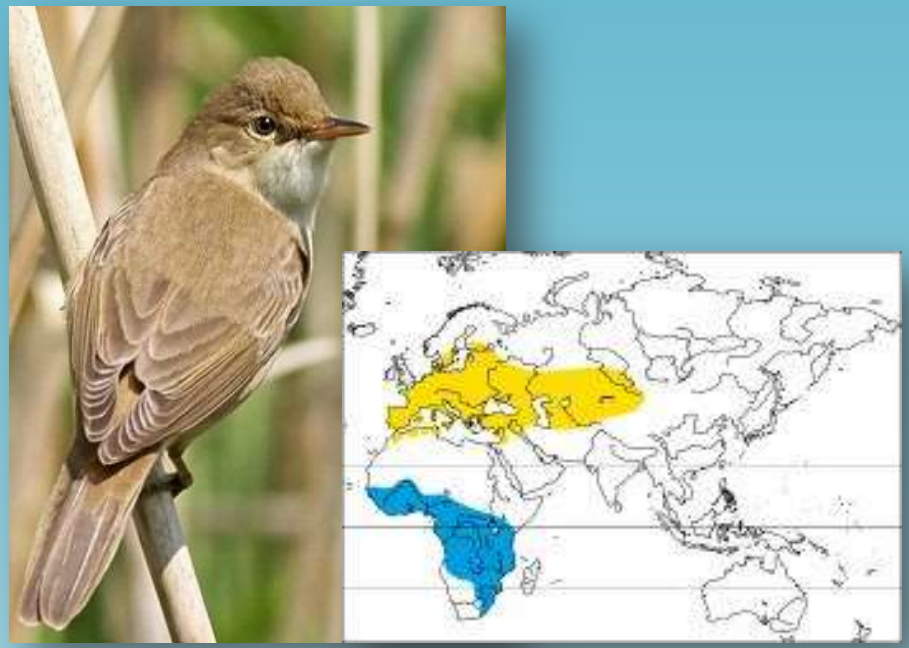
Wintering areas on the move in face of warmer winters



3rd International Congress on
Bird Migration and Global Change
Adapting to a changing world

