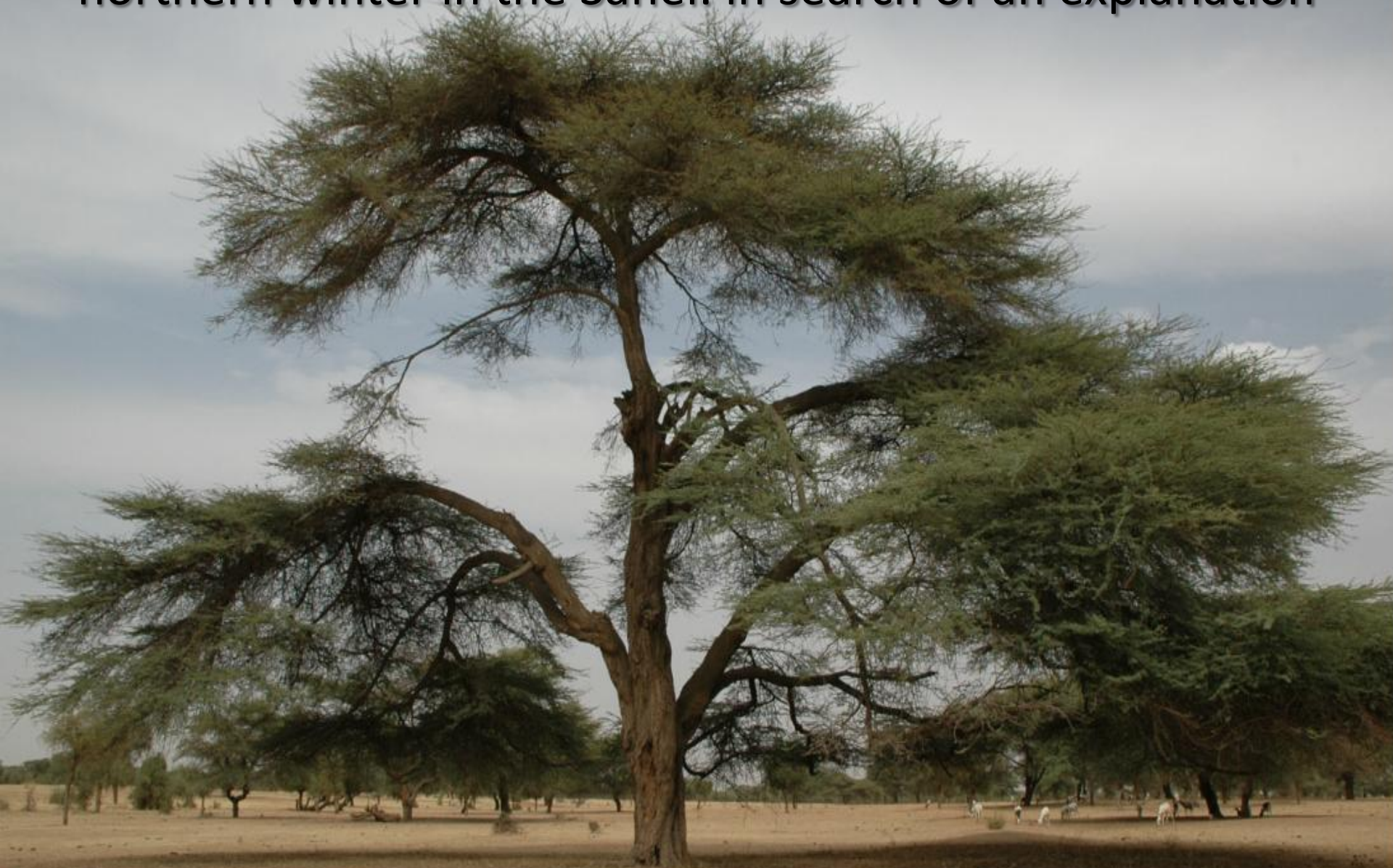


The decline of European woodland bird species spending the northern winter in the Sahel: in search of an explanation



Eddy Wymenga & Leo Zwarts



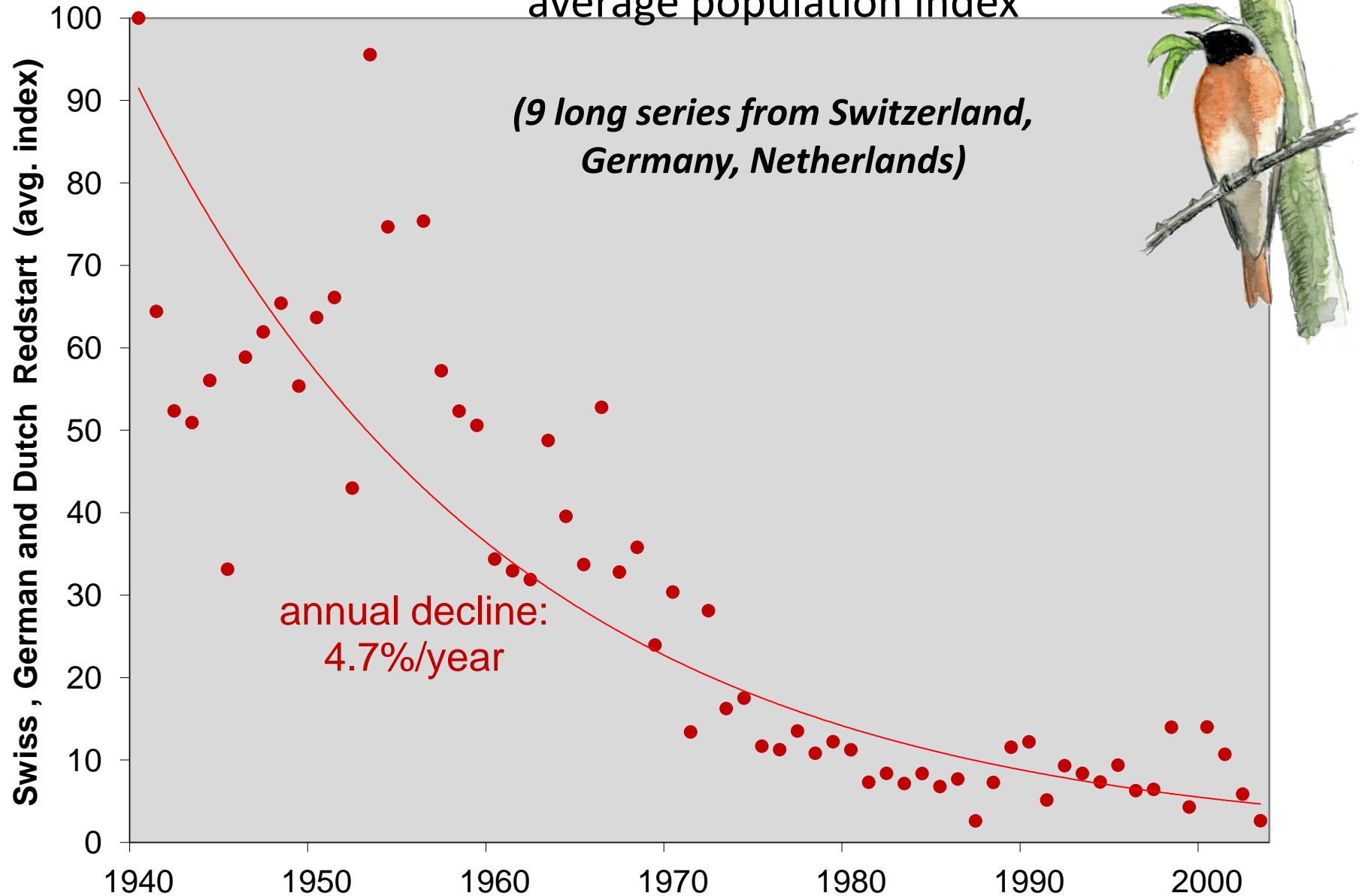
Common Redstart

Redstart:

average population index

*(9 long series from Switzerland,
Germany, Netherlands)*

annual decline:
4.7%/year



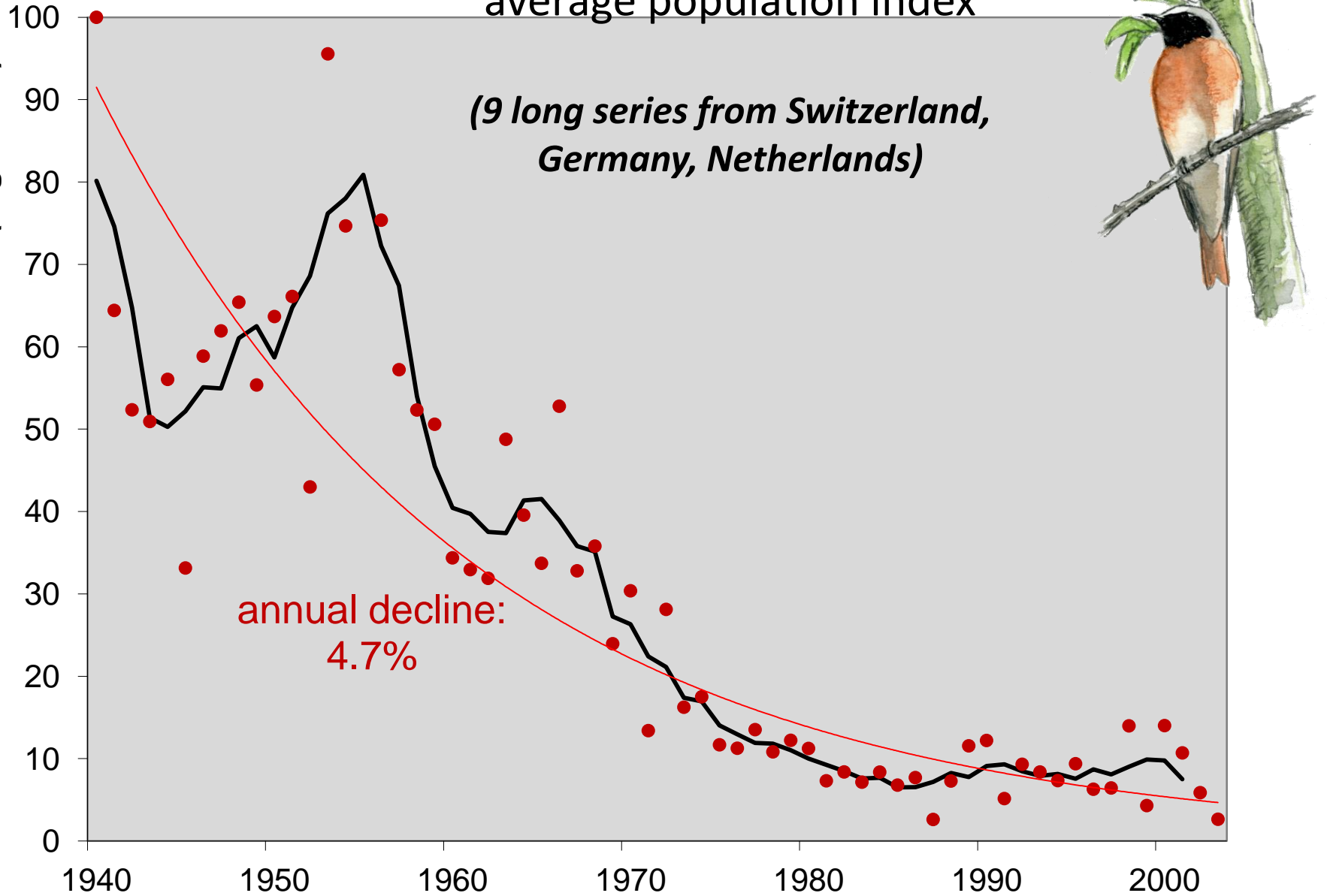
Redstart:

average population index

*(9 long series from Switzerland,
Germany, Netherlands)*

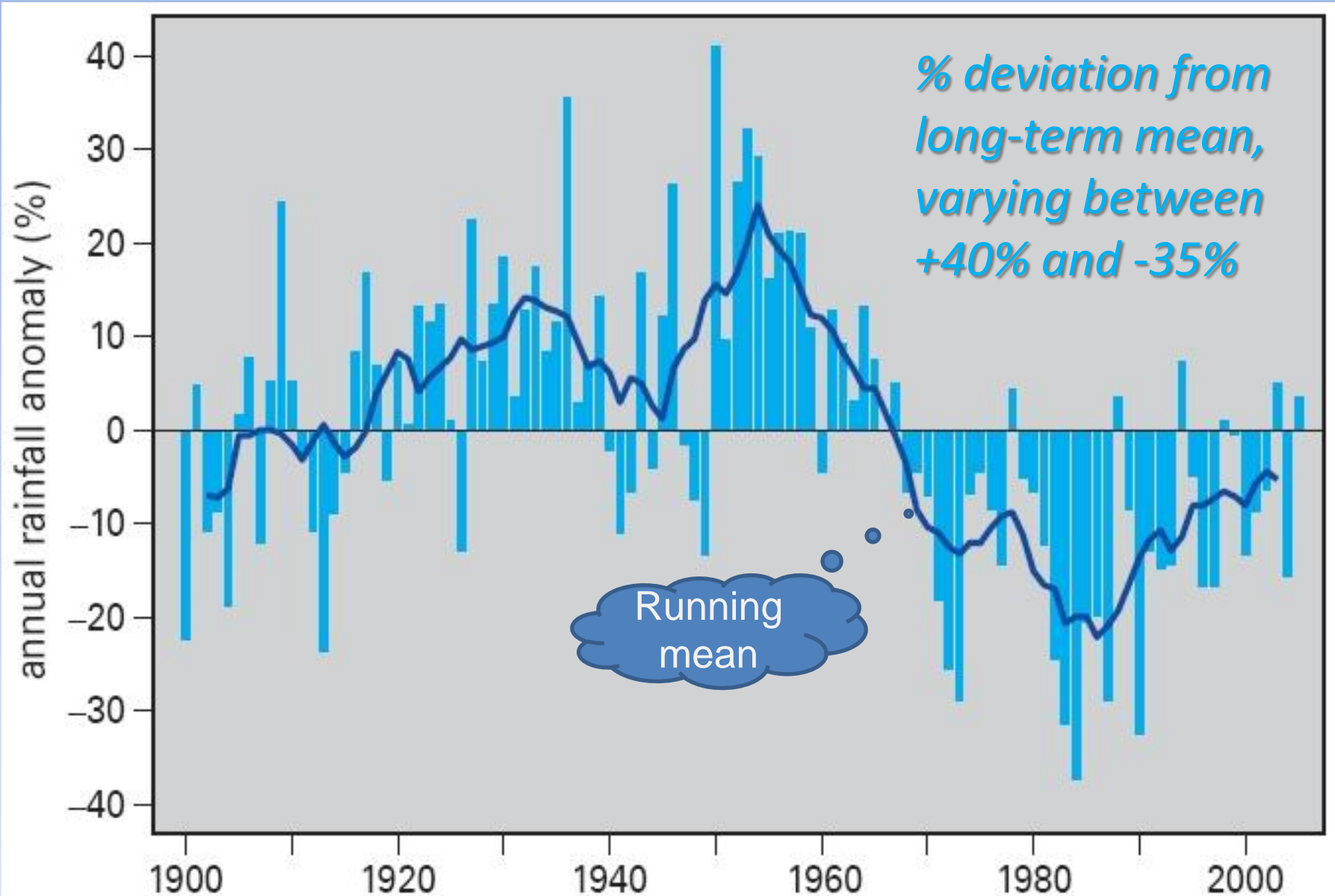
annual decline:
4.7%

Swiss, German and Dutch Redstart (avg. index)



