

Are we destroying our insurance policy?

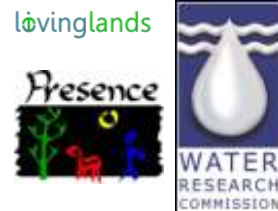
A case-study of the Kromme River



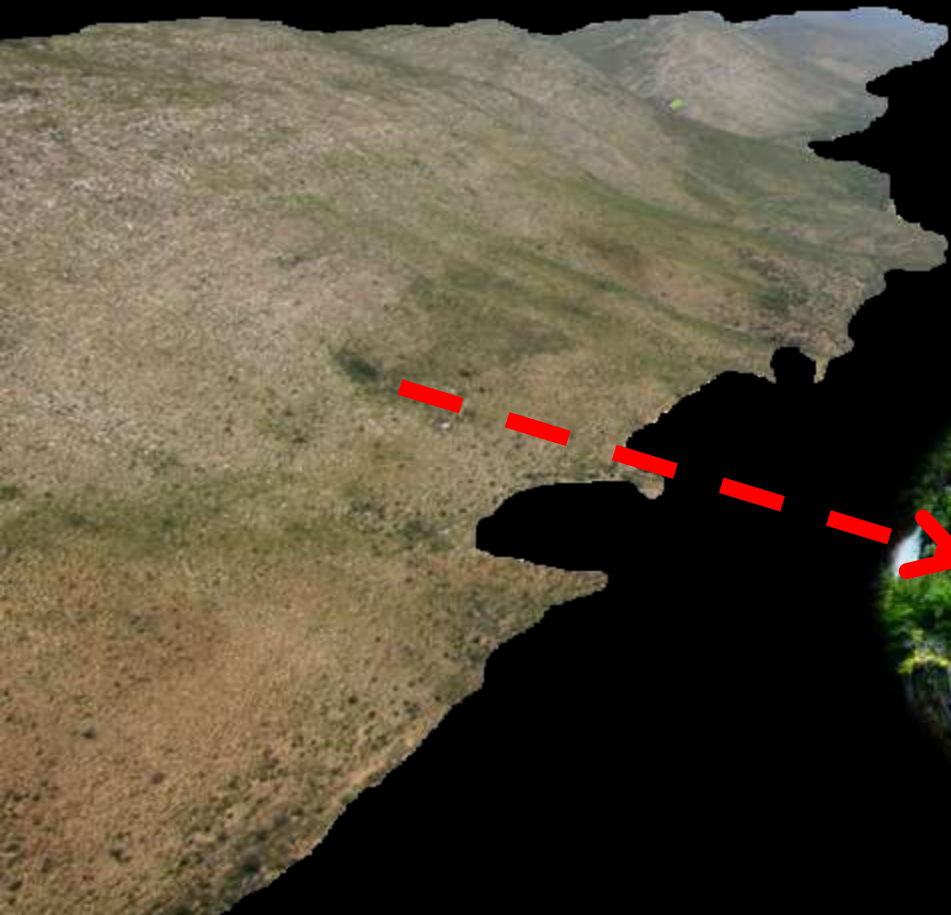
Alanna Rebelo
MSc Student
ASSET Colloquium – November 2011



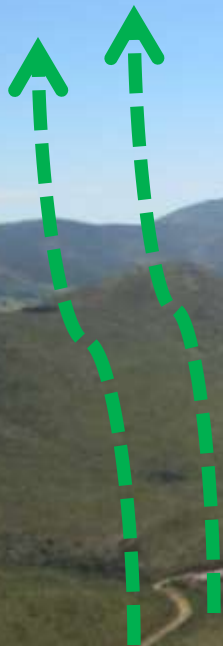
Dr David le Maitre, Prof Karen Esler, Prof Richard Cowling







$$P = Q + E (+/- S)$$



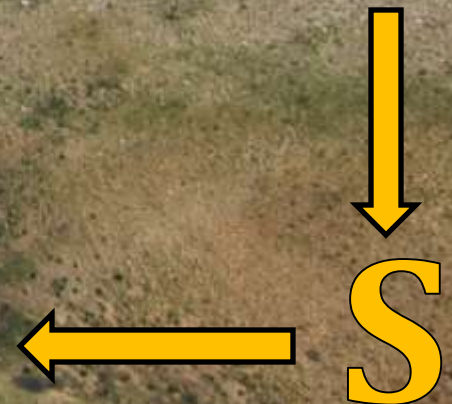
E



P



Q



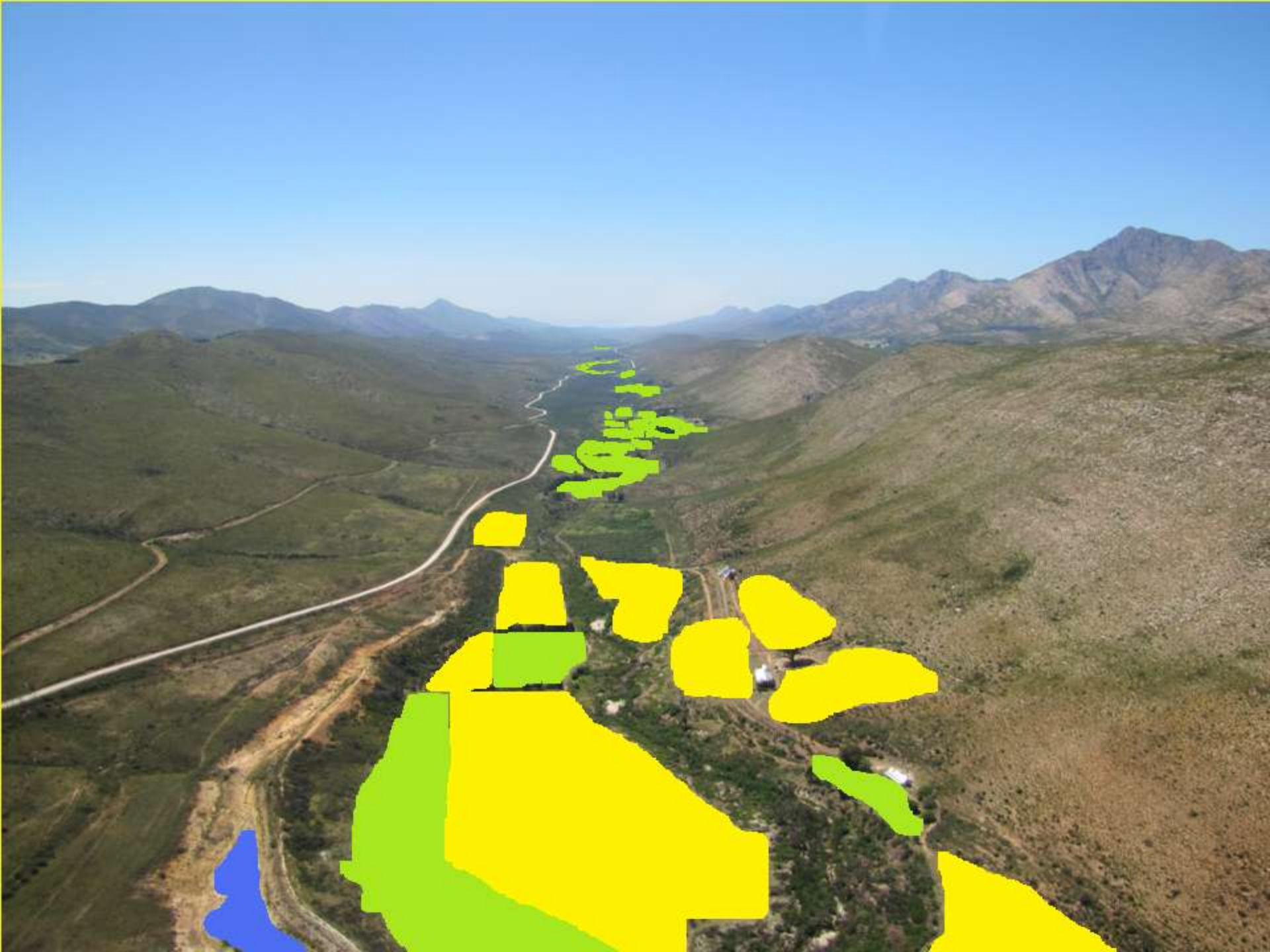
S

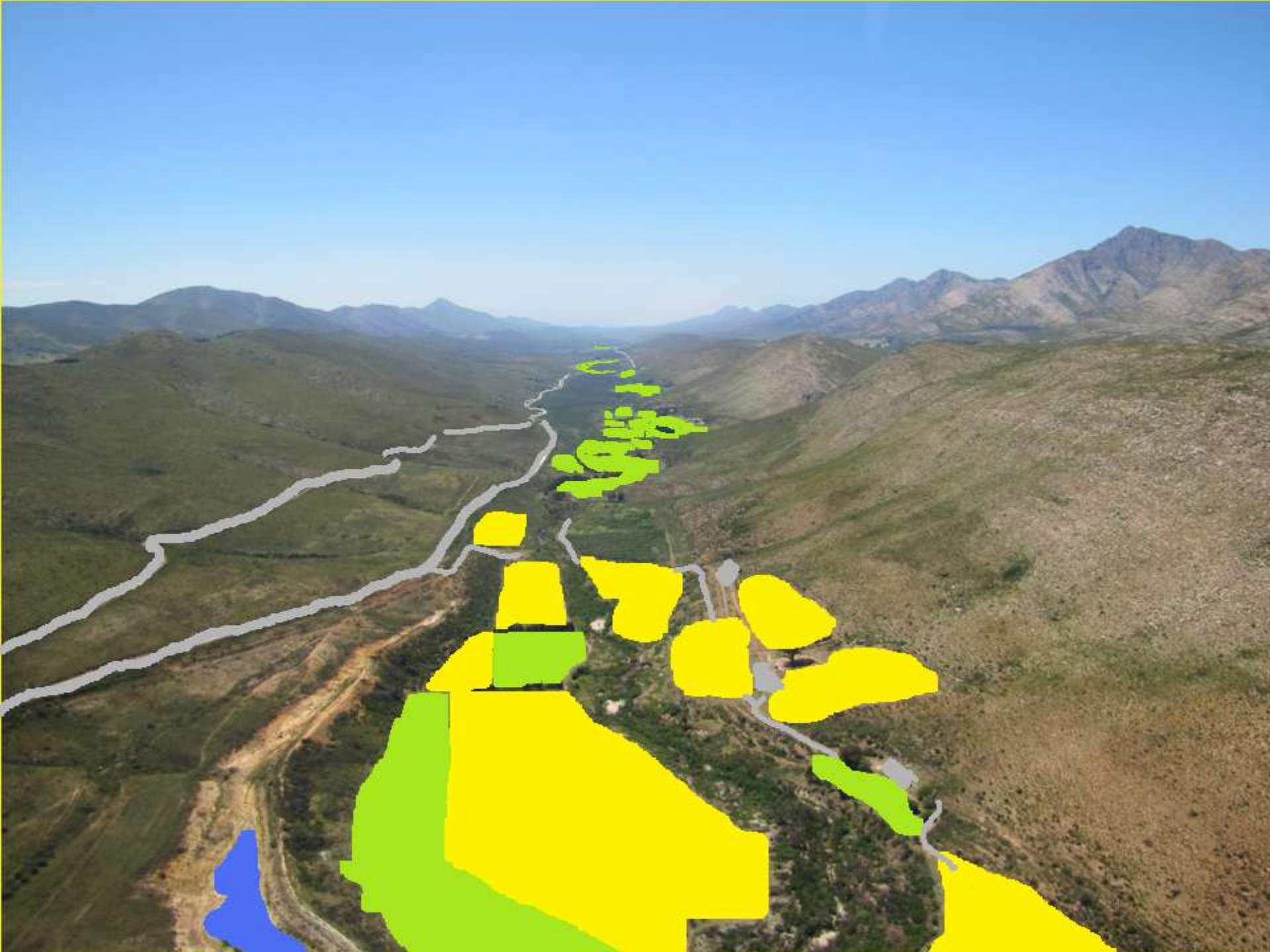
(Scott et al. 2004)



