

# Distribution of Avifaunal Population According to the Urbanization Gradient: Case Study of the Ghardaia Region

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## ABSTRACT

We have recorded the distribution of birds in urban, semi-urban and agricultural areas of the region from Ghardaia to Noumerat during different periods, these inventories are made on 15 points of listening (2 times per month).

The main objective of this study was to show the ornithological value of a Saharan urban landscape for birds.

We identified 26 structured species 06 orders and 16 families, the most represented family is those colombids with a maximum diversity  $H'=2.07$  in agriculture and a minimum diversity  $H'=0.99$  in semi-urban.

## INTRODUCTION

The Ghardaia region consists of a mosaic of ecosystems (urban, agricultural and aquatic). This region is located on the central route of migration of birds, it plays a crucial role as a stopover and breeding site for many migratory species.

The objective of this study is to determine the richness and abundance of avian species in this Saharan urban landscape and to analyze the effect of the urban gradient on their distribution.

## MATERIALS & METHODS

### Study site presentation:

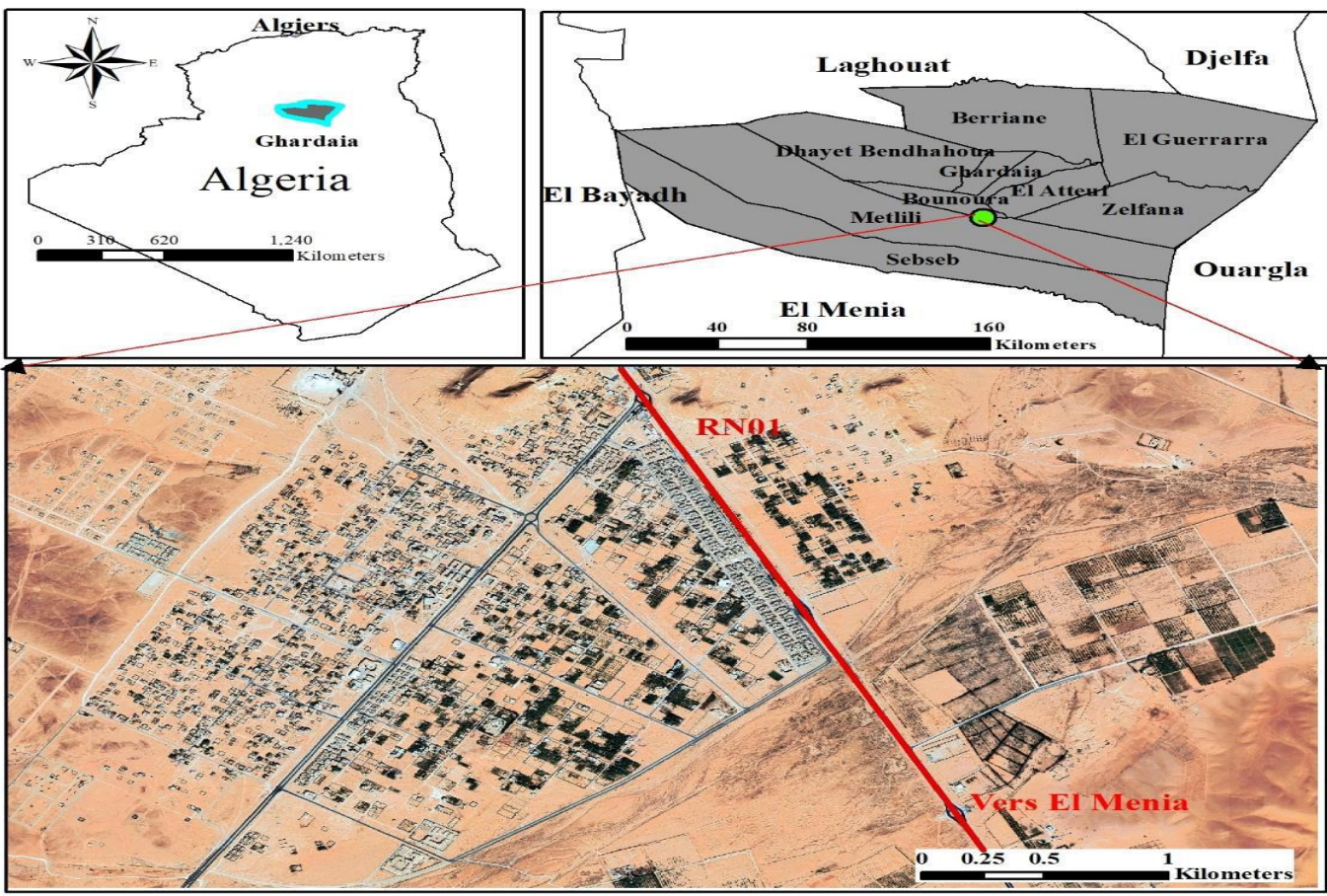


Figure 01: Location of the Noumerat region

### Location of listening points:

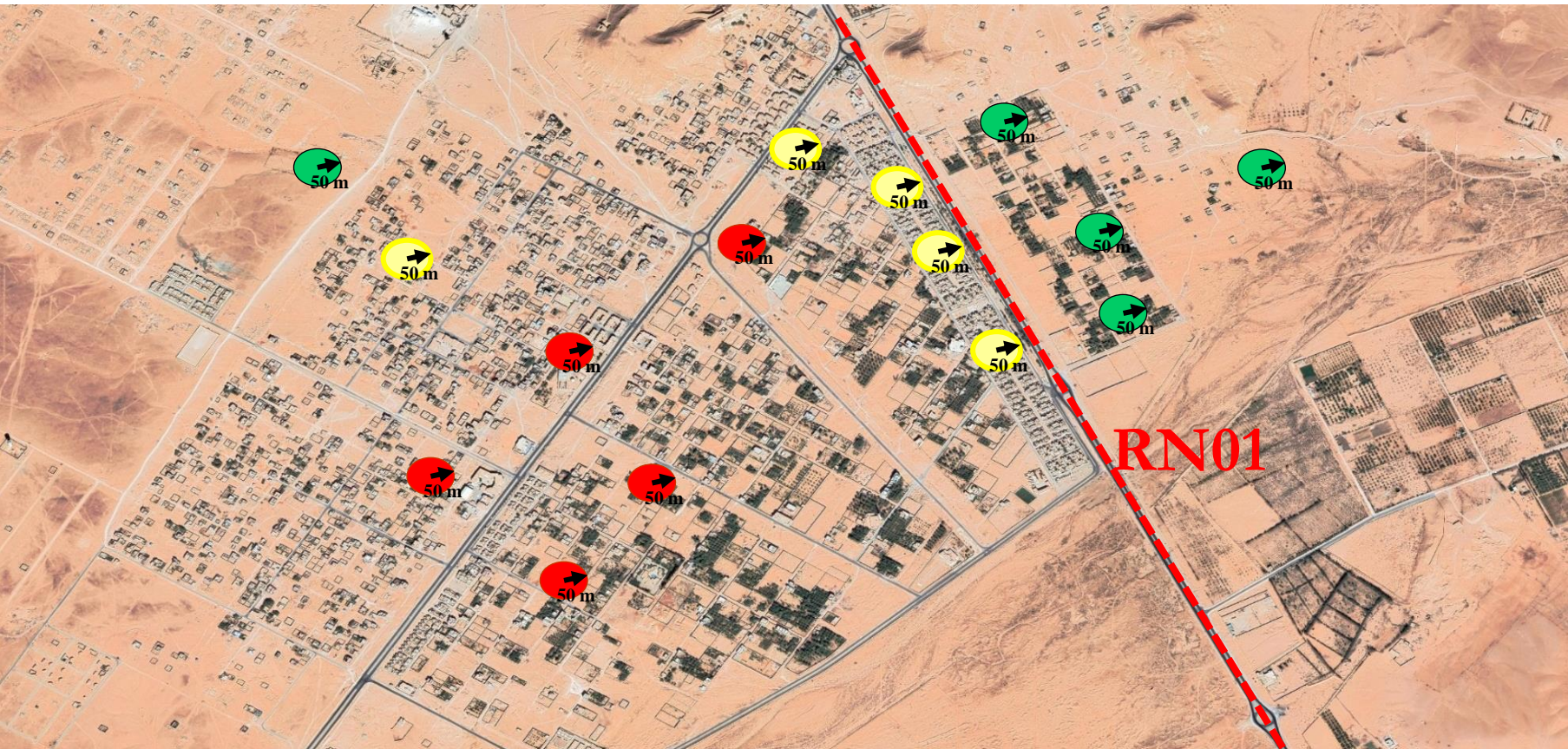
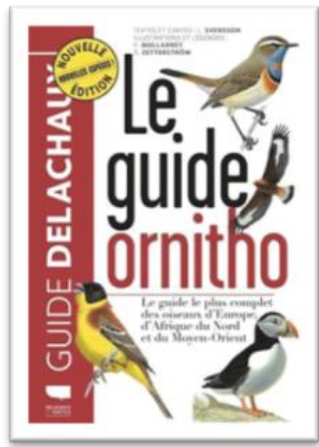


