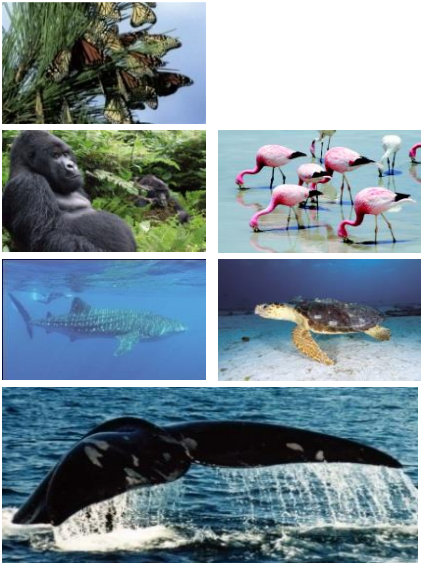


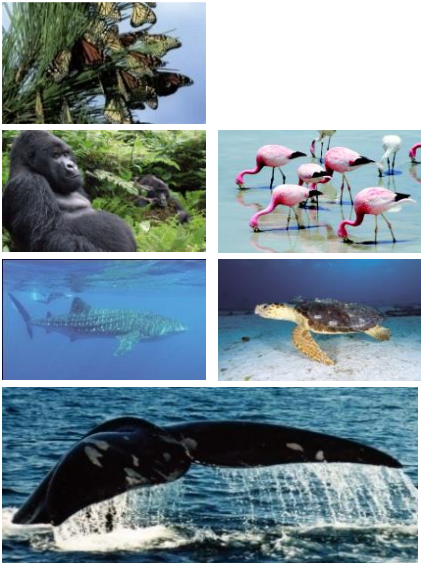
COORDINATION WITH THE CMS TASK FORCE: ROLE OF THE SFP AND TOOLS FOR THE EXCHANGE OF INFORMATION

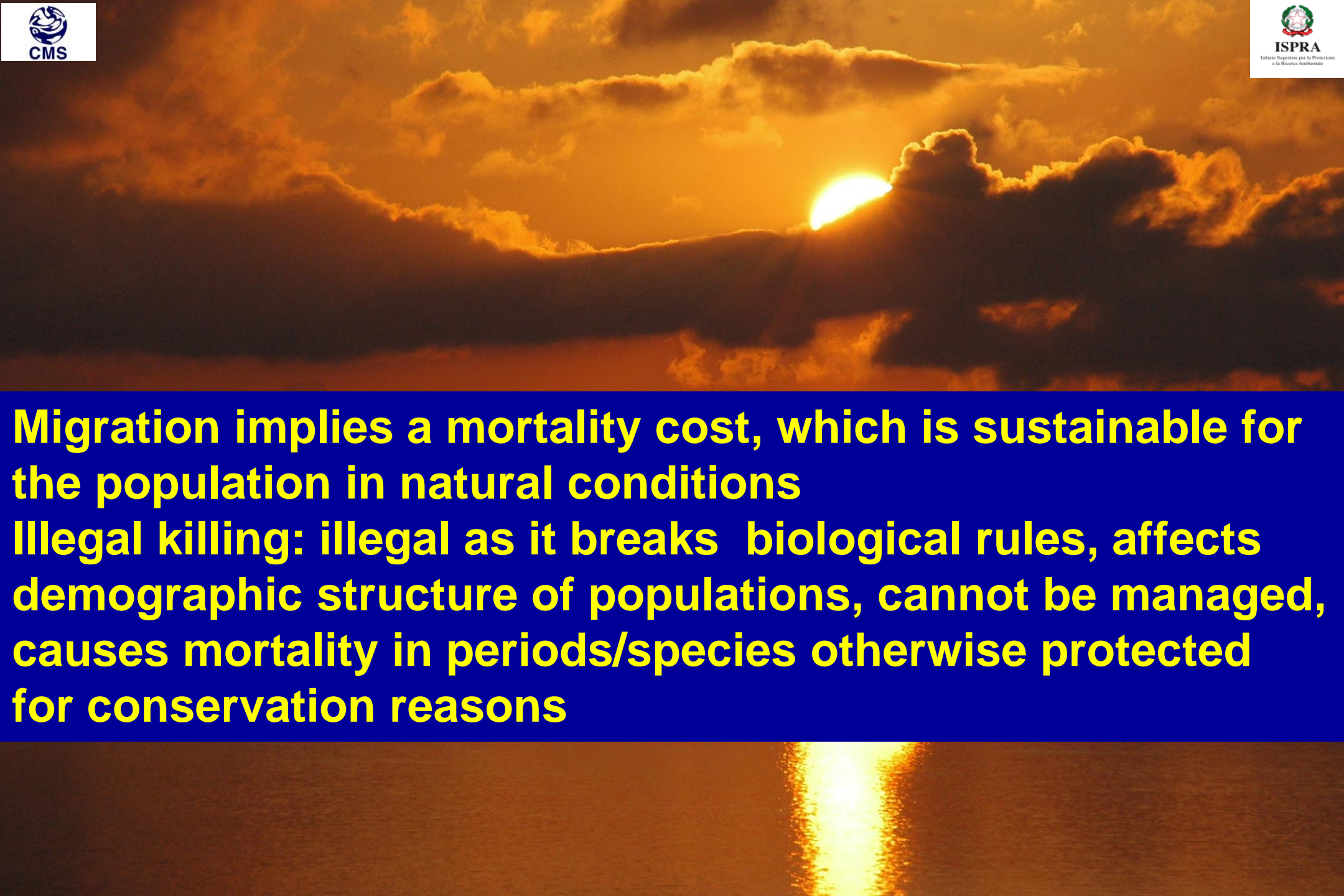
Fernando Spina
Chair, CMS Scientific Council
Head of Science, Italian Bird Ringing Centre
ISPRA, Bologna, Italy
fernando.spina@isprambiente.it

HIGH PROFILE BY CMS & AEWA TO IKB



HIGH PROFILE BY CMS TO IKB AFFECTING MIGRATORY SPECIES

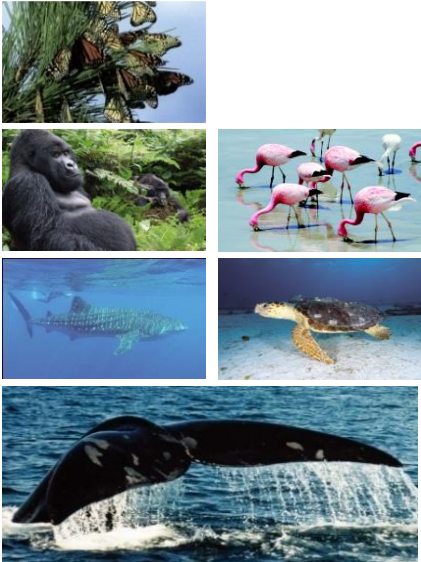


A photograph of a sunset over a body of water. The sun is partially obscured by dark, heavy clouds, creating a bright, glowing path of light through the clouds. The sun's reflection is visible on the water's surface in the foreground.

Migration implies a mortality cost, which is sustainable for the population in natural conditions

Illegal killing: illegal as it breaks biological rules, affects demographic structure of populations, cannot be managed, causes mortality in periods/species otherwise protected for conservation reasons

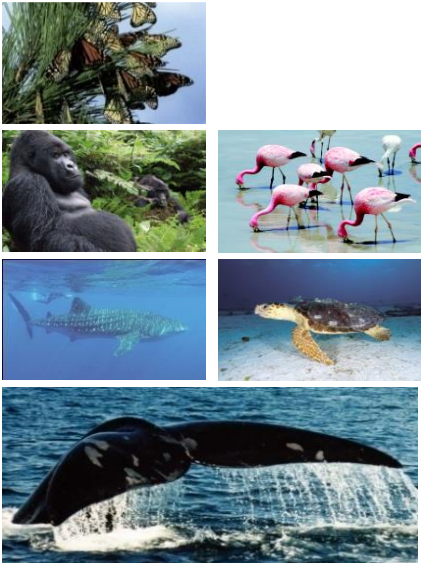
NEED FOR THE BEST POSSIBLE SCIENTIFIC DATA TO DECIDE ON CONSERVATION ACTIONS



- 
- **Biological aspects of IBK**
 - **Who are the birds affected by IKB**
 - **What are the “blackspots” of IKB in the Mediterranean?**

 - **Understanding the biological significance of the phases in which IBK takes place**
 - **How important is mortality caused by IKB for the affected populations**
 - **What is the conservation toll caused by IKB**

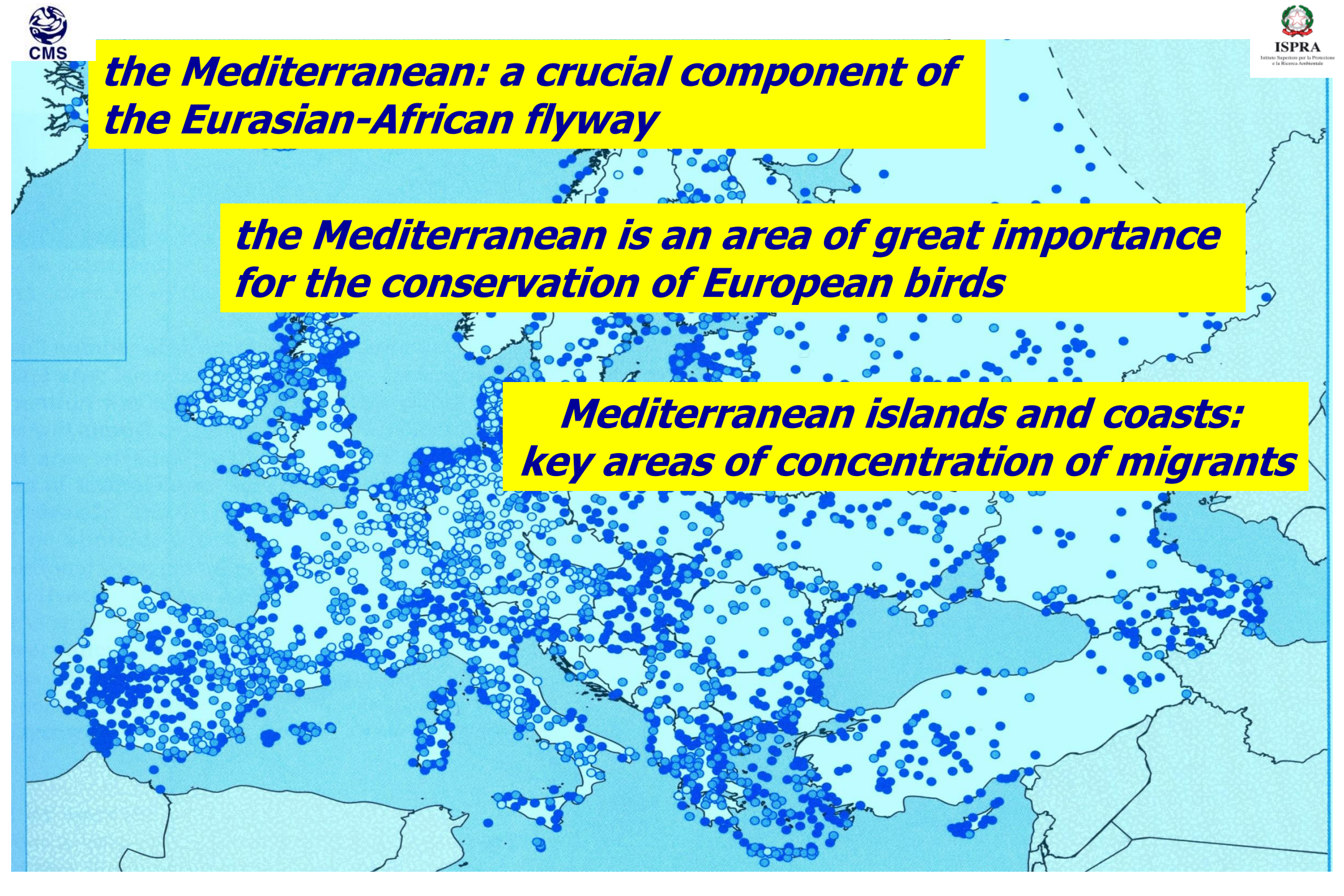
SPECIAL FOCUS ON IKB IN THE MEDITERRANEAN



the Mediterranean: a crucial component of the Eurasian-African flyway

the Mediterranean is an area of great importance for the conservation of European birds