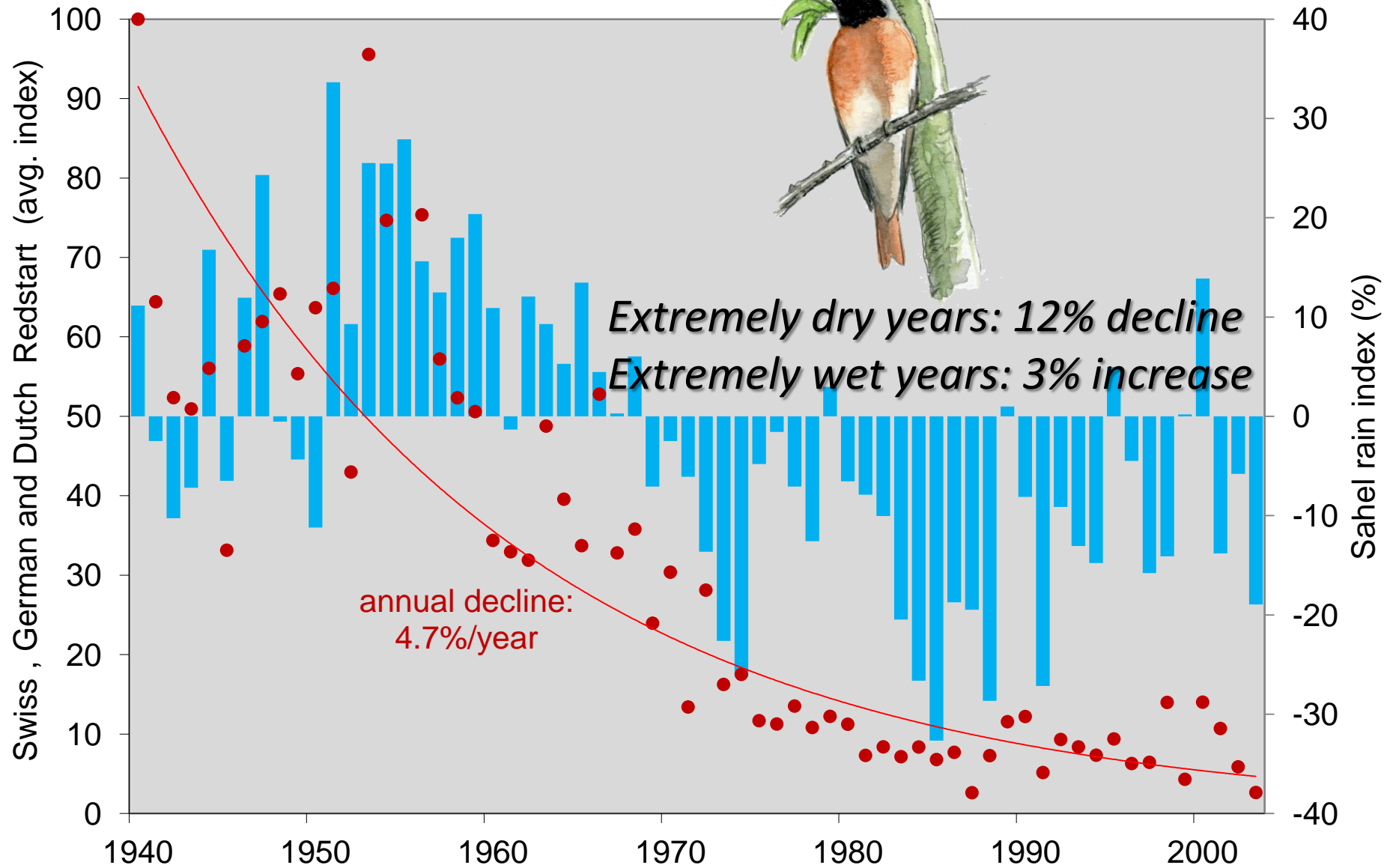
Annual rainfall in the Sahel

major factor determining population size of many bird species



Redstart

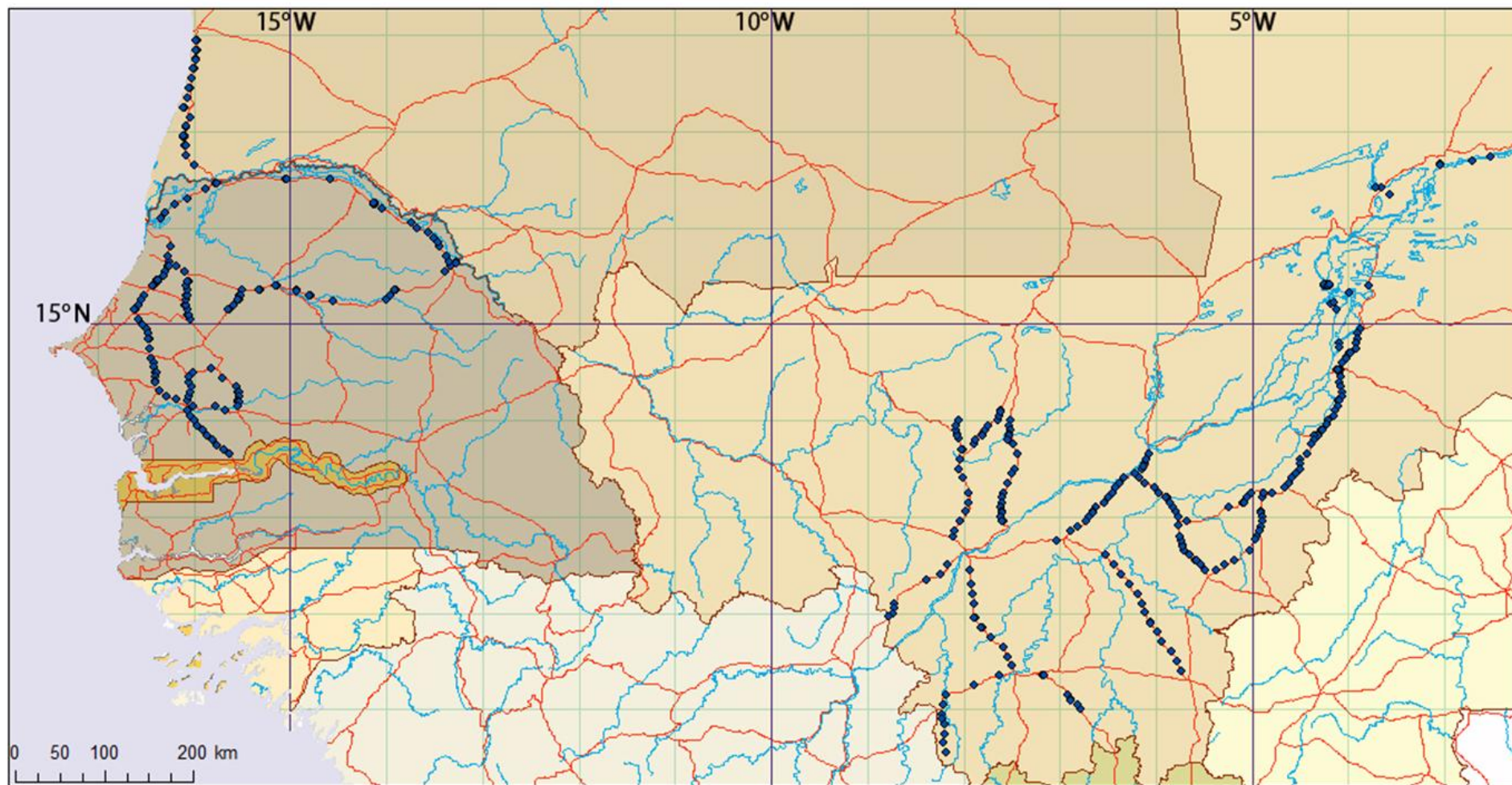
rainfall Sahel



A photograph of a house partially obscured by trees and tall grasses next to a body of water. The house is light-colored with a dark roof and a small dormer. It is surrounded by lush green trees and tall, dry grasses. The scene is reflected in the calm water in the foreground.

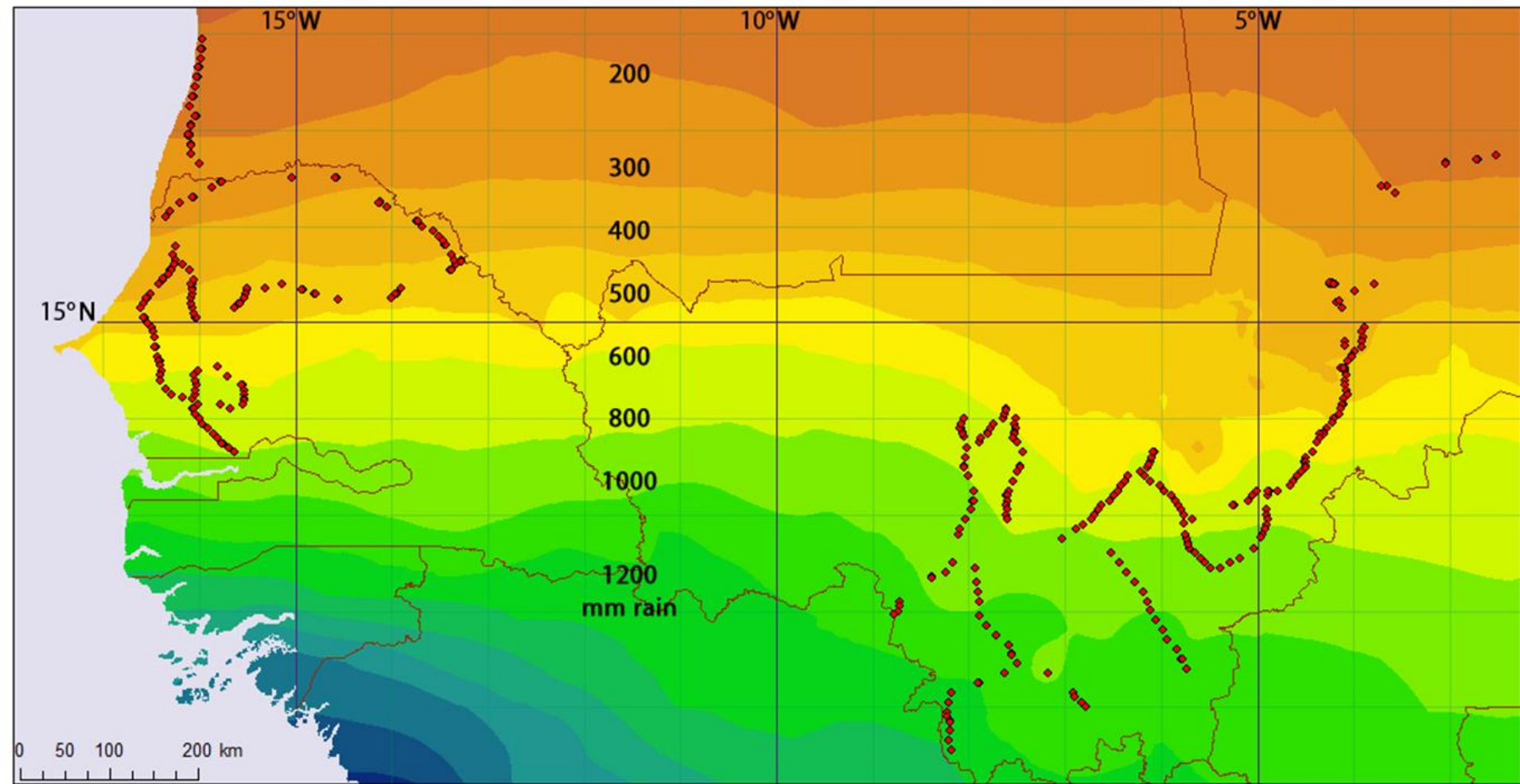
Decline of Common Redstart in Europe due to

- High winter mortality if Sahel is dry but also ...
- Long-term loss of habitat in the Sahel



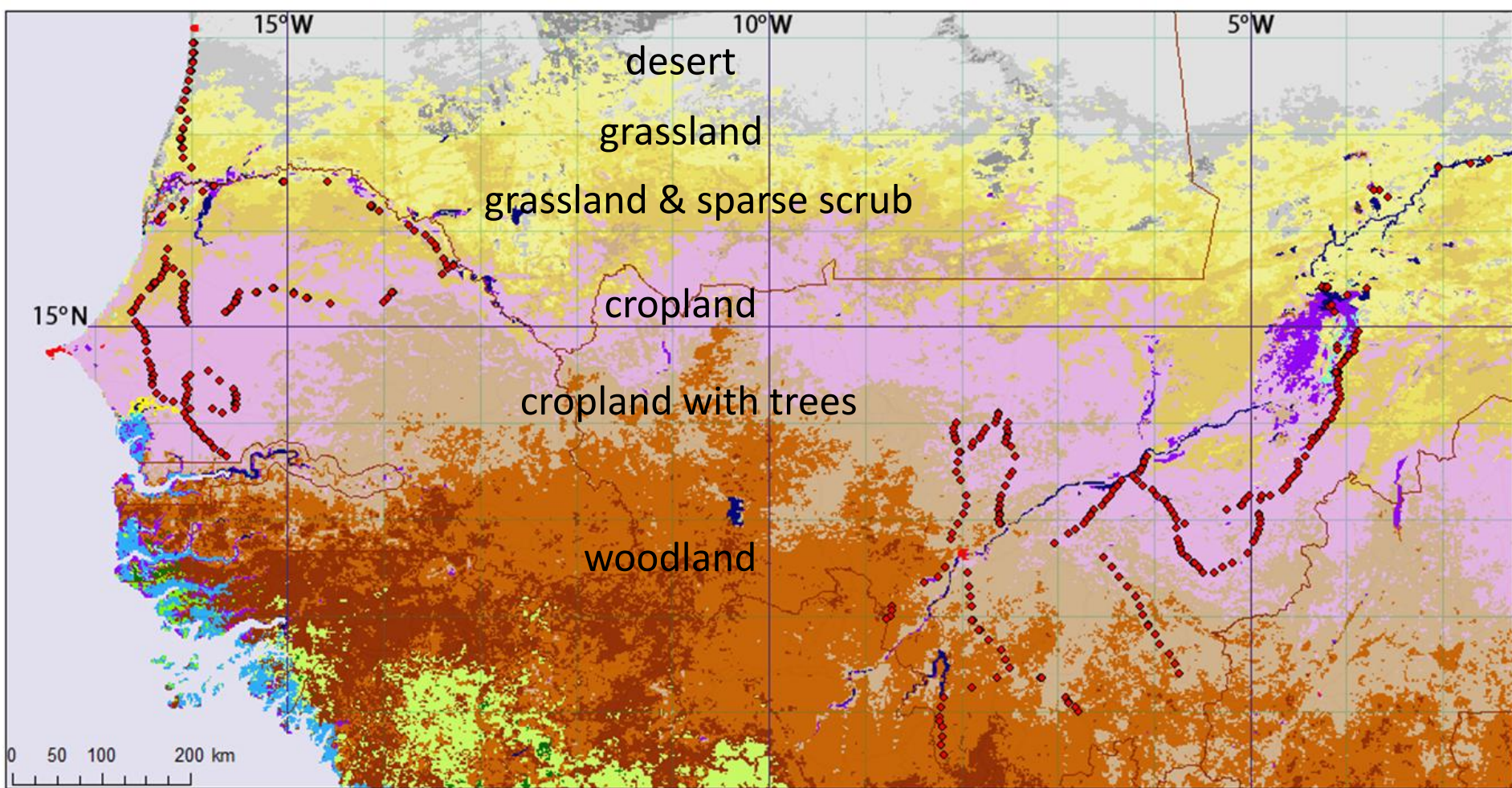
1033 transects on 308 sites in January-February 2007-2012