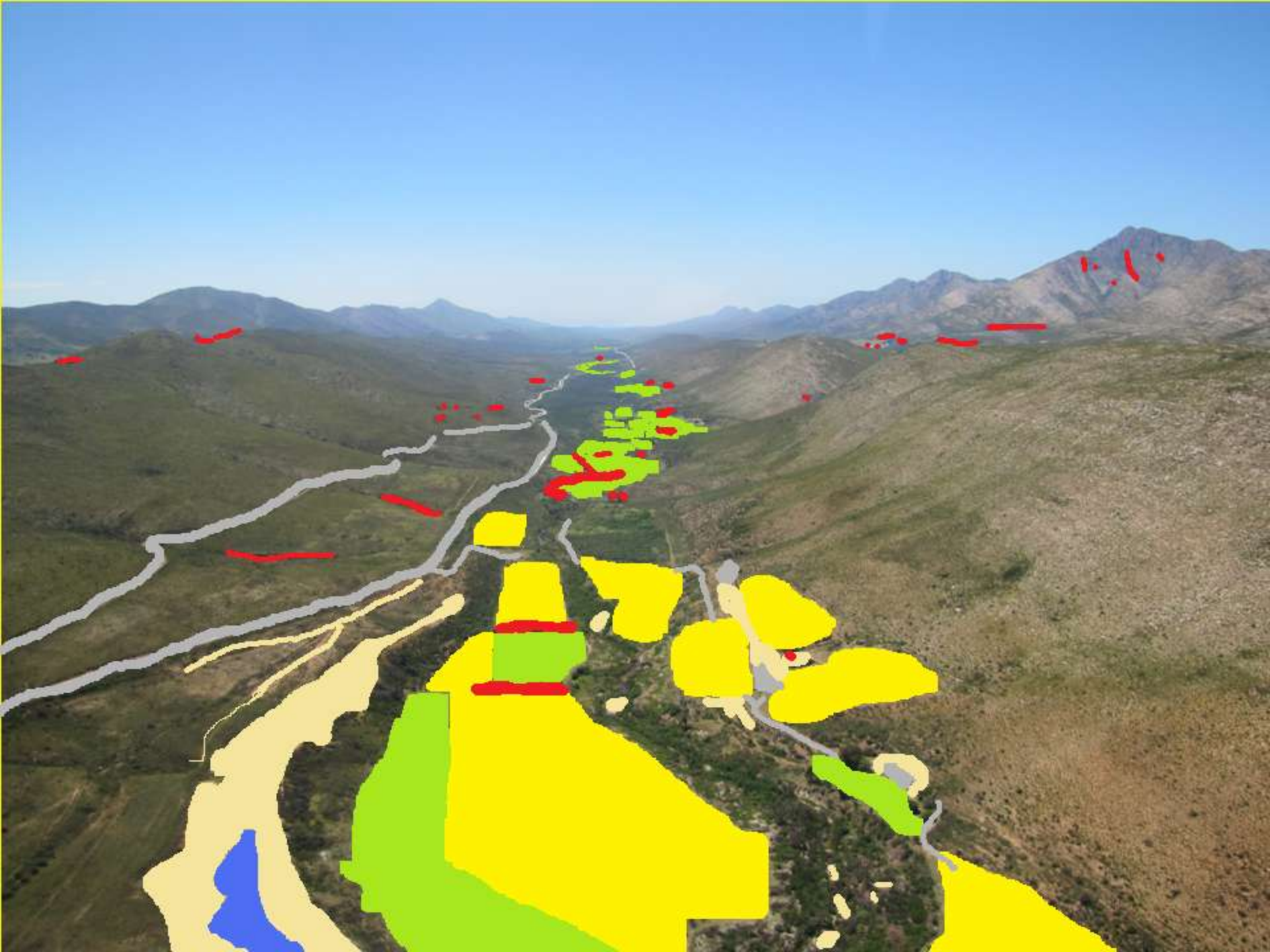


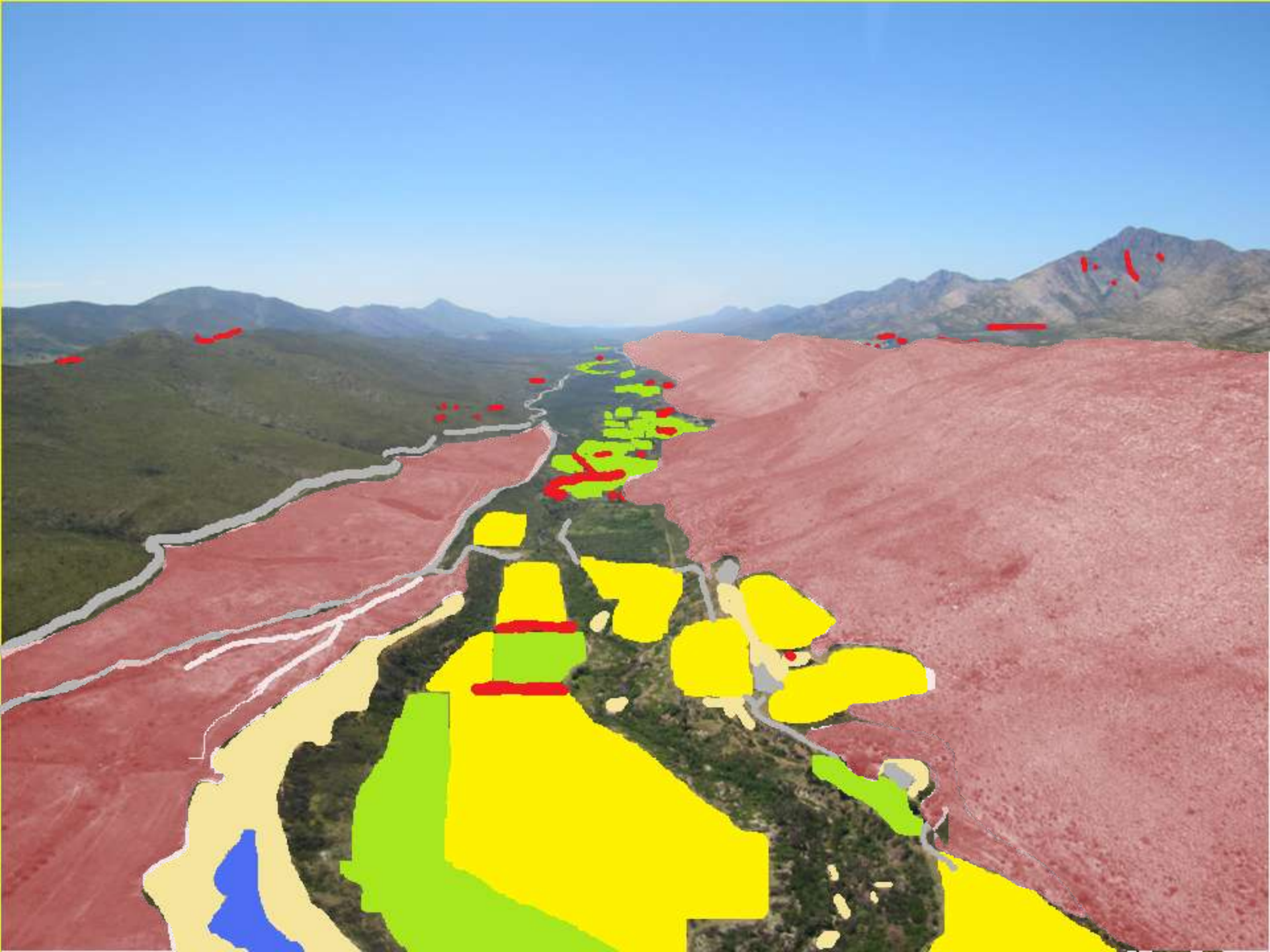


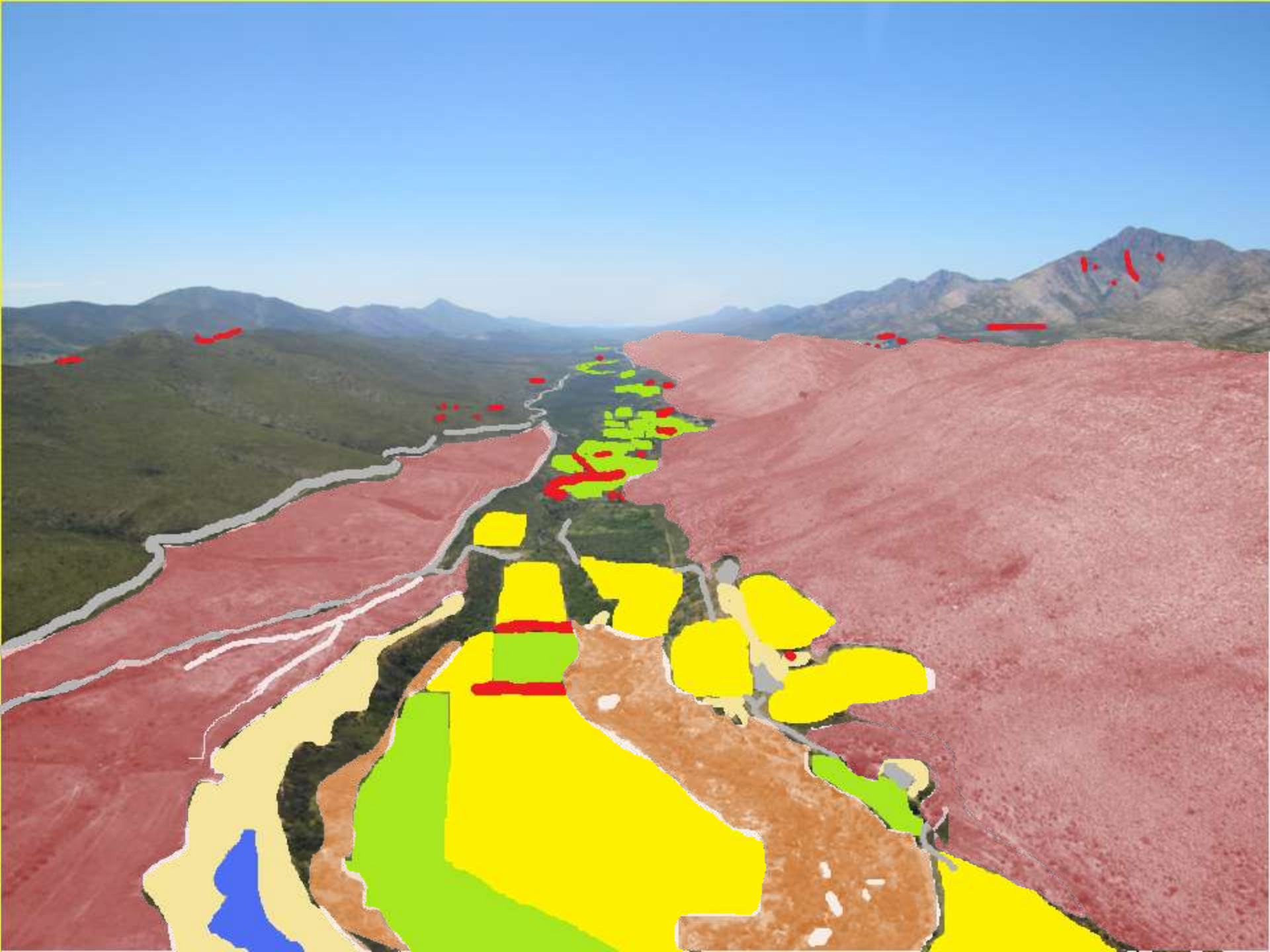






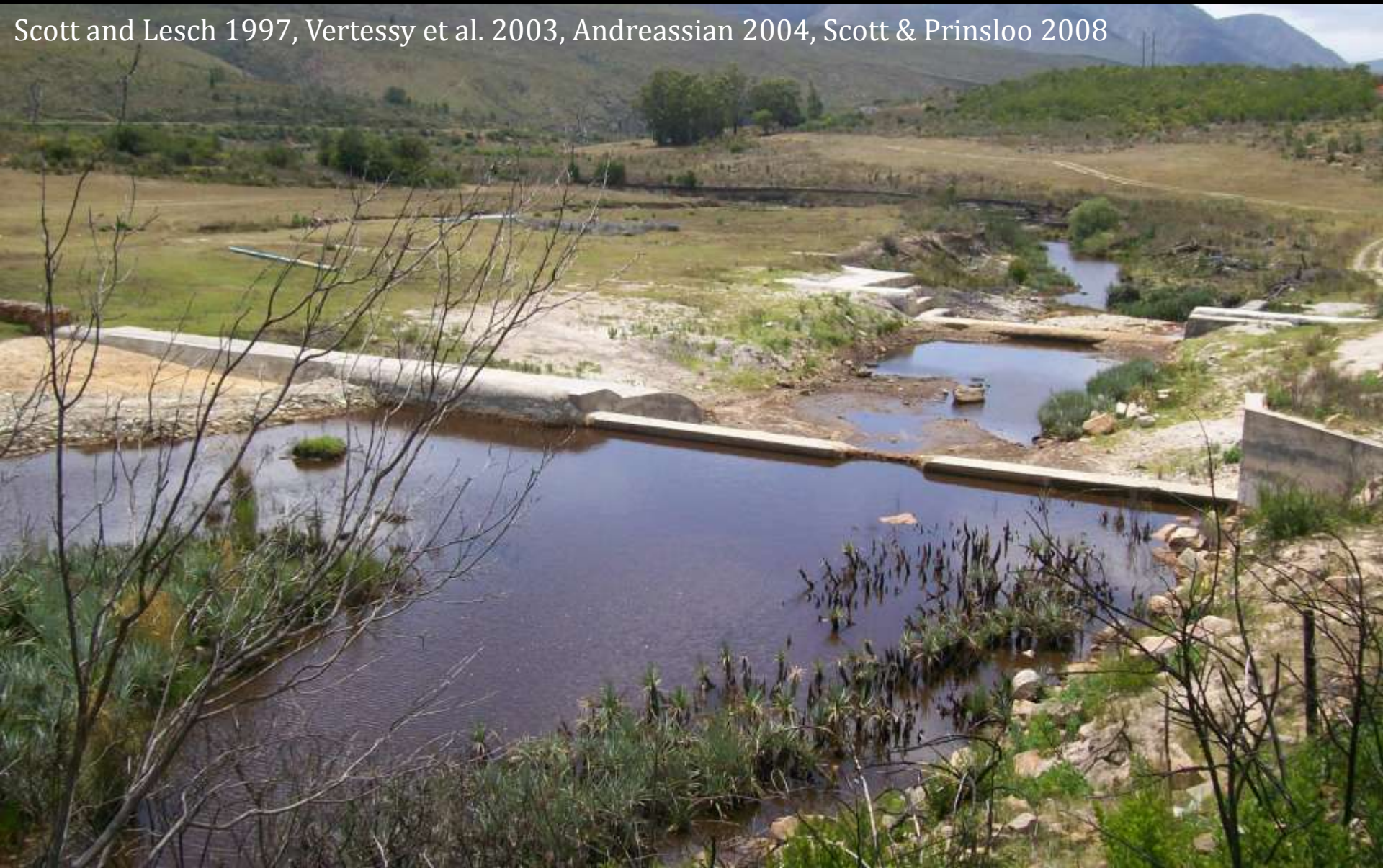






Riverflow

Scott and Lesch 1997, Vertessy et al. 2003, Andreassian 2004, Scott & Prinsloo 2008



River channel structure



Rowntree 1991, Vanacker et al. 2007

Baseflow



Andreassian 2004, Hibbert 1971, McGuinness & Harrold 1971, Scott & Lesch 1997

Extreme events -floods




Scott et al. 2004, Descheemaeker et al. 2006

Impact of aliens: Yield



Research Questions:

1. Geomorphology?
2. Riverflow?
3. Extreme events?
4. Baseflow?
5. Water Quality?



Ecosystem