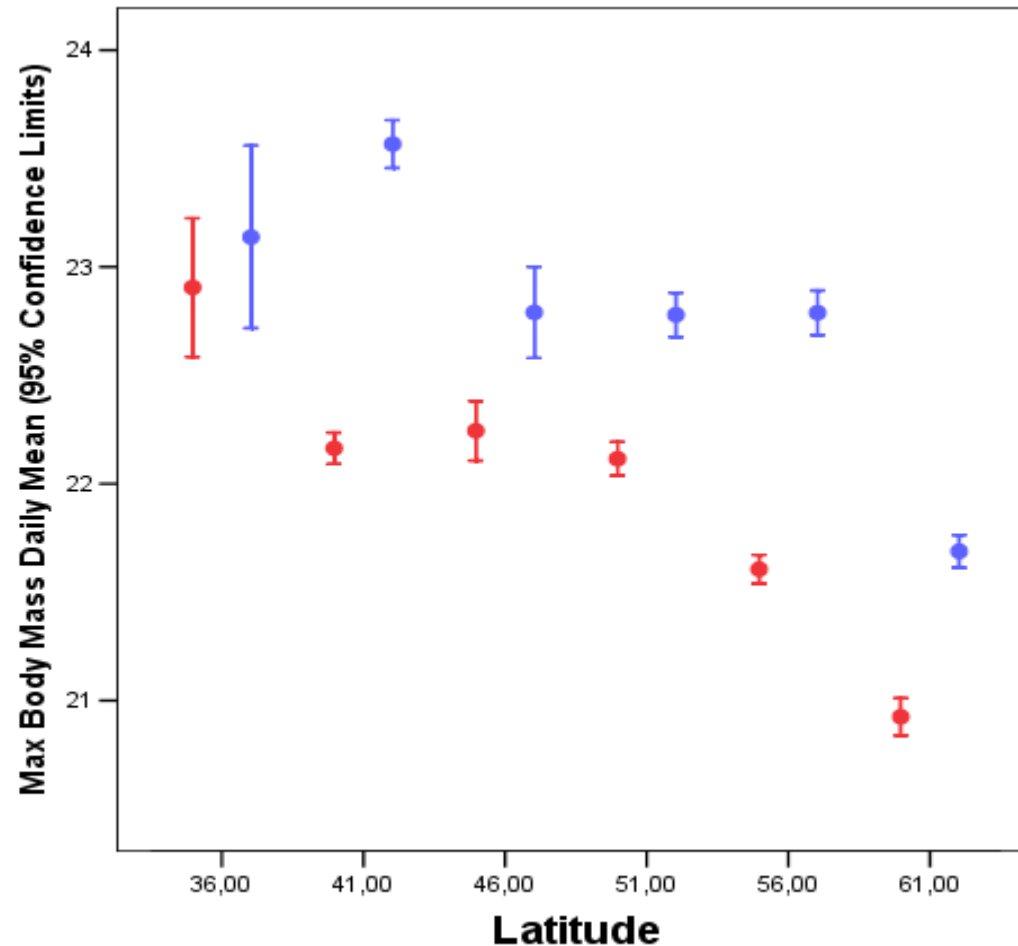
Mediterranean islands and coasts: key areas of concentration of migrants



**the Mediterranean: an ecological barrier
so important as to contribute shaping
migratory strategies**

Barn Swallows increase their weight while moving south in autumn (including 1st-year inexperienced birds)

i.e. swallows fatten up while approaching a barrier they never crossed before



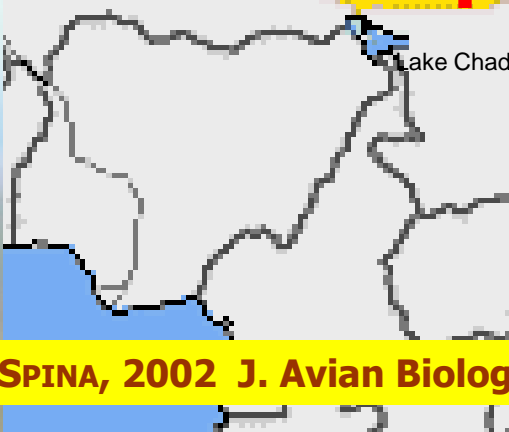
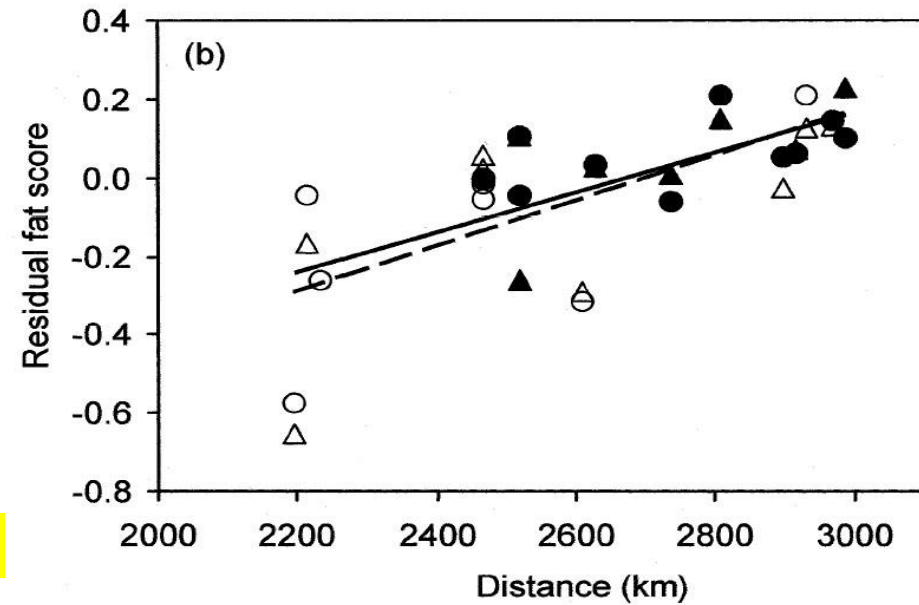
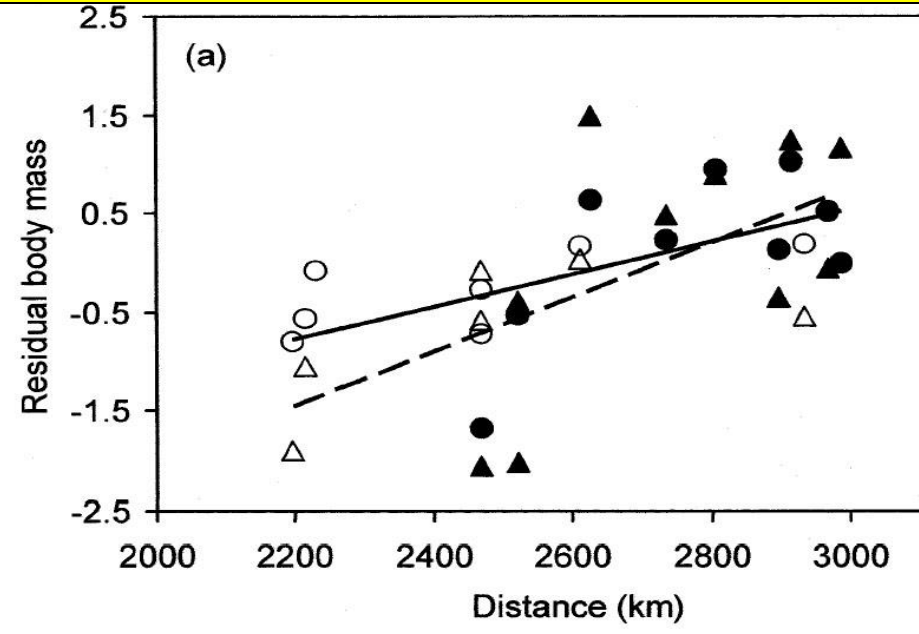
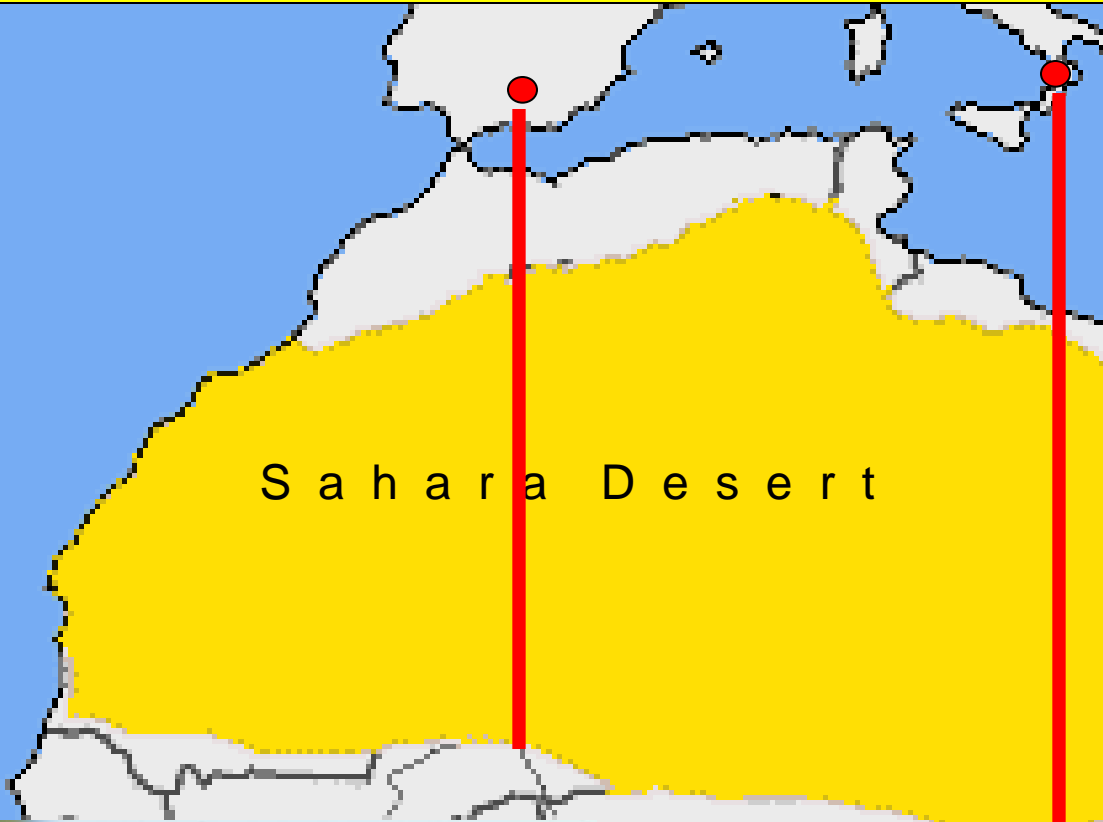
● juveniles
● adults

