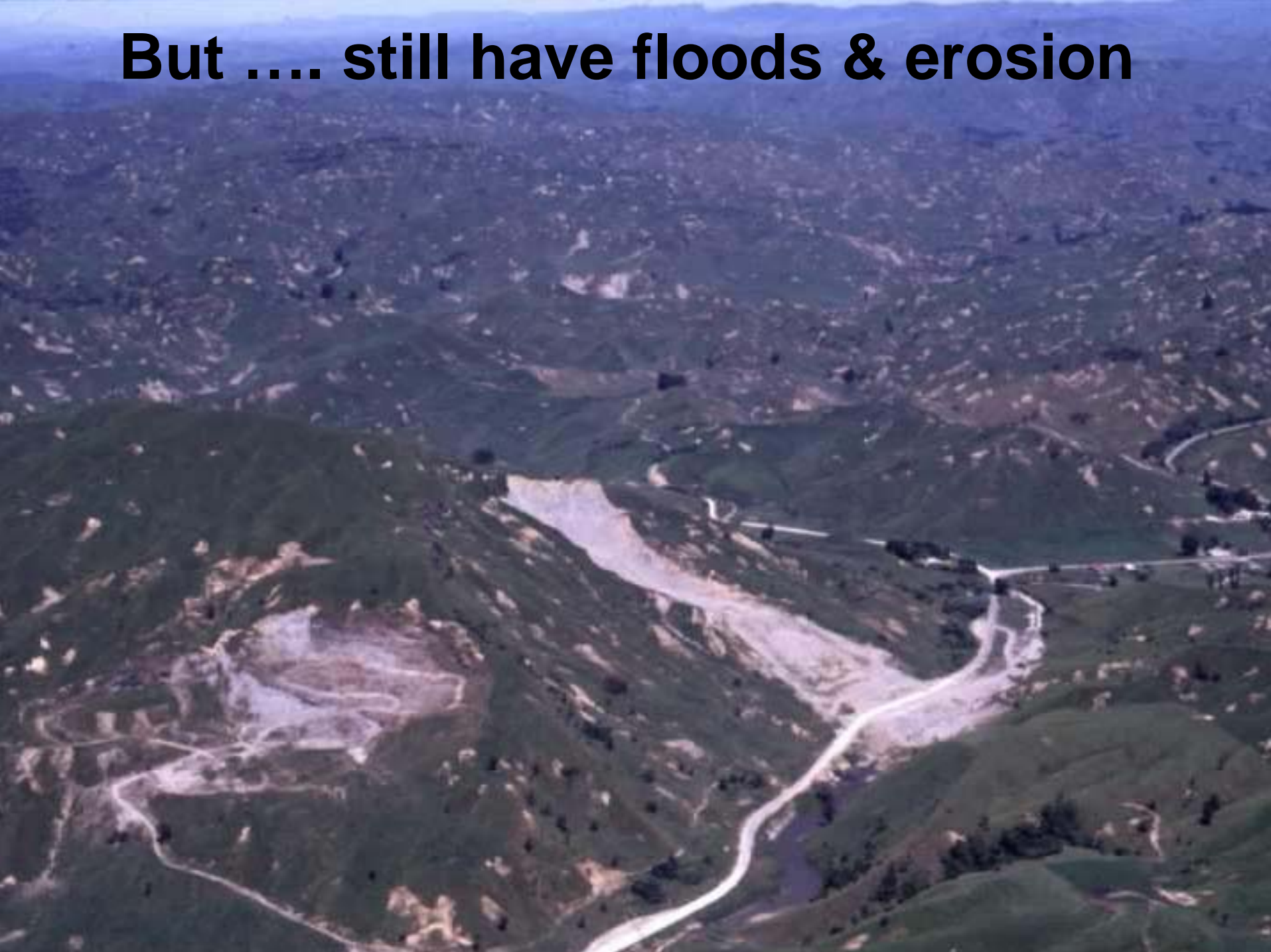


# Knowledge about vegetation & stabilisation





**But .... still have floods & erosion**



















# On-farm treatment - poplars



**Before**



**After**



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**Even they can fail**





# Ground stabilising techniques

Rivers ....



exotic or native?