in Mauritania, Senegal and Mali



1033 transects on 308 sites in January-February 2009-2012

where annual rainfall varies between 100 and 1300 mm



1033 transects on 308 sites in January-February 2007-2012

in different habitats



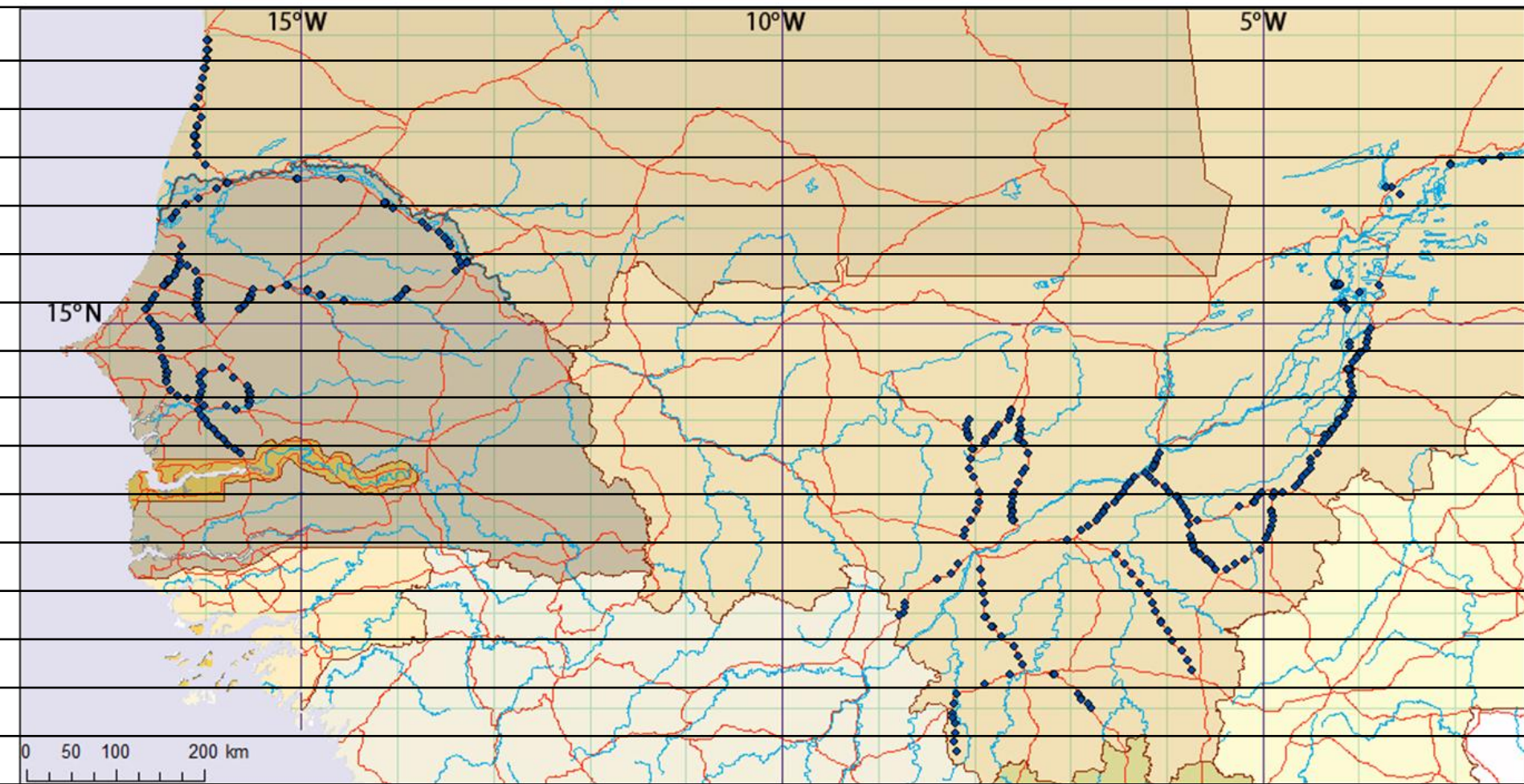


170,867 trees + scrubs in the 1033 transects:
164 tree species: height, width, flowers/fruit



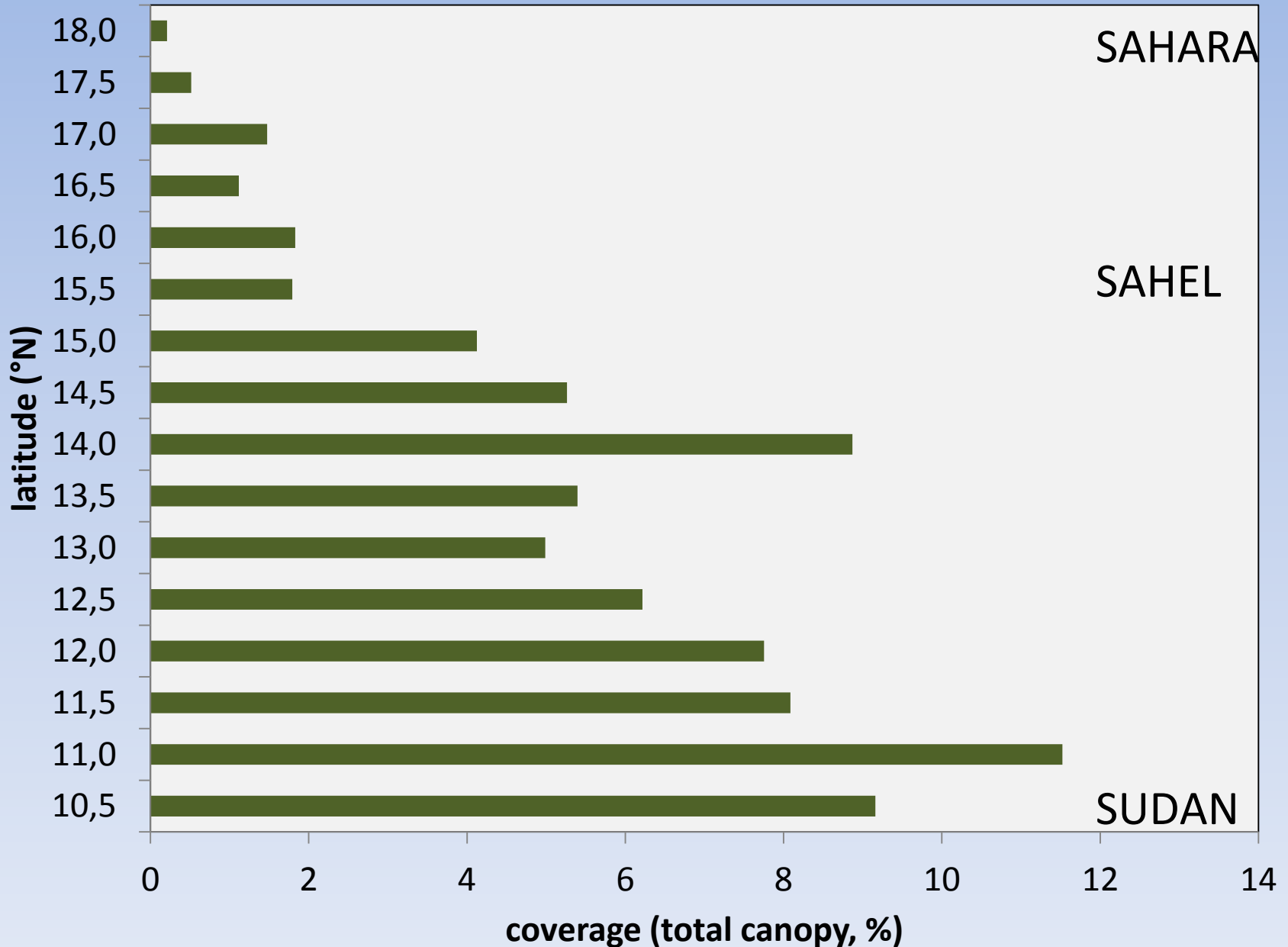
In the 170,867 trees + scrubs :
2611 Palearctic birds; 34 species





