

# TEMPORAL TRENDS IN KENYAN SMALLHOLDER SETTLEMENT SCHEME ALLOCATION (1962 – 2015)

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## INTRODUCTION

Settlement schemes are government-allocated plots of land transferred from colonial Europeans to Kenyan smallholders. The creation of smallholder settlement schemes played a critical role in the postcolonial development of Kenya (Boone, 2011). Initially designed to reallocate land from colonial powers to landless and unemployed Kenyans post-independence (Boone, 2011; Leo, 1978), settlement schemes later became a highly contested issue as land has become scarce.

This study focused on settlement schemes in the former Rift Valley province of Kenya, specifically in the counties of Baringo, Bomet, Bungoma, Kakamega, Kericho, Laikipia, Nakuru, Nandi, Trans Nzoia, and Uasin Gishu. In this region, the primary agricultural products are maize, wheat, barley, oats, sisal, and livestock such as dairy cattle, sheep, pigs, and poultry (Morgan, 1963).

## OBJECTIVES

- Determine temporal trends in settlement scheme properties such as:
  - Smallholder plot size
  - Allocated land characteristics

## DATA & METHODOLOGY

### Settlement Scheme Data:

Approximately 1,500 individual paper maps were collected, catalogued, georeferenced, and used to digitize the boundaries of 350 smallholder settlement schemes.

The polygons were then joined to allocation data (Lukalo and Odari, 2016). For this study, we examined the 143 known settlement schemes in the former Rift Valley province of Kenya.

### Analysis:

The average plot size of each settlement scheme was determined by dividing the polygon area (GIS-derived) by the number of settler families (reported by Lukalo & Odari, 2016).

Ecological Land Unit data were reclassified to separate bioclimate, landform, lithology, and land cover. Area in each class was tabulated and exported by settlement scheme.