N = 978,539
11 countries

S ← **N**

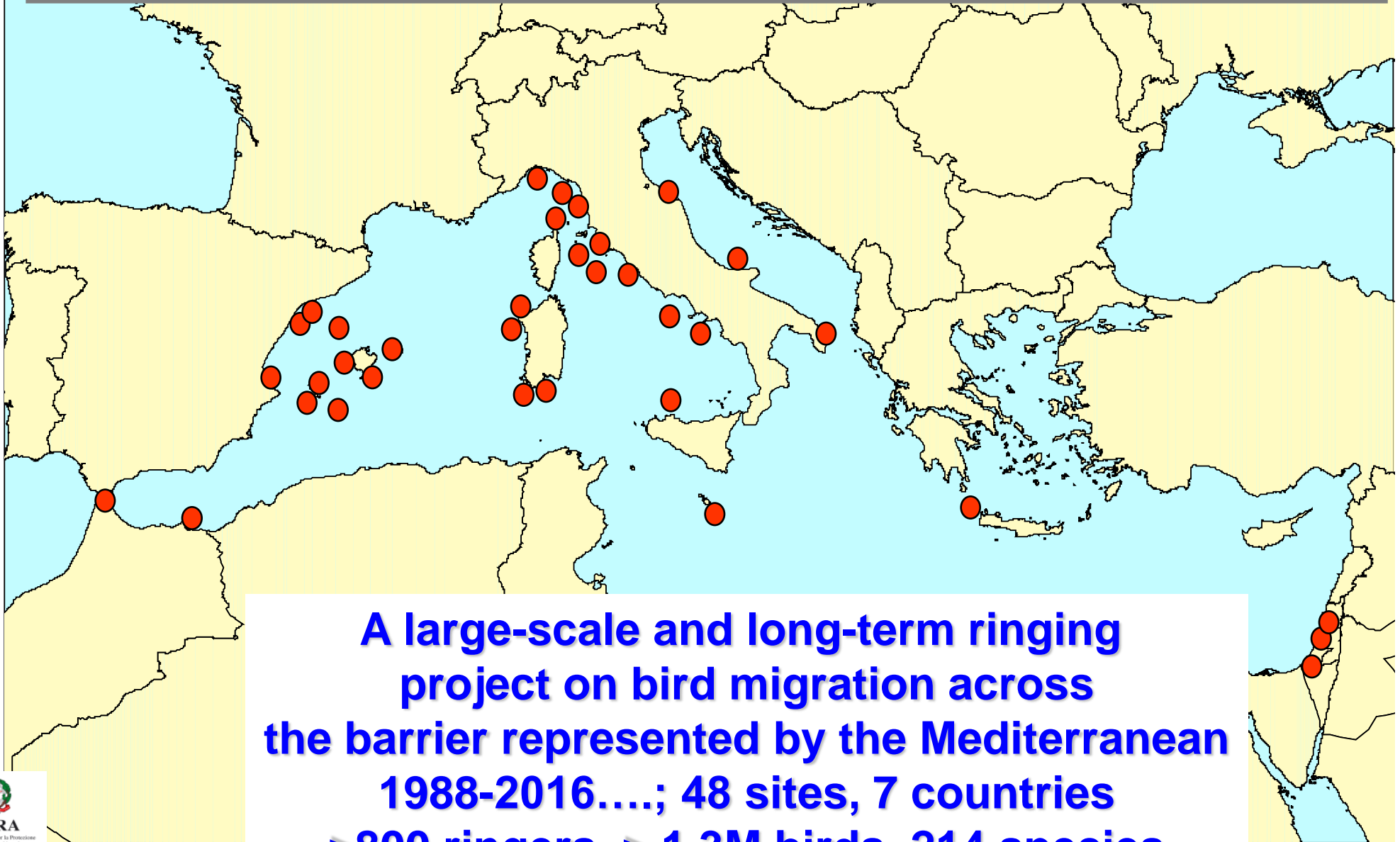
Serra et al., in prep.

In 1st-year, inexperienced Barn Swallows embarking on their first barrier crossing the amount of stored fat correlates with the extension of barriers they never crossed before. Role of Mediterranean as a barrier in migration strategies at the intra-specific level

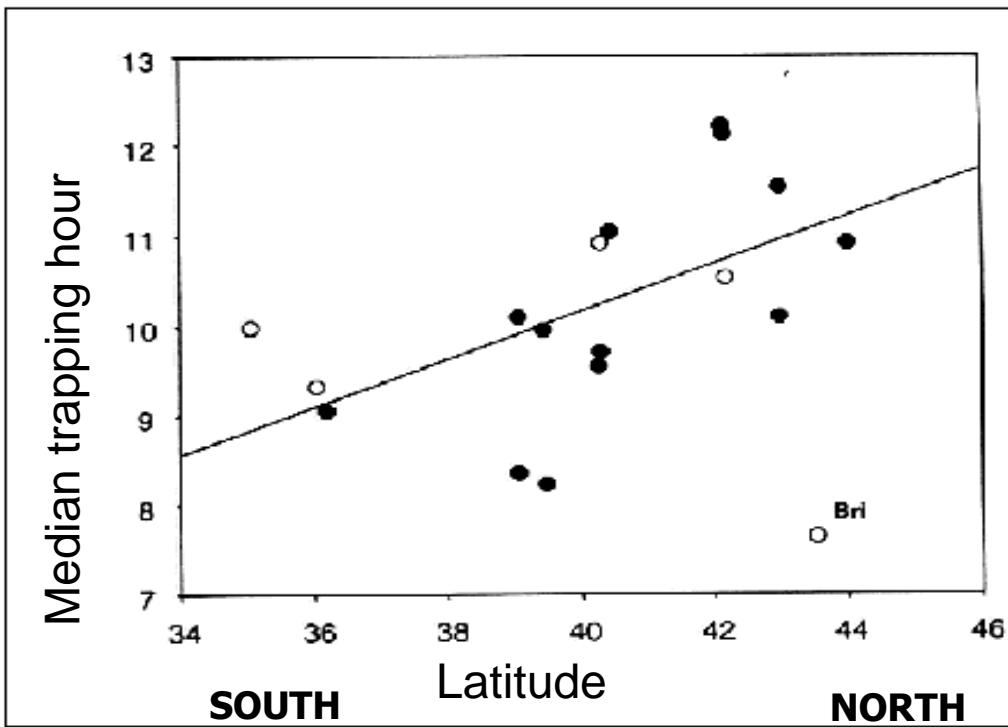


The energetic cost of barrier crossing

PROGETTO PICCOLE ISOLE ISPRA



**A large-scale and long-term ringing
project on bird migration across
the barrier represented by the Mediterranean
1988-2016....; 48 sites, 7 countries
>800 ringers, > 1.3M birds, 214 species**



Median hour of capture increases with latitude i.e. moving from South to North



Garden Warbler (*Sylvia borin*)

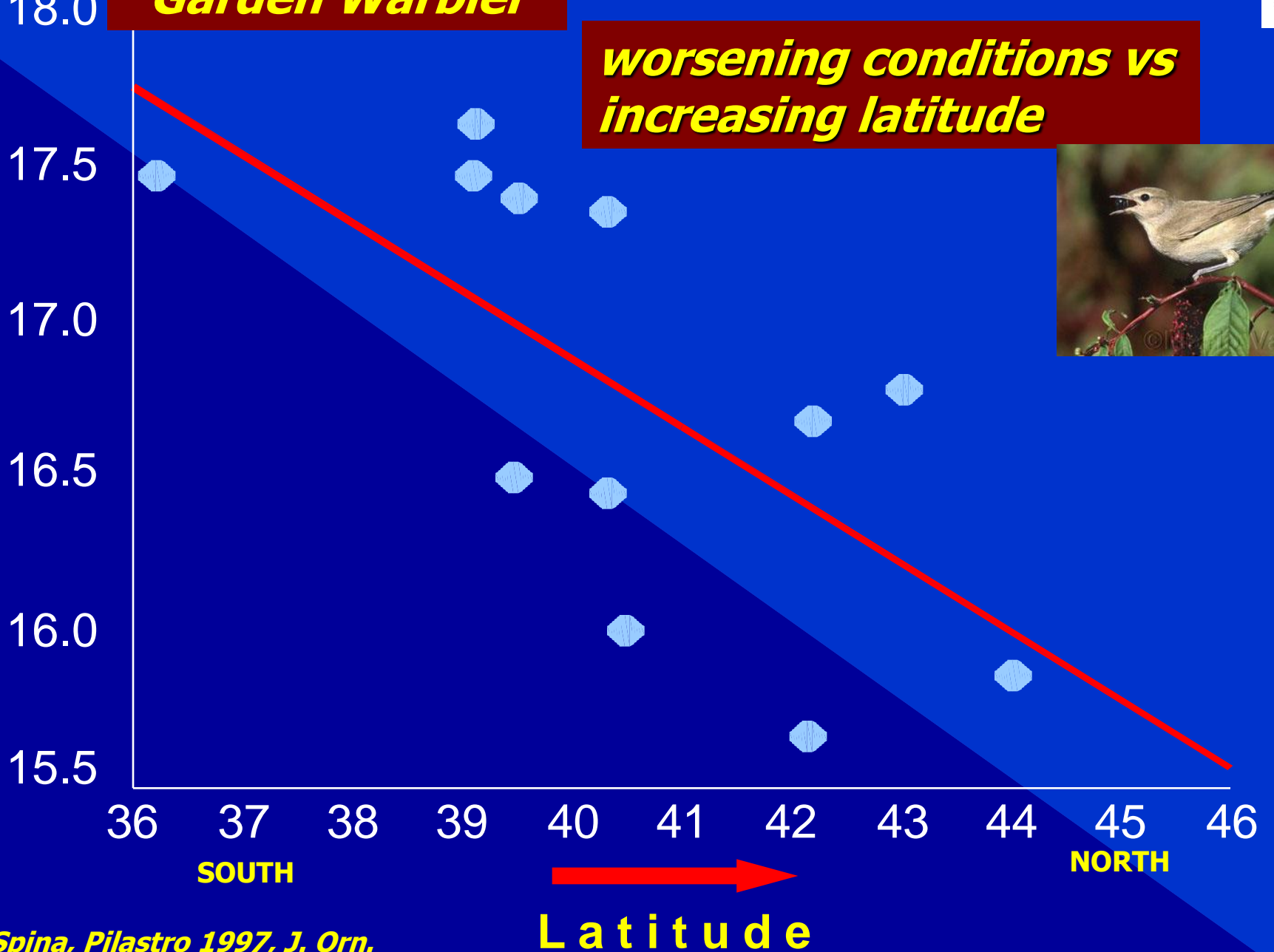


Grattarola, Spina, Pilastro 1997, J. Orn.

