


Land use land cover (LULC) changes and driving forces in the Arsi Mountains and its surrounding areas, Ethiopia: Implications for wildlife conservation



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Introduction

- Understanding the spatiotemporal change and drivers of LULC
 - ❖ conservation planning,
 - ❖ land use planning,
 - ❖ policy development
 - ❖ environmental restoration programs.

- LULC change dynamics and driving factors of the change could not be uniform

(Dibaba et al., 2020, *Land*)

Introduction..cont'd



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Intro...cont'd



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THE CONSTITUTION OF THE
FEDERAL DEMOCRATIC
REPUBLIC OF ETHIOPIA

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Article 40

The Right to Property

3. The right to ownership of rural and urban land, as well as of all natural resources, is exclusively vested in the State and in the peoples of Ethiopia. Land is a common property of the Nations, Nationalities and Peoples of Ethiopia and shall not be subject to sale or to other means of exchange.

Intro...cont'd



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Article 40

The Right to Property

5. Ethiopian pastoralists have the right to free land for grazing and cultivation as well as the right not to be displaced from their own lands. The implementation shall be specified by law.

Objectives

- ❑ investigate LULC changes that have occurred in the last 30 years (1987-2016)
- ❑ to identify the main drivers of LULC change and explore the wildlife conservation implications



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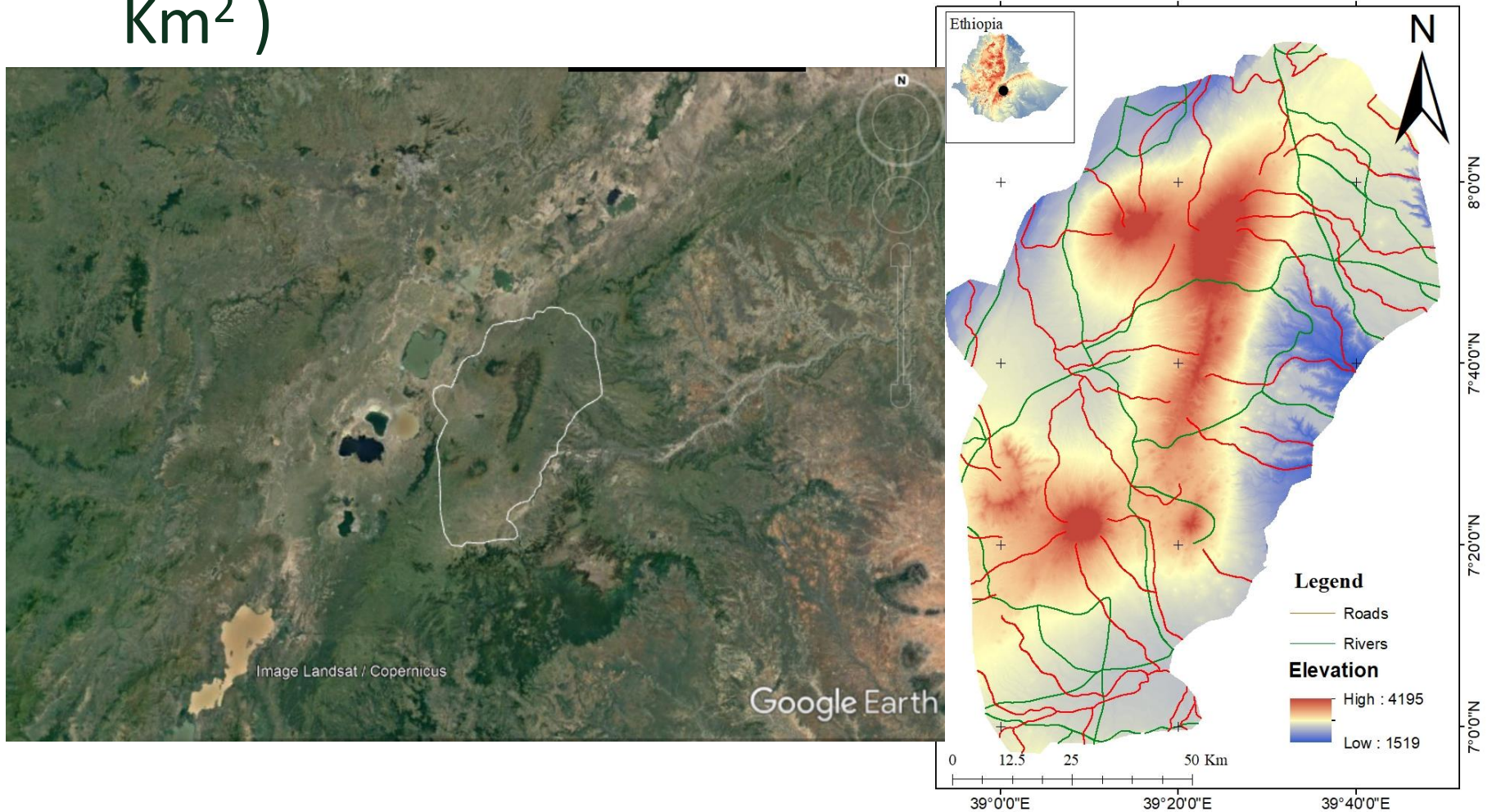
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Study Area

