



# MAU COMPLEX UNDER SIEGE

## Values and threats

**A presentation by:**

UNITED NATIONS ENVIRONMENT PROGRAMME

KENYA WILDLIFE SERVICE

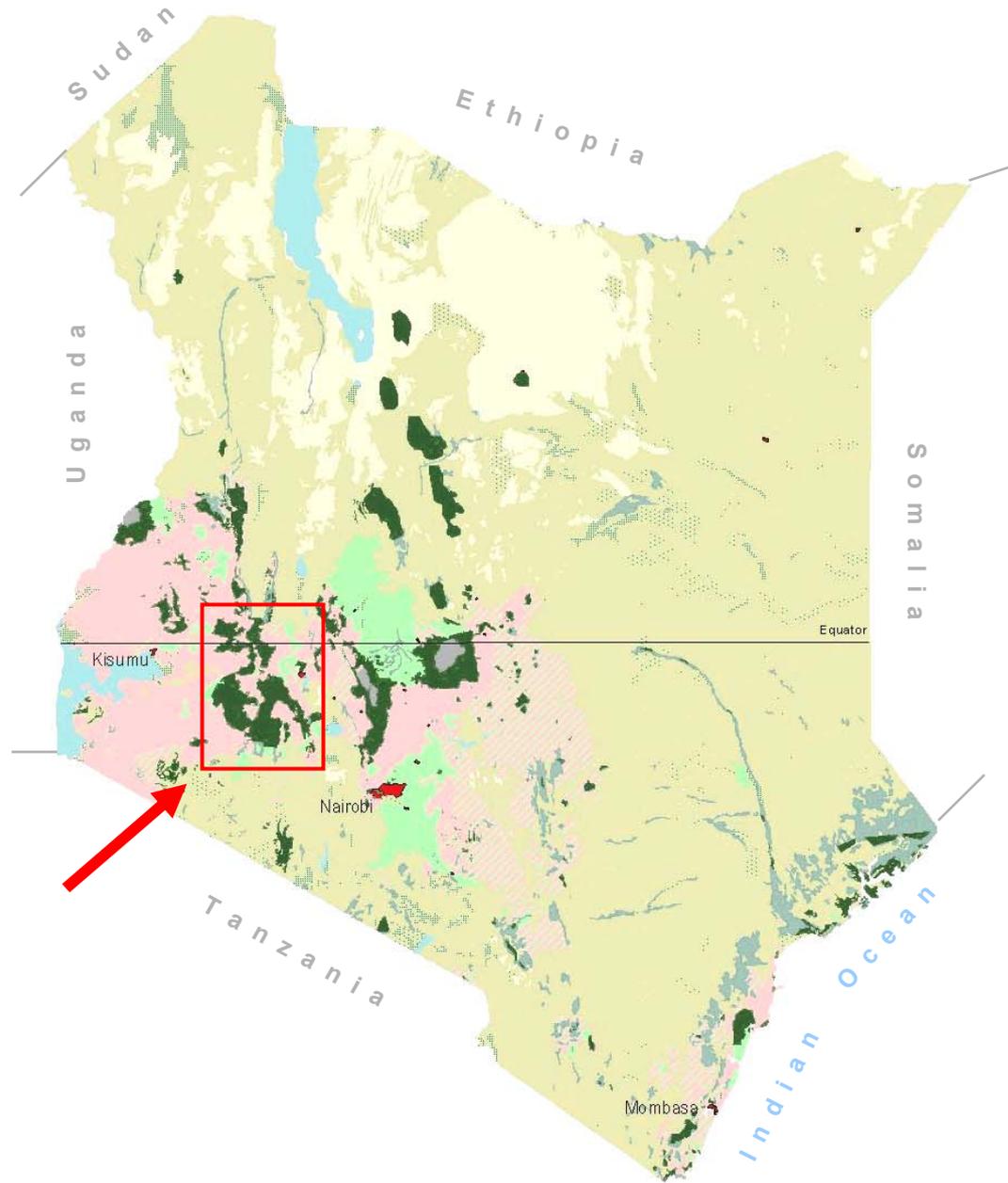
KENYA FORESTS WORKING GROUP

EWASO NGIRO SOUTH DEVELOPMENT AUTHORITY

May 2008



# Introduction: *Location and extent*



The Mau Complex covers some 400,000 ha, as large as Mt. Kenya and the Aberdares combined.

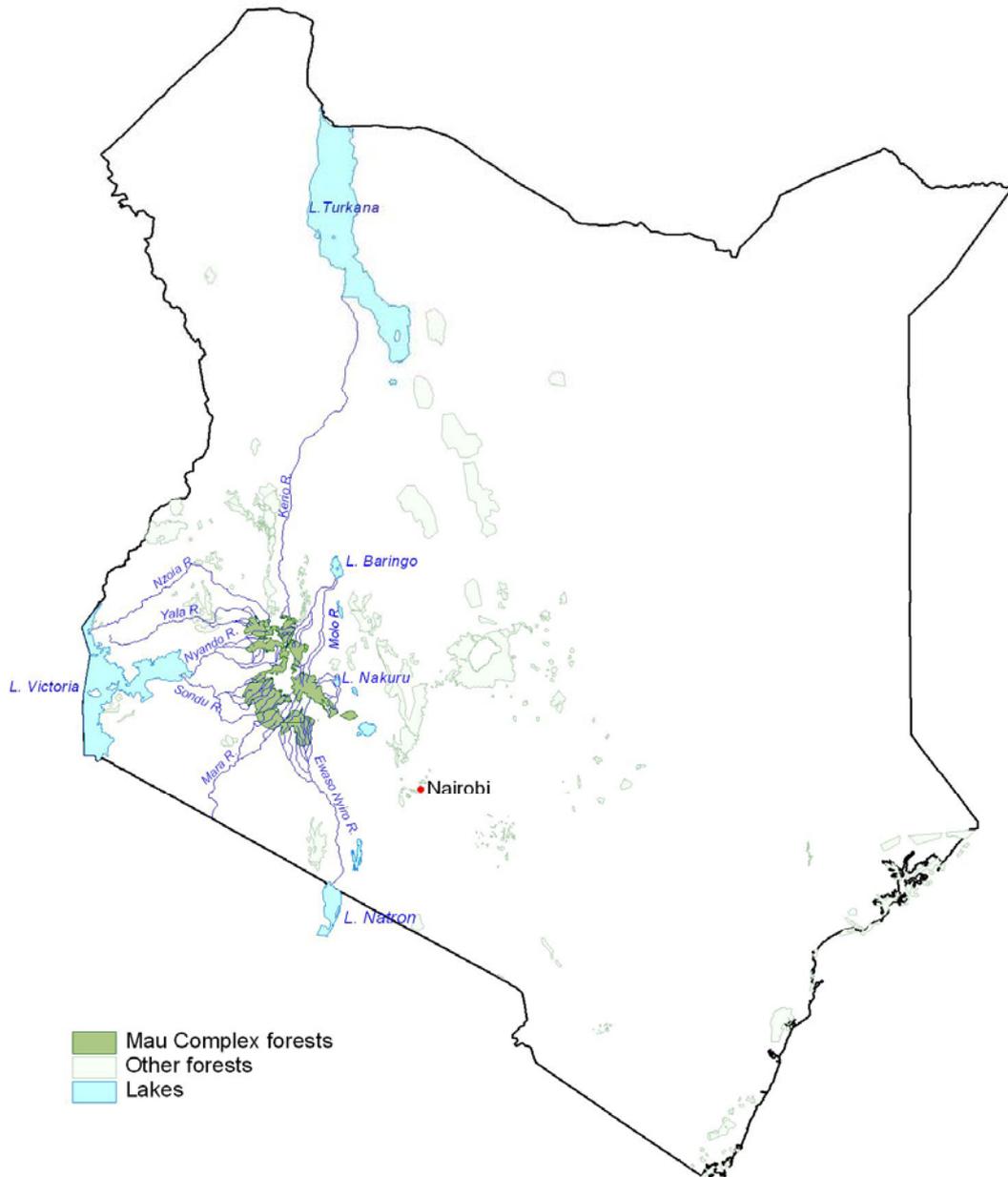
It is the largest forest of Kenya.

As a montane forest, it is one of the five main “water towers” of Kenya, with Mt. Kenya, the Aberdare Range, Mt. Elgon and the Cherangani Hills.