Garden Warbler

worsening conditions vs increasing latitude

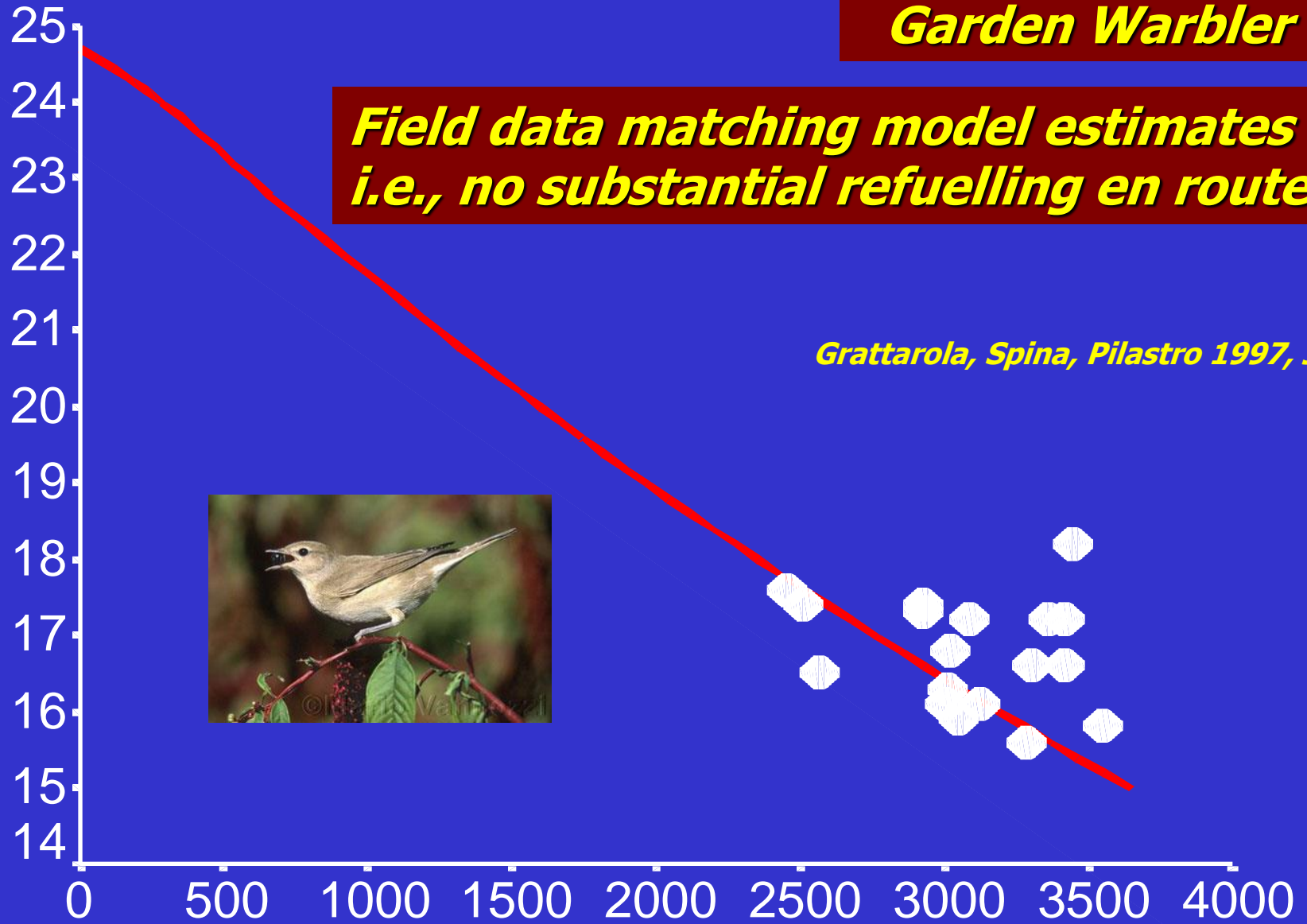
Standardised body mass



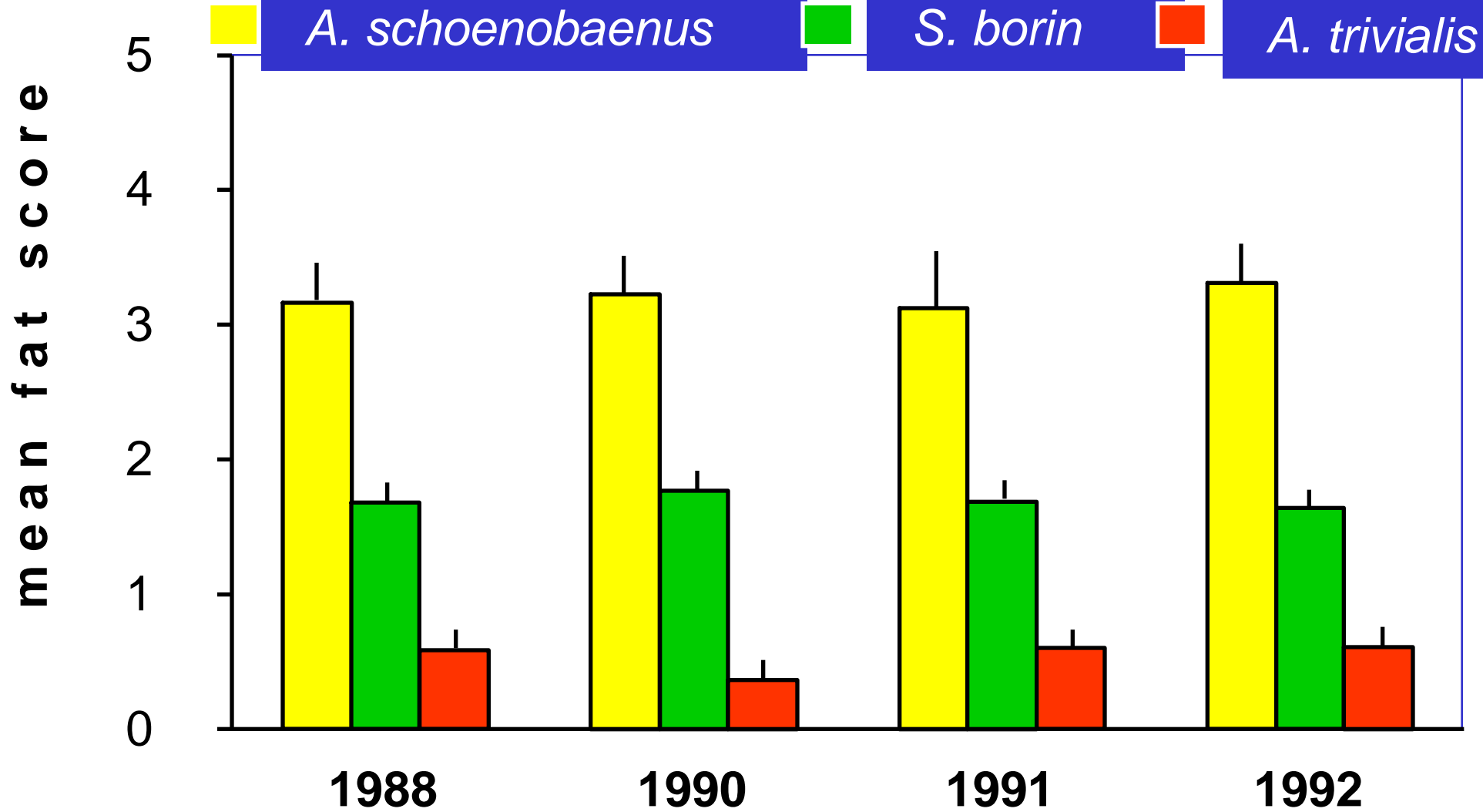
Garden Warbler

**Field data matching model estimates
i.e., no substantial refuelling en route**

Body mass (g)



Distance migrated (Km)