Goods and
Services

Methods

Methods:

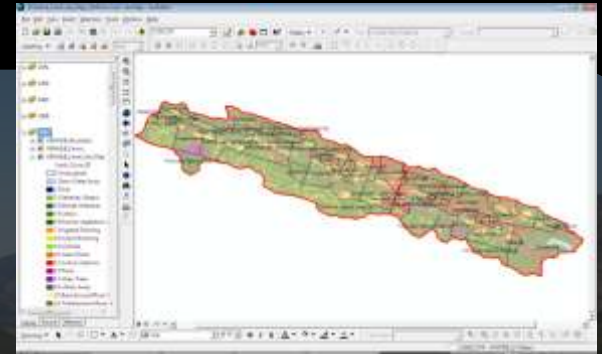
1. Mapping Land-use

2. Social Study

3. Modelling River Flow

Methods:

1. Mapping Land-use

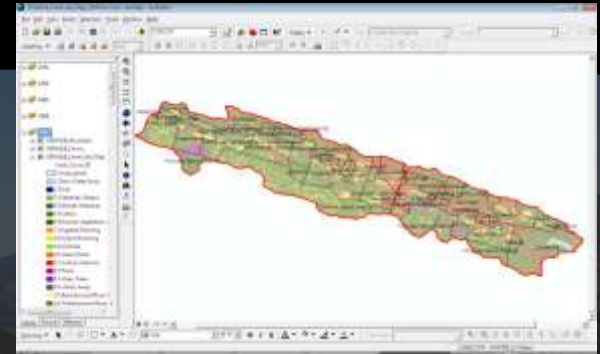


2. Social Study

3. Modelling River Flow

Methods:

1. Mapping Land-use



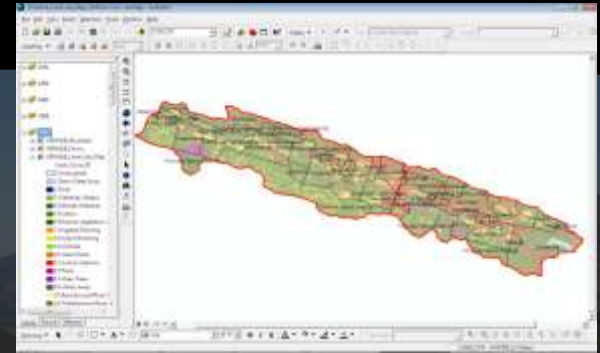
2. Social Study



3. Modelling River Flow

Methods:

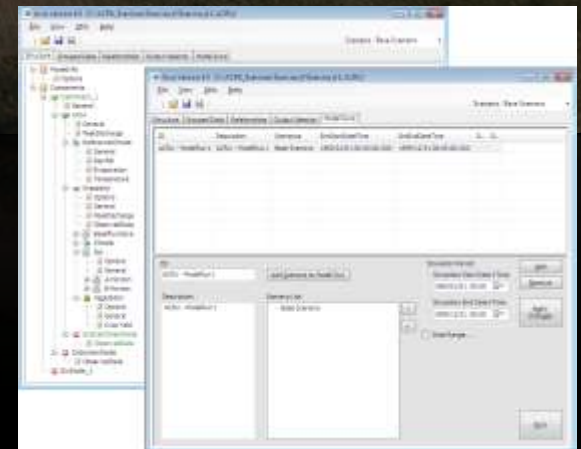
1. Mapping Land-use



2. Social Study

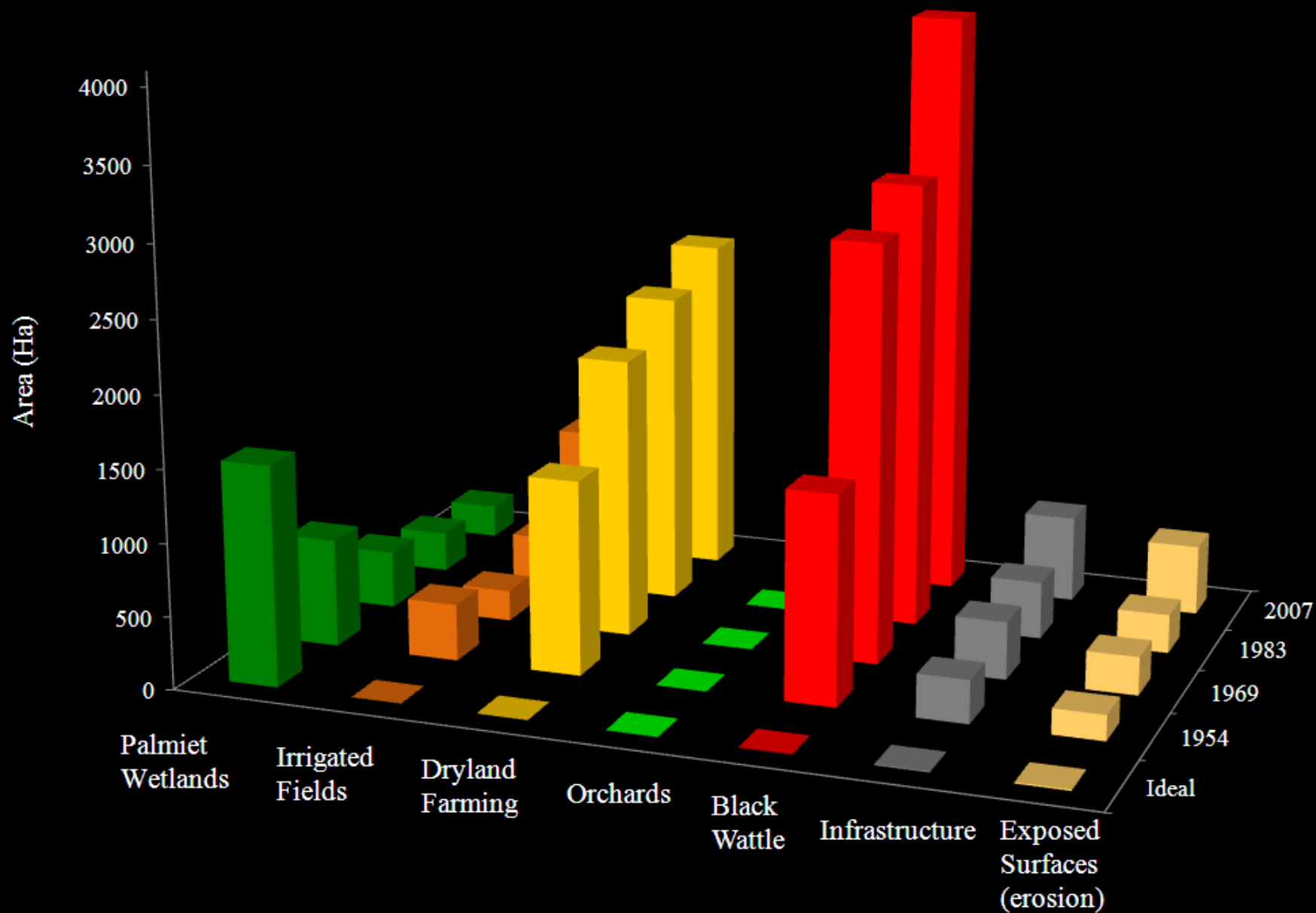


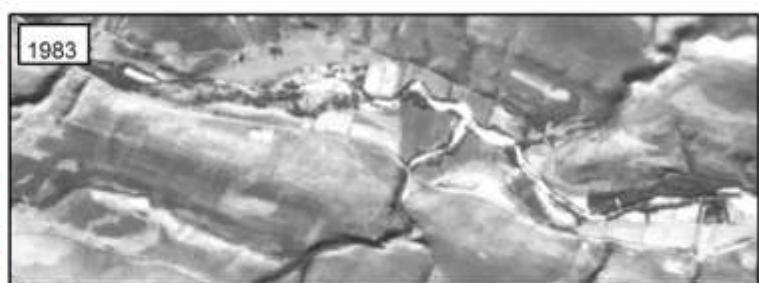
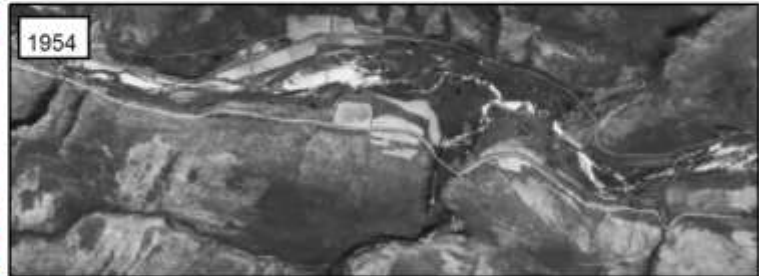
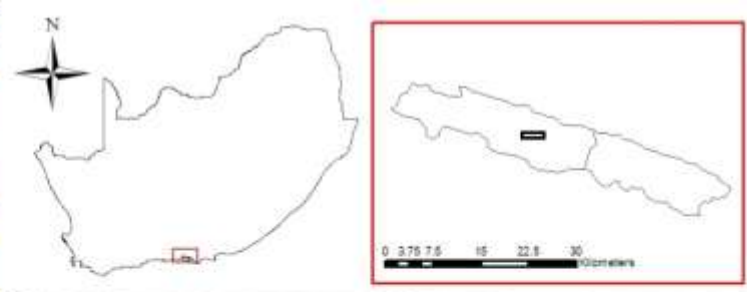
3. Modelling River Flow