# Mau Complex: critical water catchments



The Mau Complex forms the upper catchments of all (but one) main rivers west of the Rift Valley, including:

- Nzoia River (→ Lake Victoria)
- Yala River (→ Lake Victoria)
- Nyando River (→ Lake Victoria)
- Sondu River (→ Lake Victoria)
- Mara River (→ Lake Victoria)
- Kerio River (→ Lake Turkana)
- Molo River (→ Lake Baringo)
- Ewaso Nyiro River (→ Lake Natron)
- Njoro River (→ Lake Nakuru)
- Nderit River (→ Lake Nakuru)
- Makalia River (→ Lake Nakuru)
- Naishi River (→ Lake Nakuru)

It feeds major lakes, including:

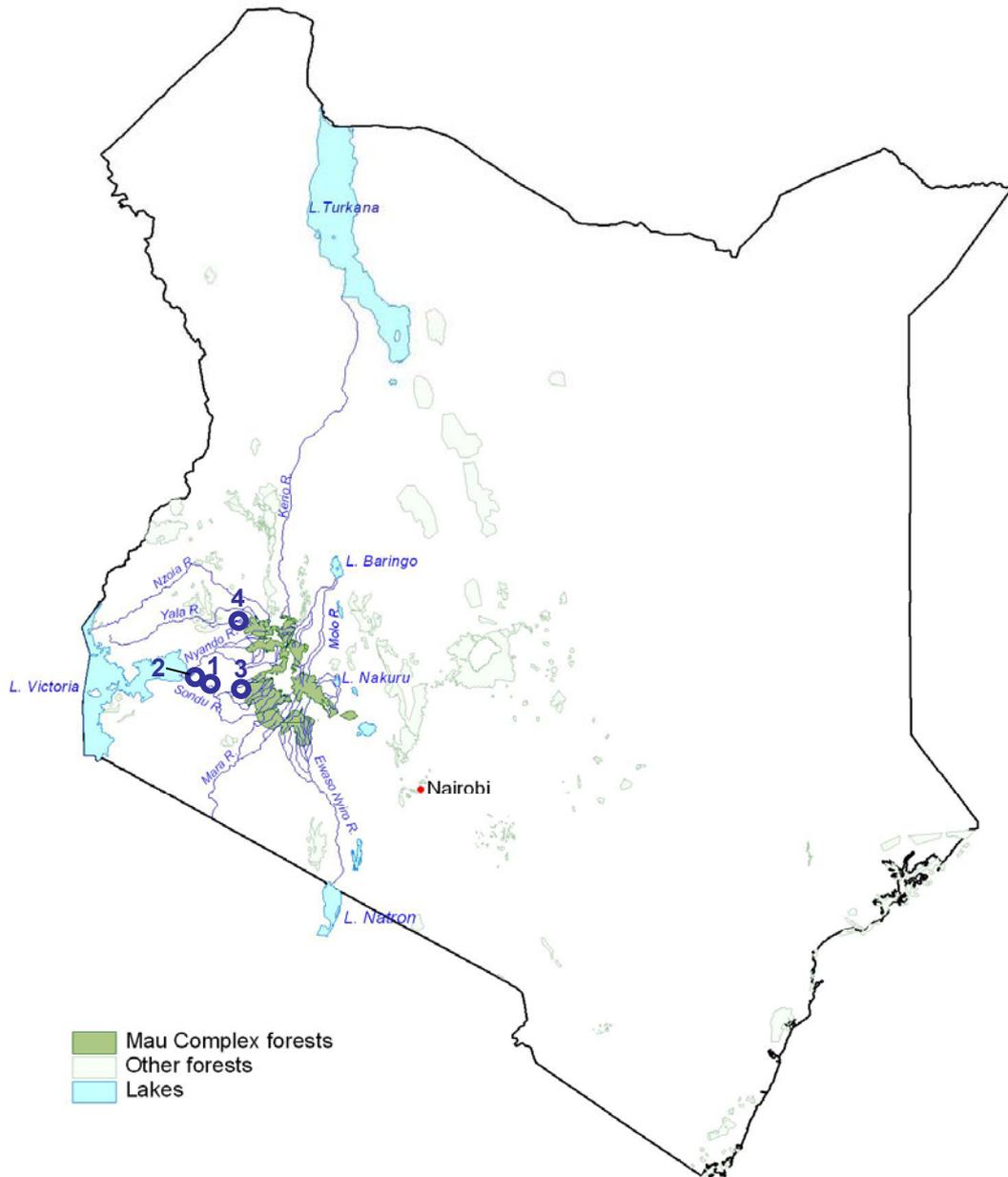
- Lake Victoria
- Lake Turkana
- Lake Baringo
- Lake Nakuru
- Lake Natron

of which three are cross-boundary:

- Lake Victoria (Nile River Basin)
- Lake Turkana (Kenya / Ethiopia)
- Lake Natron (Tanzania / Kenya)



# Mau Complex: catchments with high hydropower potential



Mau Complex forests  
 Other forests  
 Lakes

## Nyando River

- Potential: **9.0 MW**

## Sondu River

- Potential: **209.0 MW**
- Developed: 60.0 MW (Sondu-Miriu)
- Developed: 4.0 MW (Kericho tea estates)
- Planned: 21.4 MW (Sang'oro)

## Mara River

- Potential: **20.0 MW**

## Ewaso Ngiro River

- Potential: **220.0 MW**

## Yala River

- Potential: **50.0 MW**
- Planned: 9.2 MW (Nandi tea estates)

**Total potential: 508 MW**  
 Representing 50% of the current  
 total installed capacity in the  
 country

**Market value of electricity**  
**generated from developed and**  
**planned hydropower plants:**  
 approx. Kshs 5.3 billion / year

1  
3  
2

4

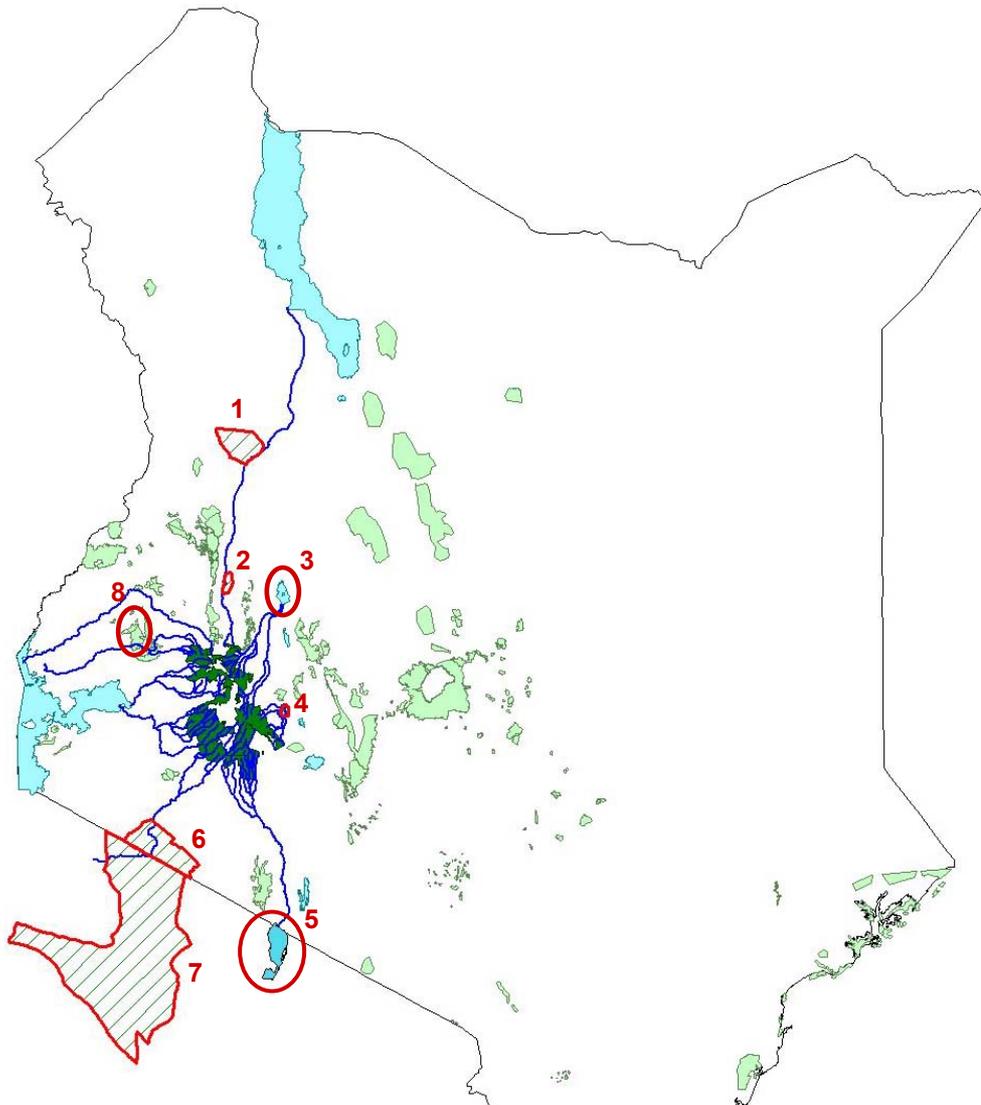
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# Mau Complex: key to major conservation areas



**1 South Turkana National Reserve**  
 • Scenic landscape. Wildlife plentiful

**2 Kerio Valley National Reserve  
 Kamnarok National Reserve**

**3 Lake Baringo**  
 • Important Bird Area (over 470 species)

**4 Lake Nakuru National Park**  
 • Second most visited protected area  
 • Ramsar Site (1990)  
 • Important Bird Area (over 450 species)

**5 Lake Natron**  
 • Main breeding area for the flamingoes in the Rift Valley

**6 Maasai Mara National Reserve**  
 • World famous for big game and great migration  
 • Important Bird Area (over 450 species)

**7 Serengeti National Park**  
 • World Heritage Site  
 • World famous for big game and great migration  
 • Important Bird Area (over 540 species)

**Maasai Mara NR & Lake Nakuru NP**  
 Entry fee (2007): Kshs 1.16 billion / year  
 Direct and indirect revenues (2007): approx. Kshs 5 billion / year

**8 Kakamega Forest National Reserve**  
 • Only remnant in Kenya of the Guineo-Congolian forest ecosystem  
 • High biodiversity (birds, butterflies, plants...)