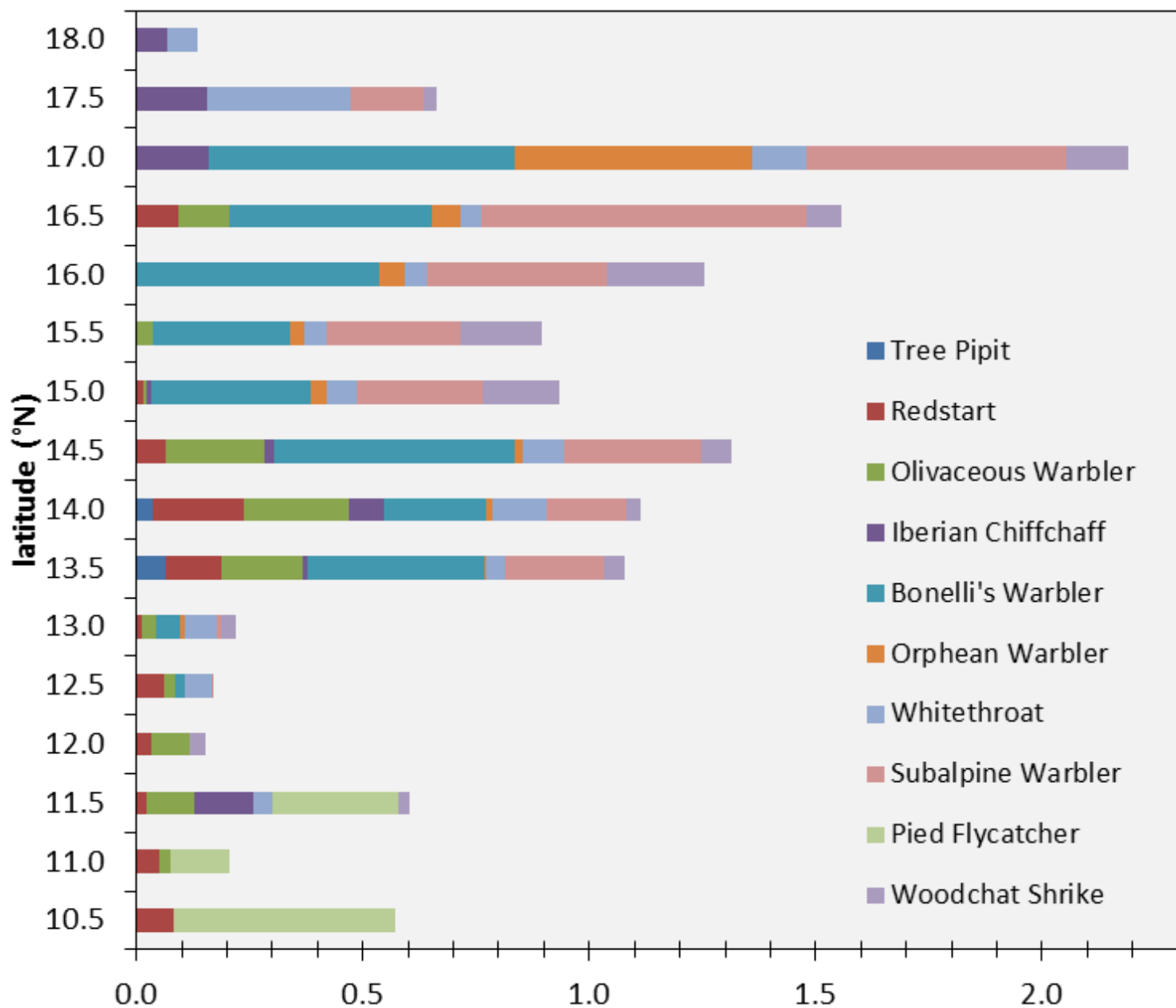
1033 transects split up in **16 latitudinal zones** (10.5 – 18 °N)