3-5 September 2018 · Tarifa · Spain

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Dept. Animal Biology

UNIVERSIDAD DE MÁLAGA

Scientia Biodiversitatis
Biogeografía, Diversidad y Conservación

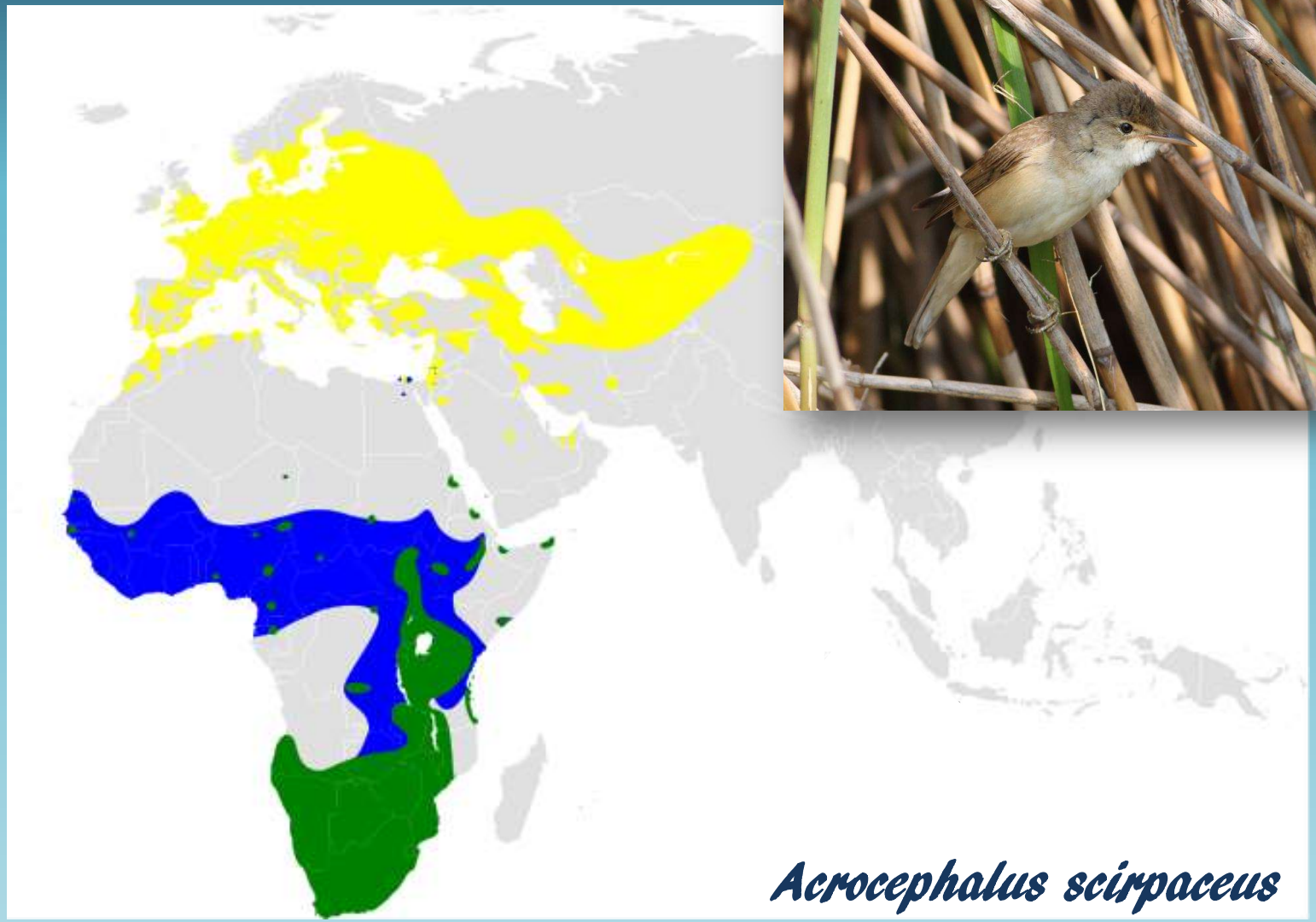

Upupa epops


Circus macrourus


Circaetus gallicus


Hirundo rustica


Acrocephalus scirpaceus



Acrocephalus scirpaceus

Aims

1. To examine the status of Eurasian Reed Warbler during winter in the Iberian Peninsula.

2. To characterize those areas in which the Eurasian Reed Warbler currently winters.

3. To assess the relevance of climate on the selection of the wintering sites

Acrocephalus scirpaceus

Ringing data provided by:

The Ringing Office of the Society of Sciences Aranzadi (OAA)

The Centro de Migración de Aves (CMA) of SEO/BirdLife

The Central Nacional de Anilhagem/CEMPA (ICNF)

aranzadi zientzia elkartea | SOCIEDAD DE CIENCIAS SCIENCE SOCIETY SOCIÉTÉ DE SCIENCES

SEO BirdLife

ICNF Instituto da Conservação da Natureza e das Florestas

Ringing data:

From November 15 ...?

To January 31

finding time as accurate to at least 1 week

Modelling winter distribution in Iberia:

From December 1

To January 15

A set of 21 environmental variables related to topography, spatial location (polynomial trend-surface analysis), and climate

Topography

Alti	Mean altitude (m)
Slop	Slope (degrees) (calculate from Alti)
AltiR	Altitudinal range (m)
SE	Southward exposure degree
WE	Westward exposure degree

Spatial situation

La	Latitude (degrees N)
Lo	Longitude (degrees E)
Spat	trend-surface analysis

Climate

Prec	Mean winter precipitation (mm)
Tm	Mean winter temperature (^{0}C)
Tn	Mean winter minimum temperatures (^{0}C)
Tx	Mean winter maximum temperatures (^{0}C)
DP01	Days with precipitation $\geq$ 0.1 mm in winter
DP1	Days with precipitation $\geq$ 1 mm in winter
DP10	Days with precipitation $\geq$ 10 mm in winter
DP30	Days with precipitation $\geq$ 30 mm in winter
D0T	Days with minimum temperature $\leq$ 0 ^{0}C in winter
DIS	Direct irradiance at surface (Kwhm-2day-1) in winter
SIR	Surface incoming radiation (Kwhm-2day-1) in winter
PET	Mean annual potential evapotranspiration (mm)
AET	Mean annual actual evapotranspiration (mm)

Multicollinearity

VIF

FDR

Modelling winter distribution in Iberia:

From December 1

To January 15

A set of 21 environmental variables related to topography, spatial location (polynomial trend-surface analysis), and climate