Figure 02: Location of listening points (Google Earth, 2023)

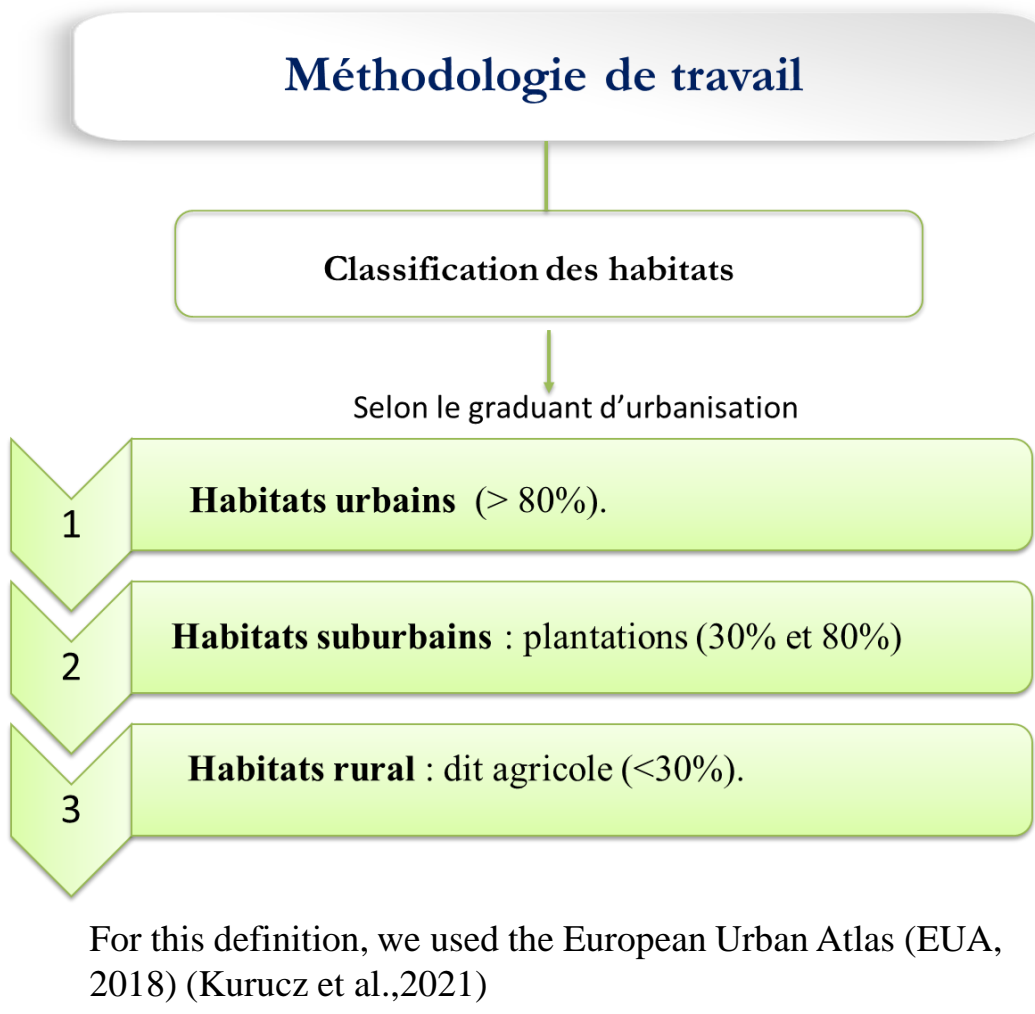
### Counting birds

- November 2022 until April 2023
- Bi-weekly field surveys.
- 98 listening points.
- we start 30 min sunrise and finish before 10:00
- 10 to 15 minutes at each point.
- 200 m to nearest point .