Tree coverage (%) per latitude



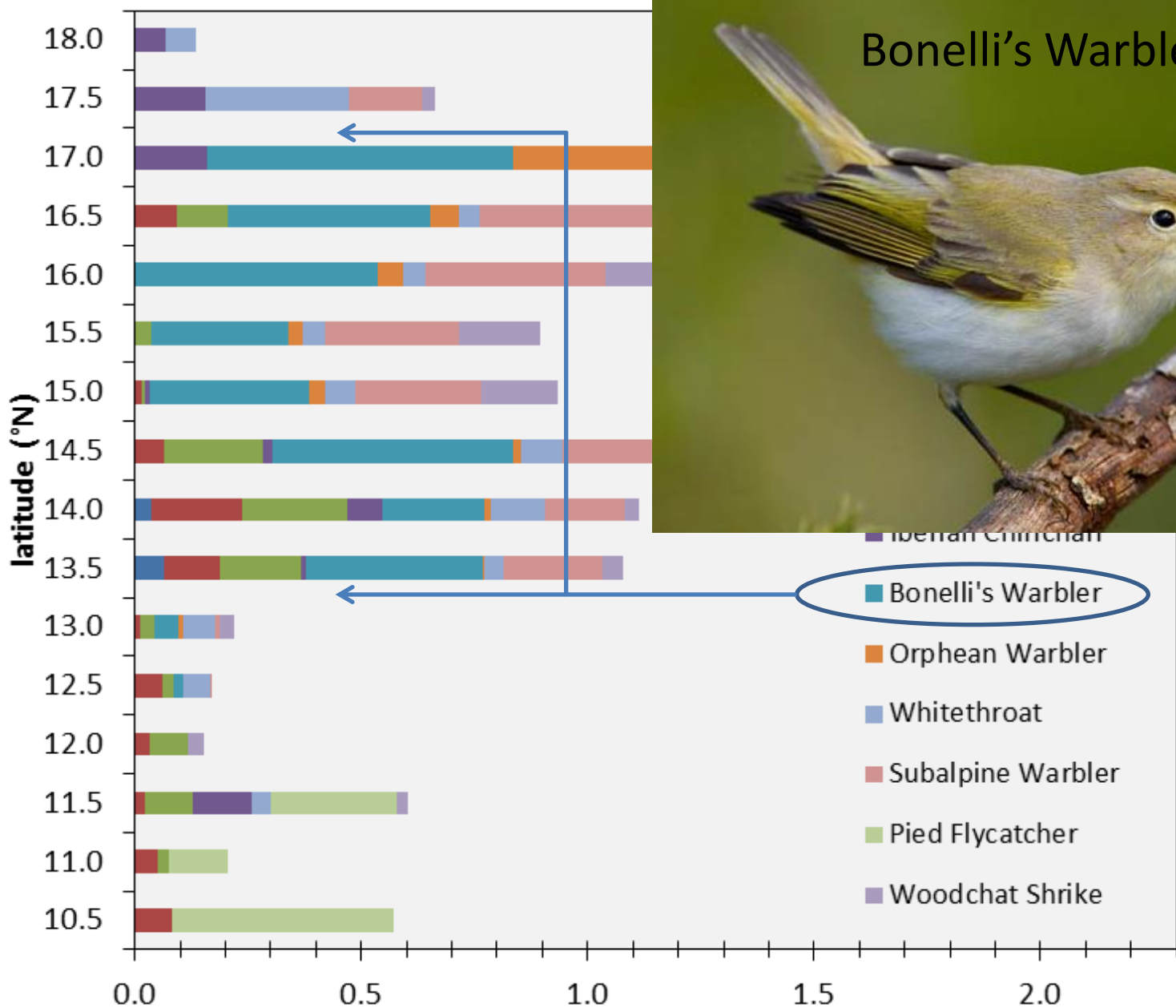
Bird density/ha per latitude

10 most common bird species



Bird density/ha per latitude

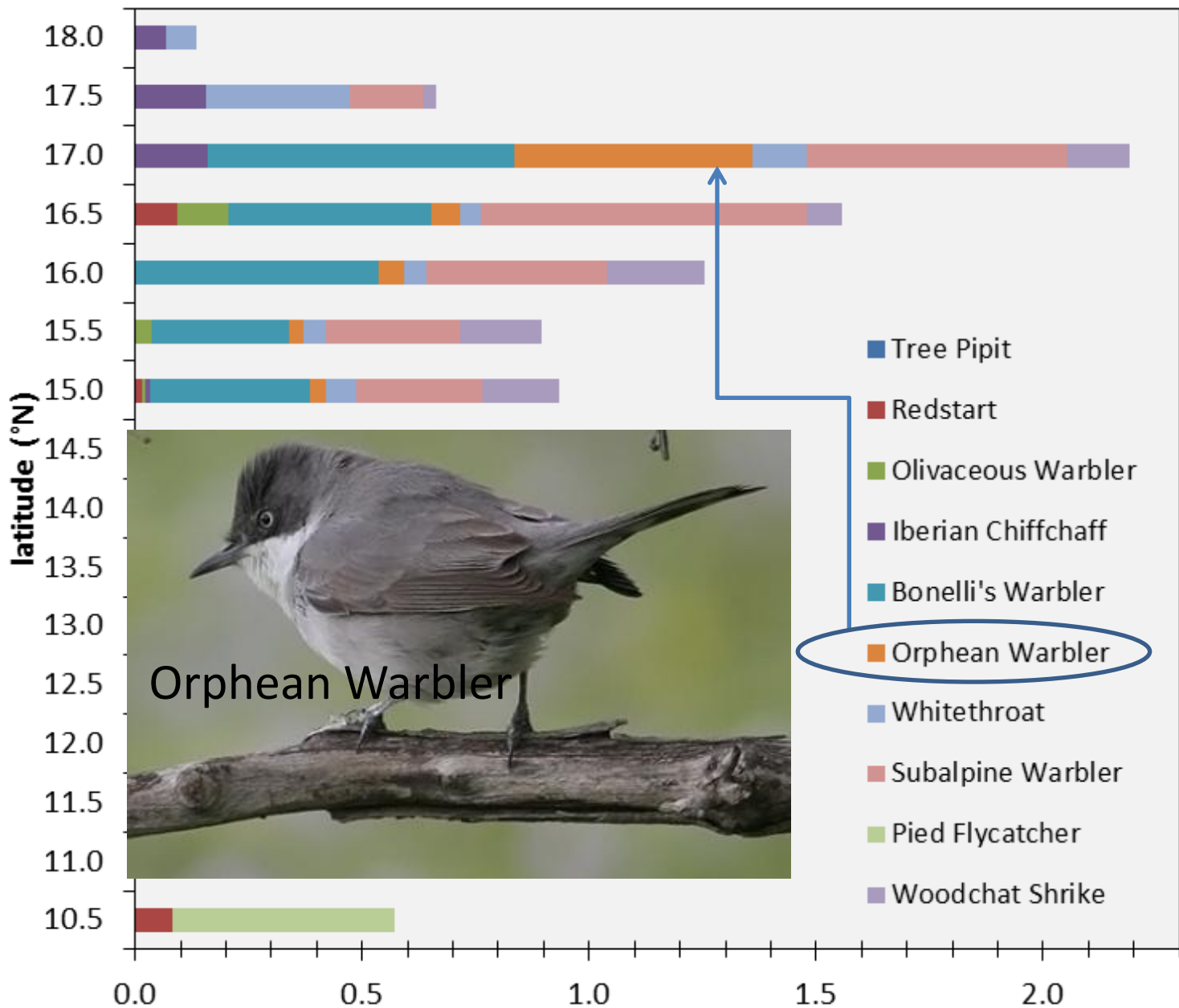
10 most common species



Bonelli's Warbler

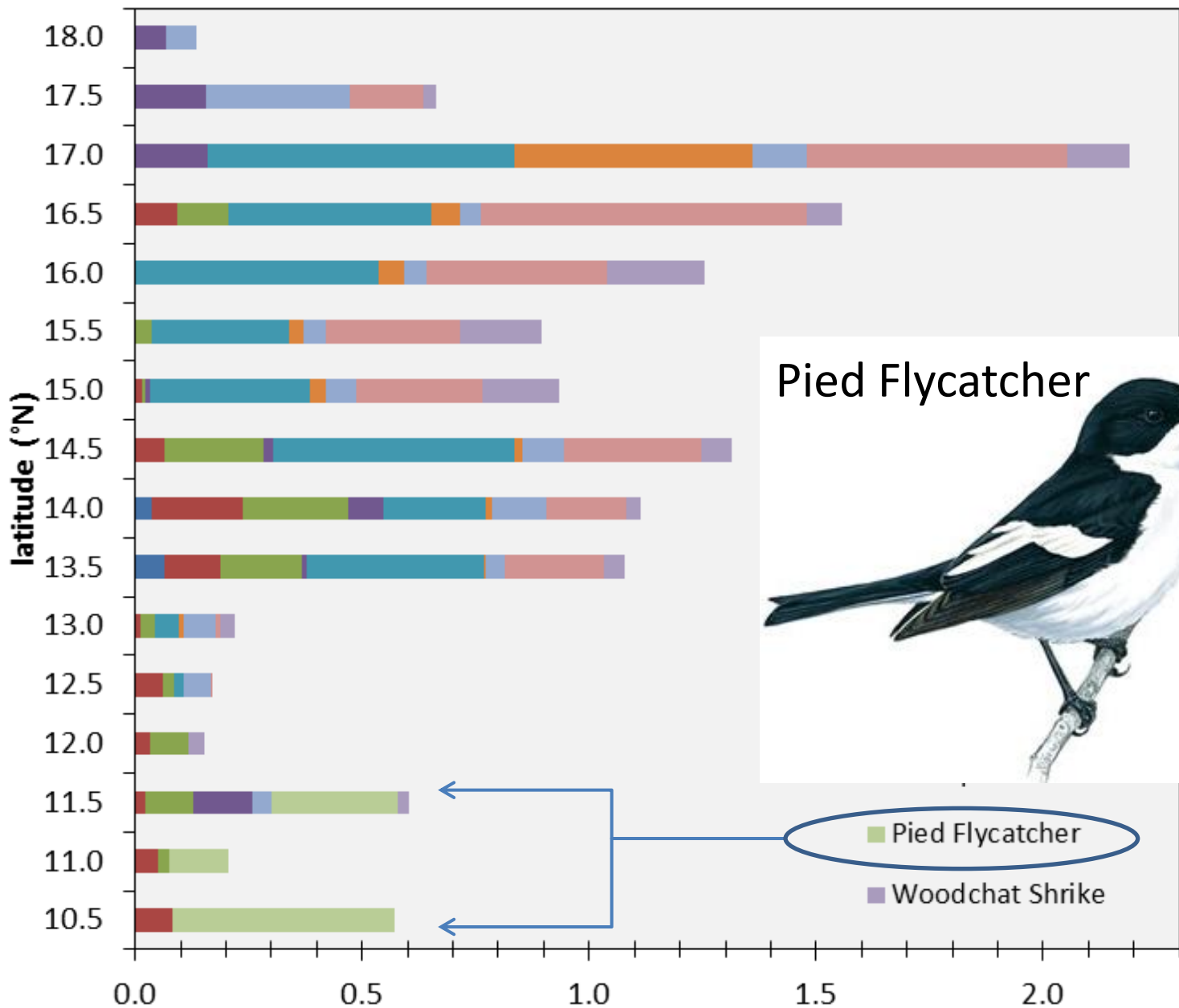
Bird density/ha per latitude

10 most common species



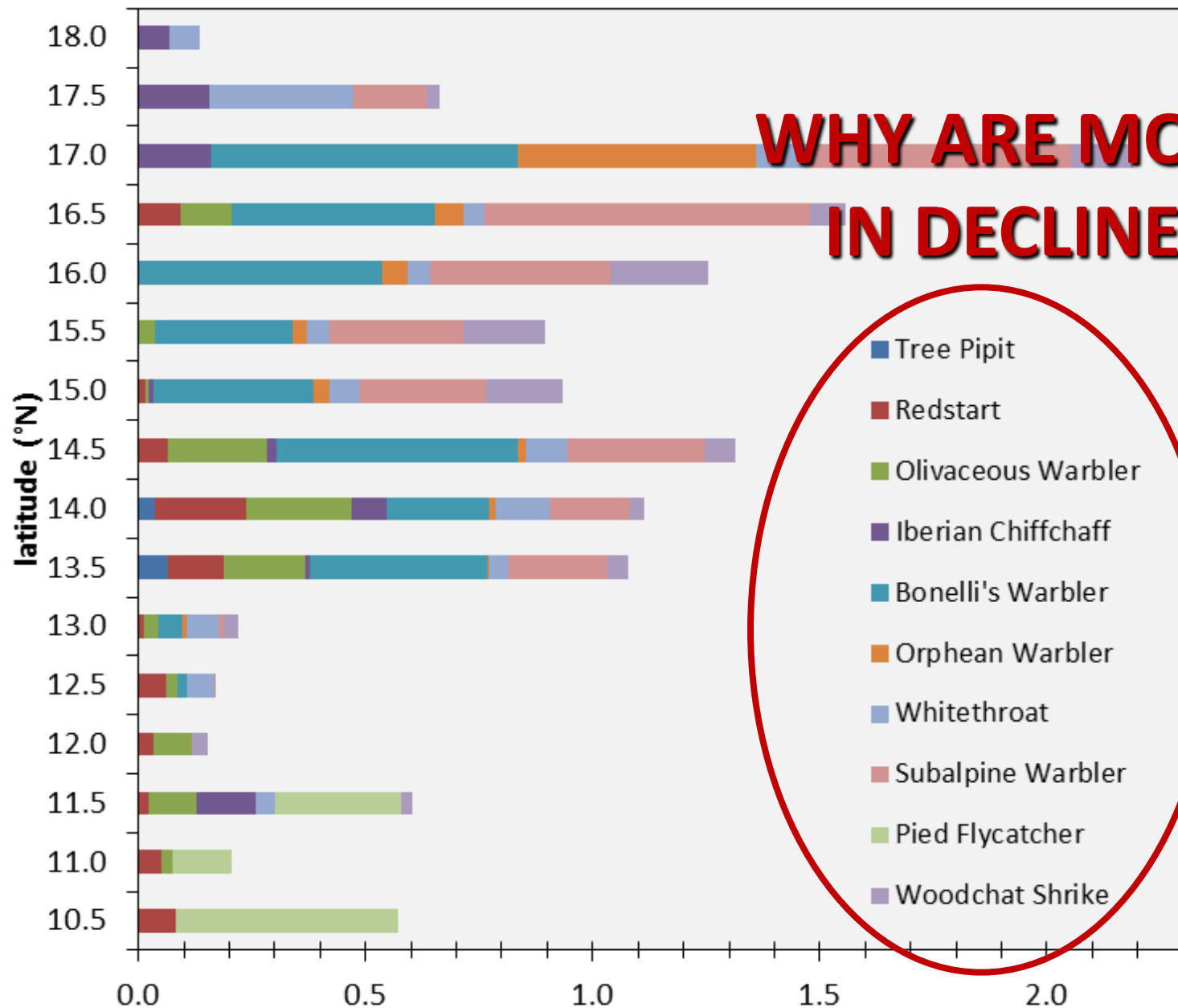
Bird density/ha per latitude

10 most common species



Bird density/ha per latitude

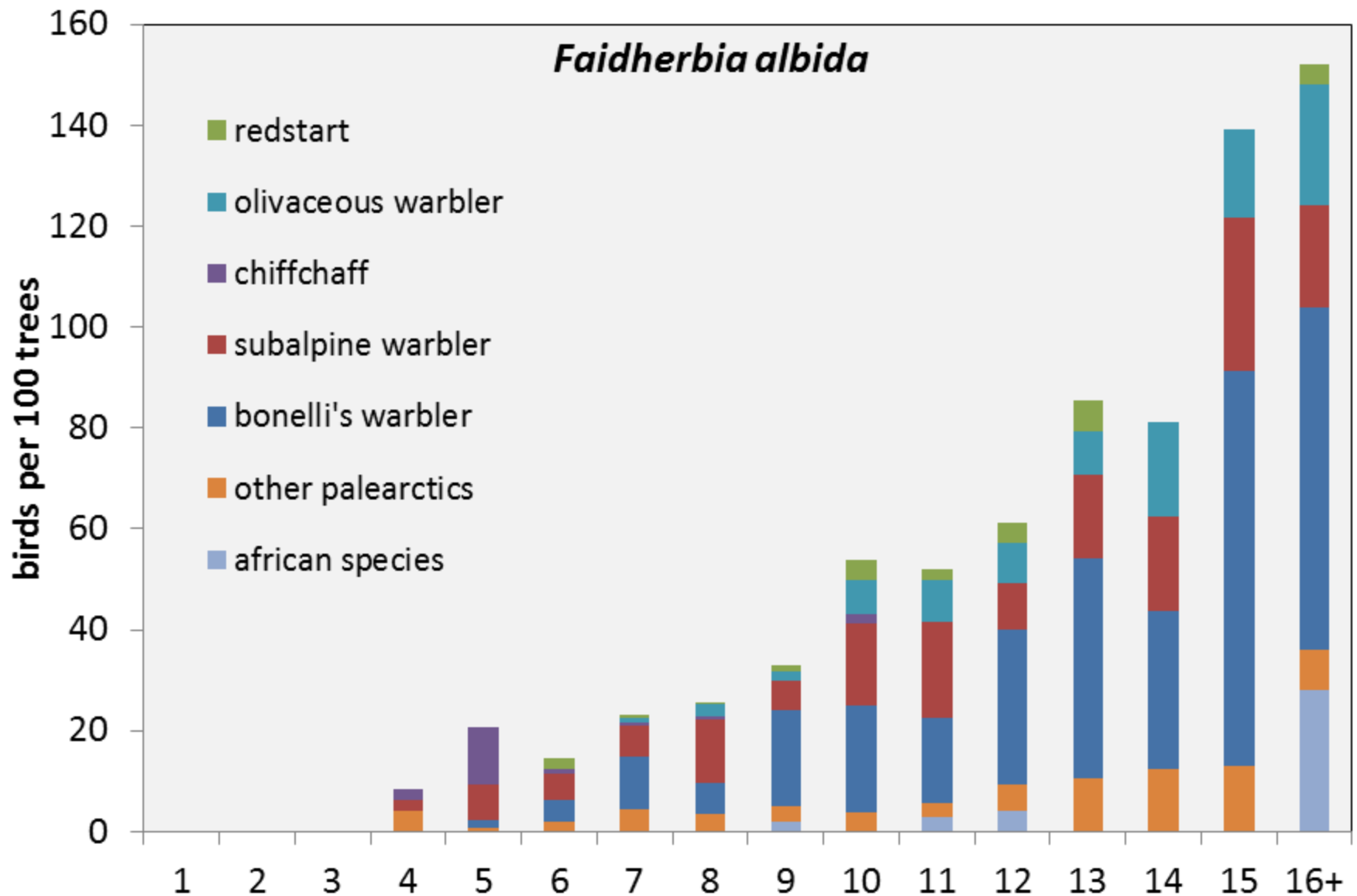
10 most common species



**WHY ARE MOST
IN DECLINE?**