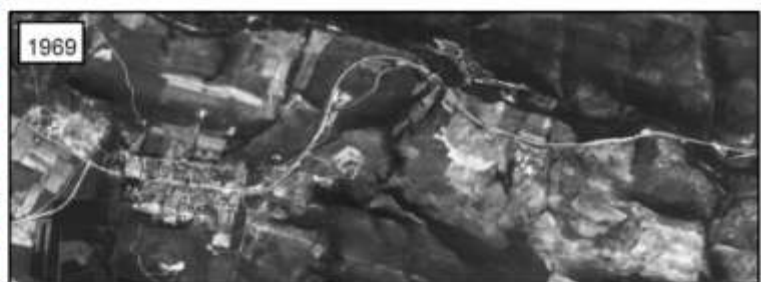
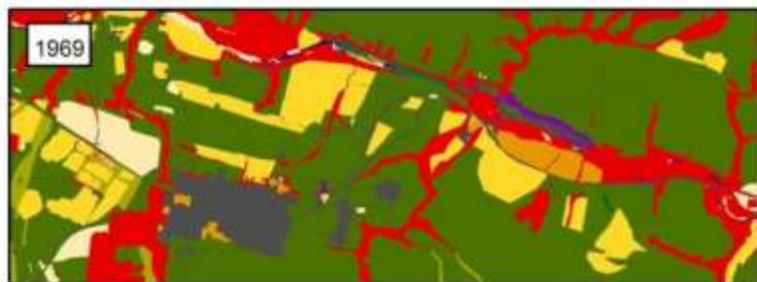
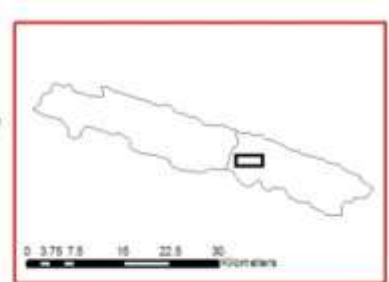
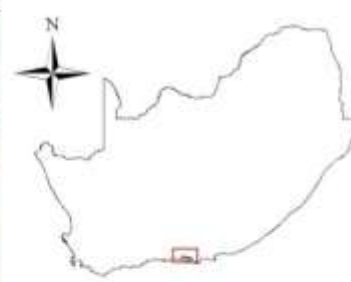


Results

Change in Land-use: 1954 - 2007



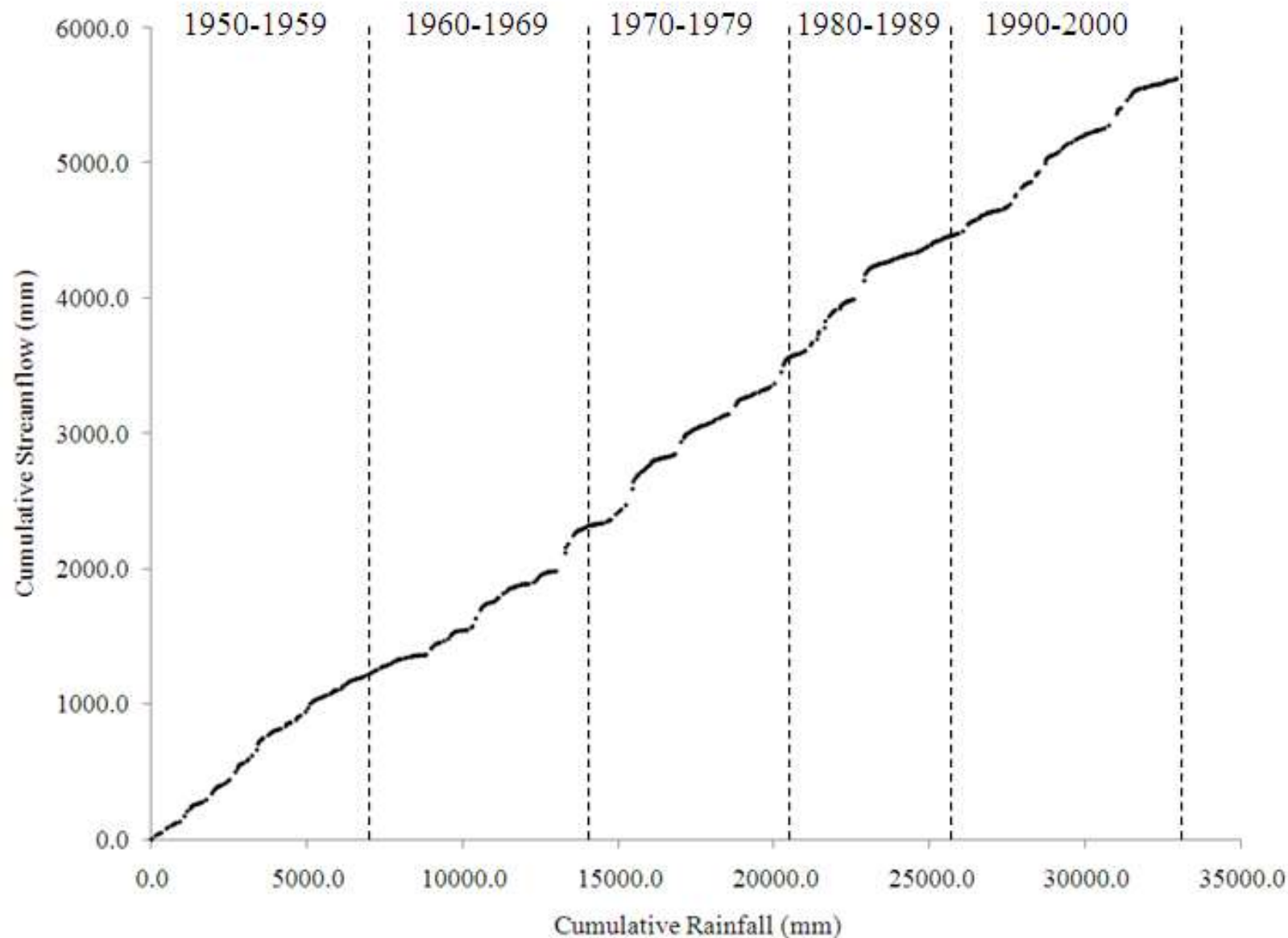




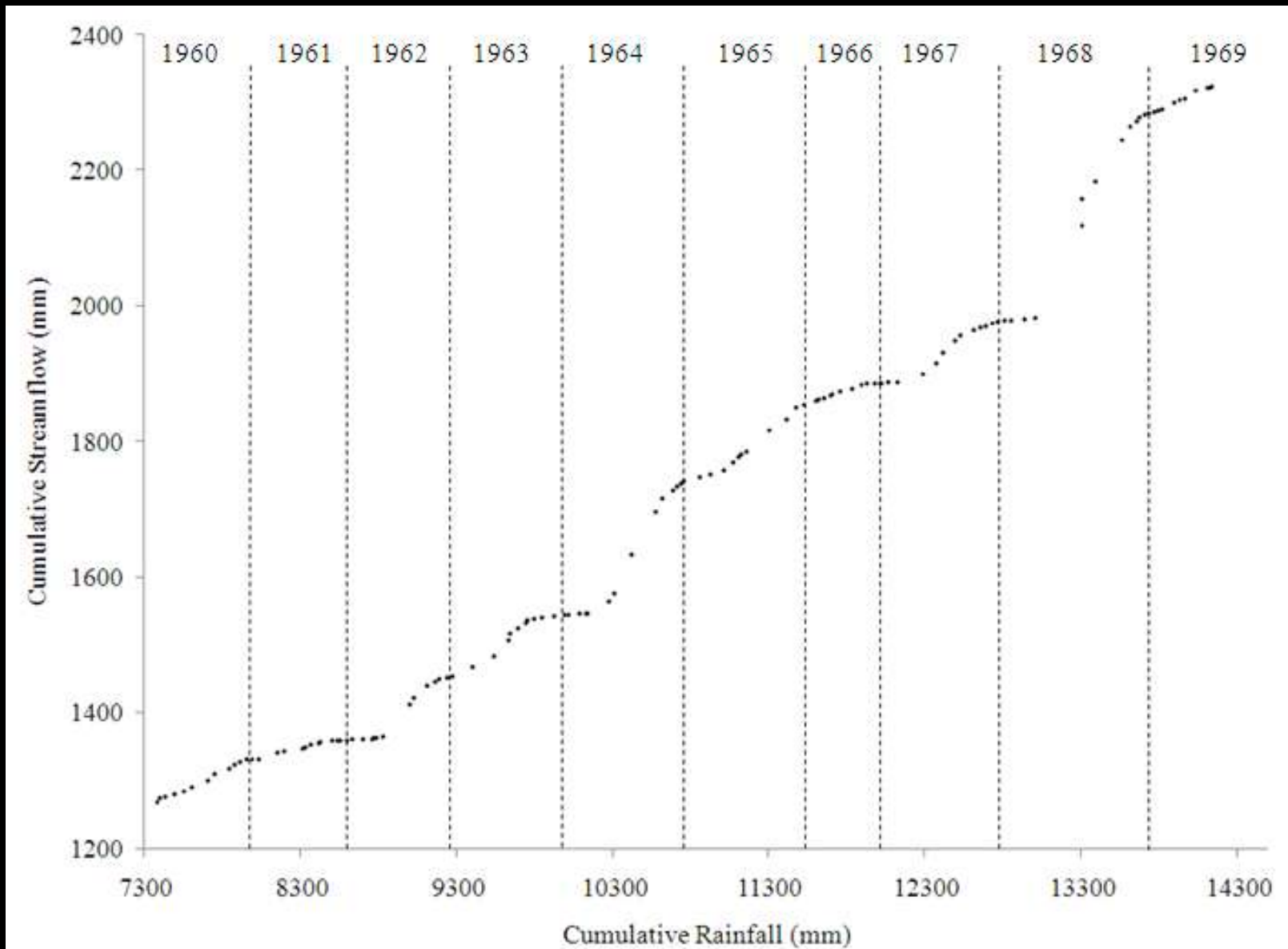
Question 1:

Riverflow?