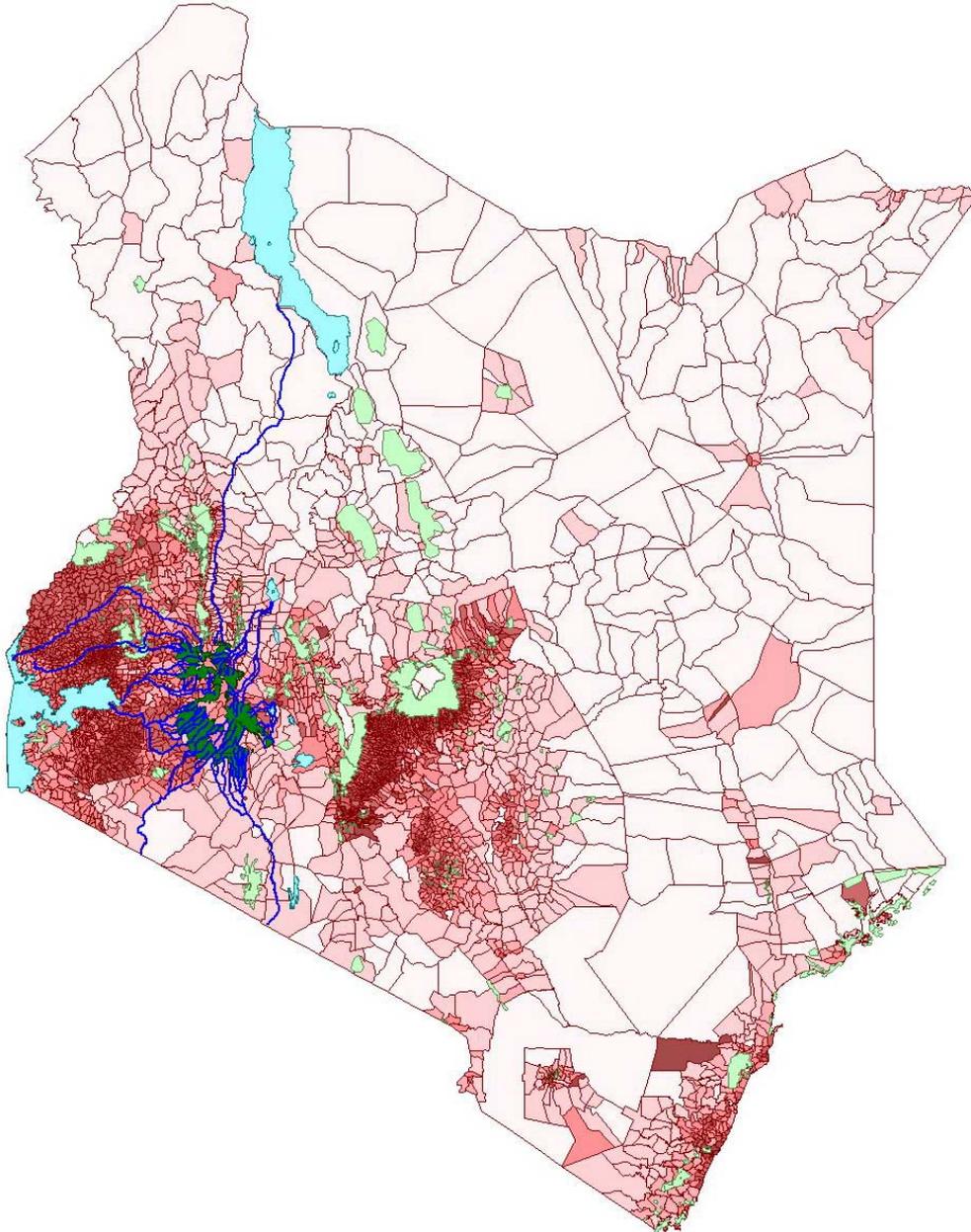
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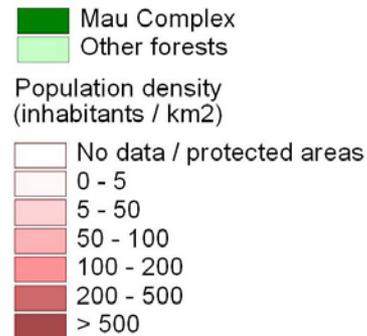


# Values: Key to people's livelihood



A large majority of Kenya's population lives in Lake Victoria basin. This region is crossed by major rivers flowing from the Mau Complex. Some 5 million people live in the sub-locations crossed by these rivers.

In addition the Mau Complex provides environmental services essential to crop production (continuous river flow, favourable micro-climate conditions) as well as many products (medicinal plants, firewood and grazing).

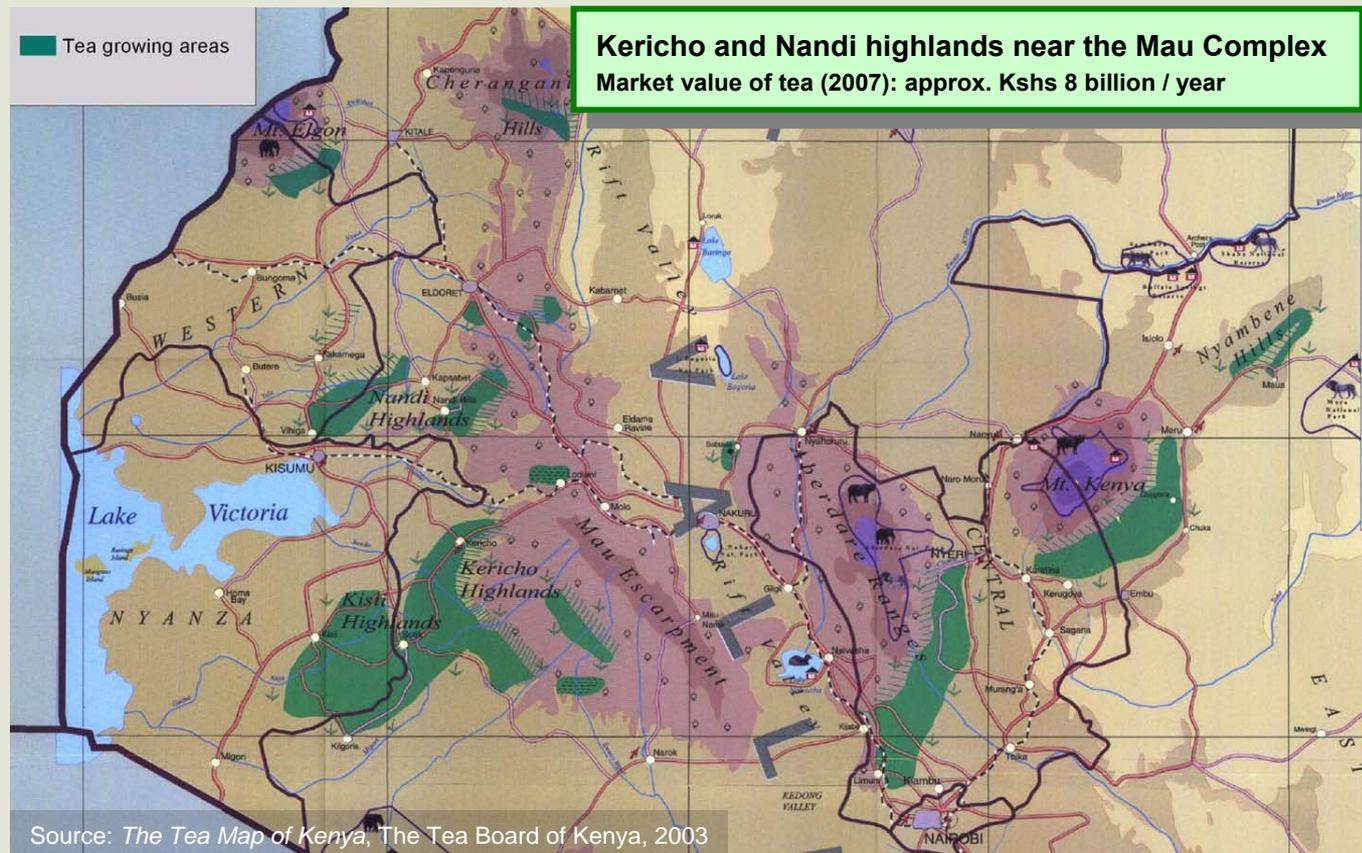


# Values: Major micro-climate regulators for crops

Tea growing areas are located near montane forests where conditions for optimum tea production are met:

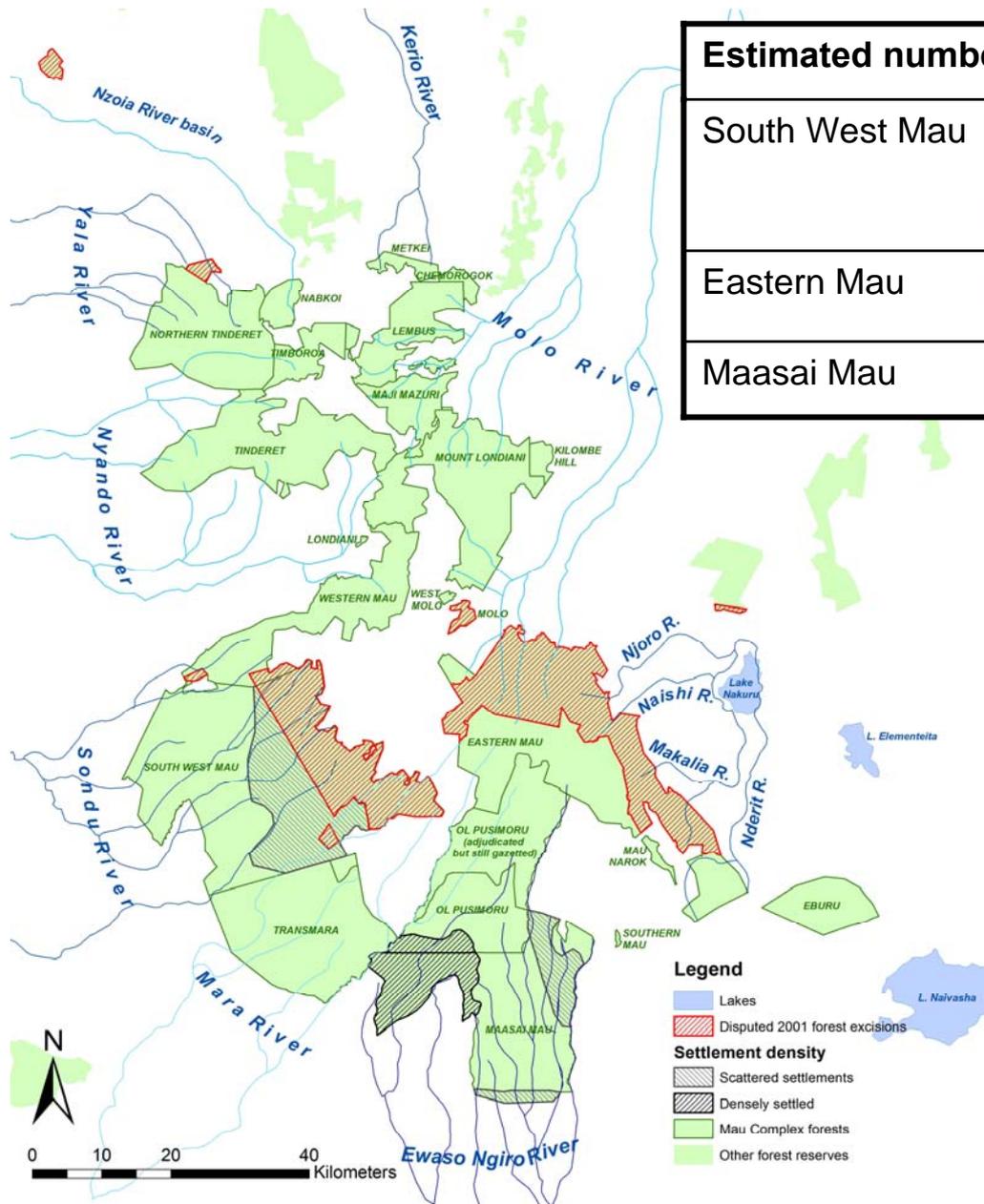
- Constant moisture
- Soil temperature between 16 and 25 °C
- Air temperature between 10 and 30 °C

The largest tea growing areas in Kenya are near the Mau Complex, in particular South West Mau forest (Kericho), Tinderet and Northern Tinderet forests .





# Threats: 2001 forest excisions and illegal encroachments



Estimated number of households	
South West Mau	2,300
Eastern Mau	15,000
Maasai Mau	2,400

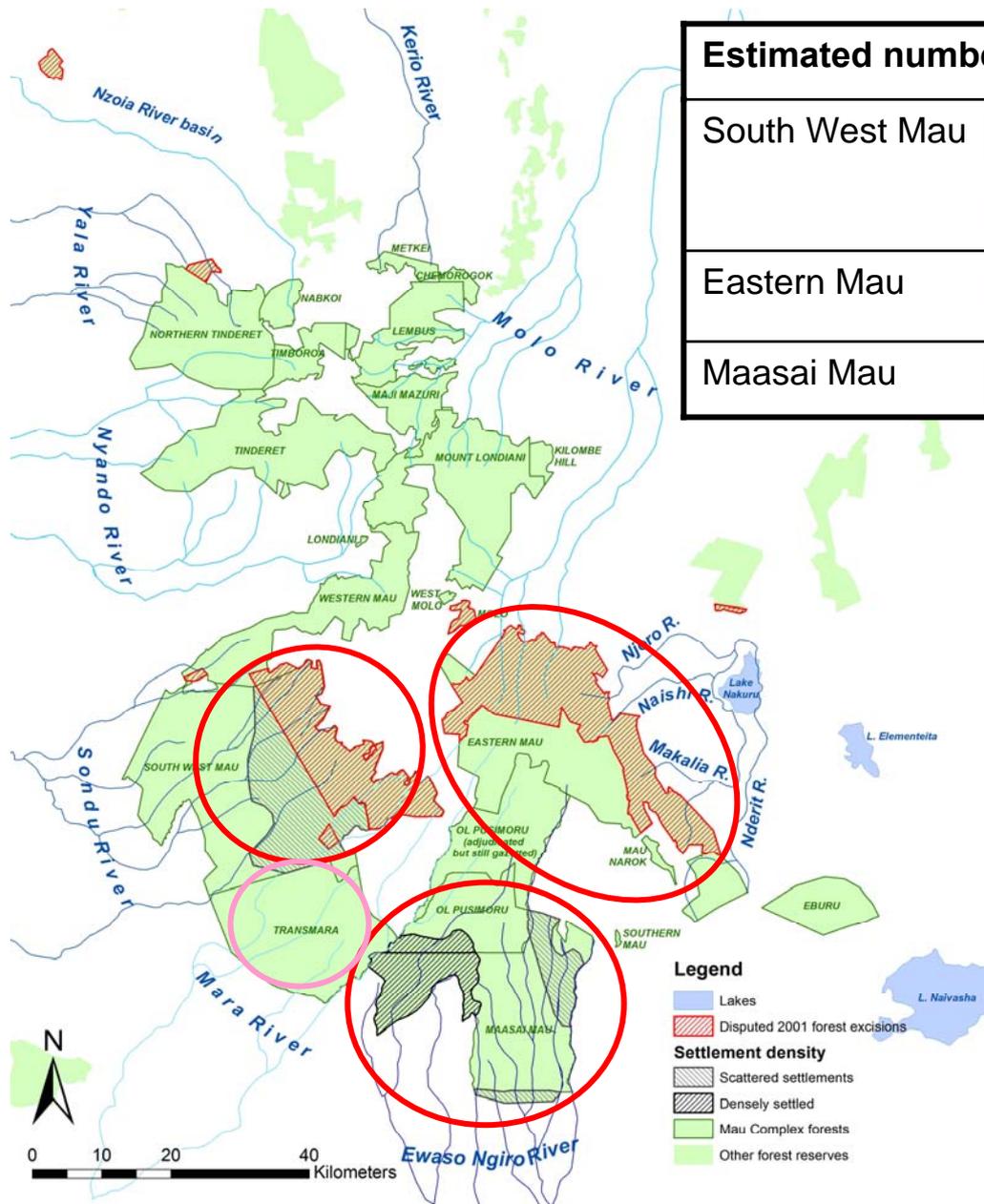
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# Threats: 2001 forest excisions and illegal encroachments