# Communication & engagement

- Recognition that rules & legislation only go so far
- Engaging community
- Move towards linking things up - ICM
- Linking knowledge with policy
- Sharing what we know – social process
- Working with land owners
- Scale – local-regional-national





**“One good conversation can shift  
the direction of change forever”**



**- Linda Lambert**

**(Author & founder of Center for Educational Leadership  
at California State University)**

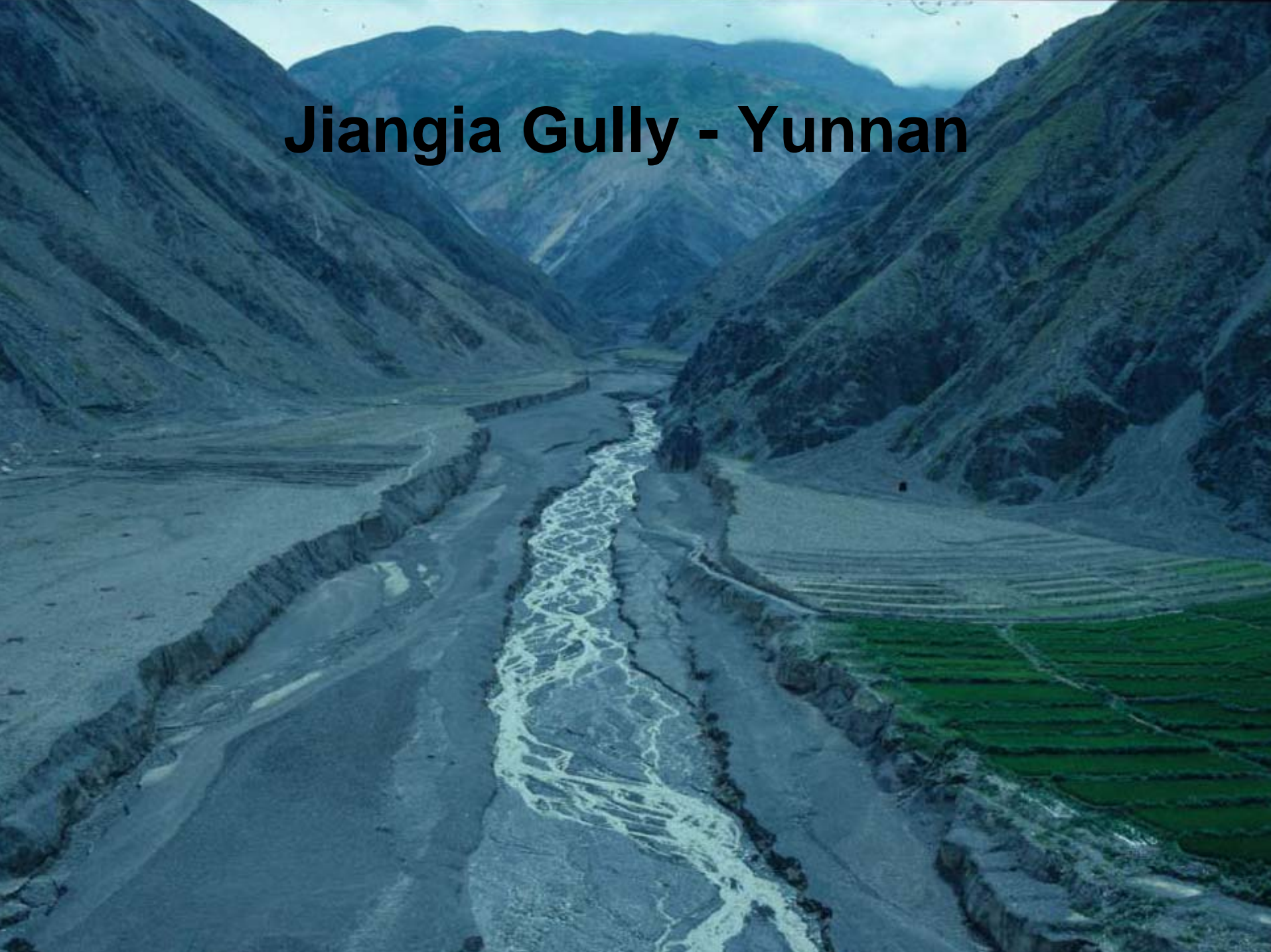


# We can learn from each other





# Jiangia Gully - Yunnan







**Jianggia Gully - Yunnan**



# Take home messages

- Big schemes of past no longer around - devolution
- Regionalisation has been both a blessing and a curse
- There have been some successes
- Past lessons linked to policy change
- NZ may not be world leaders like they used to be



# Take home messages cont....

- Erosion & sediment issues still important to nation – though been off radar for awhile
- Soil & water conservation in NZ is still alive - local
- There seems to be a hint of renaissance in Soil Con particularly as we go through an increased period of storminess and flooding

**Thank you for listening**