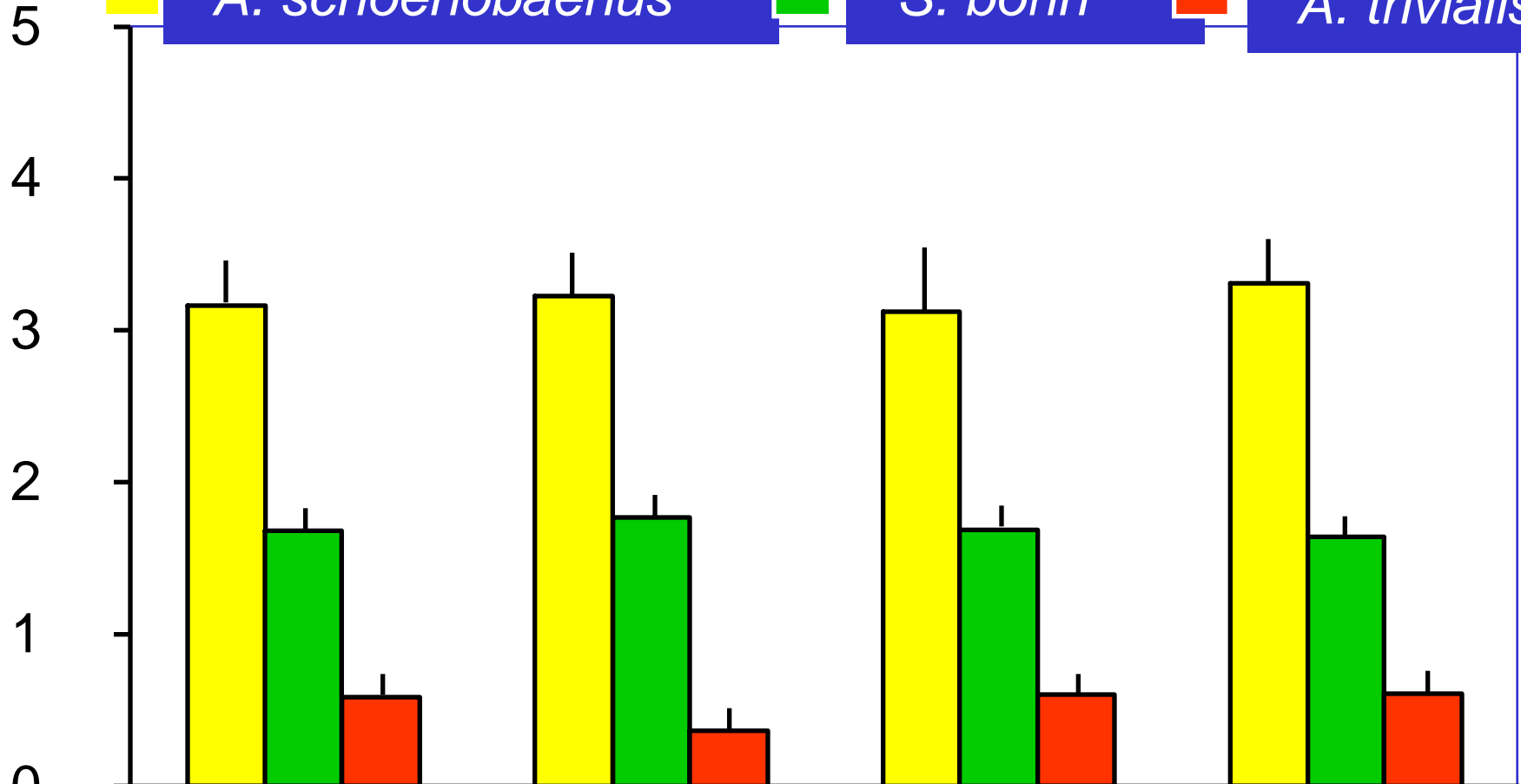


A. schoenobaenus

S. borin

A. trivialis

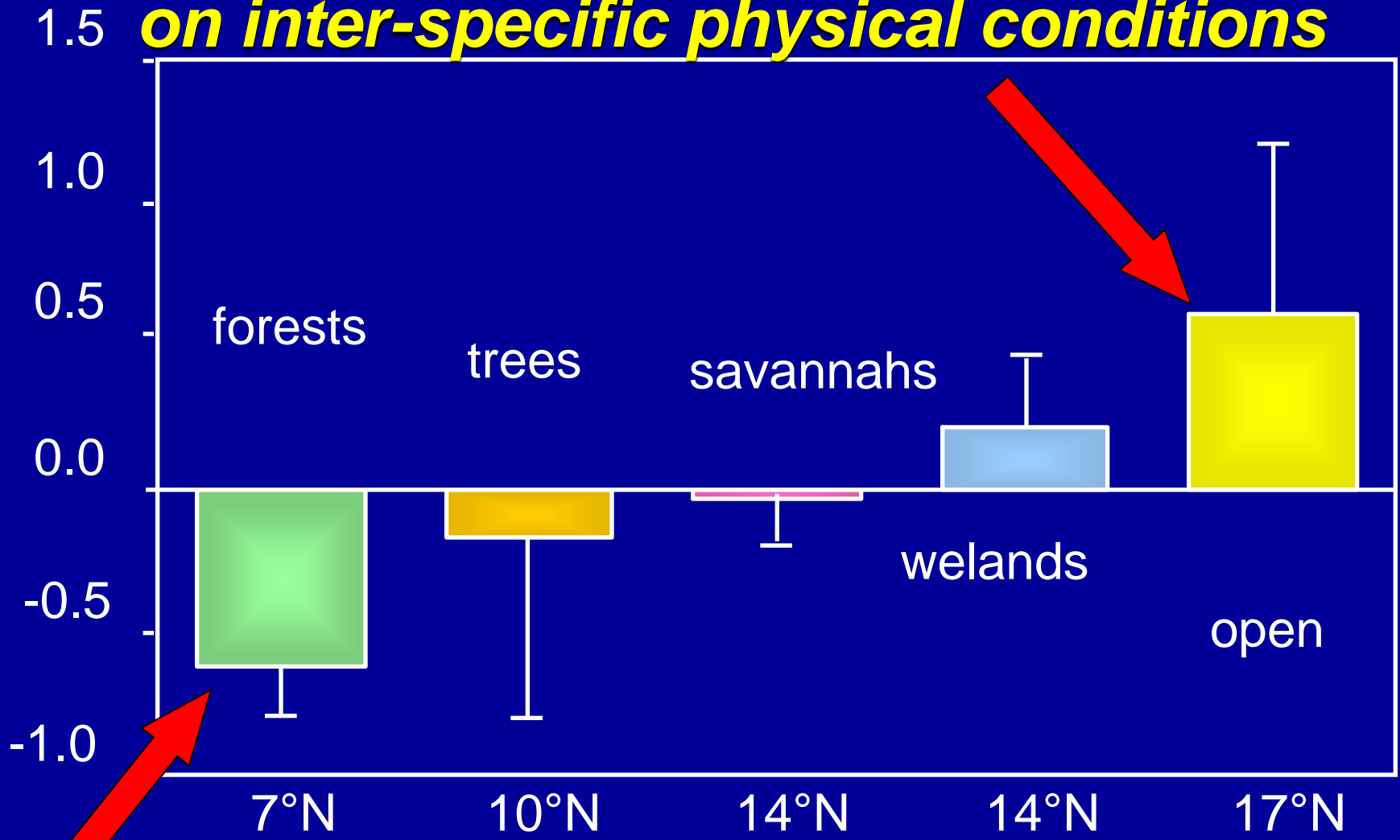
mean fat score



Not only stranded migrants stage on the islands:
- high potential fitness value of staging individuals
- high conservation value of sites
- high conservation cost of IBK

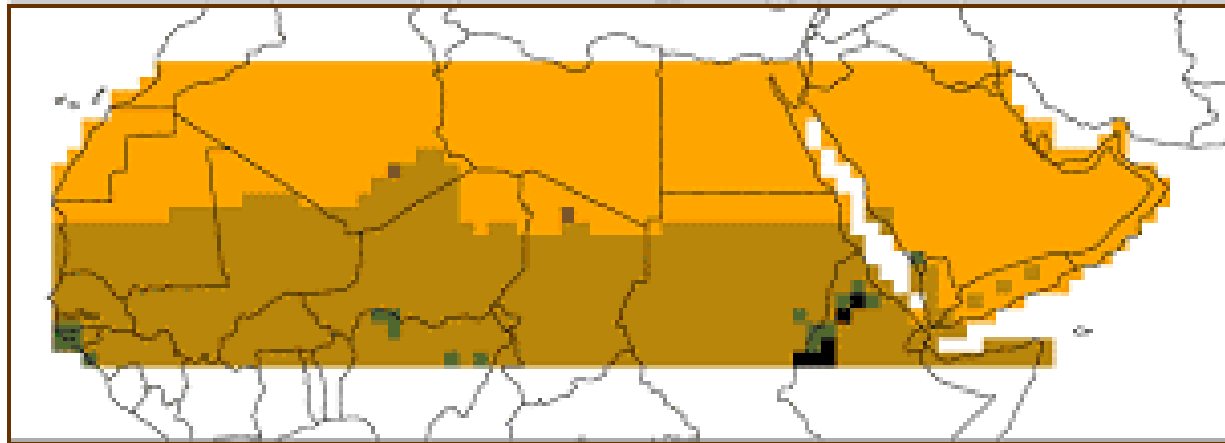
Role of ecological conditions in Africa on inter-specific physical conditions

Standardised residual fat levels

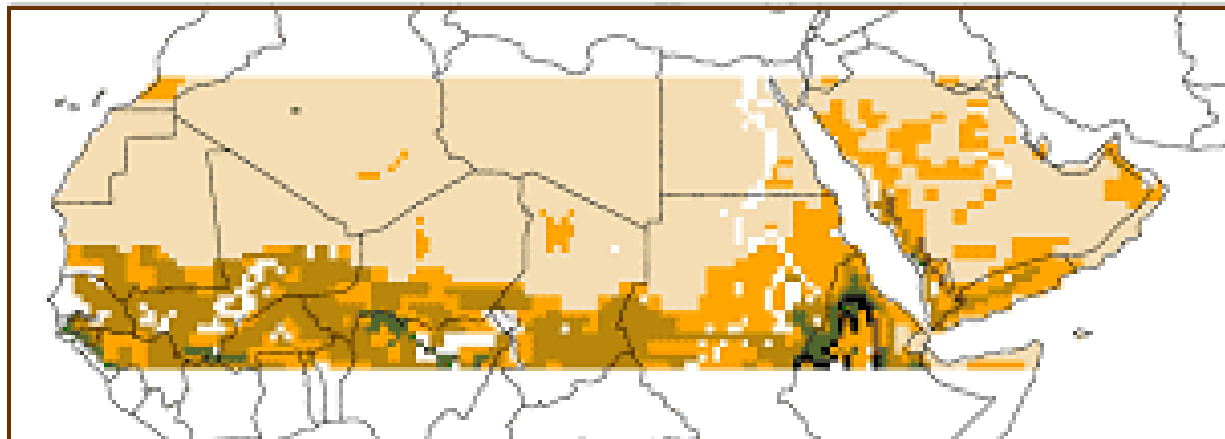


latitude (wintering habitat)

6000 years ago



Today



-  Desert
-  Steppe
-  Savanna
-  Xerophytic woods
-  Tropical deciduous
-  Tropical evergreen

southwards retreat of forests
southwards advancement of desert
progressive and fast increase of distance to be covered
with maximum fat load: soon an extinction bottleneck?

***why do they stop?
& for how long?***



Intra-specific stopover duration influenced by...

- **season:** later migrants stage shorter
seasonally increasing urgency to move North