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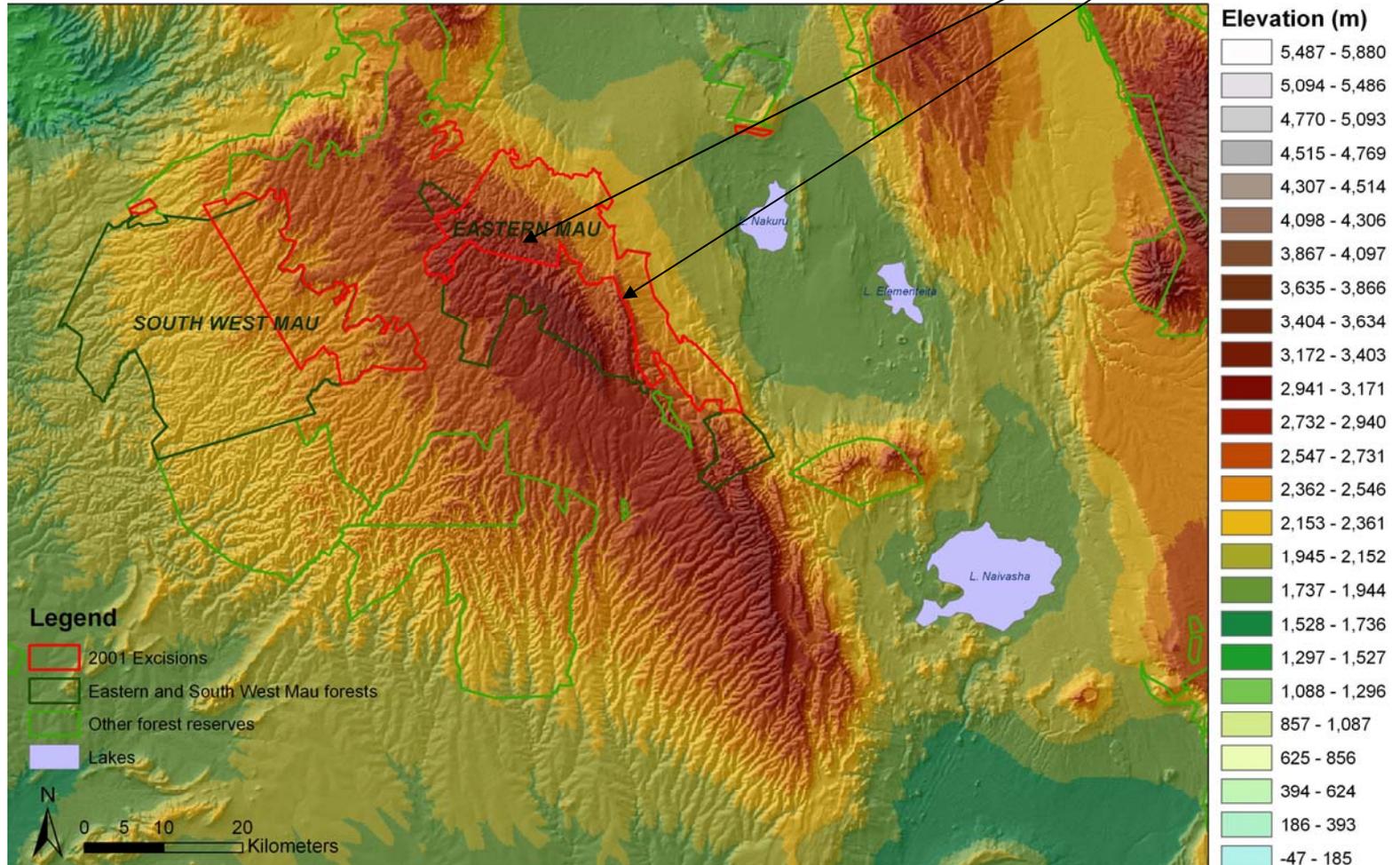
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# Eastern Mau FR: 2001 excision affects the top of the Mau

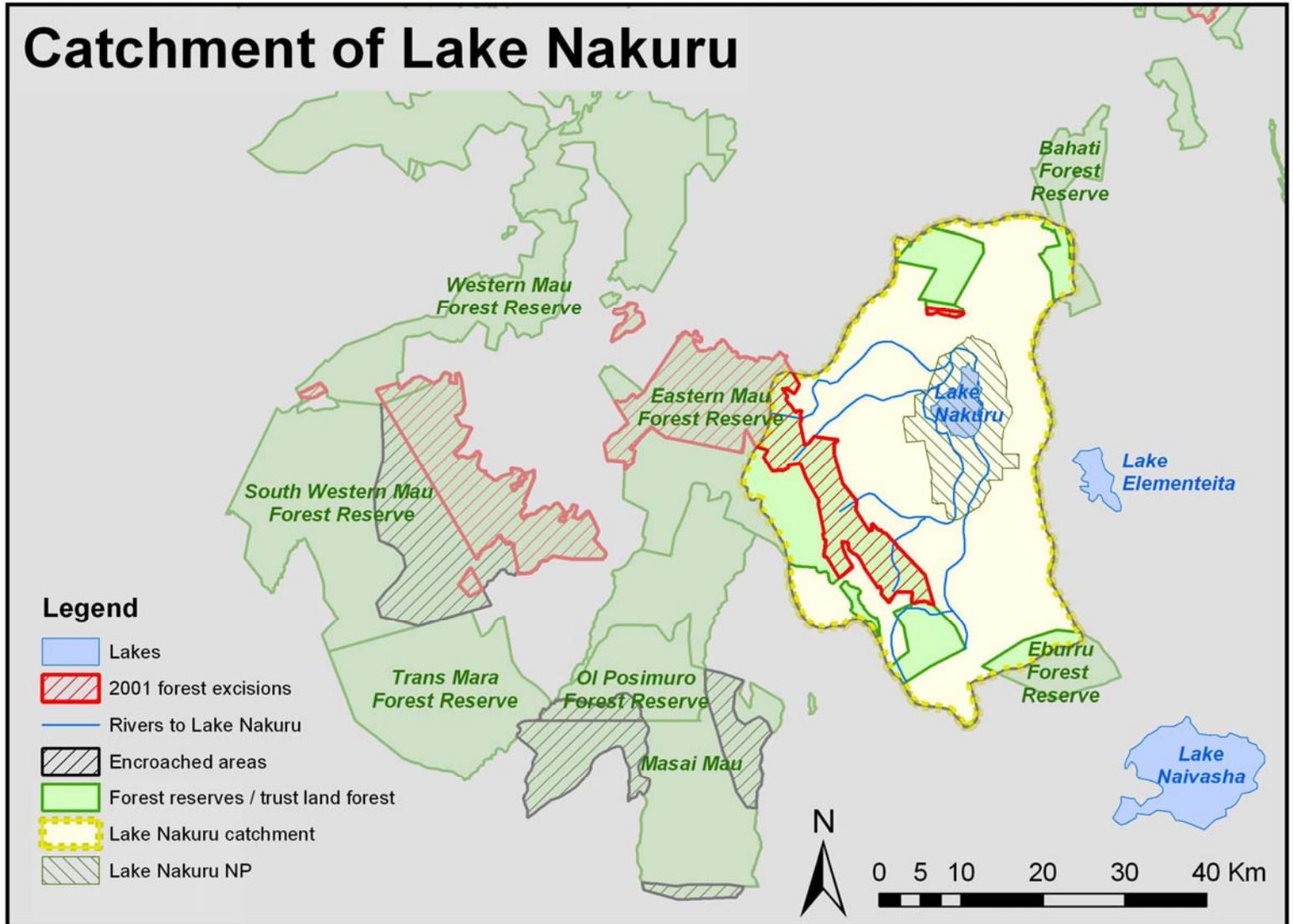
In 2001, the Government excised over 67,000 hectares of forest reserve land, mainly in the Mau Complex. The largest excisions affected Eastern Mau Forest Reserve and South West Mau Forest Reserve where 35,301 ha and 22,797 ha respectively were excised representing 54.3 % and 27.3 % of these forests. The excision in Eastern Mau covers parts of the summit of the Mau escarpment.





# Eastern Mau FR: 2001 excisions affect Lake Nakuru

## Catchment of Lake Nakuru



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# Eastern Mau FR: 2001 excisions affect Lake Nakuru

The 2001 excision in Eastern Mau impacts tremendously on the catchment of Lake Nakuru. Between 1973 and 2003, 36,780 hectares of dense vegetation cover were lost in the catchment of Lake Nakuru, representing a loss of 49 % of its total dense vegetation cover. Boreholes are already drying (Egerton University) and rivers becoming seasonal (Njoro).



**Legend**

- Lake Nakuru catchment
- Nakuru town
- Forest Reserve boundaries
- Lake Nakuru National Park

**Loss of dense vegetation cover between 1973 – 2003**

Inside FR:	15,820 ha
Outside FR:	20,960 ha
<b>Total:</b>	<b>36,780 ha</b>

Sources  
 - Landsat MSS and ETM images. False colour composition  
 - Forest boundaries: KIFCON project, Forest Department