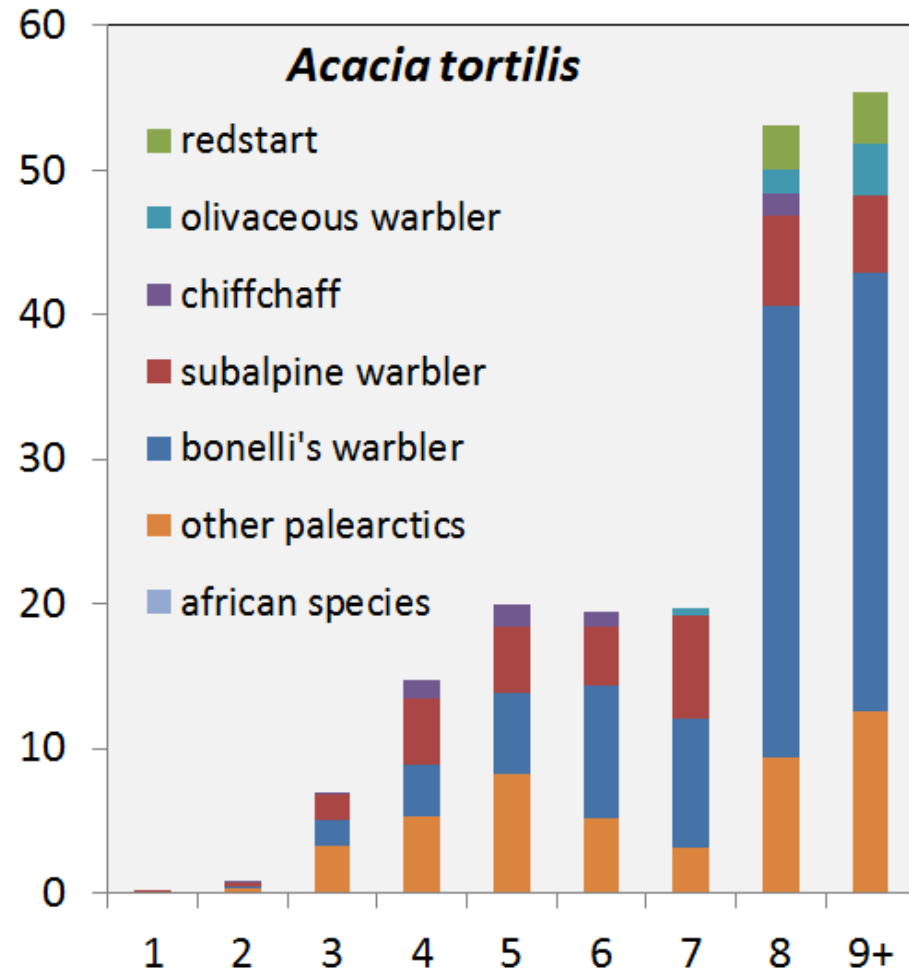
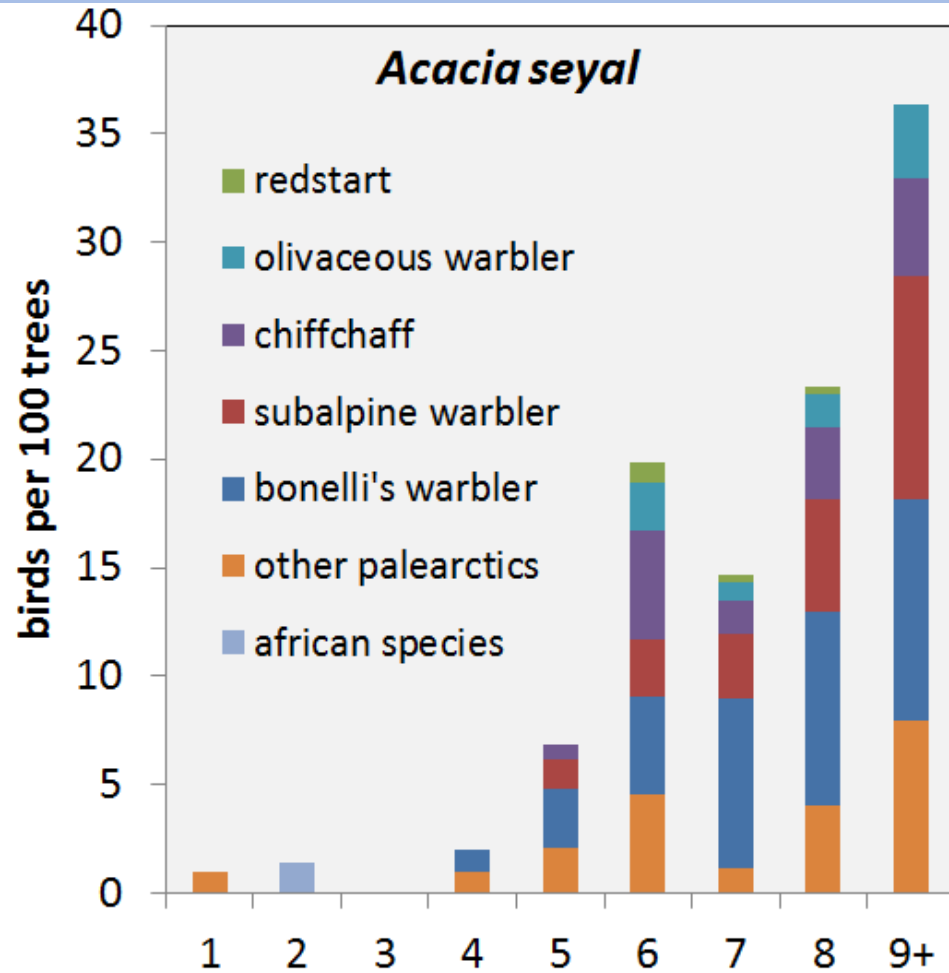
Woodland bird species prefer large trees

birds per 100 trees as a function of tree height (m)



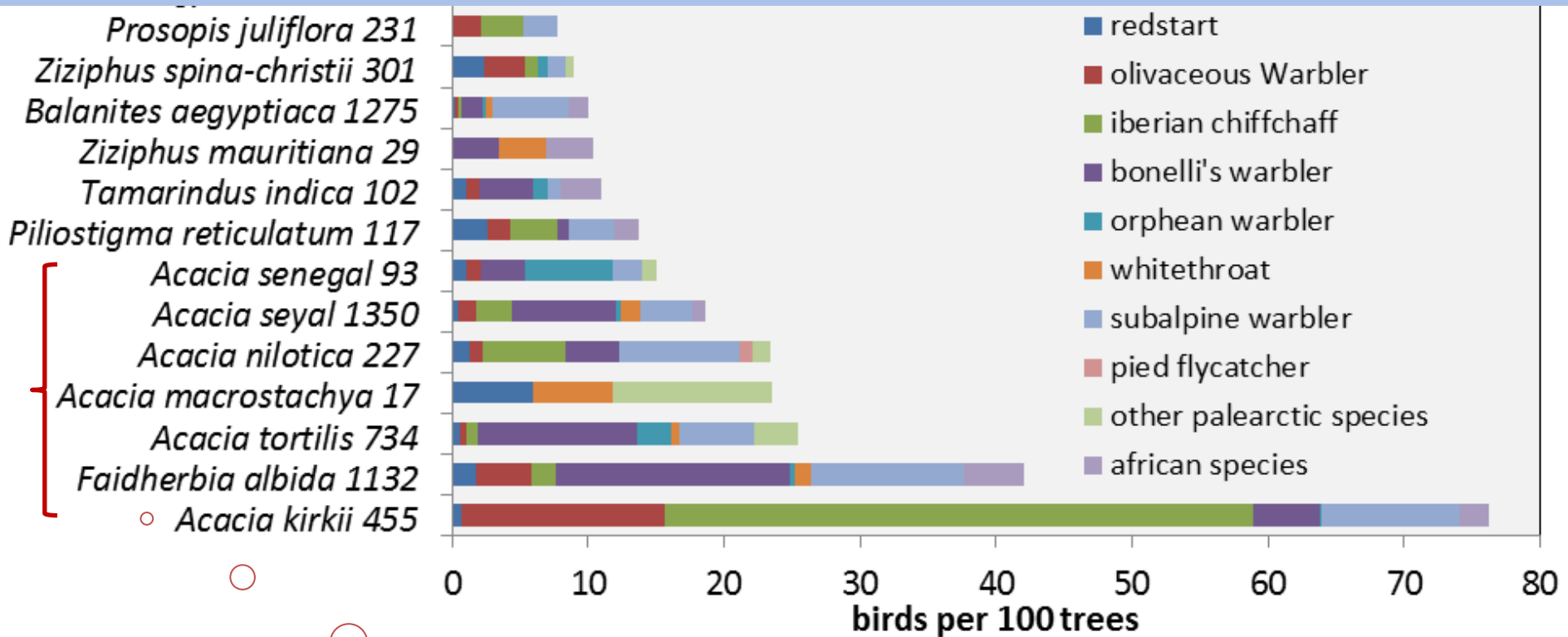
Woodland bird species prefer large trees

birds per 100 trees as a function of tree height (m)



Woodland bird species are found in only a few Sahelian tree species

bird density in the 13 most popular tree species



**Most birds in seven
Acacia tree species**

Dagana (northern Senegal) in 1984



1984

Is decline Sahelian woodland birds due to decline of their preferred tree species?