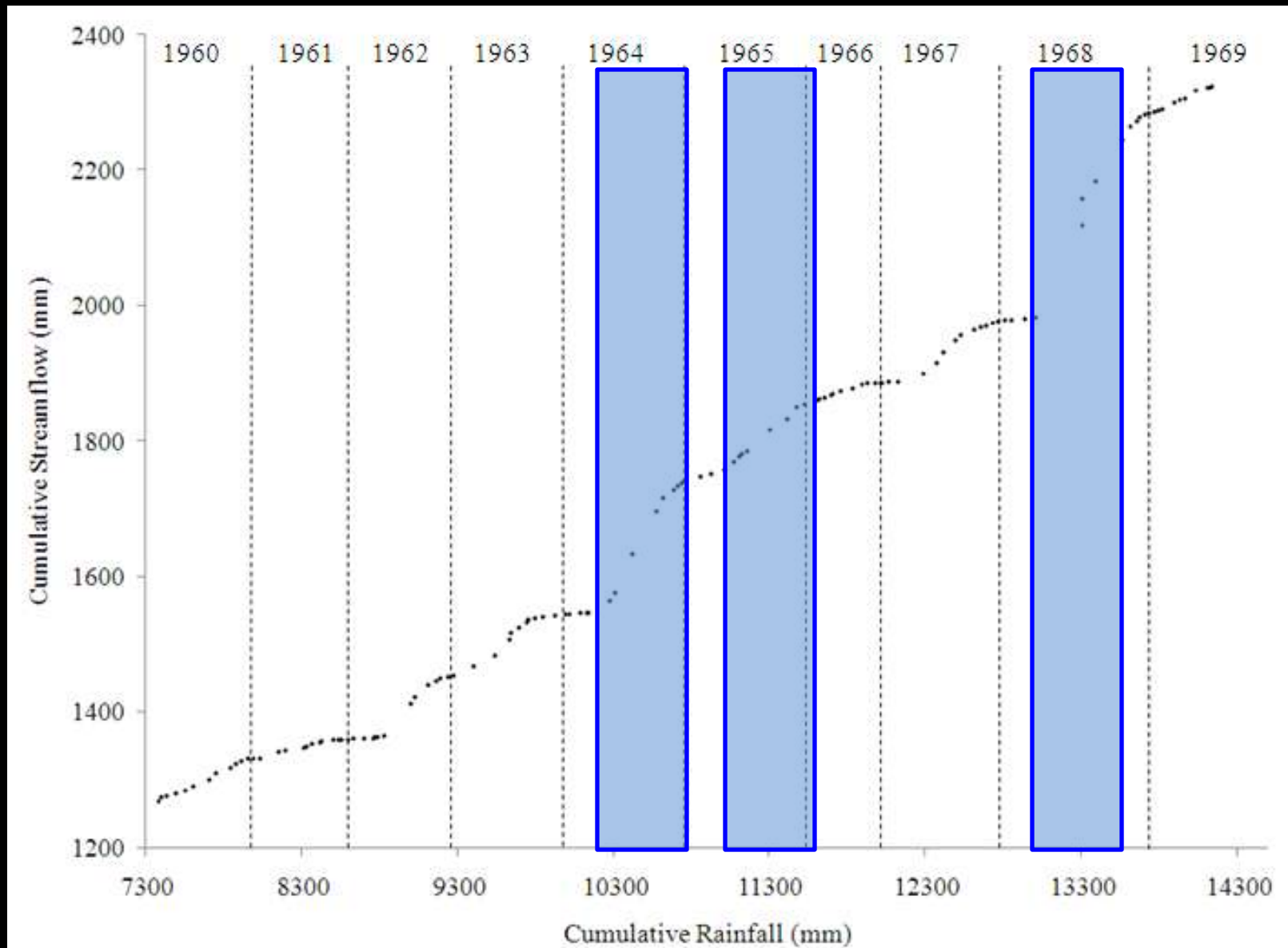
Rainfall/River relationship: 1950-2000



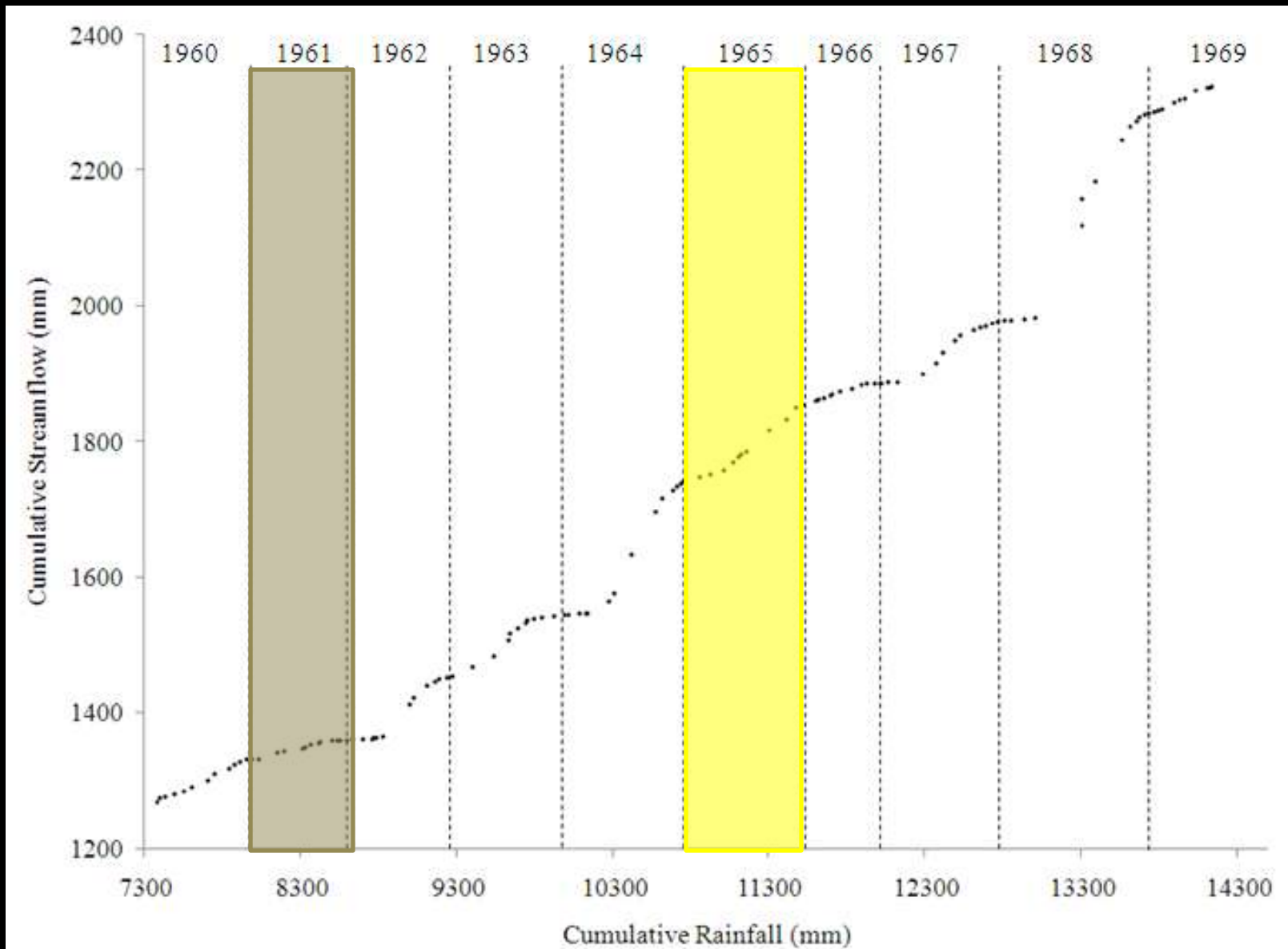
1960s



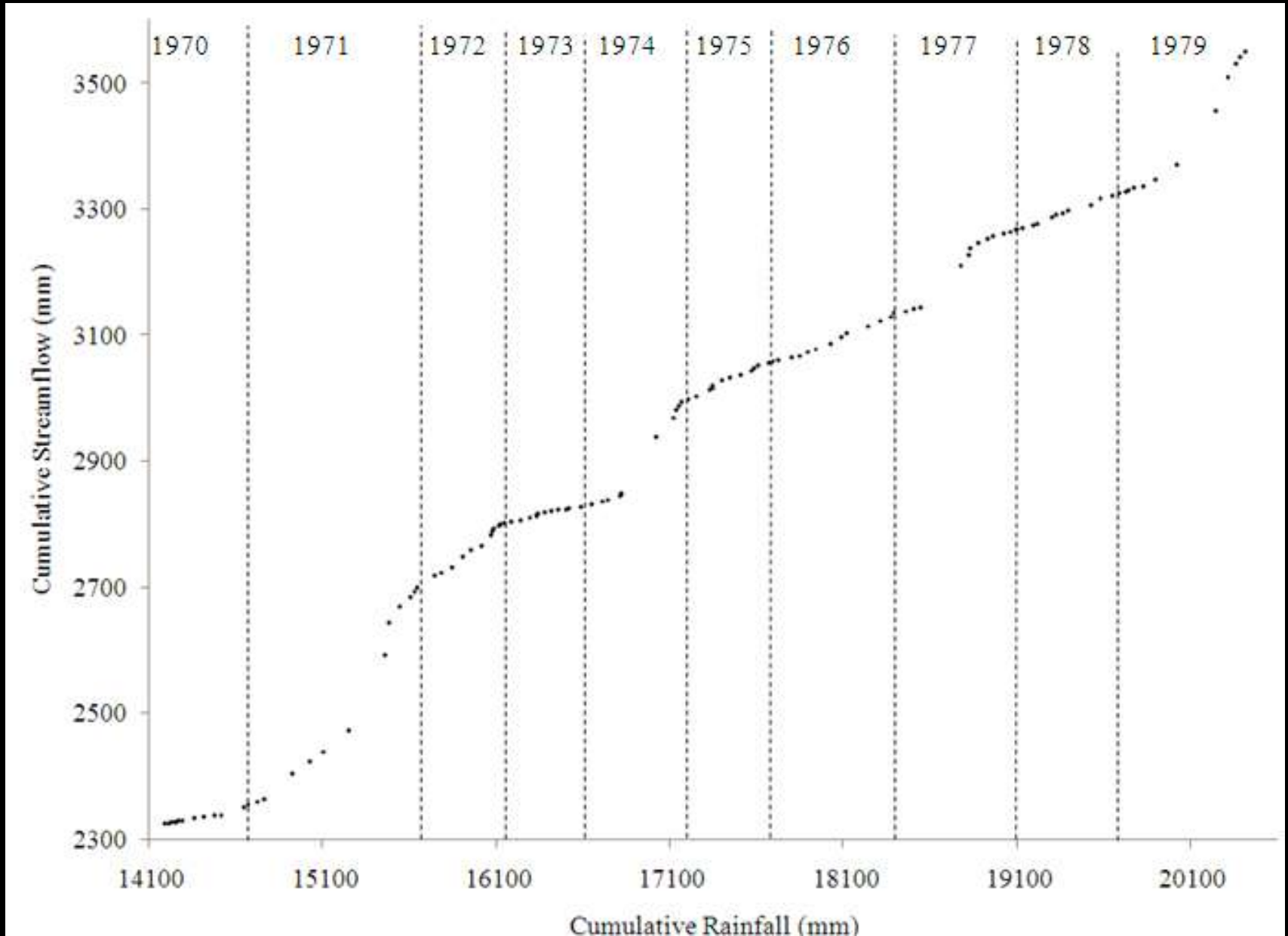
1960s



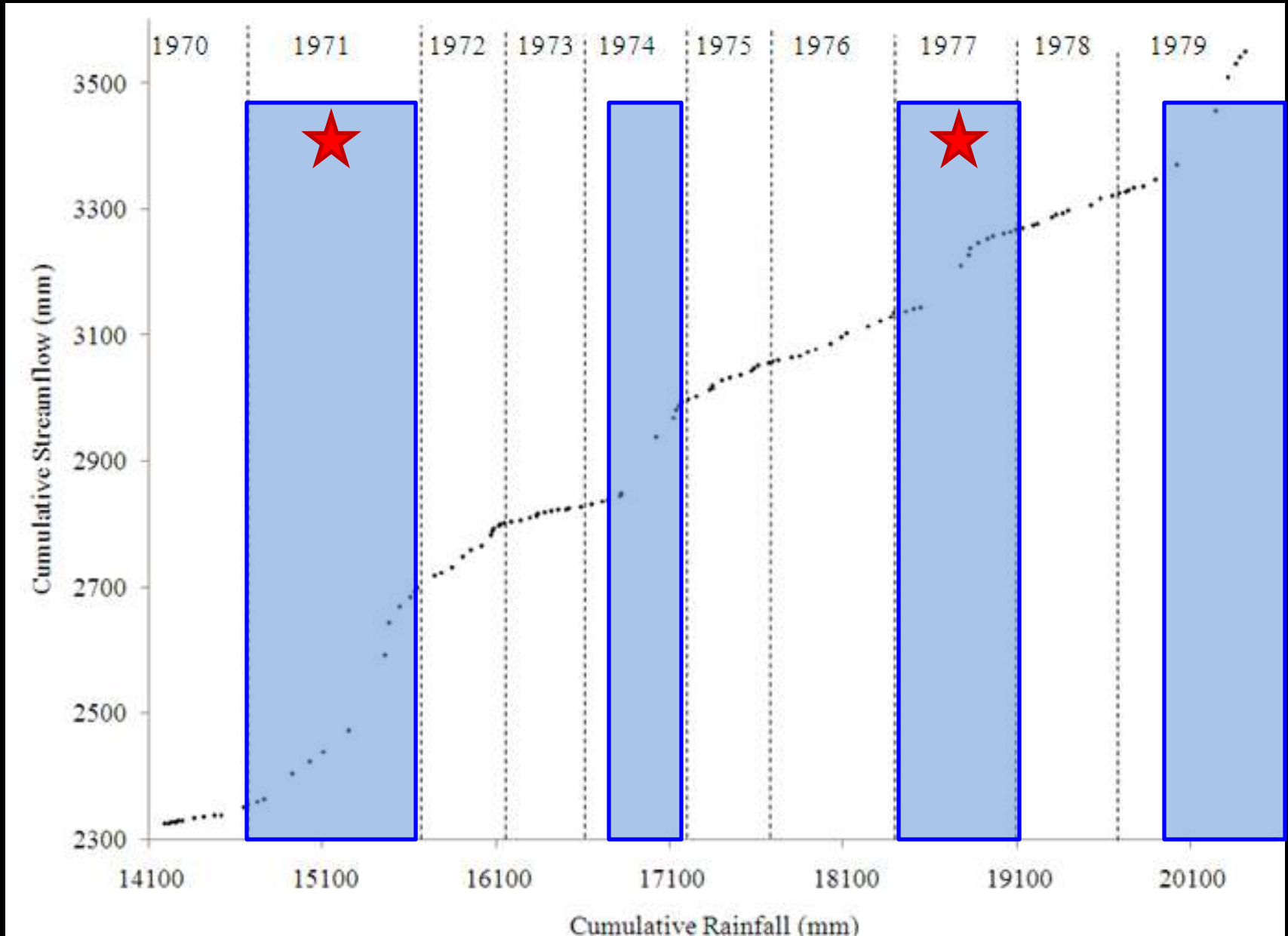
1960s



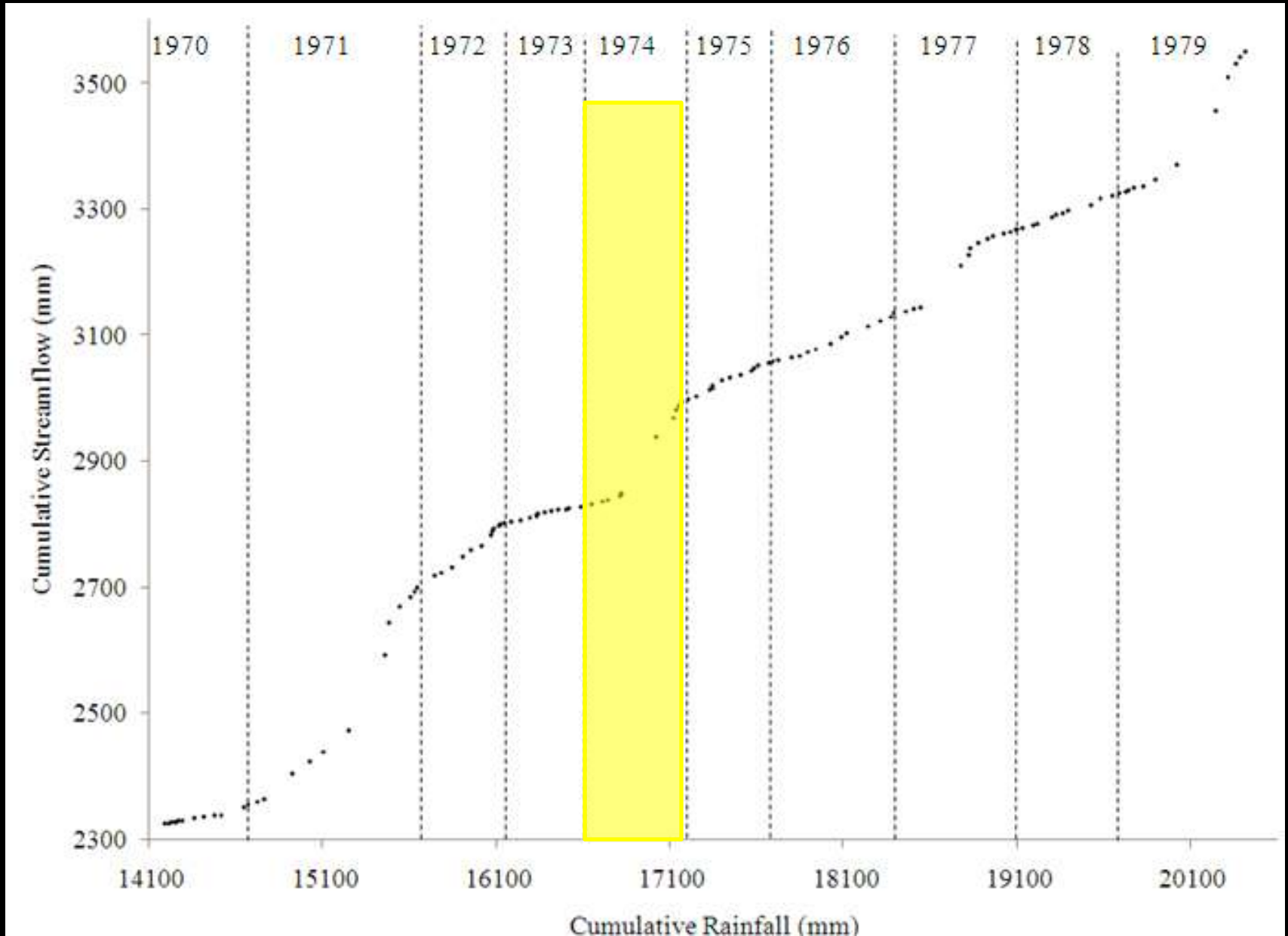
1970s



1970s