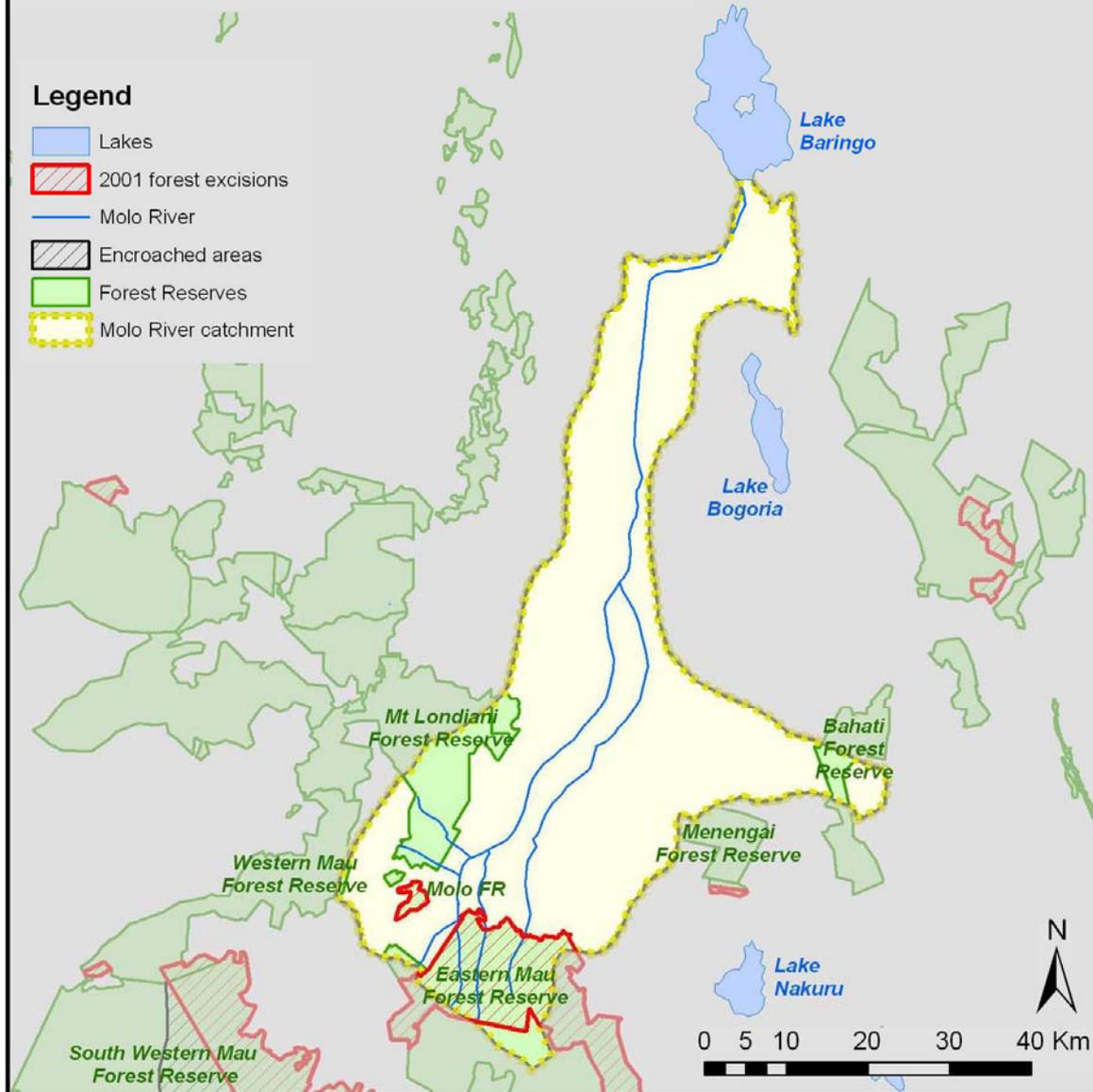


# Eastern Mau FR: 2001 excisions affect Lake Baringo

## Catchment of Molo River

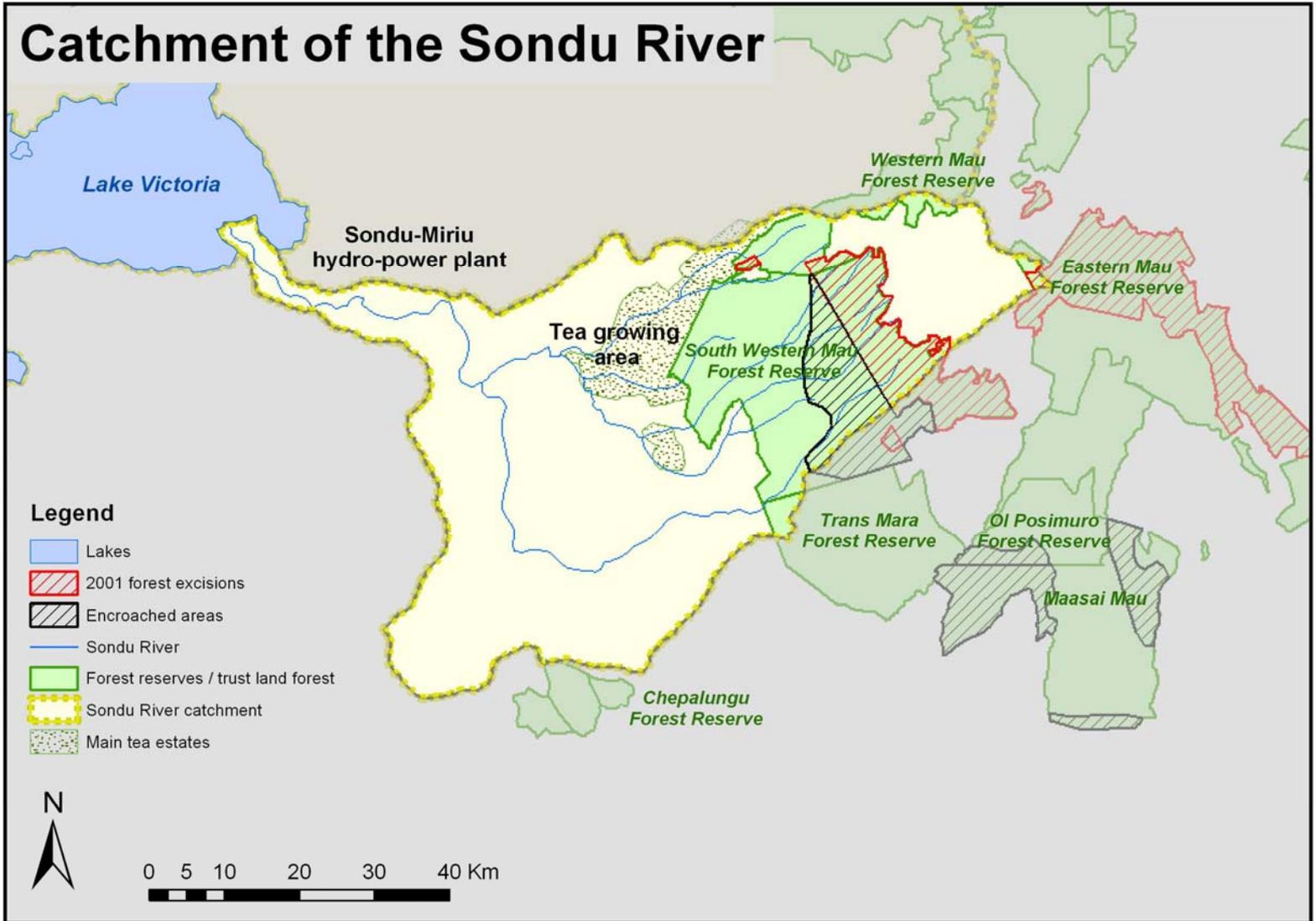
### Legend

- Lakes
- 2001 forest excisions
- Molo River
- Encroached areas
- Forest Reserves
- Molo River catchment





# South West Mau FR: 2001 excisions & illegal encroachments



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# South West Mau FR: *Illegal encroachments*



Photograph taken on 24 February 2007

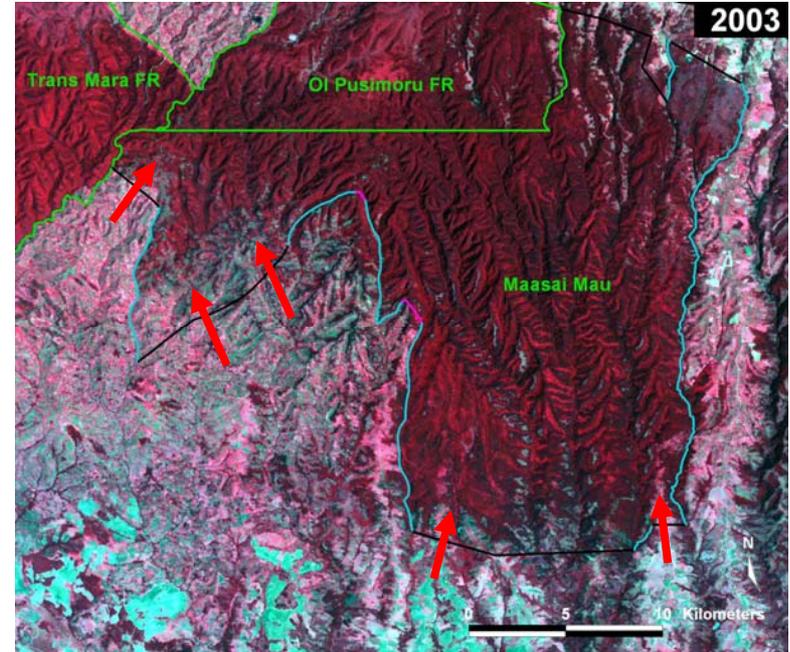
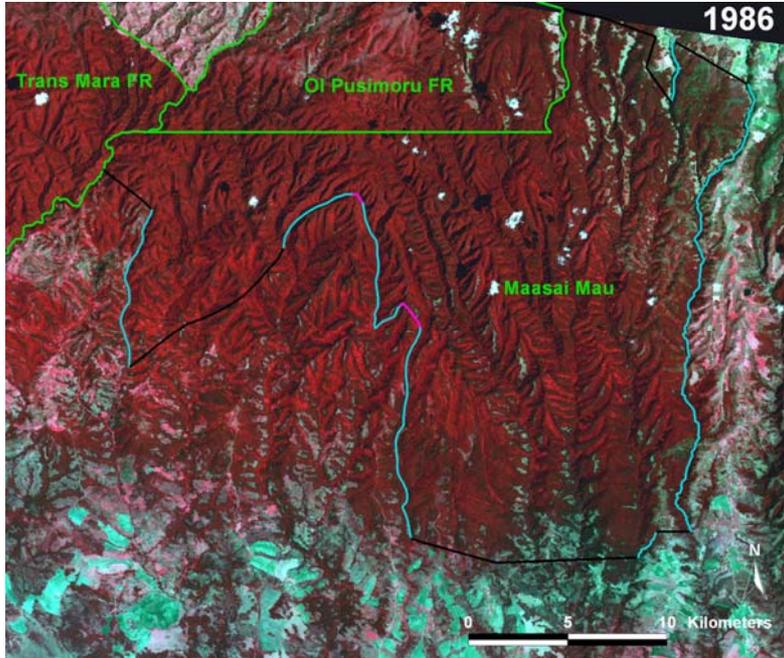
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# Maasai Mau: *Past forest destruction*

The boundaries of the Maasai Mau Forest (46,278 hectares) were agreed upon in 1987, based on the work of the Ntutu Commission. Since the delineation, large tracks of forest were clear felled outside the boundaries. More recently, encroachments have taken place inside the forest boundaries.