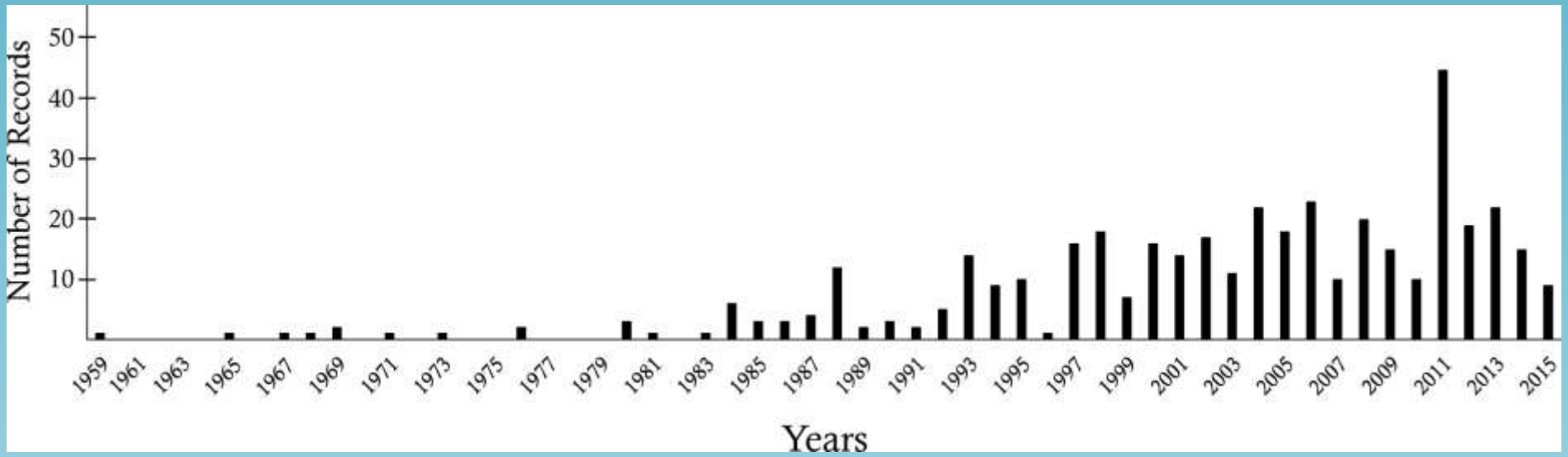
Favourability Function

Variation Partitioning Analysis

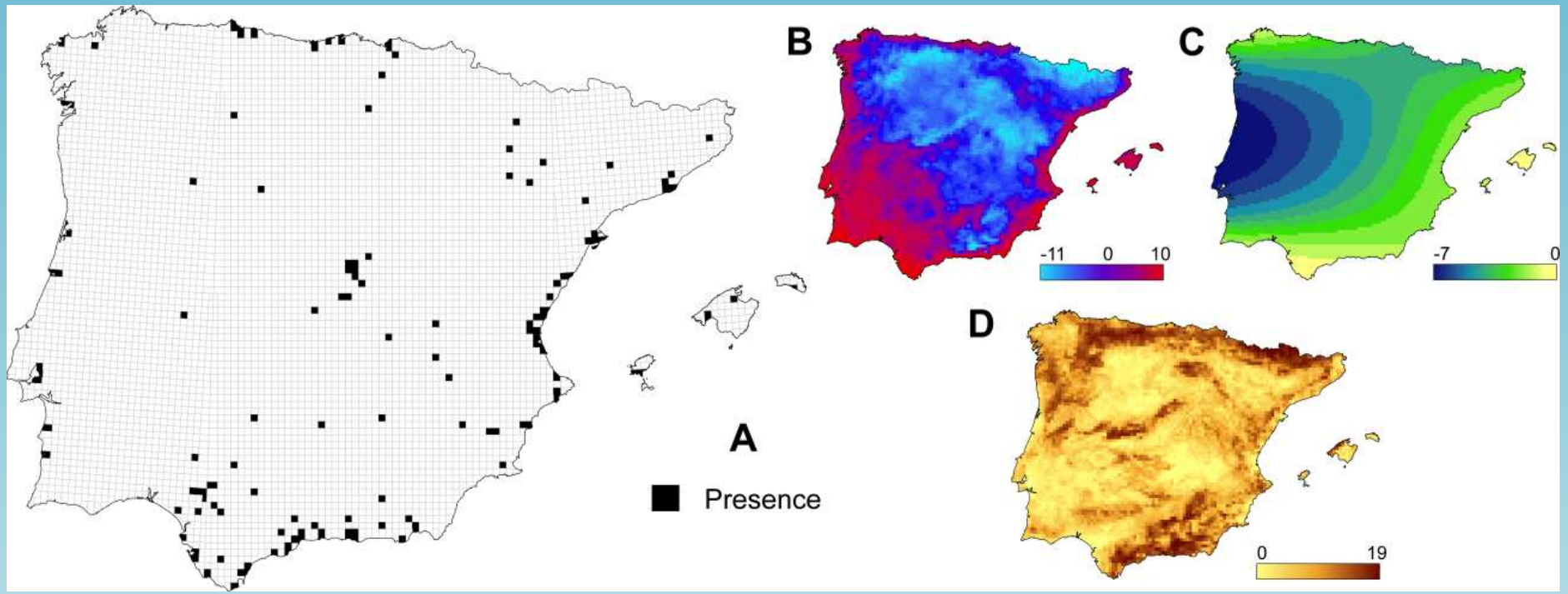