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## RESULTS

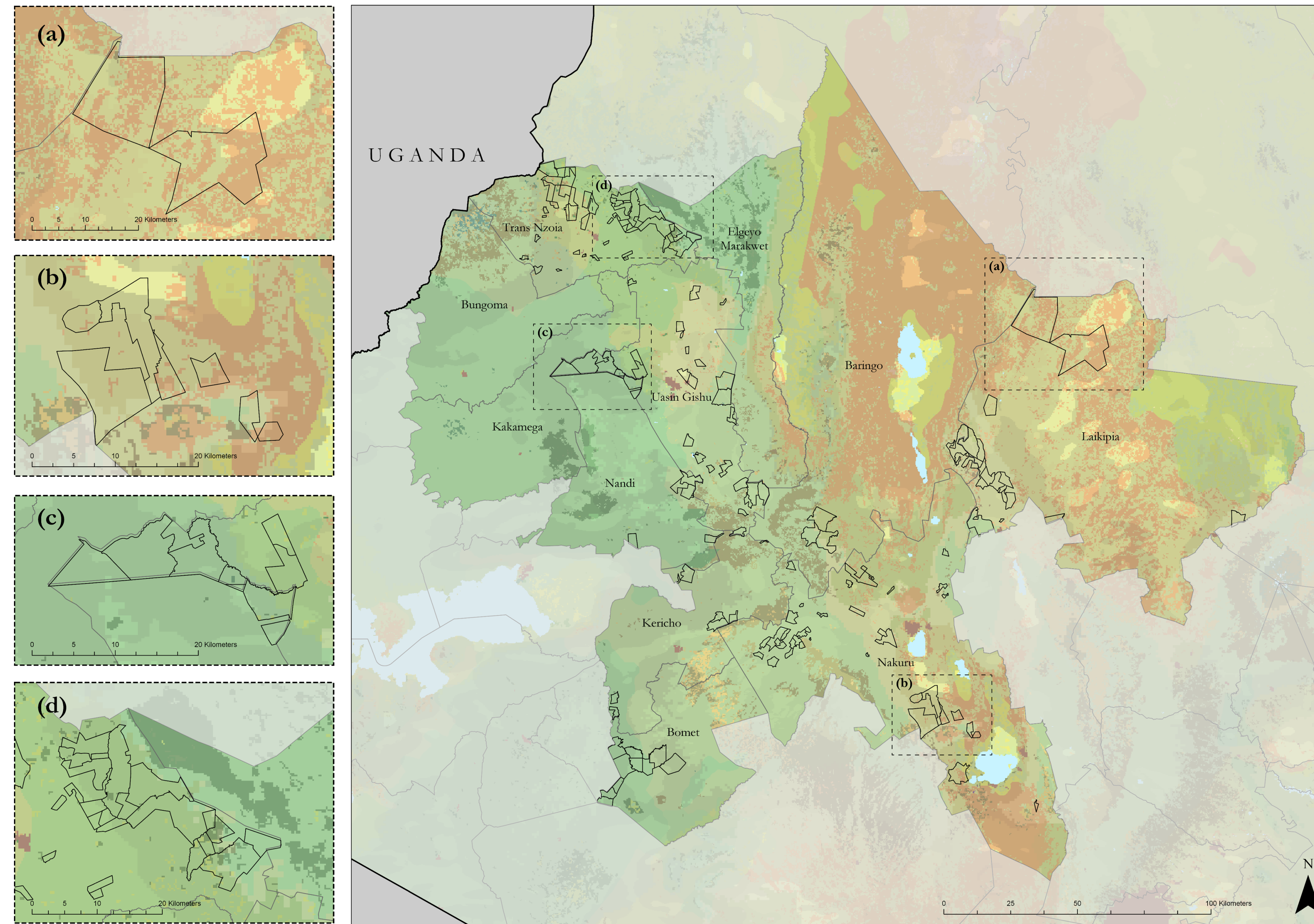


Figure 1: Ecological Land Units (Sayre et al., 2014) in Kenyan Rift Valley settlement schemes of (a) Laikipia, (b) Nakuru, (c) Uasin Gishu, and (d) Trans Nzoia Counties.