## Loss of forest cover between 1986 – 2003

Inside the boundaries: 3,382 hectares  
 Outside the boundaries: 16,948 hectares  
**Total: 20,330 hectares**  
**representing 30 % of the forest inside and outside the boundaries of the Maasai Mau**

### Legend

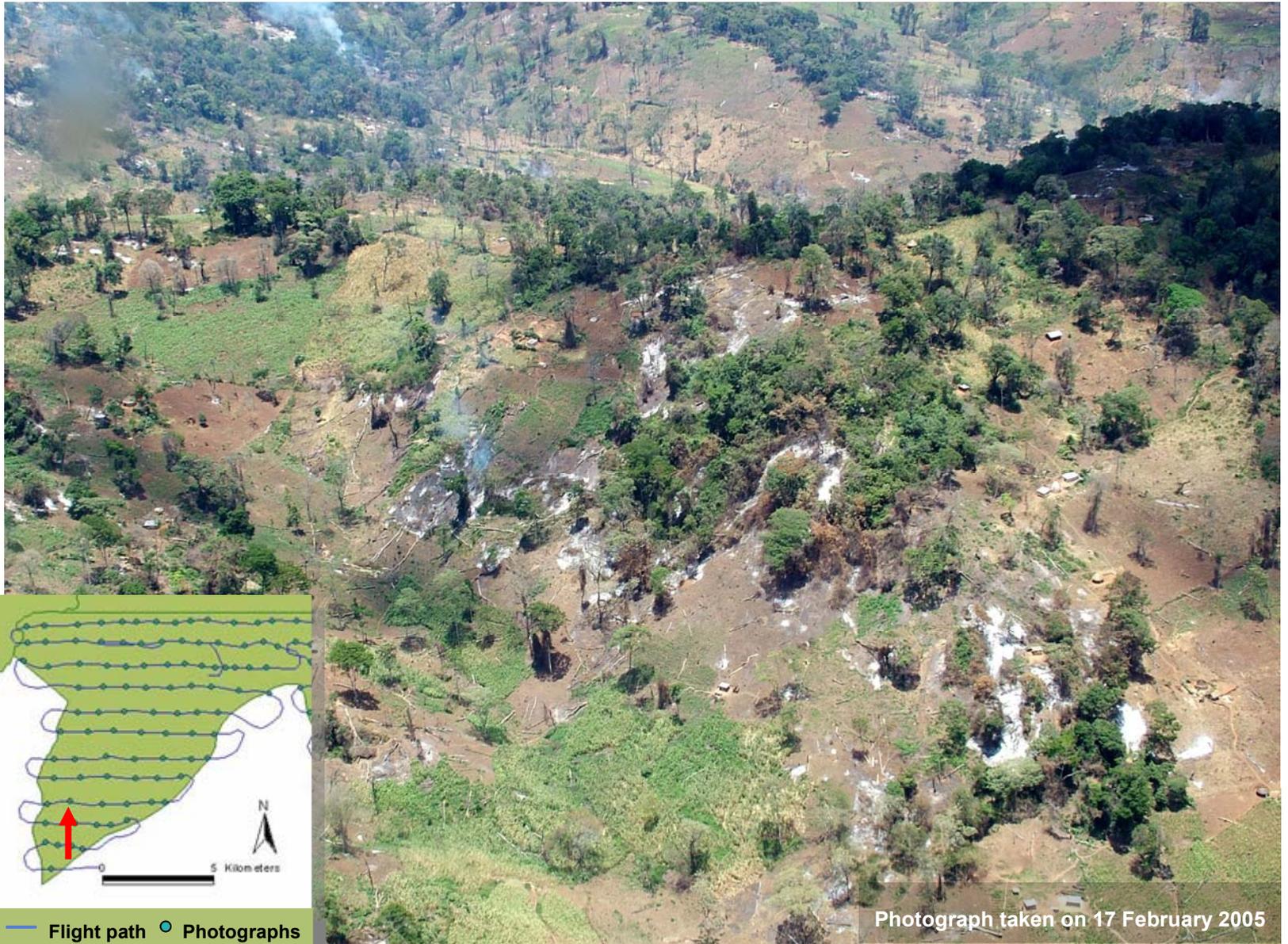
- River boundary
- Ridge boundary
- Straight line boundary
- Forest-forest boundary
- Main encroachment

### Sources

- Landsat TM and ETM images. False colour composition
- Forest boundaries: KIFCON project, Forest Department



# Maasai Mau: *forest destruction*

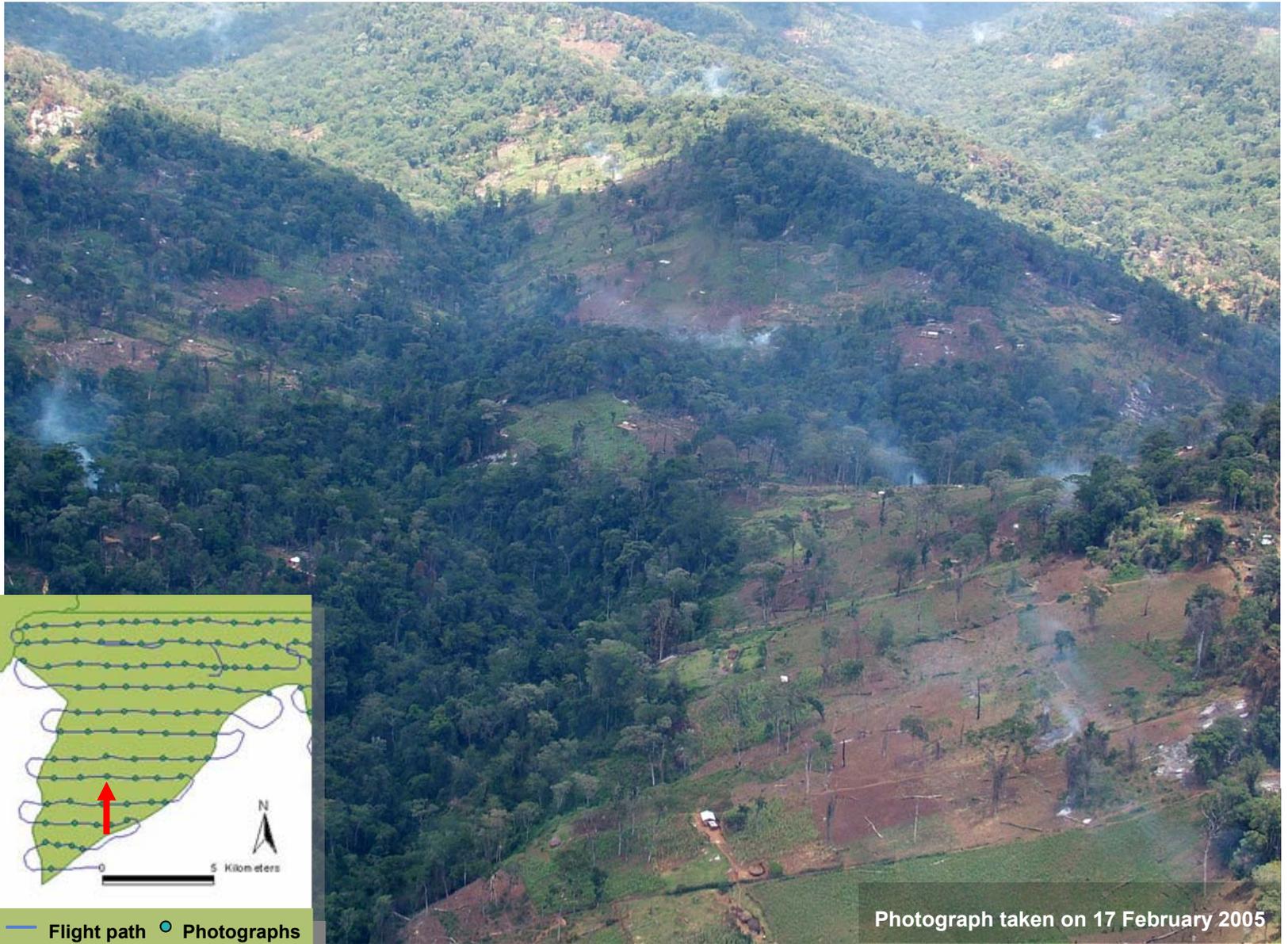


— Flight path    ○ Photographs

Photograph taken on 17 February 2005



# Maasai Mau: *forest destruction*



Photograph taken on 17 February 2005

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# Maasai Mau: *forest destruction*