Tenan & Spina 2010, *Ardeola*

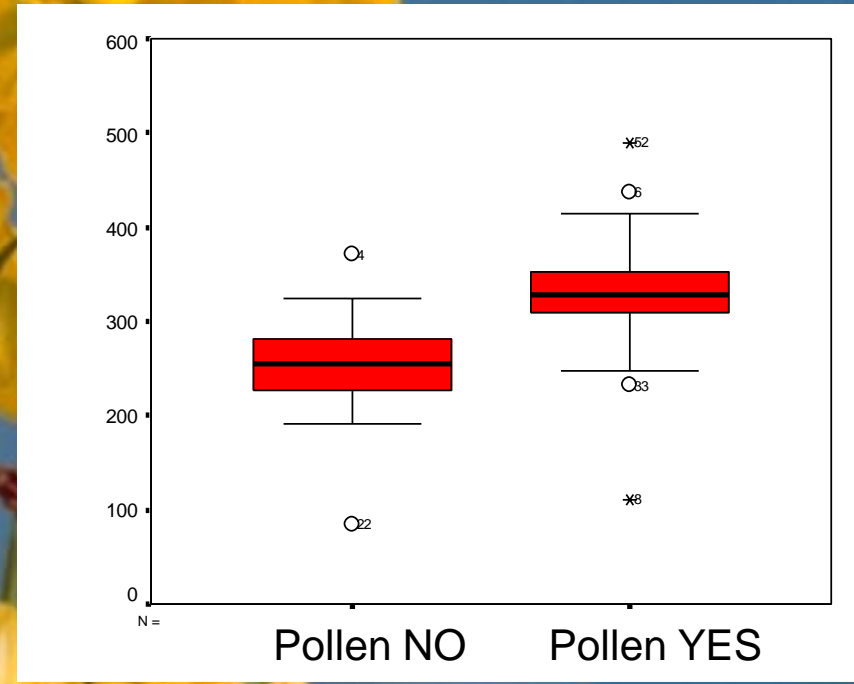
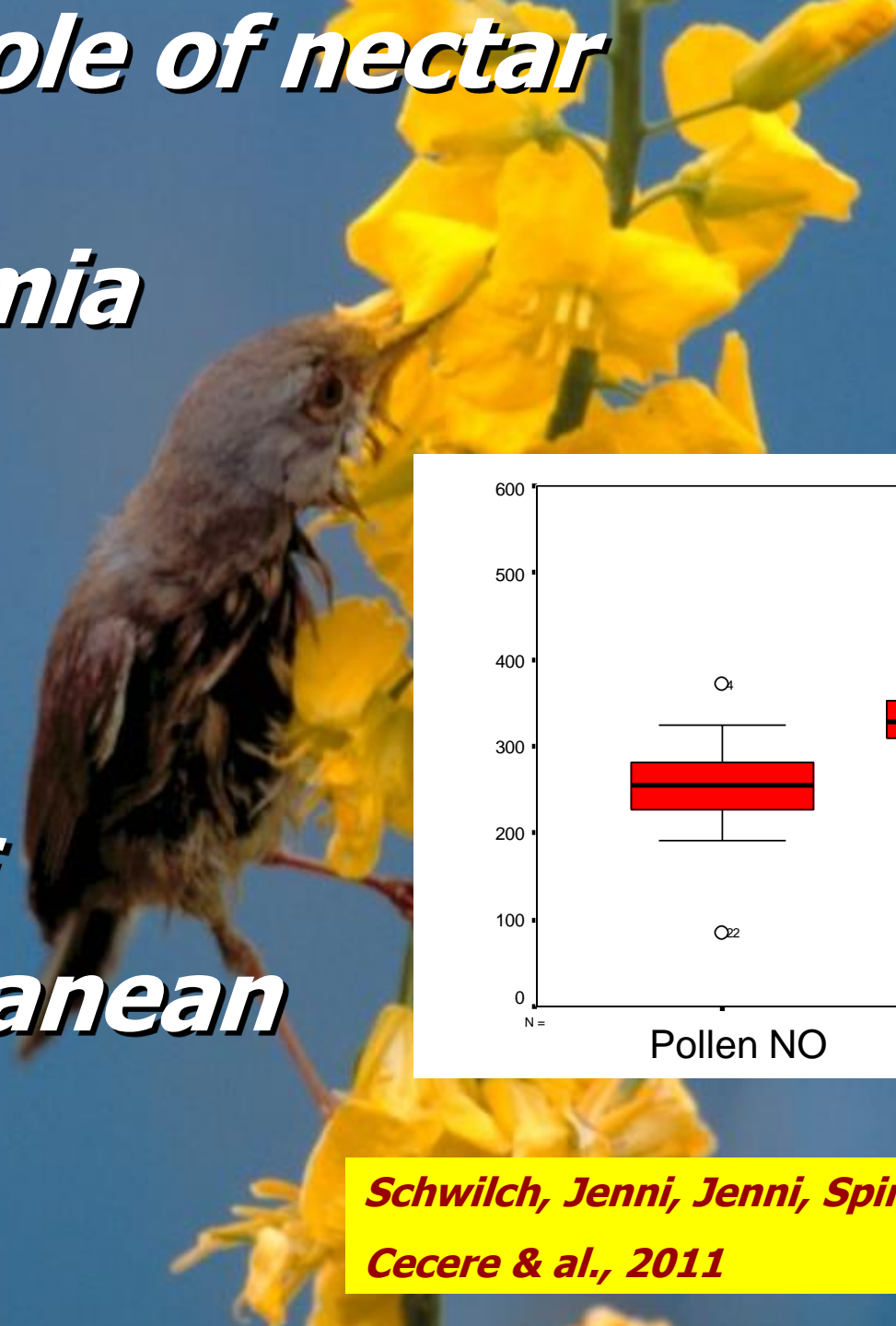
- **conditions:** birds in better conditions stay shorter,
yet they stage

Goyman, Fusani, Spina, Ferri 2010, *Biol. Lett.*



the important role of nectar nectar feeding increased glicemia in Sylvia & Phylloscopus

conservation of spring Mediterranean vegetation



Schwilch, Jenni, Jenni, Spina, 2000, Ibis
Cecere & al., 2011

**Stopover of huge numbers of migrants
while crossing the Mediterranean:**

**-they have to. Stopover is a key
component of their journey**

- they are very vulnerable while staging

Man-related problems for migrants in the Mediterranean





**the Mediterranean is
an area with human
presence and activity
since ancient times**

**man-related
conservation problems:
e.g., antropization,
industry**

***the Mediterranean is
the main touristic
destination in the
world***



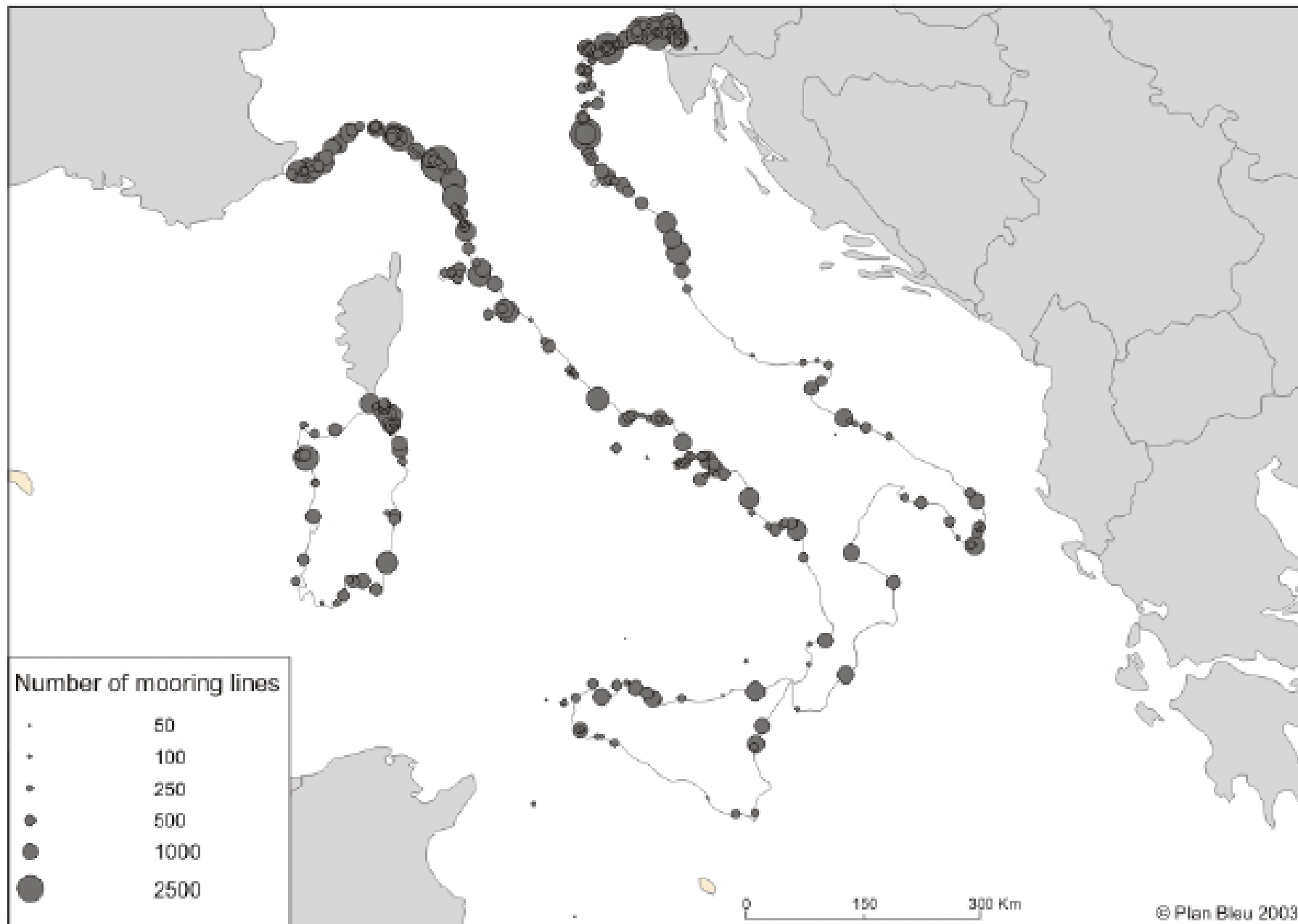
***problems of habitat
destruction/loss
for passage and winter
migrants***