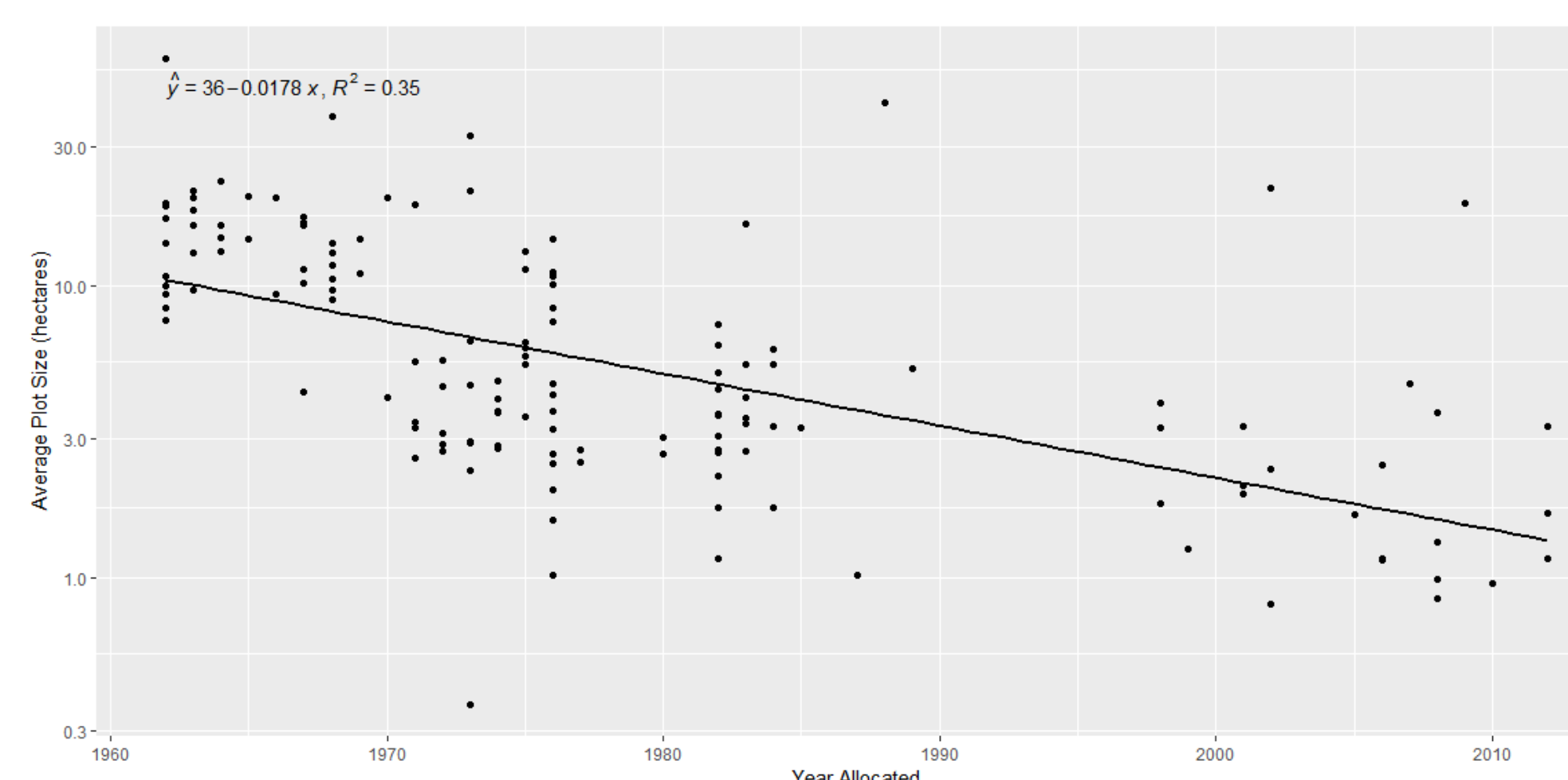
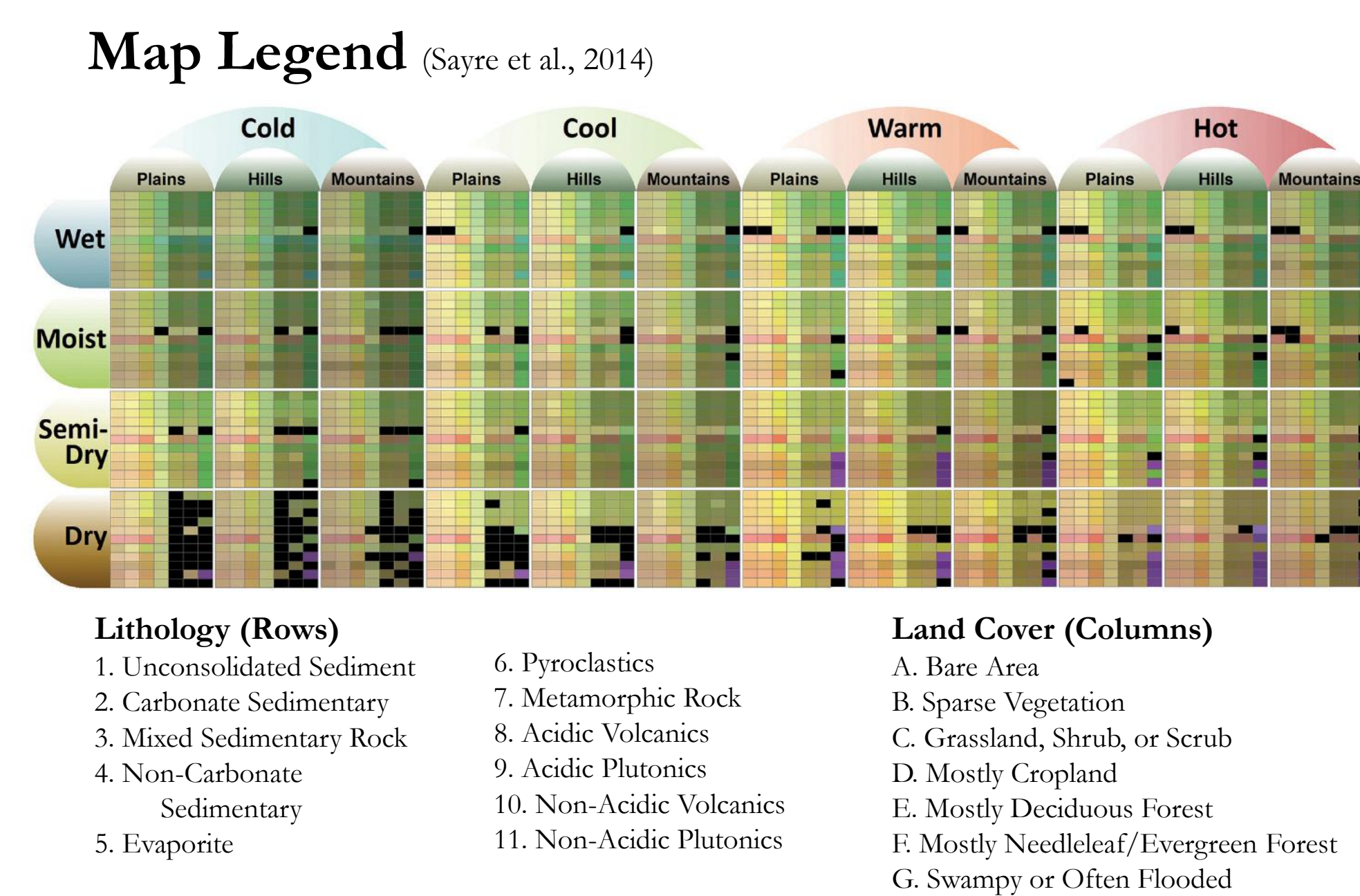


Figure 4: Rift Valley Settlement Scheme average plot size over time.