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Photograph taken on 17 February 2005



# Maasai Mau: *forest destruction*



— Drive path   ● Photographs

Photograph taken on 21 April 2005

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# Ol Pusimoru: *current forest destruction*



Photograph taken on 23 January 2008

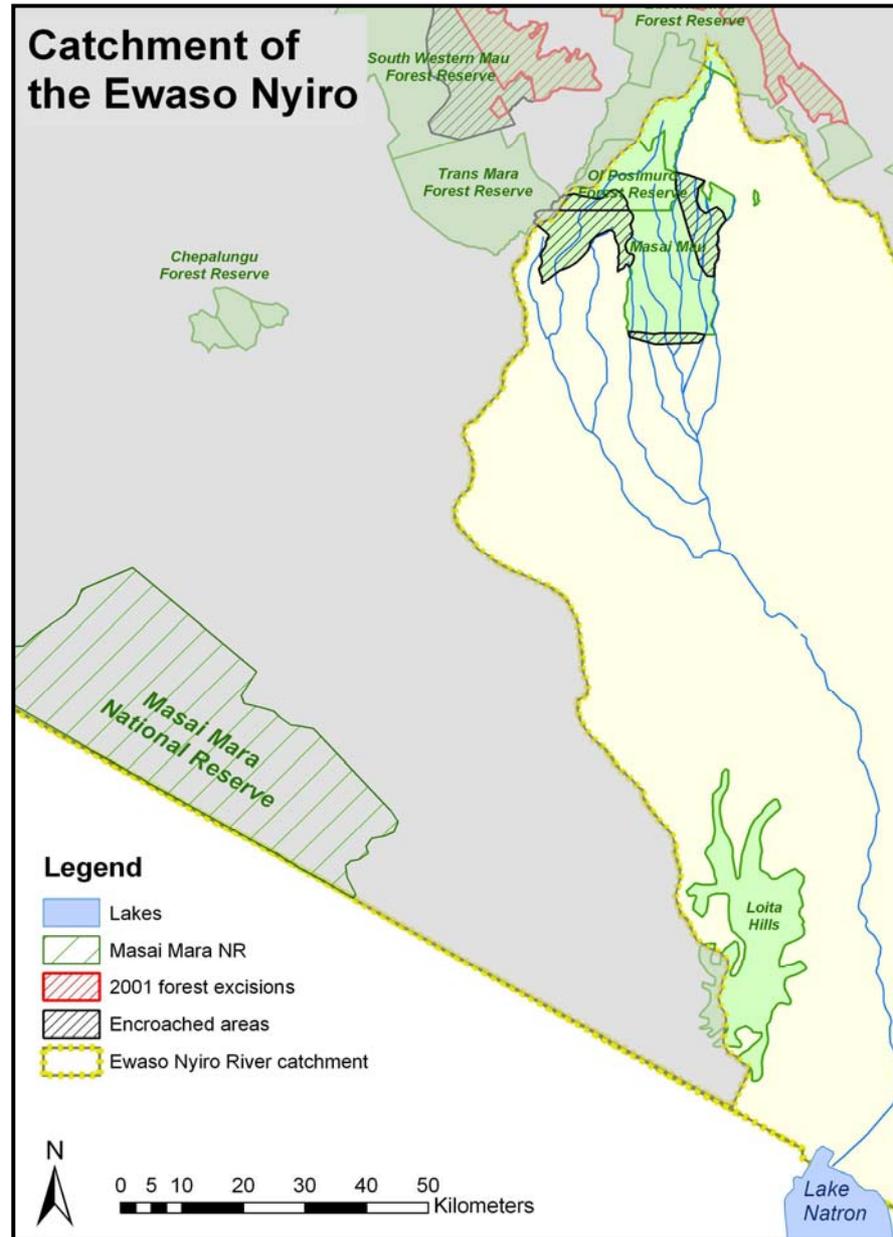
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# Maasai Mau / OI Pusimoru: *Impacts on Ewaso Nyiro River*

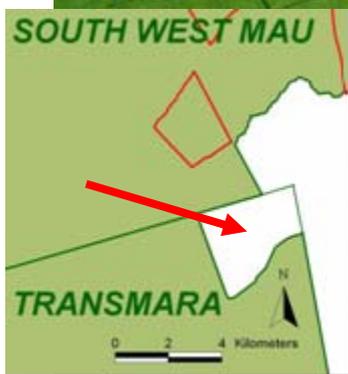




# Transmara FR: *Private tea estates*



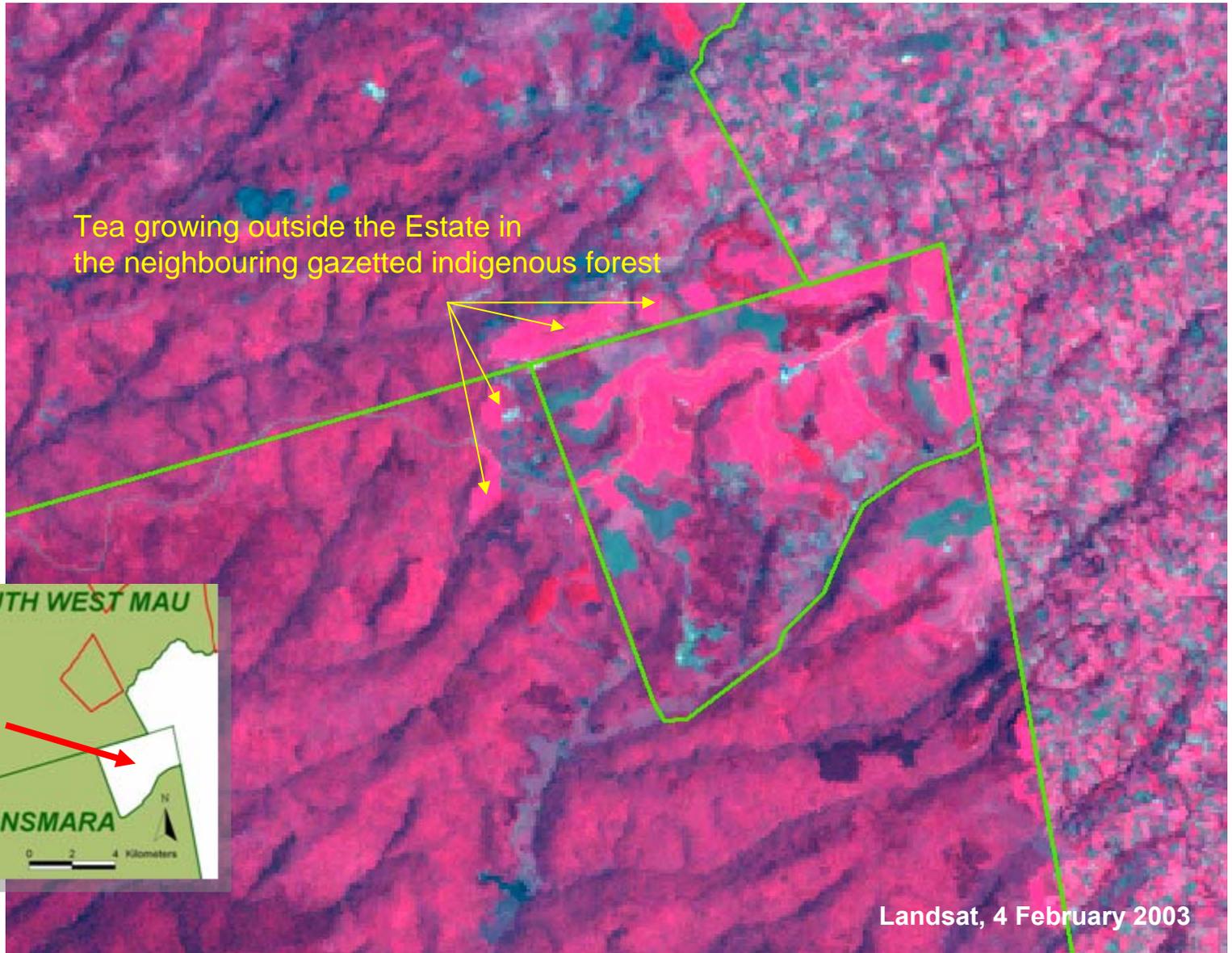
**Kiptagich Tea Estate**  
Location: Transmara Forest Reserve  
Area: 937.7 hectares  
Status: gazetted forest  
Excision Gazette Notice: 3 March 1989  
Excision Legal Notice: none



Photograph taken on 28 June 2004



# Transmara FR: *Private tea estates*





# Transmara FR: *Impacts on the Mara River*