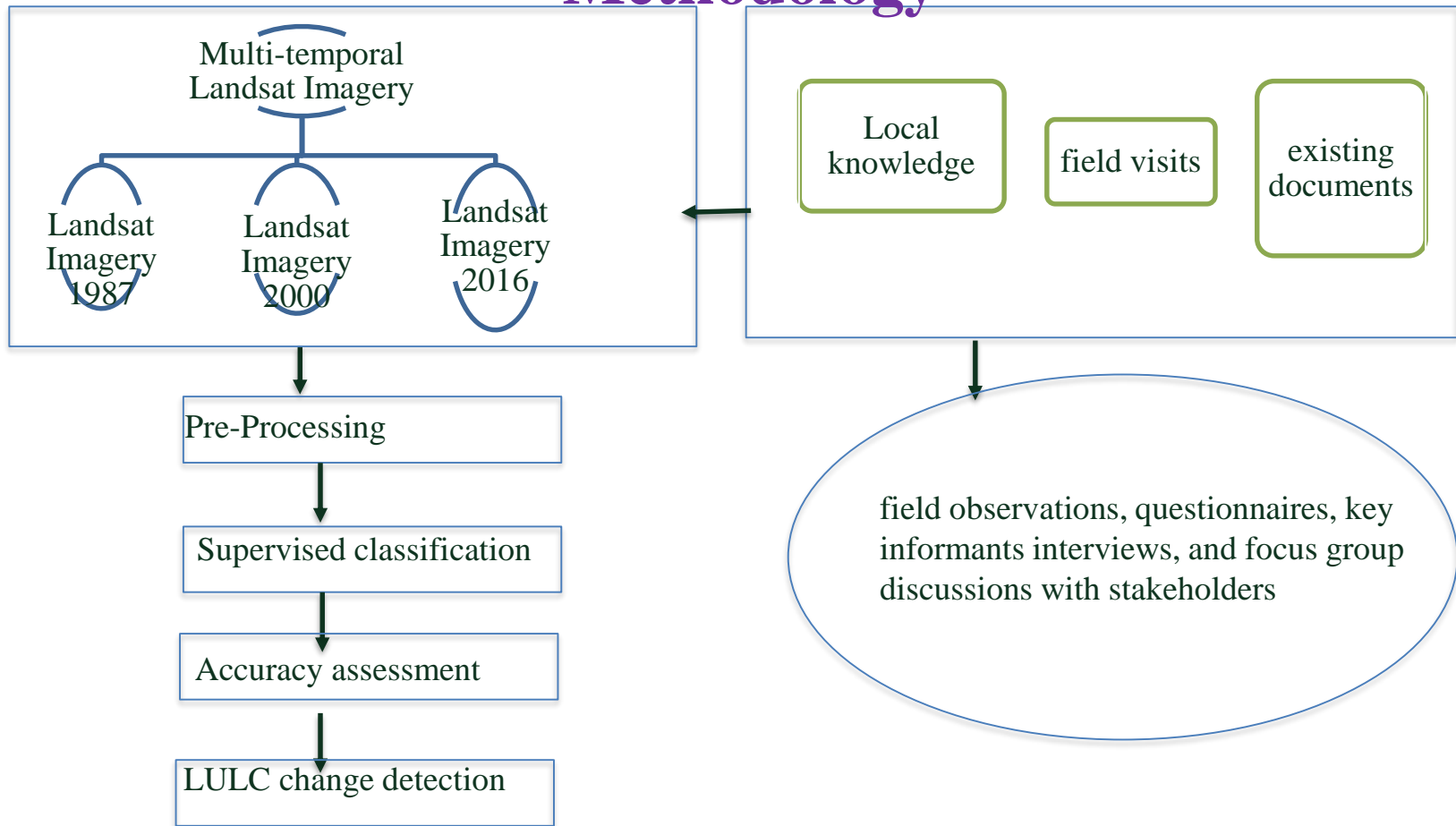
- Arsi Mountains and its surroundings, Ethiopia (9023.7 Km²)