***Italy, a natural bridge
across the Mediterranean***

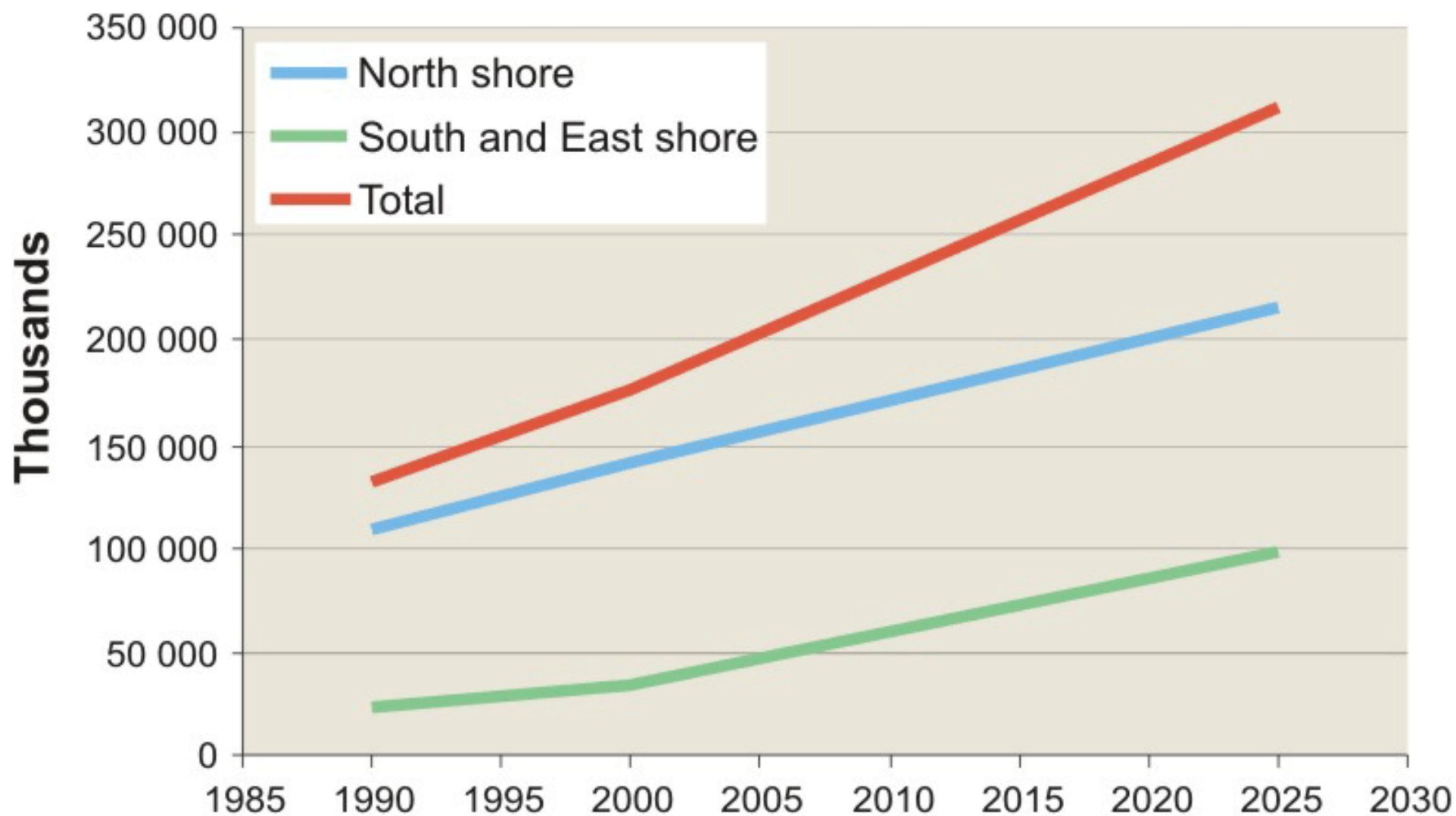
fineart
america

Marinas in Italy



Source : Pagine Azzurre, Il portolano dei mari d'Italia, Edizione 1999

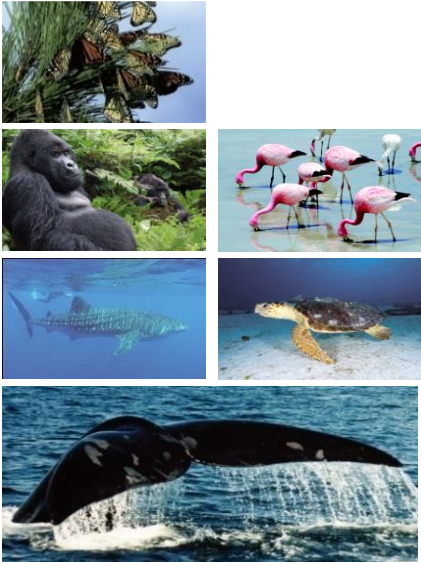
Tourist visits (domestic and international) N1; 1990 to 2025



a specific Mediterranean problem in bird-man interactions: illegal trapping and killing



NEED FOR THE BEST POSSIBLE SCIENTIFIC DATA TO DECIDE ON CONSERVATION ACTIONS



CMS: proposal for analyses of data stored at the **EURING Data Bank to improve our knowledge of IKB on aspects related to:**

- taxa affected
- geographical (i.e. location of blackspots of IKB)
- seasonal distribution of IKB
- methods used for IKB activities
- historical presence and intensity of IKB: social aspects and trends
- opportunity to involve also expertise across SFP

Sources of information:

- **Data Bank of EURING (<http://www.euring.org/edb/index.html>).**
 - **Over 10 Million recoveries of ringed birds,**
 - **with details on species at ringing, species reported at recovery,**
 - **conditions and circumstances of recovery**
 - **(in particular, for birds reported as dead, details on how the birds was killed, e.g. direct shooting, trapping, snaring, liming, poisoning, etc).**

Sources of information:

- Data Bank of EURING (<http://www.euring.org/edb/index.html>).

Analytical process:

- 1.select the list of species formally protected under EU/international legislation

- 1.within this sample, select all recoveries of dead birds
- 2.select all cases when death due to intentional action by man

Who? Can we improve our knowledge on what species are affected by IKB?

YES



Results:

list of species subject to IKB: EURING Data Bank hosts data referred to hundreds of *taxa*



Contribution to quantify various gravity factors, e.g. conservation status, impact risk on ecosystems, scale of offending...


Where? Can we improve our knowledge on distribution of blackspots of IKB?

YES

an important aspect to **support police forces** in planning their control activities, especially in less monitored areas/countries

Where?

- **all data have exact coordinates and are coded on the basis of Country, Region, Province, Municipality and locality of recovery**
- **this will allow producing maps of distribution and frequency of IKB**
- **useful to plan control actions in areas less well known to be affected by IKB**



**Strait of Messina: a bottleneck of
international importance
a challenge for conservation**



Fotografia di Anna Giordano

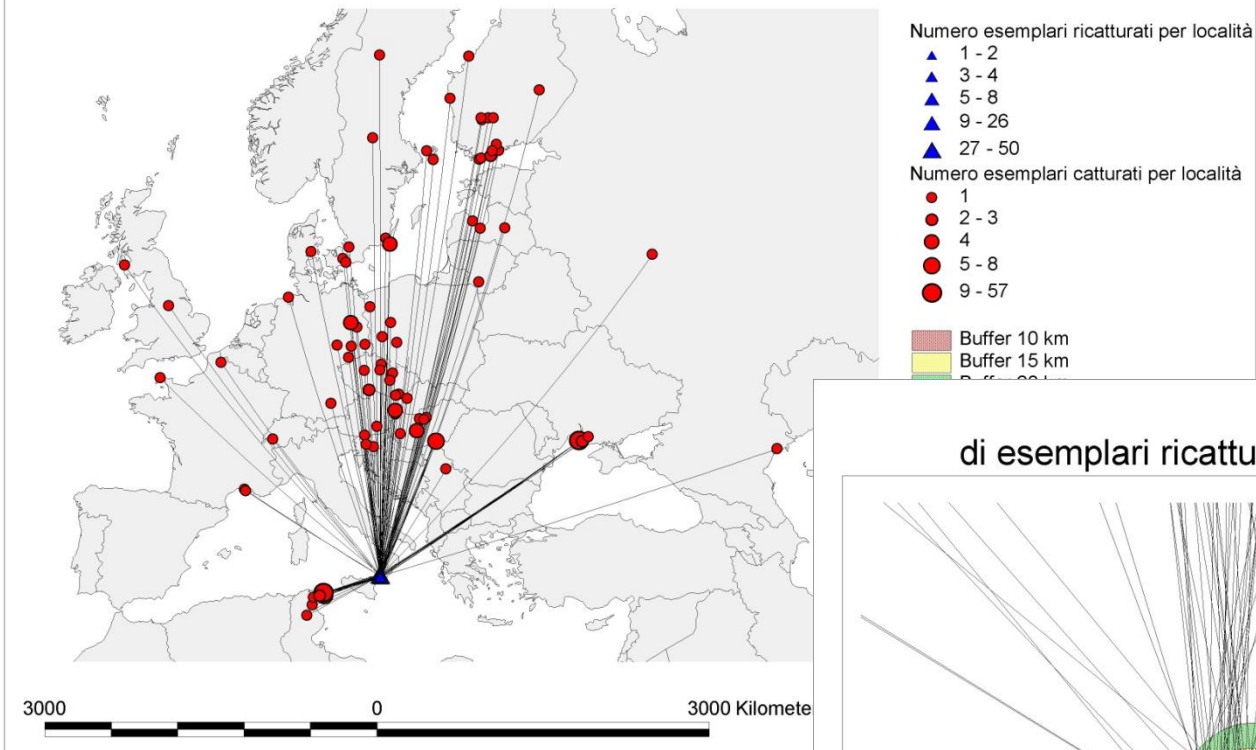
**Where? (from/to) connectivity: need for connectivity analyses.
Do we know enough? “Catchment areas”?**

Connectivity: the scientific baseline to build :

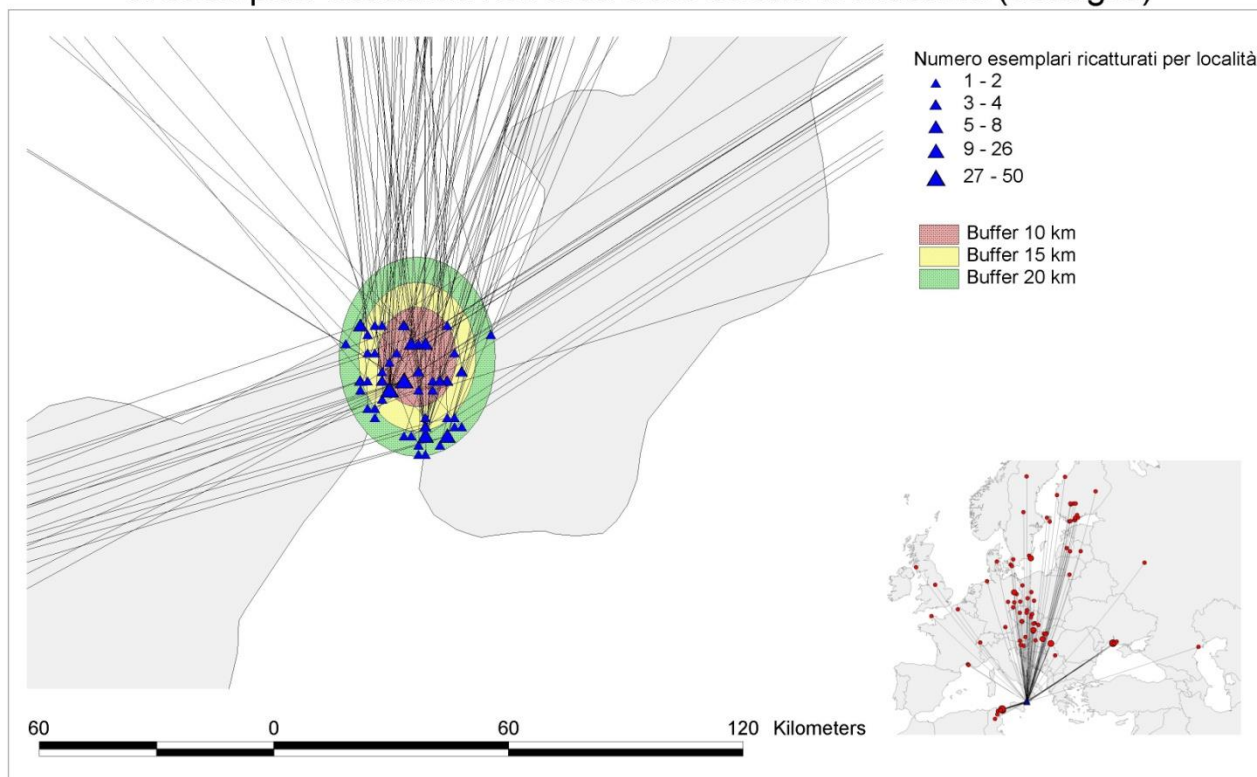
- 1. cooperation between police forces to protect same populations**
- 2. political cooperation among countries to adopt same policies for the benefit of same & shared populations**

Movimenti estero - Italia di esemplari ricatturati nell'area dello stretto di Messina