### Material used:

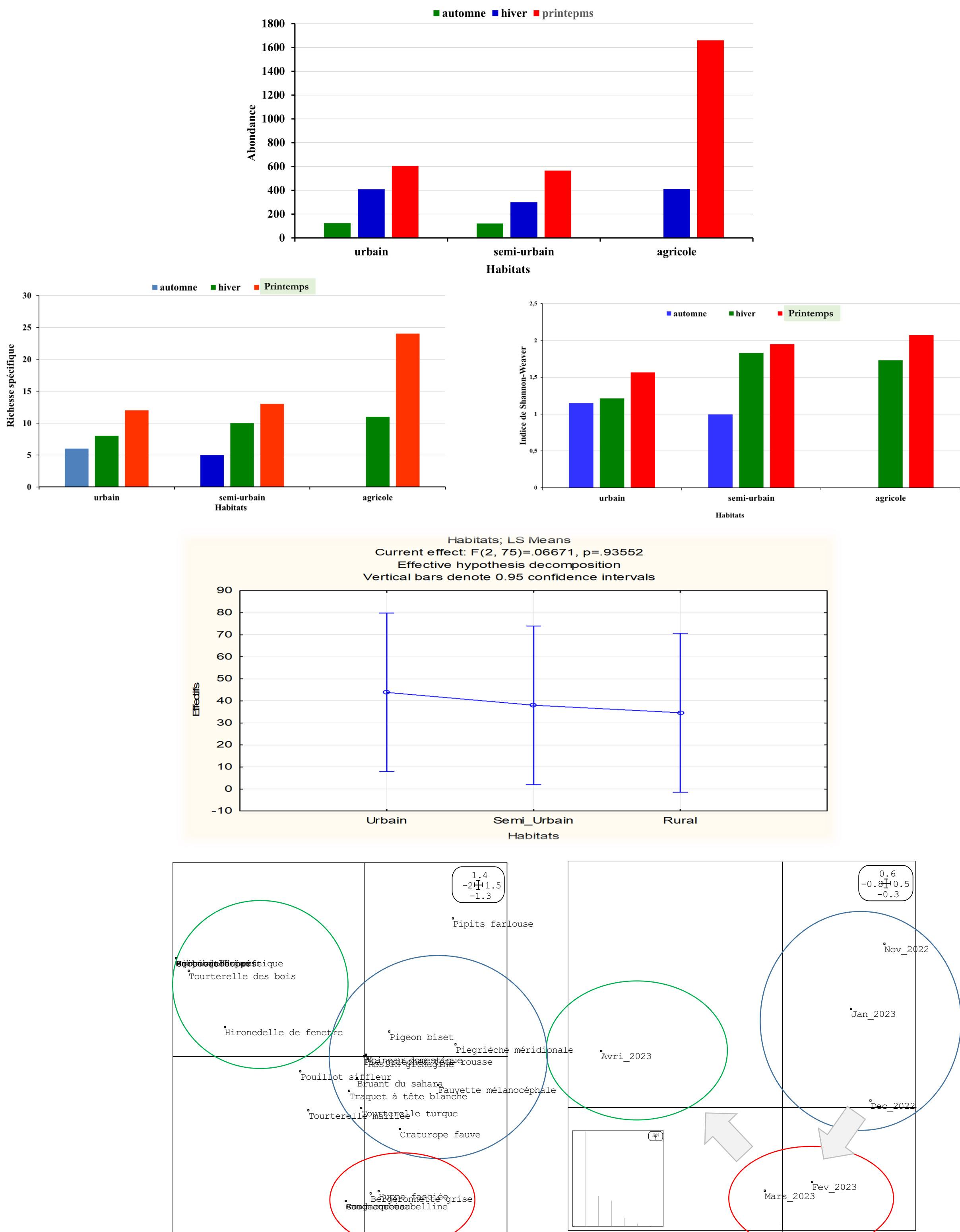


### Méthodologie de travail



For this definition, we used the European Urban Atlas (EUA, 2018) (Kurucz et al.,2021)

## RÉSULTS



AFC 1x2 factor map of bird species in the Noumerat region. Axes of inertia: 0.58, 0.18, 0.15. From November 2022 to April 2023

## CONCLUSION

In conclusion, our study in Noumerat identified 26 species of birds belonging to 6 orders and 16 families. Spring abundance was highest in agriculture, highlighting the importance of these habitats for bird life. The distribution of individuals among species was balanced. Factor analysis allowed the detection of migratory species at different periods. In summary, our study contributes to the understanding of the ornithological value of Saharan urban landscapes along an urbanization gradient.

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