

Classified forests under pressure: geospatial analysis of degradation dynamics in Northern Benin

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INTRODUCTION & AIM



- Increasing degradation of biodiversity, Species extinction, Loss of their habitat.
- Purpose of protected areas creation (
- Accelerating biodiversity loss, and losses in protected areas.

State of Forestry in Benin (1978 to 2010)

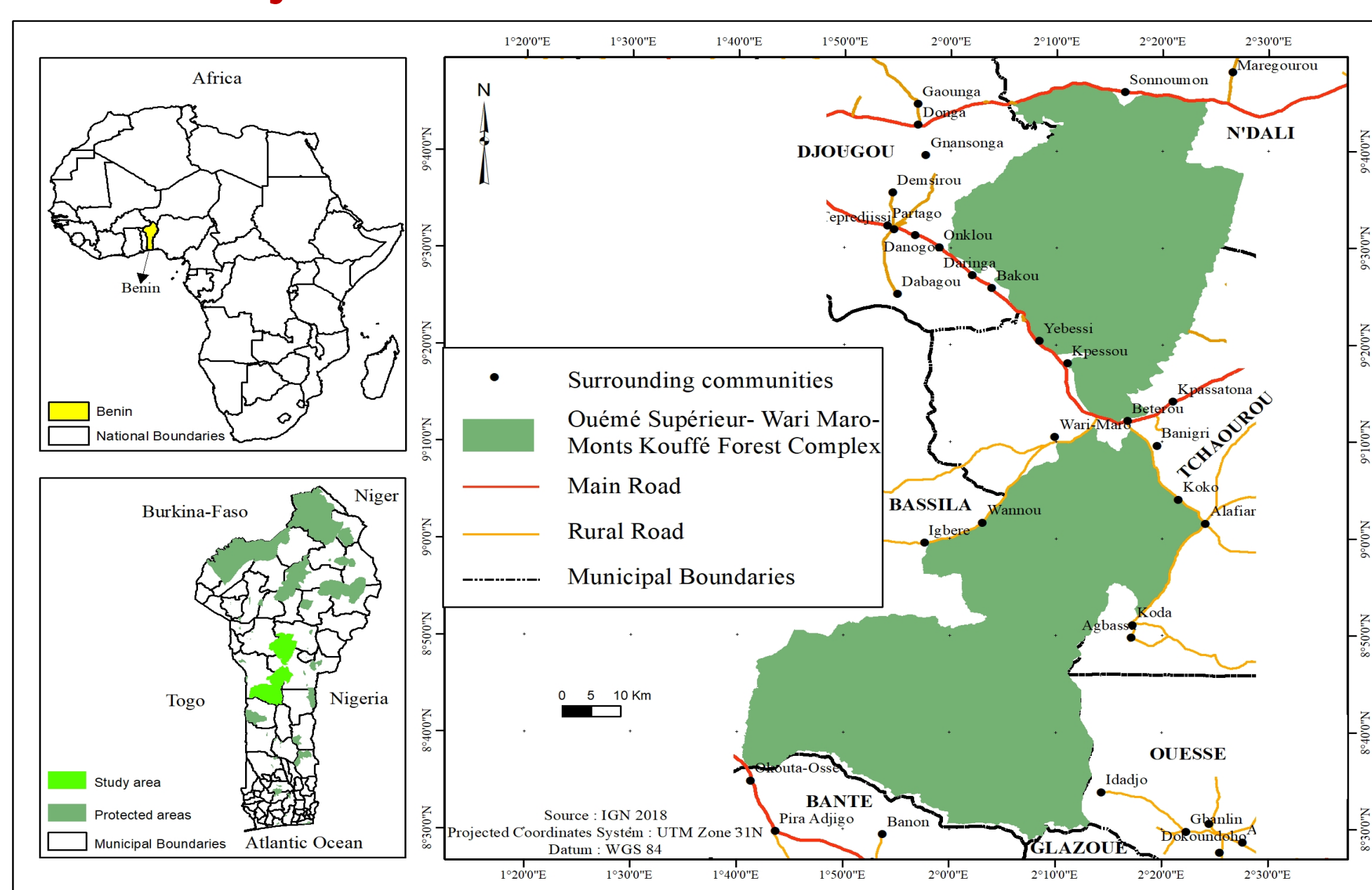
85% loss of forest area
30% of vegetation cover lost

Research objective

- Tracking four decades of forest degradation: spatial and temporal hotspots in the Ouémé Supérieur – Wari Maro – Monts Kouffé complex