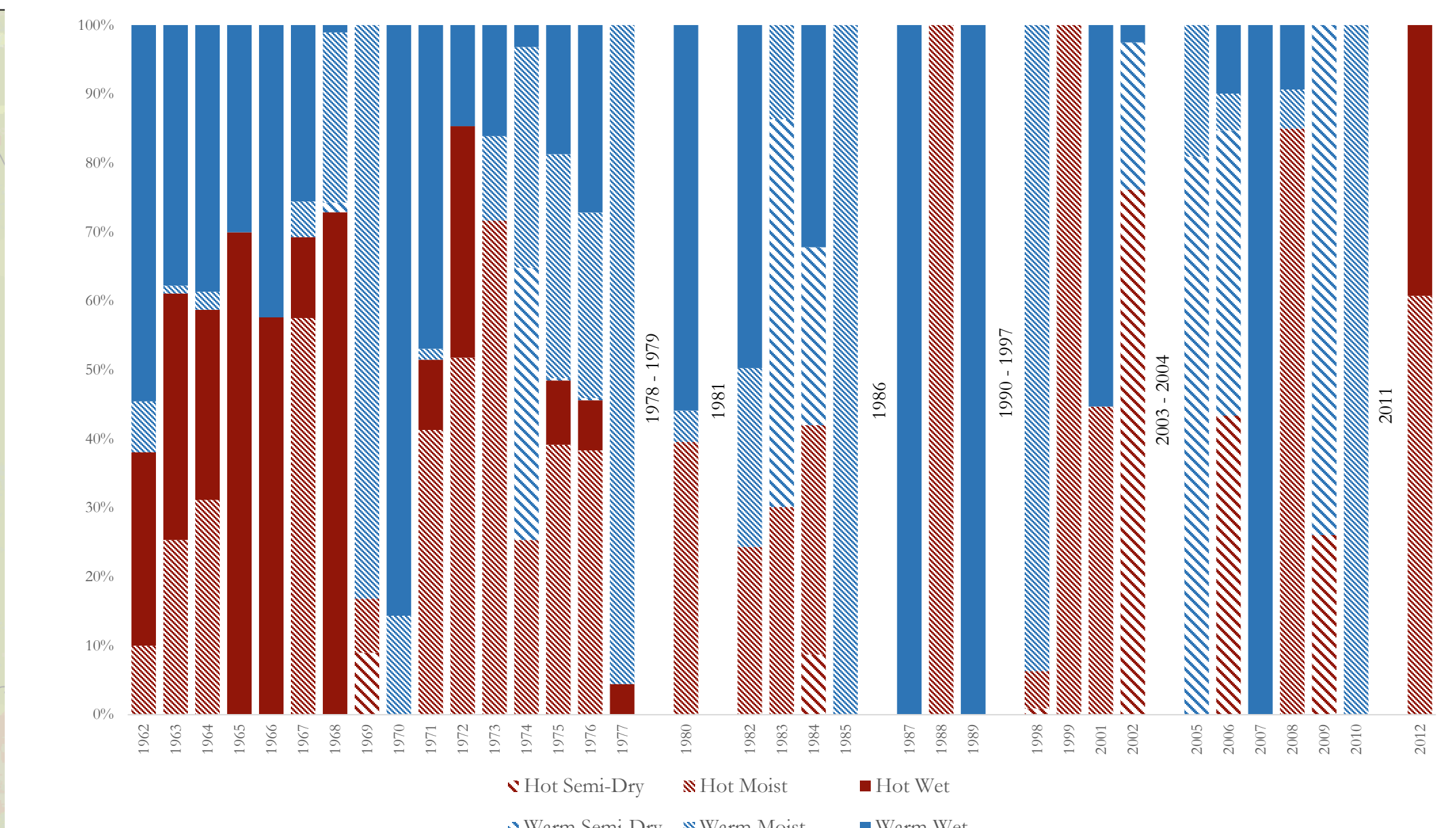


Figure 2: Rift Valley Settlement Scheme Bioclimates over time

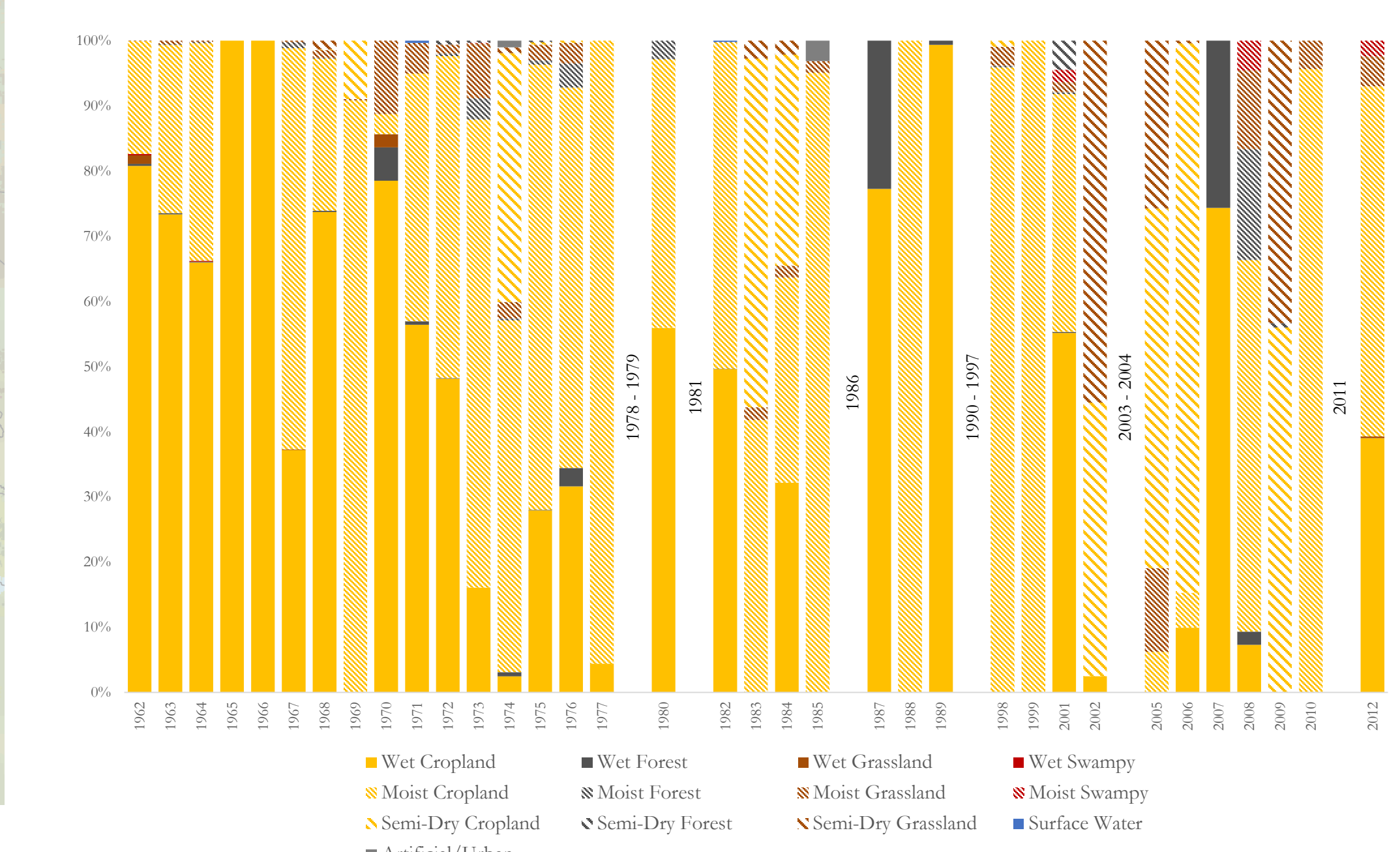


Figure 3: Rift Valley Settlement Scheme land cover and aridity over time.

## DISCUSSION

**Allocated land characteristics:** Aridity of allocated land tended to increase over time (Figures 1, 2, and 3). While earlier schemes were characterized by wet/moist bioclimate, there was an increase in allocation of semi-dry land in later schemes.

Allocated land in 2009 was predominantly cropland (Figure 3). This reflects settlement and cultivation by smallholders. In later settlement schemes, we see increases in allocated grassland and forested land cover types.

**Smallholder plot size:** The average individual's allocated plot in a settlement scheme tended to decline in area over time in the former Rift Valley province (Figure 4). In addition to this region, this trend was also prevalent throughout government-allocated smallholdings across Kenya.

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