Diversity and Distributions 21: 1388–1400 (2015)

Scientific Reports 7: 14291 (2017)

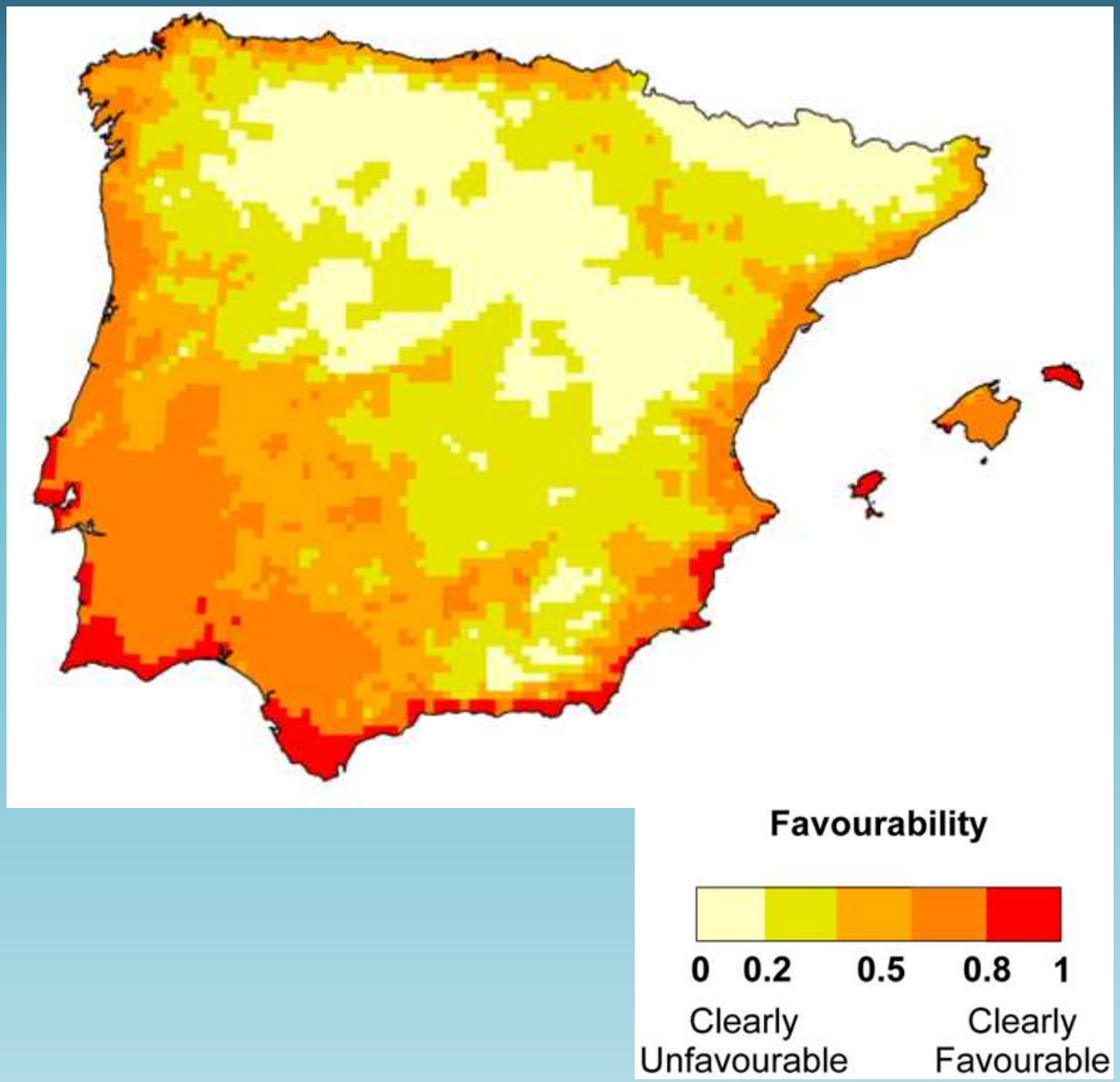
The Condor, in press (2018)