1970s



Problems with the ACRU Model

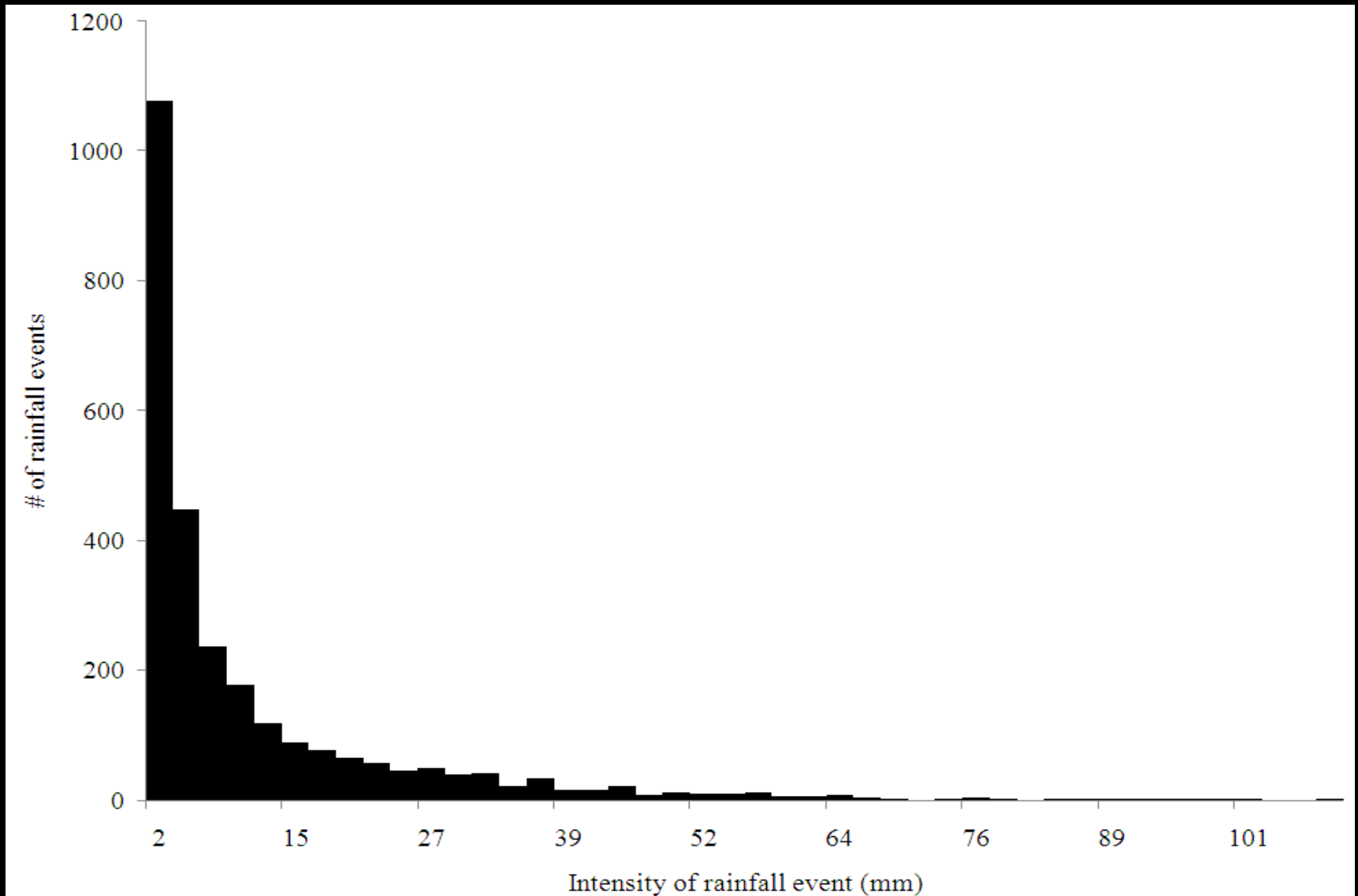
	<i>Black Wattle</i>		<i>Palmiet</i>	
	Et Potential	Et Actual	Et Potential	Et Actual
ACRU	1162.11	402.72	-91.73	1741.47
Literature	-	1380	-	1060



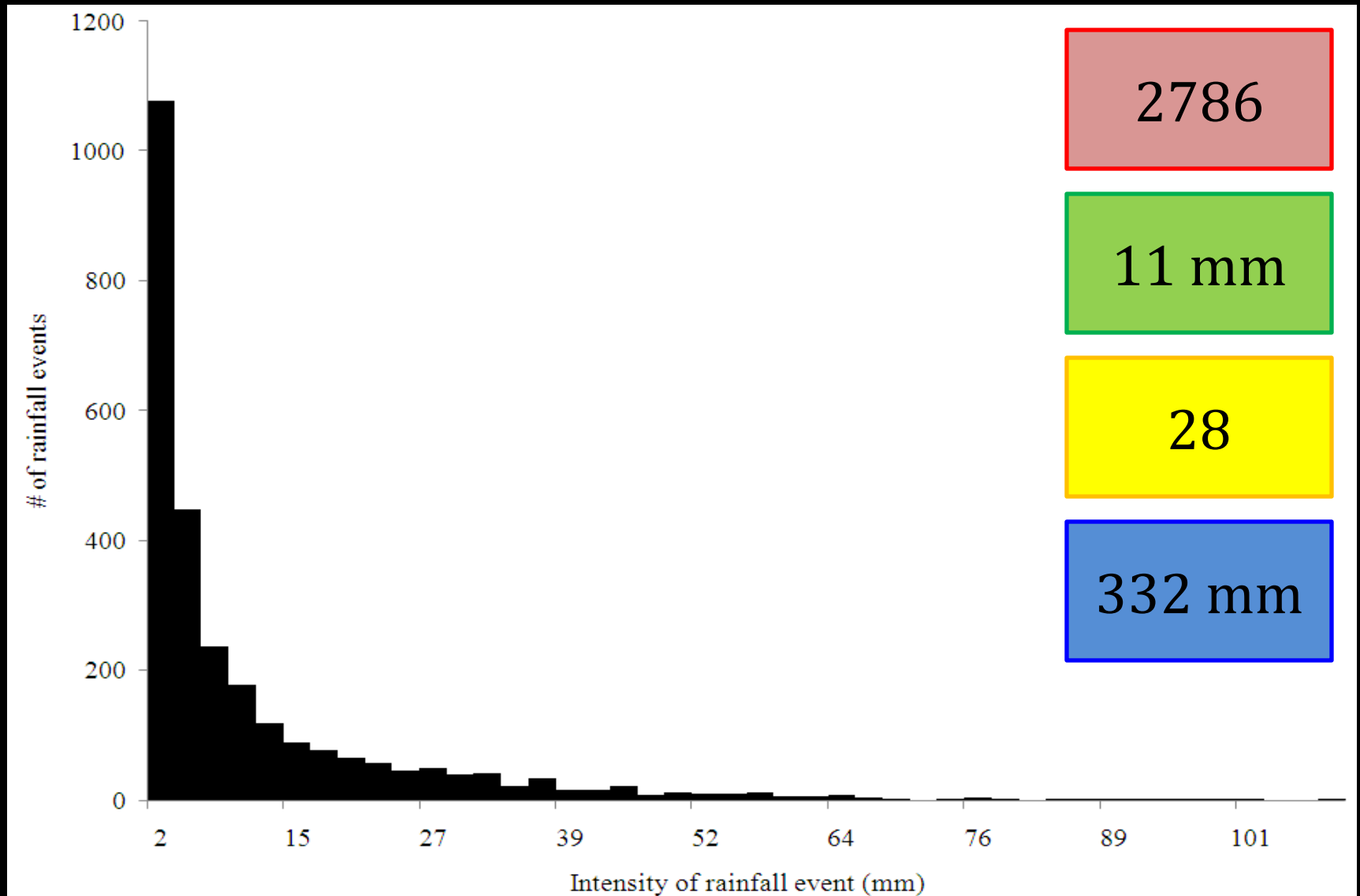
Question 2:

Extreme events?