Study Area...cont'd



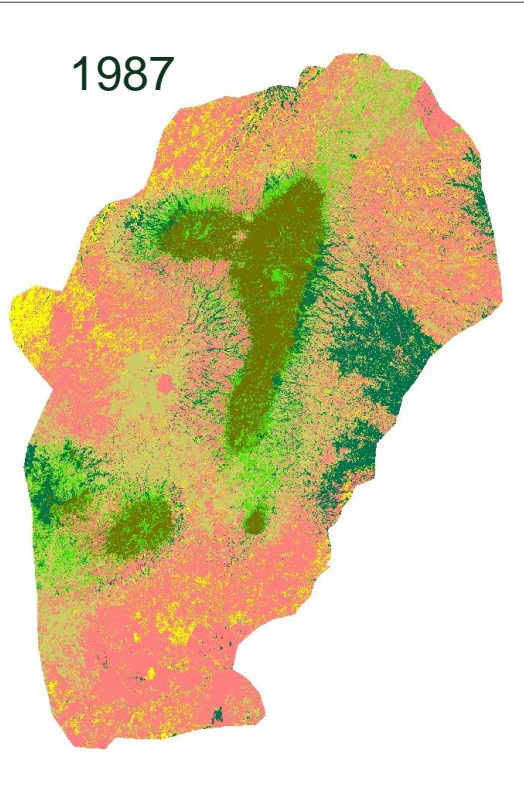
Methodology



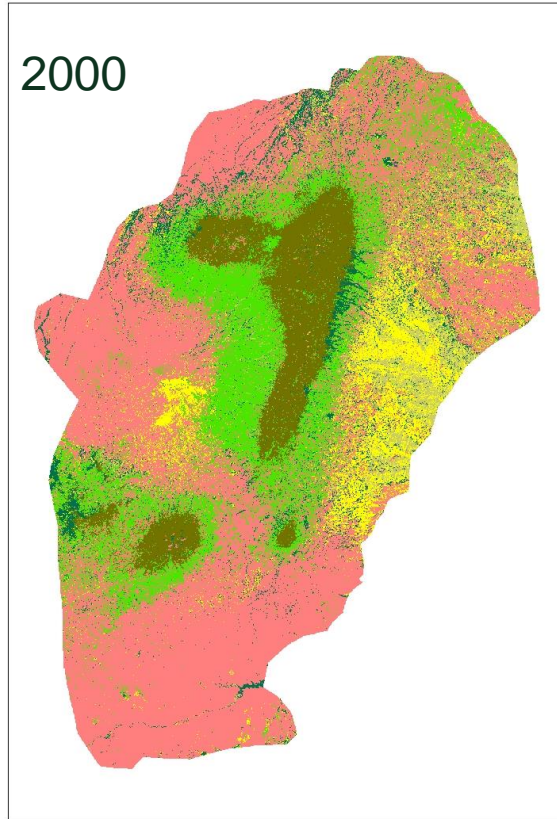
Result

Land use land cover changes

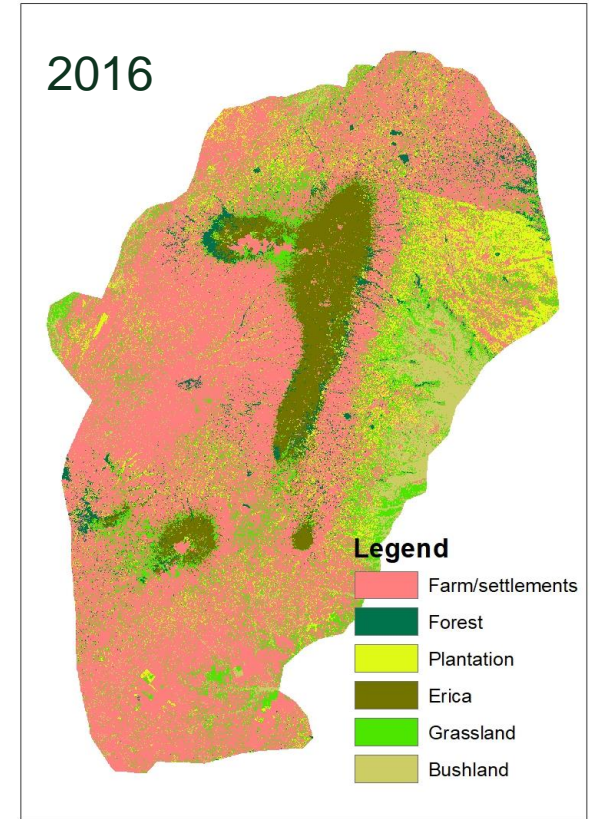
1987



2000



2016



Legend

- Farm/settlements
- Forest
- Plantation
- Erica
- Grassland
- Bushland

Land -cover class	1987		2000		2016	
	Area (km ²)	%	Area (km ²)	%	Area (km ²)	%
Erica	810.3	8.9	874.4	9.7	498.2	5.5
Montane forest	921.6	10.2	564.2	6.3	193.9	2.1
Grassland	594	6.6	1721.3	19.1	979.2	10.9
Farmland/settlement	4165.1	46.2	4580.7	50.8	6465.2	71.6
Bushland	1670.8	18.6	512.3	5.7	309.5	3.4
Plantation	861.9	9.6	770.8	8.4	577.1	6.4
Total	9023.7		9023.7		9023.7	

Drivers of land use land cover changes

Drivers	Percent	Rank
Livestock grazing	26.5	1
Human settlement expansion	22.8	2
Lack of integrated institutional frameworks	19.2	3
Unsustainable use of forest products	15.3	4
Agricultural land expansion	9.2	5
Weak environmental considerations	7	6

Discussion

- ❑ Increasing anthropogenic with poor governance is a significant factor in LULC change (Fetene et al., 2016: *Environmental Management*)
- ❑ Need for appropriate policies and programs on the sustainable use of natural resources (Garedew et al., 2019: *Environmental Management*).
- ❑ High livestock density is a conservation challenge



Discussion..contd

Implications for wildlife conservation

- ❑ Land cover conversions Vs wildlife habitat.
- ❑ The unsustainable use of natural resources and overgrazing led to habitat fragmentation, affecting the conservation of species.
- ❑ Appropriate grazing pressure reduction strategy is required
- ❑ Educational programs to promote effective enforcement of laws and regulations (Worku et al., 2023: *Global ecology and conservation*).

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Thank you

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