1993

Dagana (northern Senegal) in 1993

Acacia kirkii



1. Loss of flooded forests

2. Loss of *Acacia* forests in northern Sahel





3. Changes of farmland

Woodland bird species in the Sahel are farmland birds
but they are not found in *Parkia biglobosa* (néré)



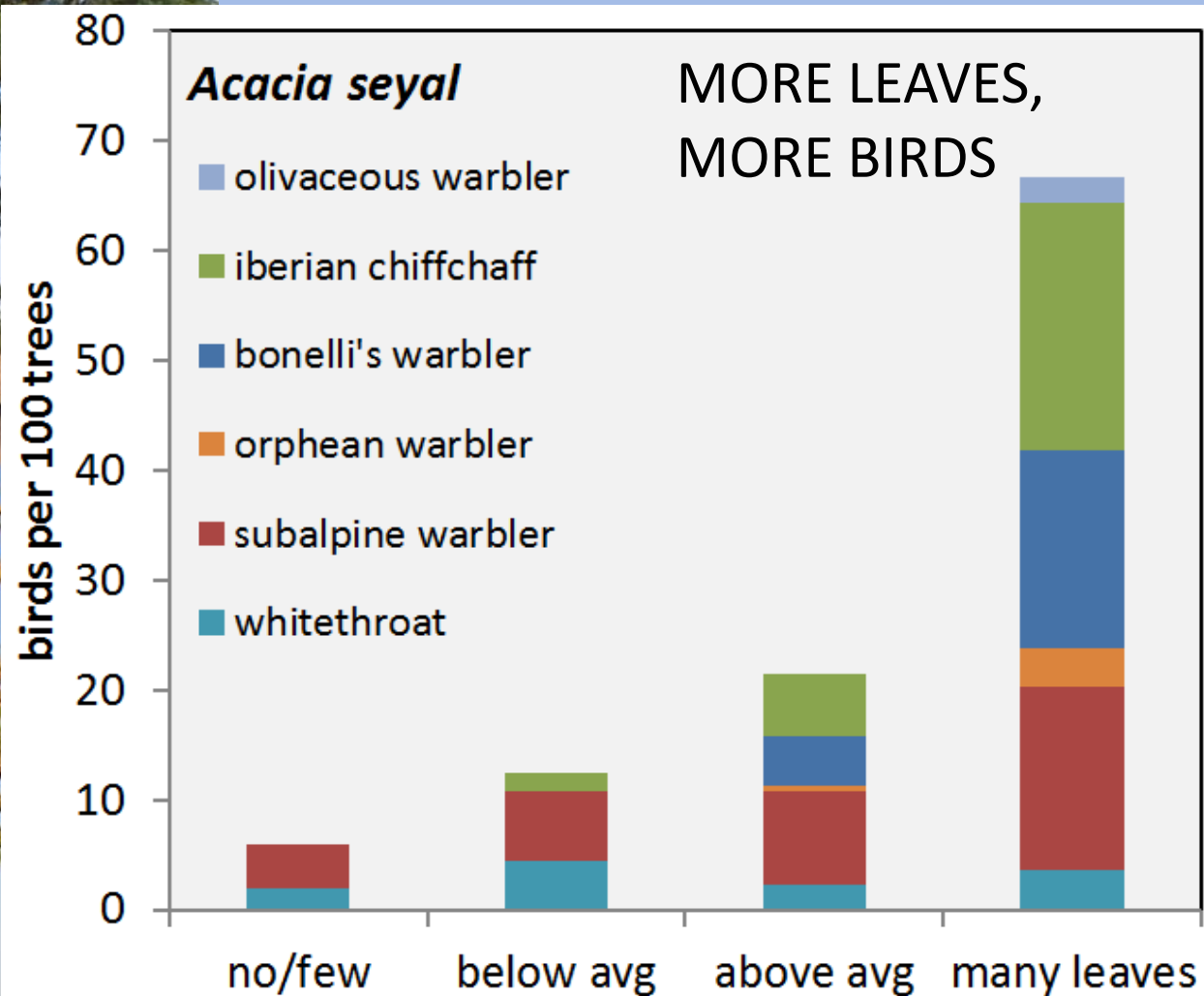
Woodland bird species in the Sahel are farmland birds but they are not found in *Vitellaria paradoxa* (karité, shea butter tree)



Woodland bird species in the Sahel are farmland birds
most are found in *Faidherbia albida* (balazan)

Faidherbia trees in early February before ...

Pruning has a large impact on birds



and after pruning



Increase of grazing pressure 3-4%/year → more pruning

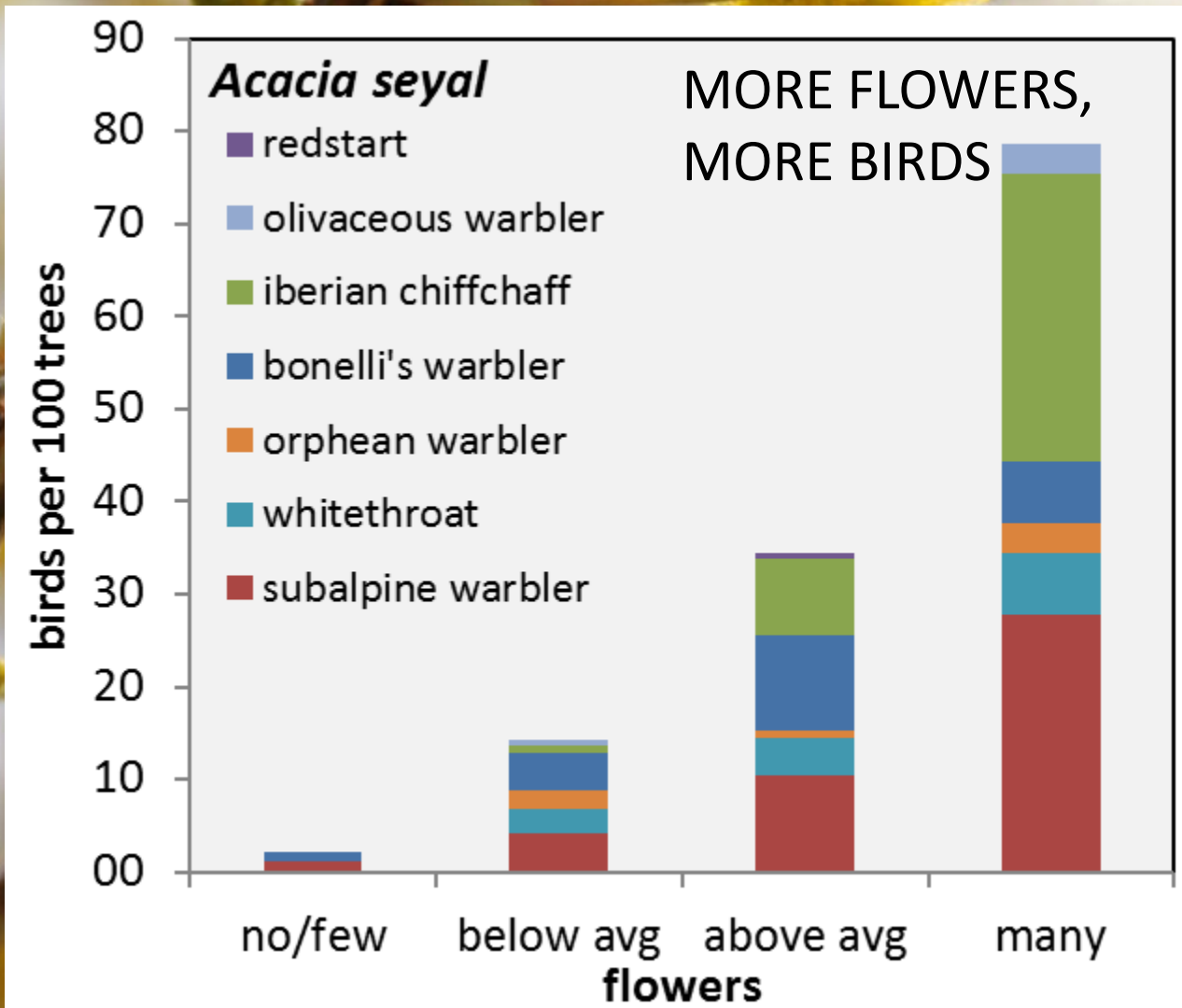


CONCLUSION: Palearctic Sahelian woodland birds ..

1. Most are found in the northern Sahel in large Acacia trees
2. Decline due to (a) loss of forests on/near floodplains and (b) changes on Sahelian farmland



Salvadora persica Toothbrush tree



So far: all data from January-February

Next step: study of seasonal shift

Leo Zwarts Rob G. Bijlsma Jan van der Kamp Eddy Wymenga

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Wetlands and birds in a changing Sahel

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Les ailes du Sahel

Zones humides et oiseaux migrateurs dans un environnement en mutation

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Thanks for your attention



Wetlands and birds

in a changing Sahel



Les ailes du Sahel

Zones humides et oiseaux migrateurs dans un environnement en mutation