Number of Records
50
40
30
20
10
1959
1961
1963
1965
1967
1969
1971
1973
1975
1977
1979
1981
1983
1985
1987
1989
1991
1993
1995
1997
1999
2001
2003
2005
2007
2009
2011
2013
2015
Years

	β	Wald	P
Mean Winter Minimum Temp.	0.285	45.706	1.374 E-11
Trend Surface Analysis	0.561	35.332	2.780 E-09
Slope	-0.173	11.398	7.352 E-04
Constant	-2.090	15.860	6.819 E-05

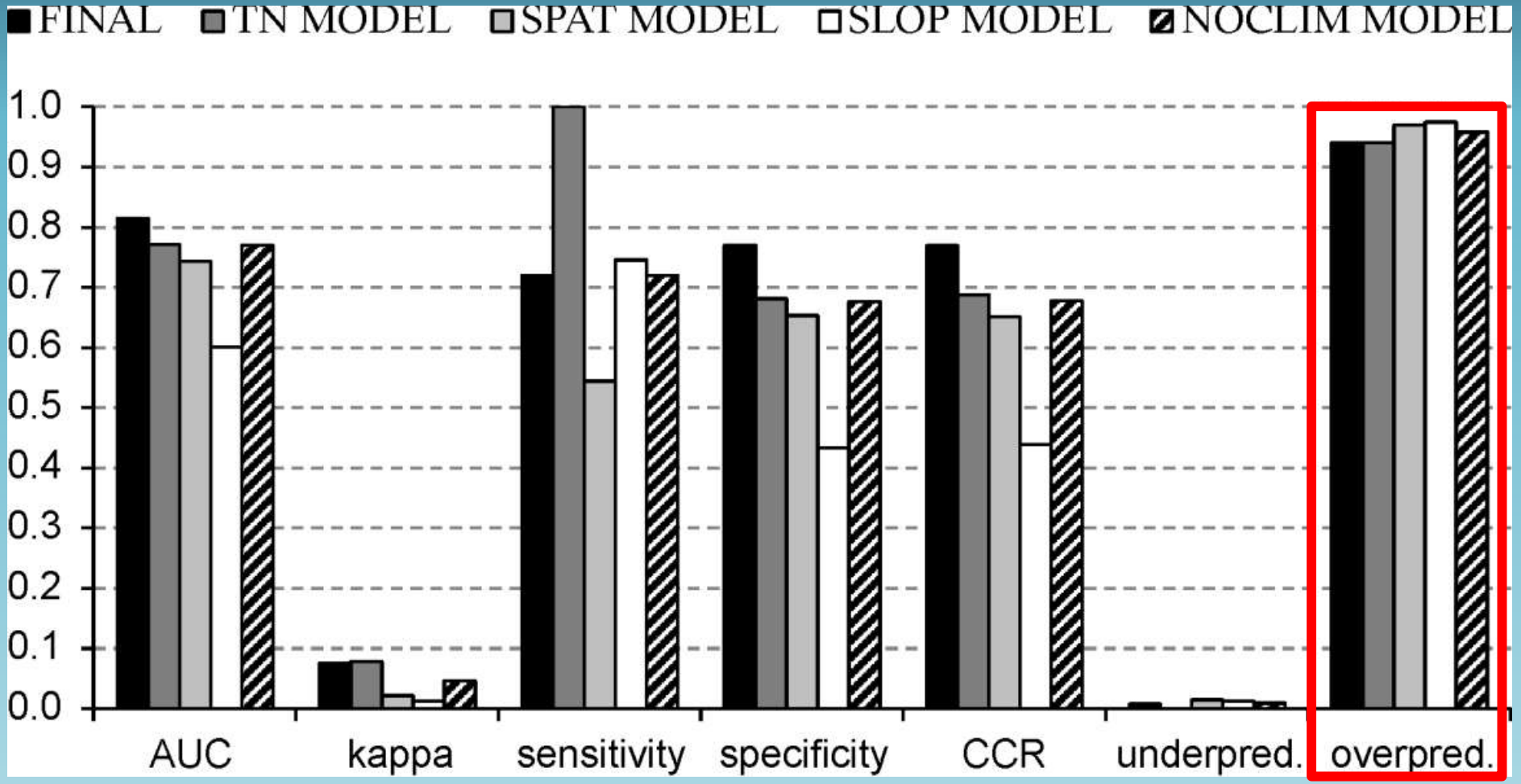


Under Review

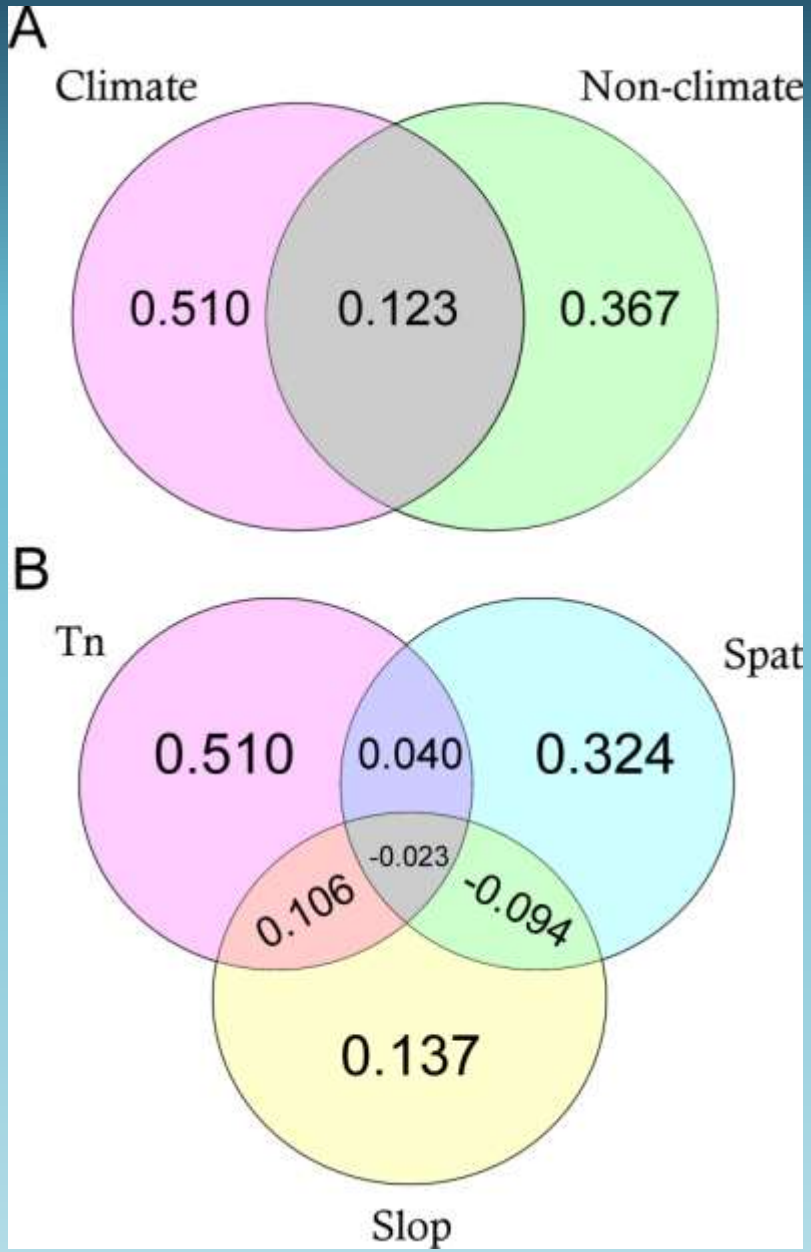


UNDER REVIEW

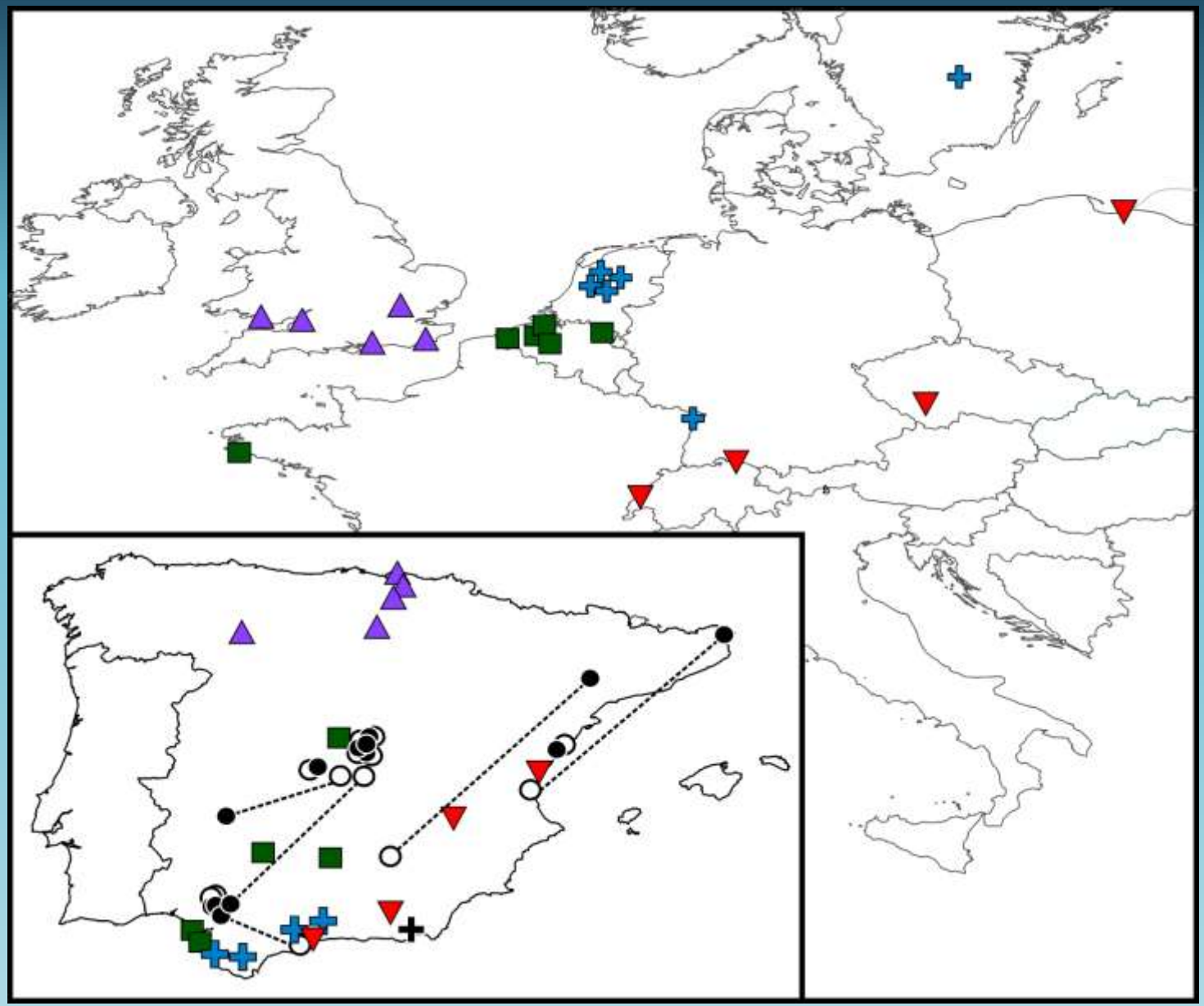
MODEL ASSESSMENT



UNDER REVIEW



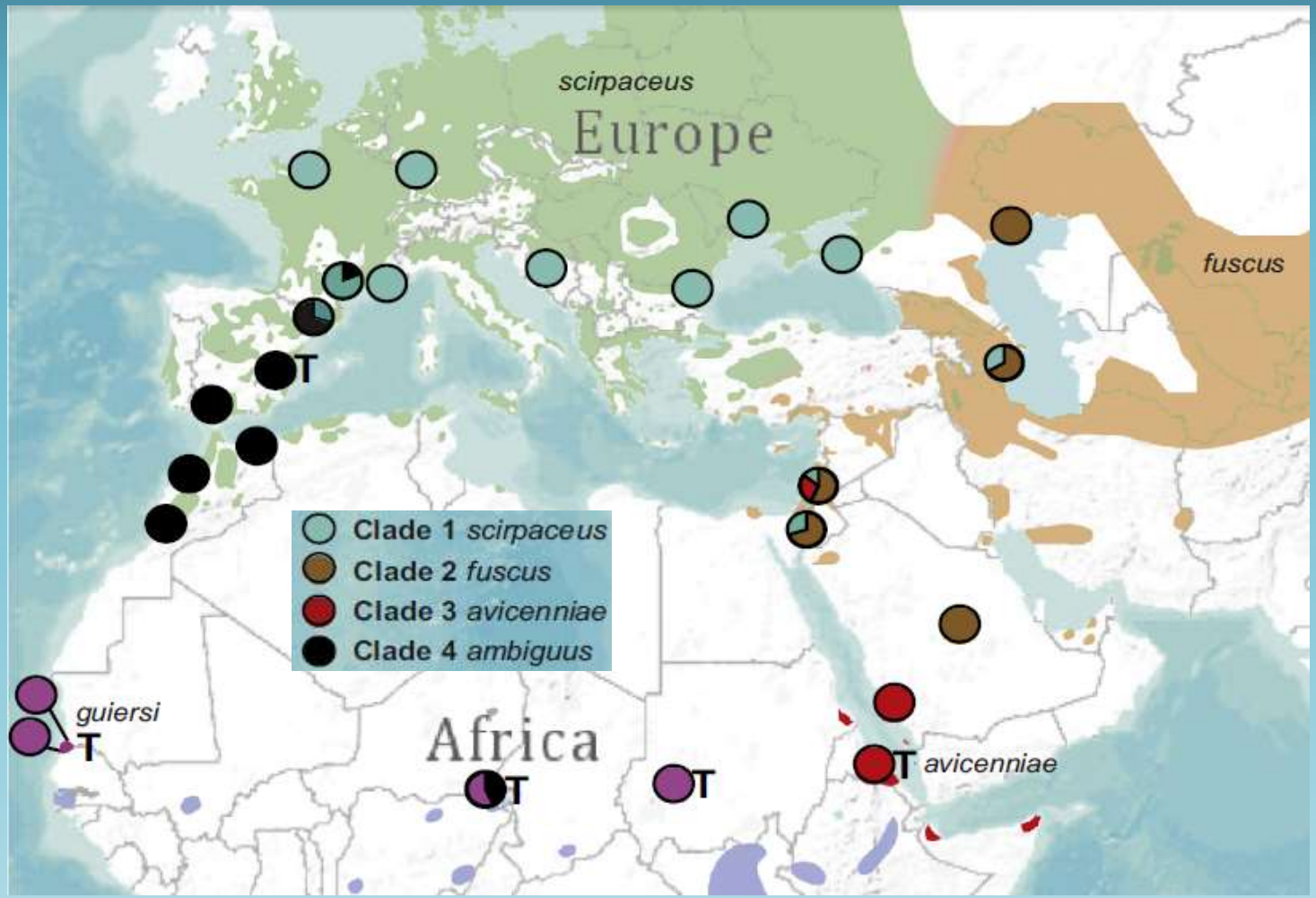
UNDER REVIEW



1. Some Iberian birds are sedentary