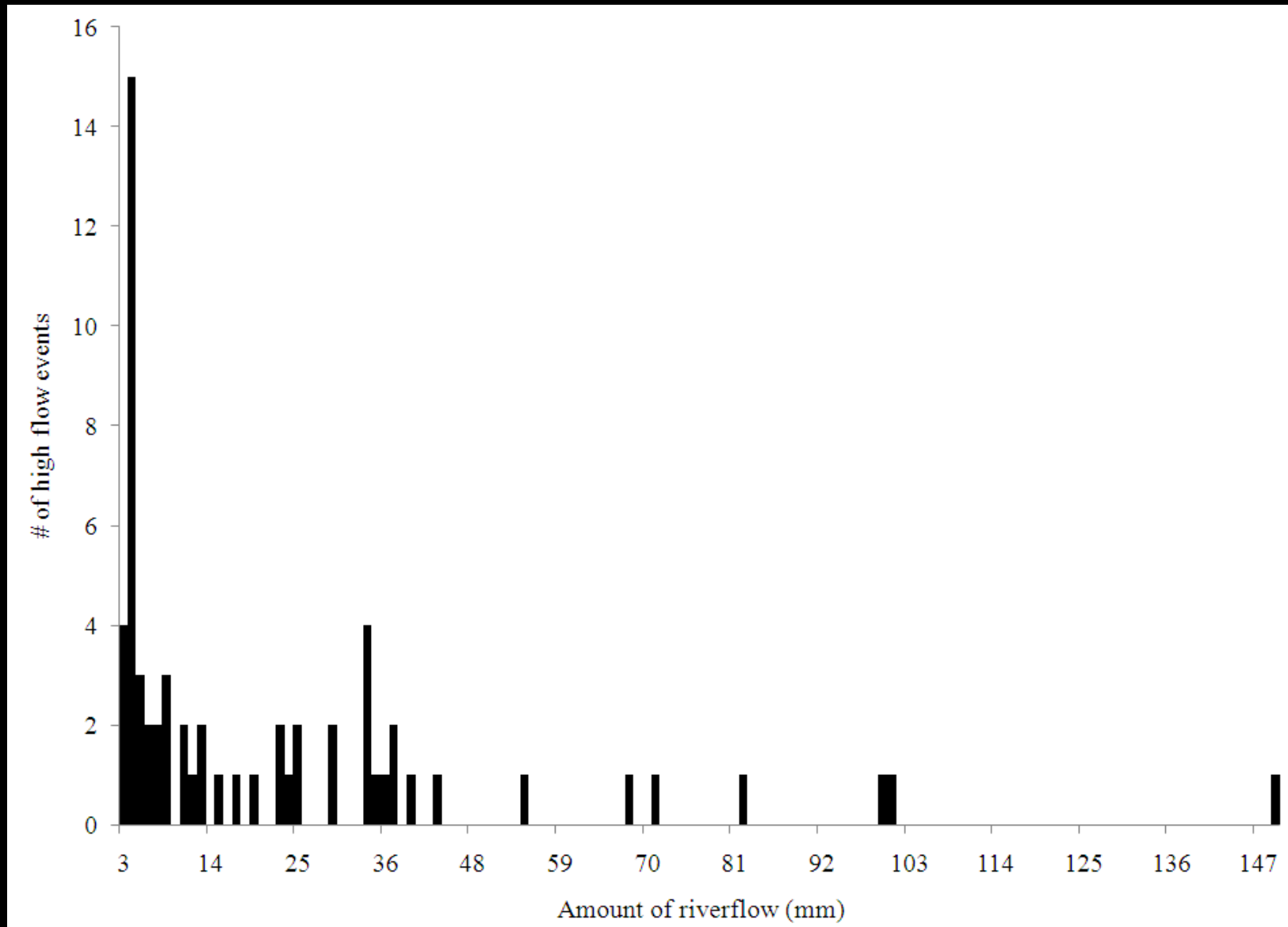
Heavy Rainfall Events



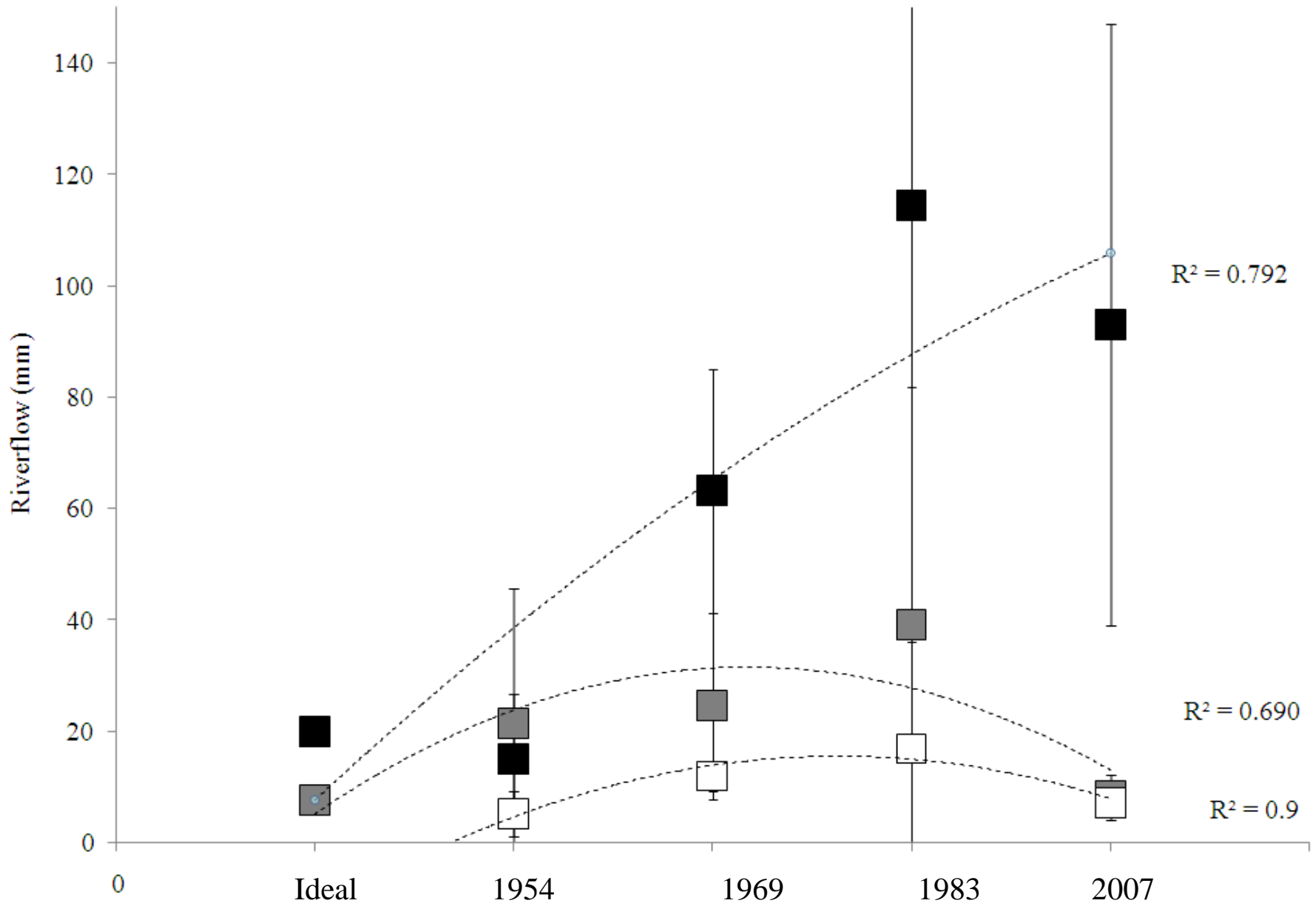
Heavy Rainfall Events



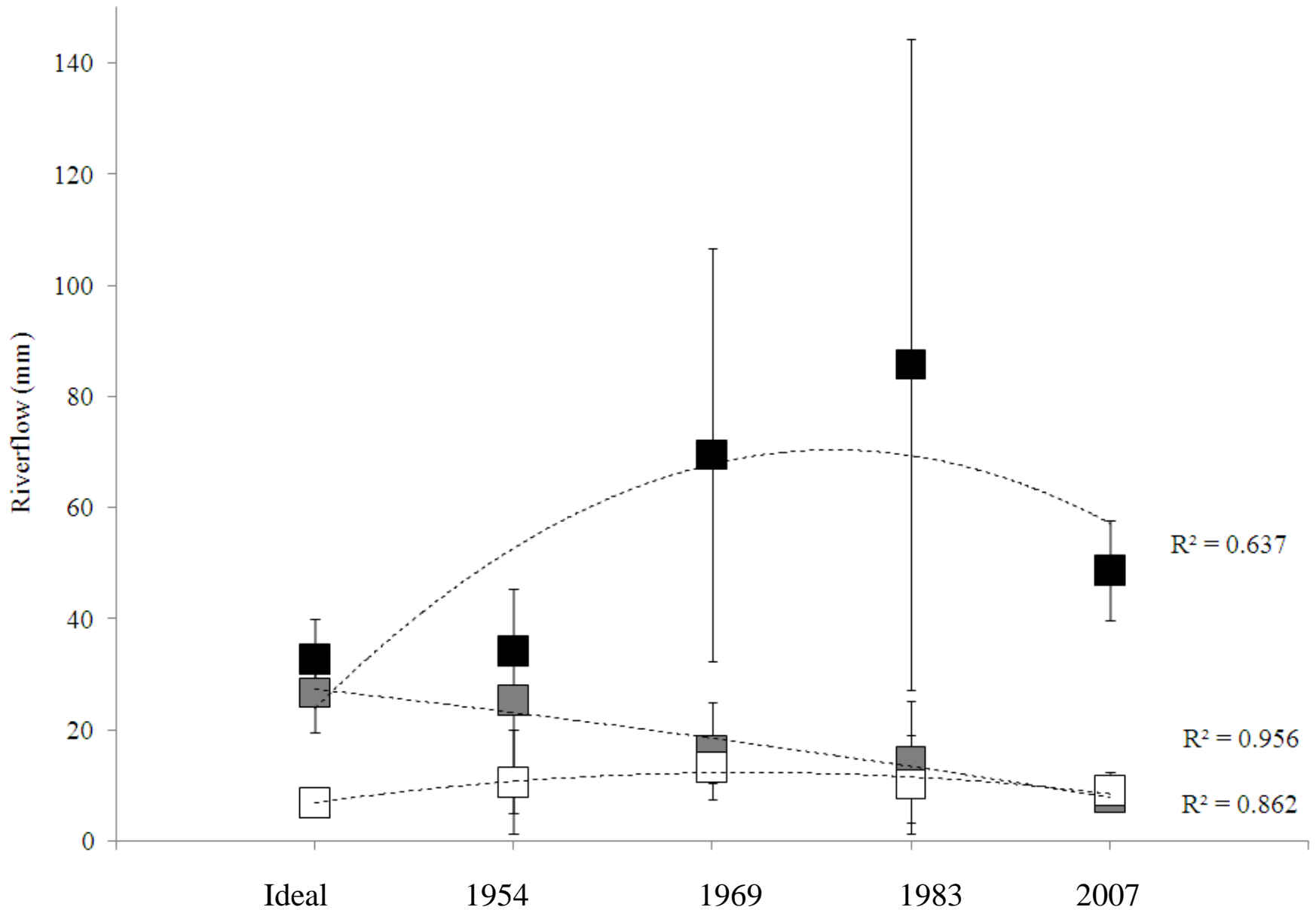
High Flow Events



High Flow Events



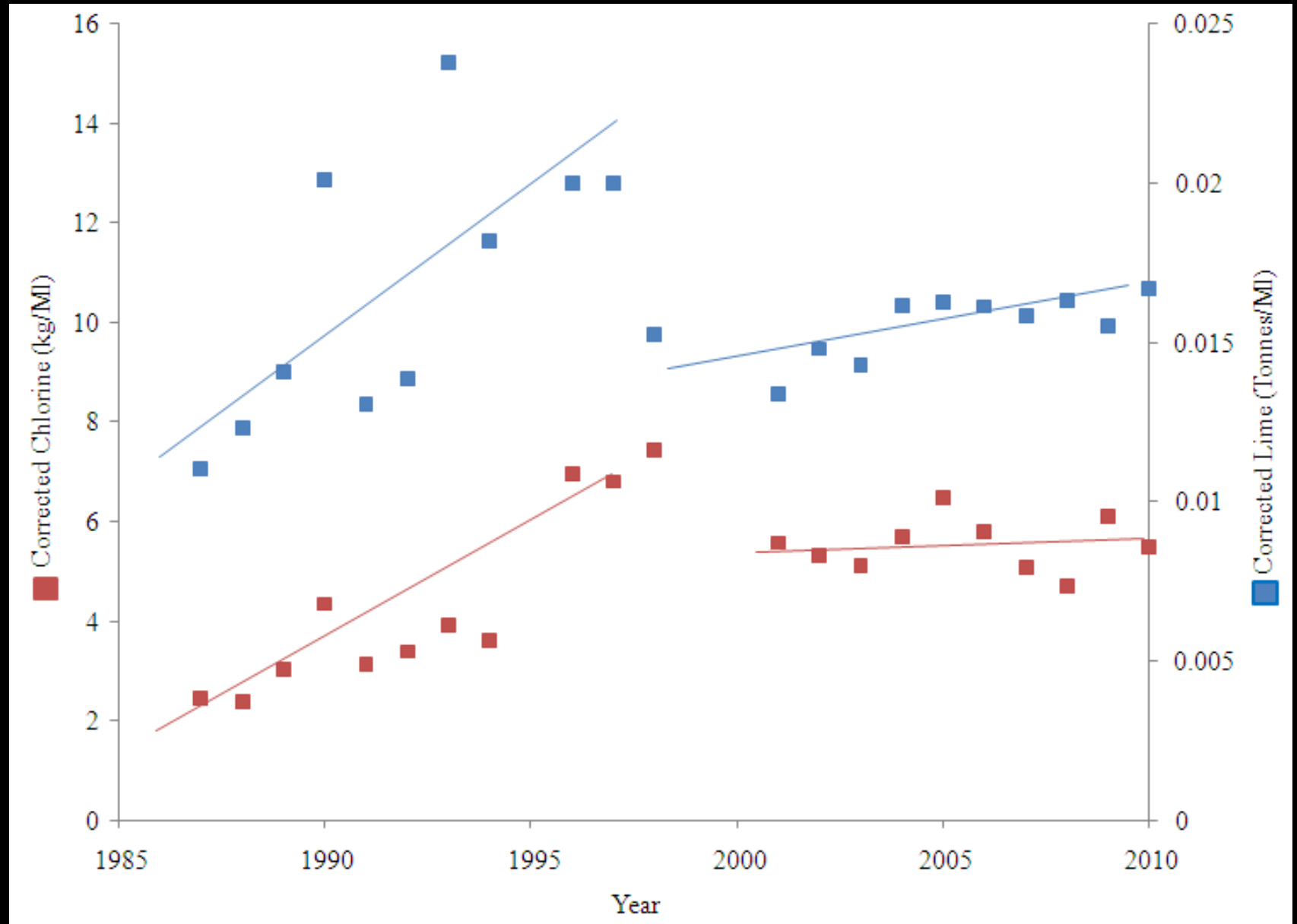
High Flow Events



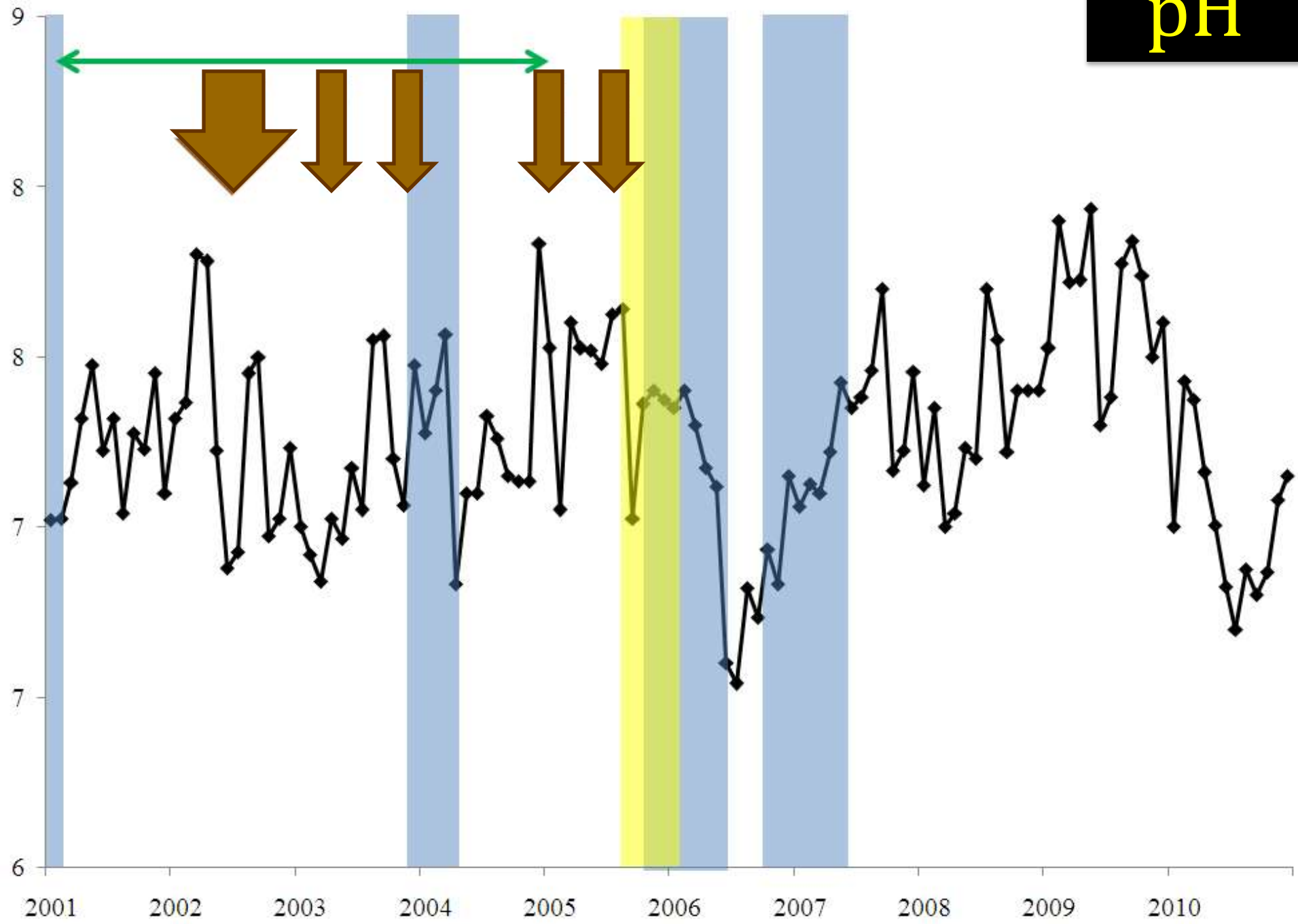