METHOD

✓ Study area



✓ Data collection and Analysis

- Multispectral Landsat imagery (TM, ETM+, OLI-TIRS) from 1986 to 2024 was used as the primary dataset
- Land cover was classified into six categories: dense forest, open forest and wooded savanna, tree and shrub savanna, cropland/fallow, rocky outcrops, and water bodies.
- Bogaert's decision tree was applied to detect spatial transformation processes

RESULTS & DISCUSSION

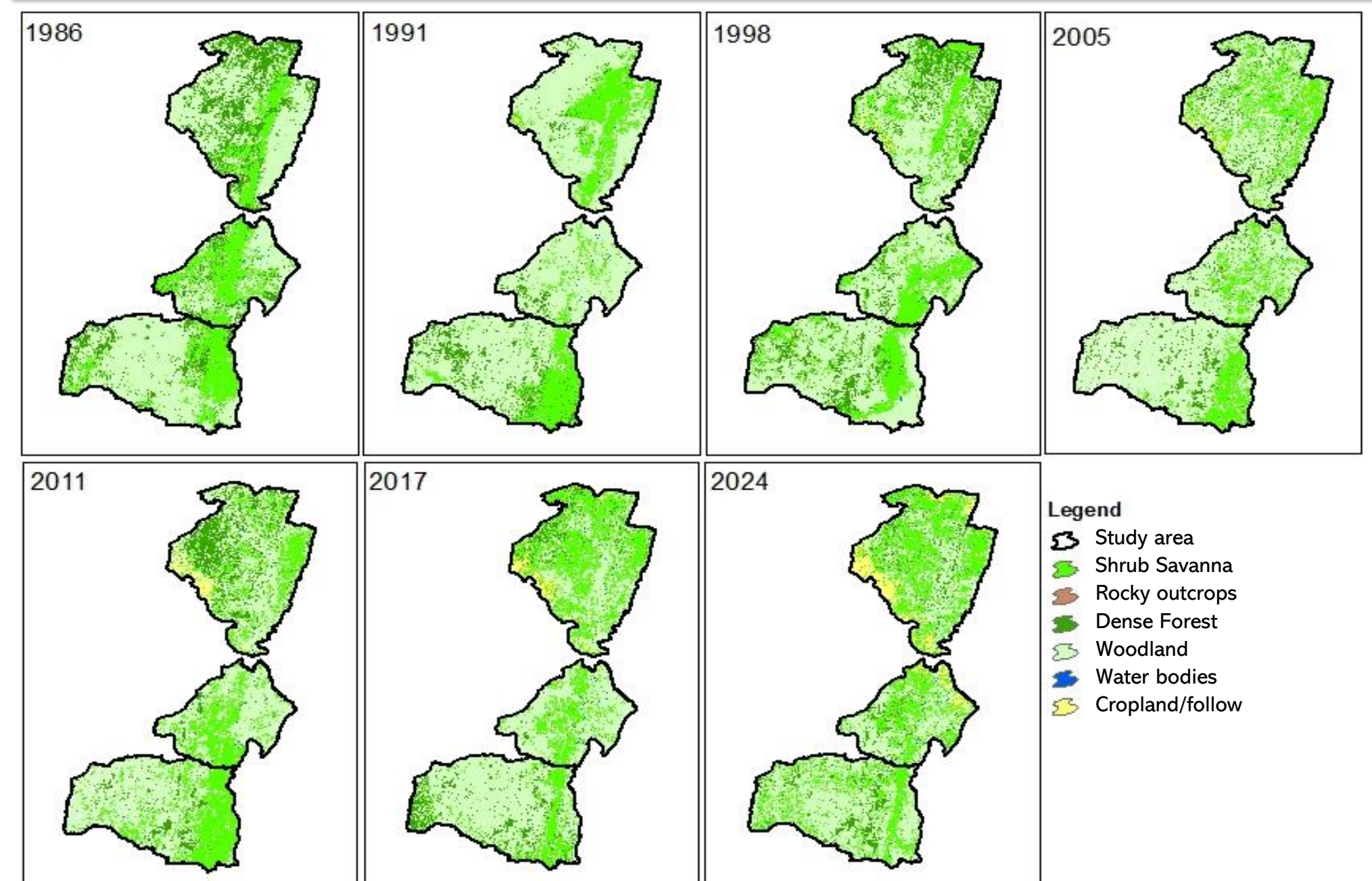
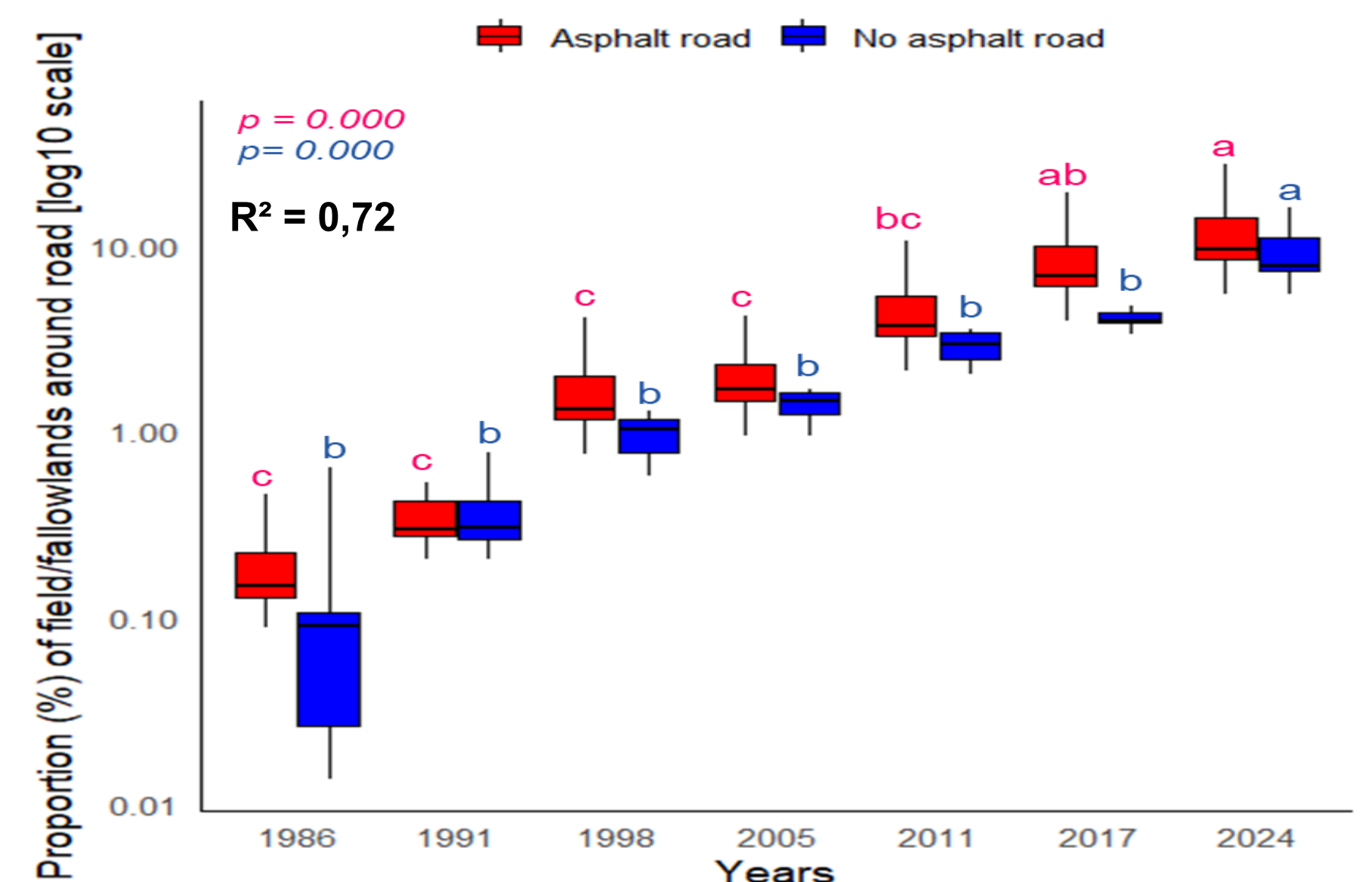


Table. Land cover distribution (%) in the Ouémé Supérieur – Wari Maro – Monts Kouffé forest complex (1986–2024)

LULC classes	1986		2024	
	Area (ha)	%	Area (ha)	%
Dense Forest	92678,40	18,90	41970,40	8,56
Woodland	278443,04	56,78	244765,11	49,91
Shrub Savanna	116359,34	23,73	172550,23	35,19
Cropland/fallow	454,12	0,09	29400,50	6,00
Rocky outcrops	885,84	0,18	532,56	0,11
Water bodies	1550,36	0,32	1152,30	0,23

- From fragmentation to aggregation: Bogaert's decision tree shows how cropland and fallow patches first appeared as scattered spots, then clustered into larger patches in recent years.



CONCLUSION

The fragmentation of the landscape is intensifying, particularly around asphalted roads, as well as unpaved ones. These findings highlight the need for a re-reading of protected forest management strategies, including better supervision of agricultural expansion, regulation of road developments, and increased involvement of local actors in environmental governance mechanisms.

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