2. Some Central European birds reduce the migration distance considerably
3. Climate is a determinant factor for the wintering of this species in Europe

But ...

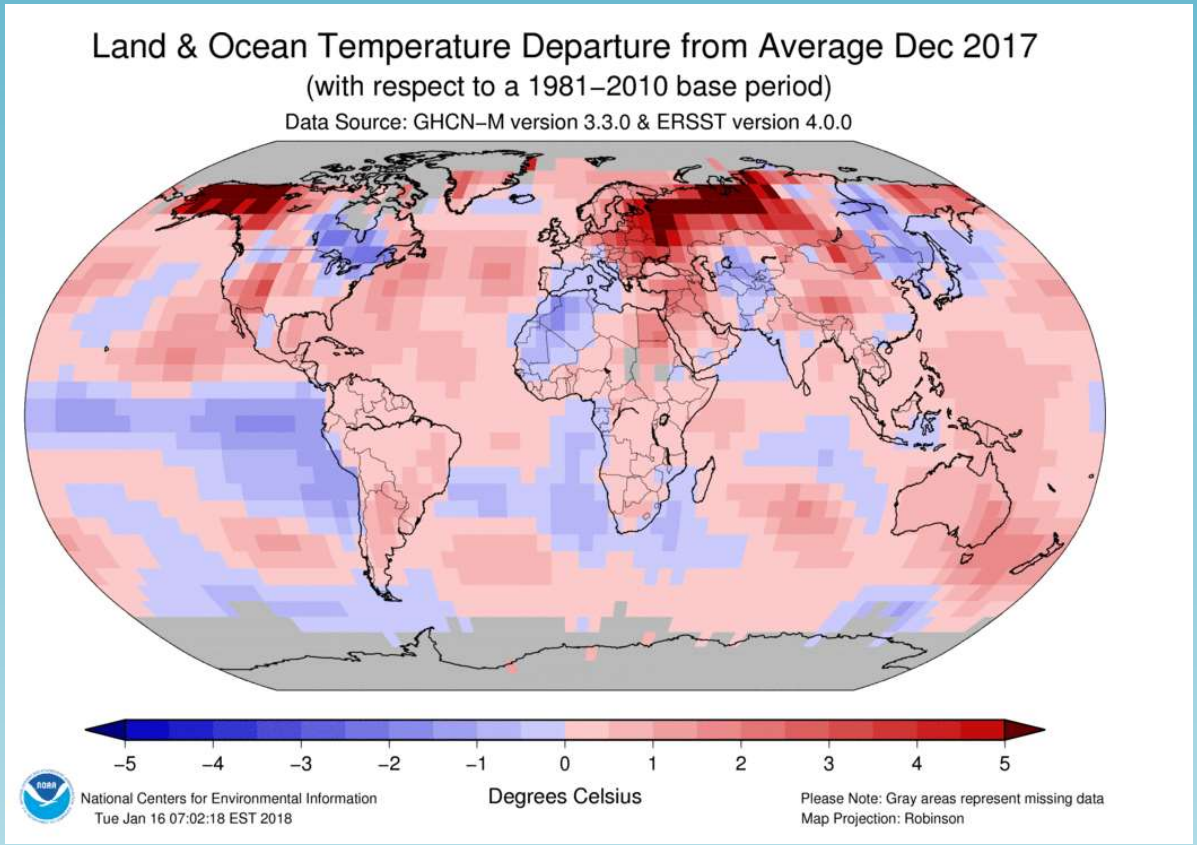
What is what we name as Eurasian Reed Warbler?



Molec. Phylog. & Evol. 102: 30–44 (2016, Olsson et al.)

What is what we name as Eurasian Reed Warbler?