Question 3:

Water Quality?

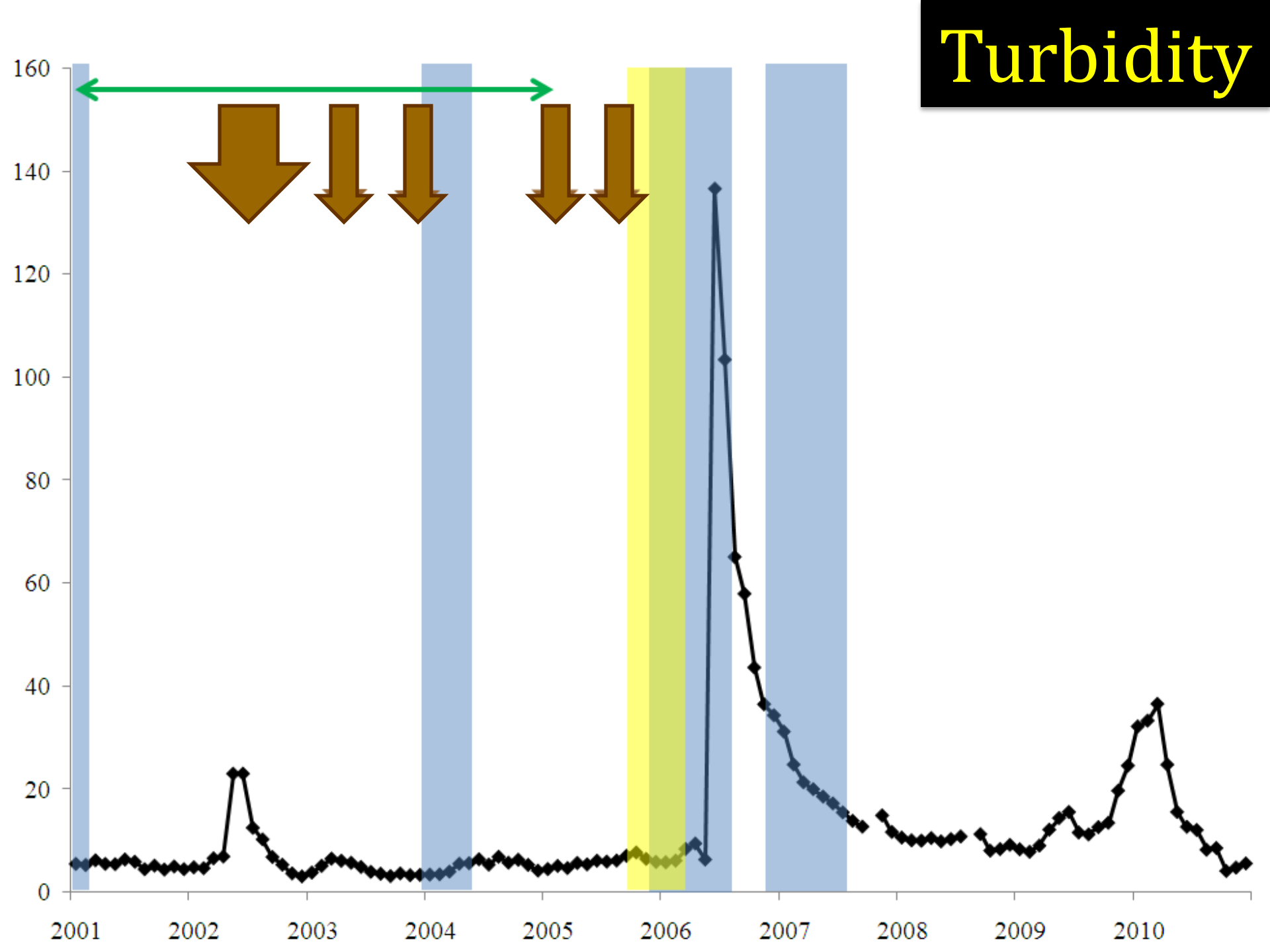
Impacts of restoration on water quality



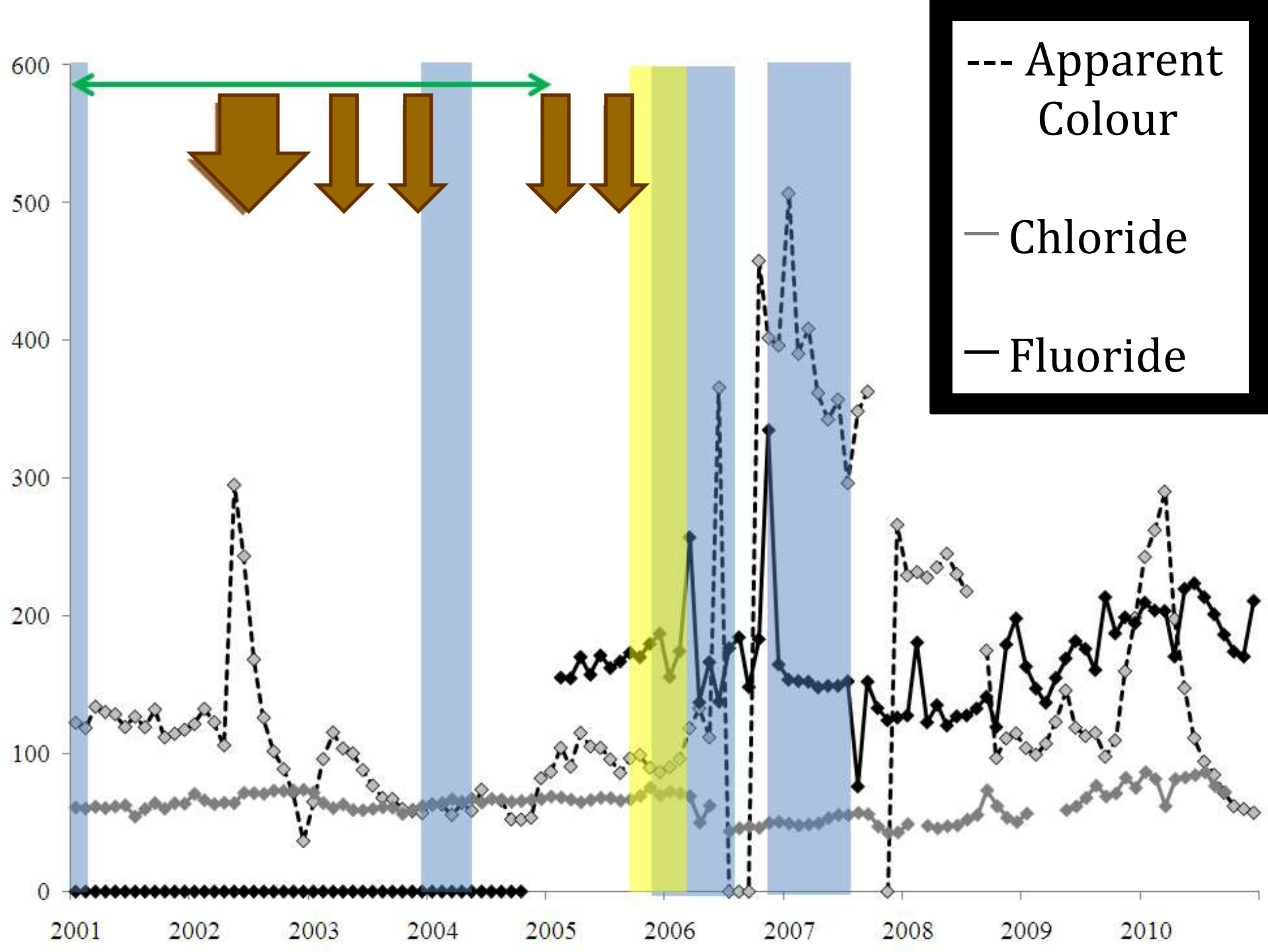
pH



Turbidity







Payments for Ecosystem Services



Katie Gull

Networking & Communication

www.earthcollective.net



lovinglands



Any Questions?