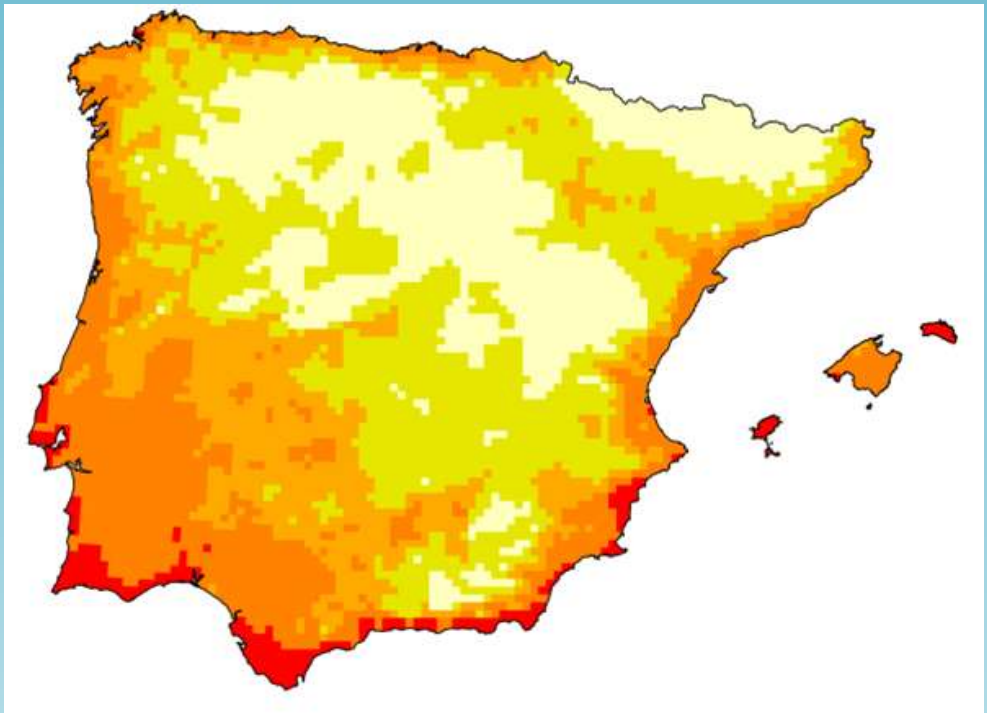
What are the consequences at the population level?



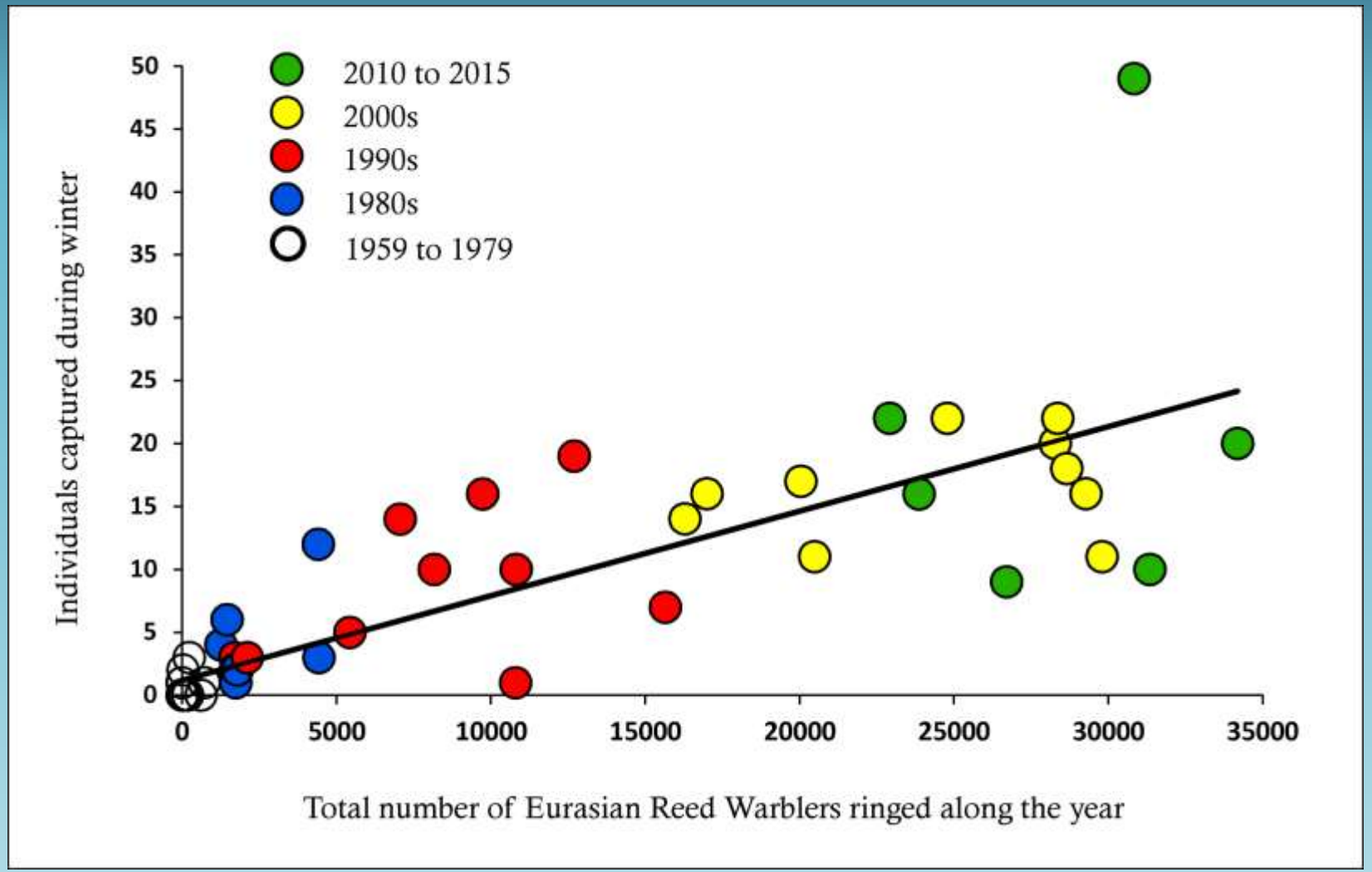
What is what we name as Eurasian Reed Warbler?

What are the consequences at the population level?

Model validation



How to consider the information booming?



Acta Ornithol. 53: 61–68 (2018)

How to consider the information booming?