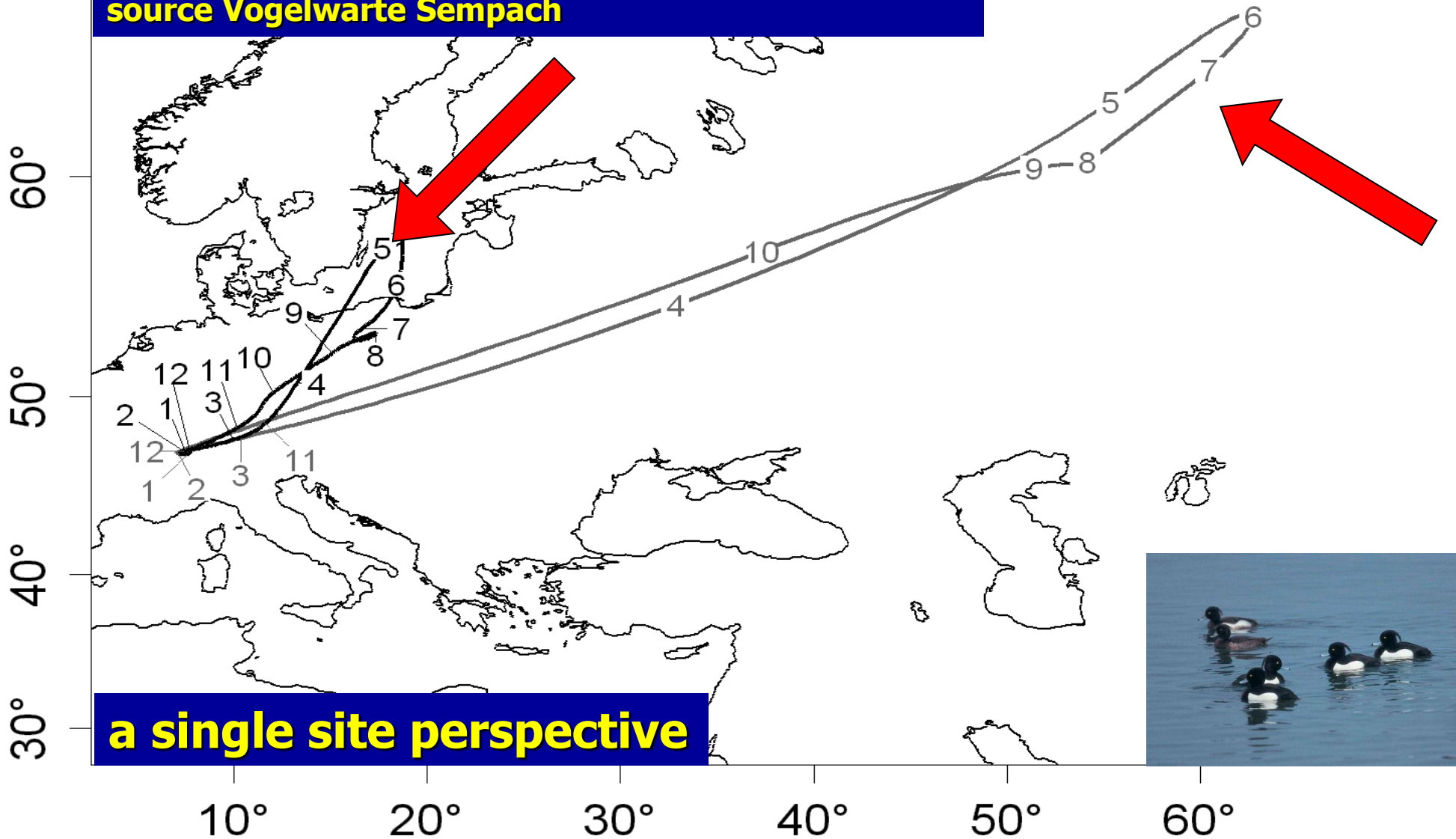
Connectivity at blackspots



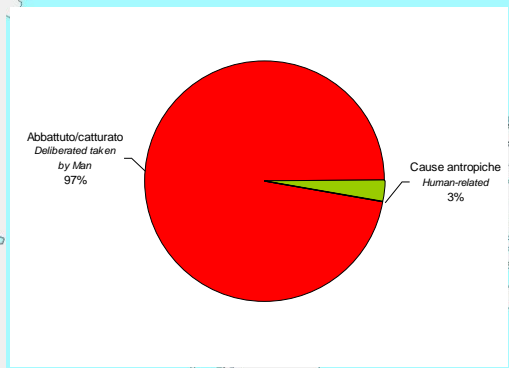
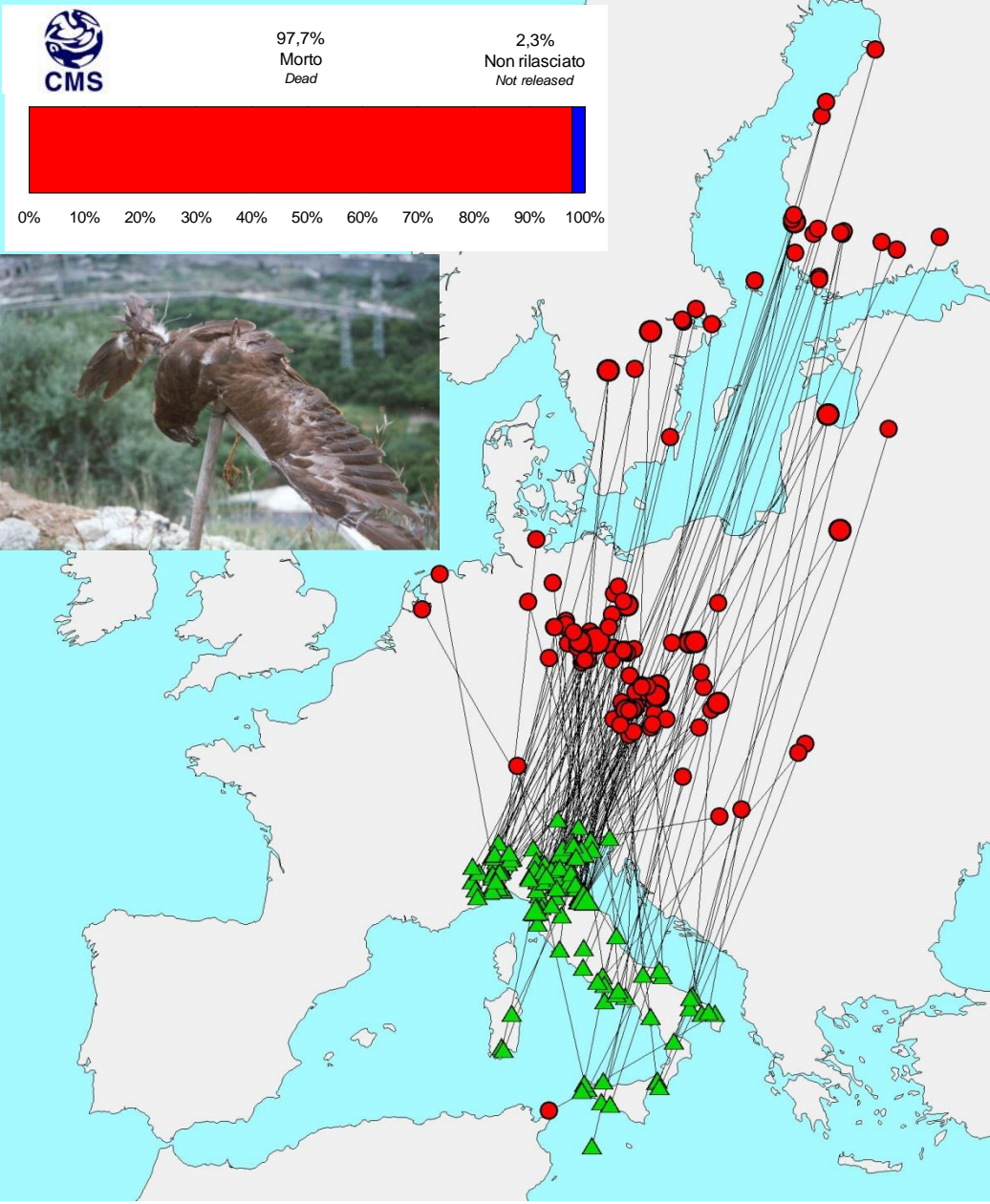
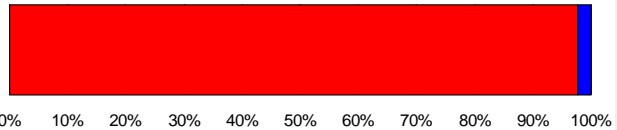
Movimenti estero - Italia di esemplari ricatturati nell'area dello stretto di Messina (dettaglio)



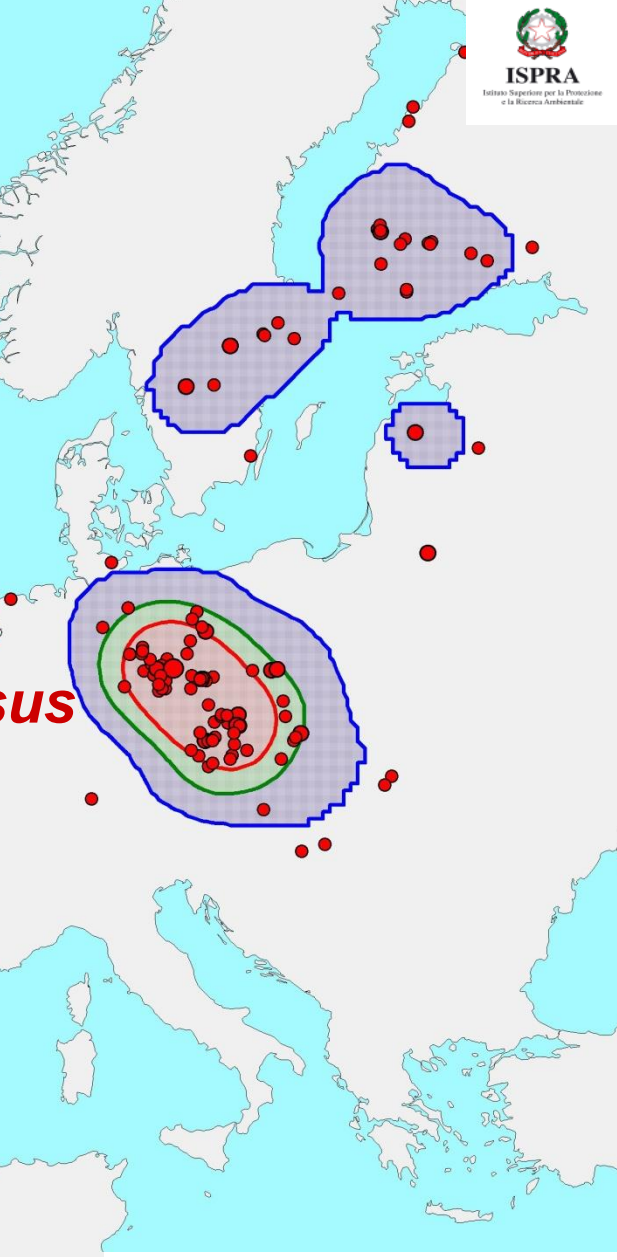
Migratory routes (smoothed) of two Tufted Duck populations wintering/migrating in Switzerland source Vogelwarte Sempach



a single site perspective



Marsh Harrier
Circus aeruginosus



a Country perspective
Spina & Volponi, 2008

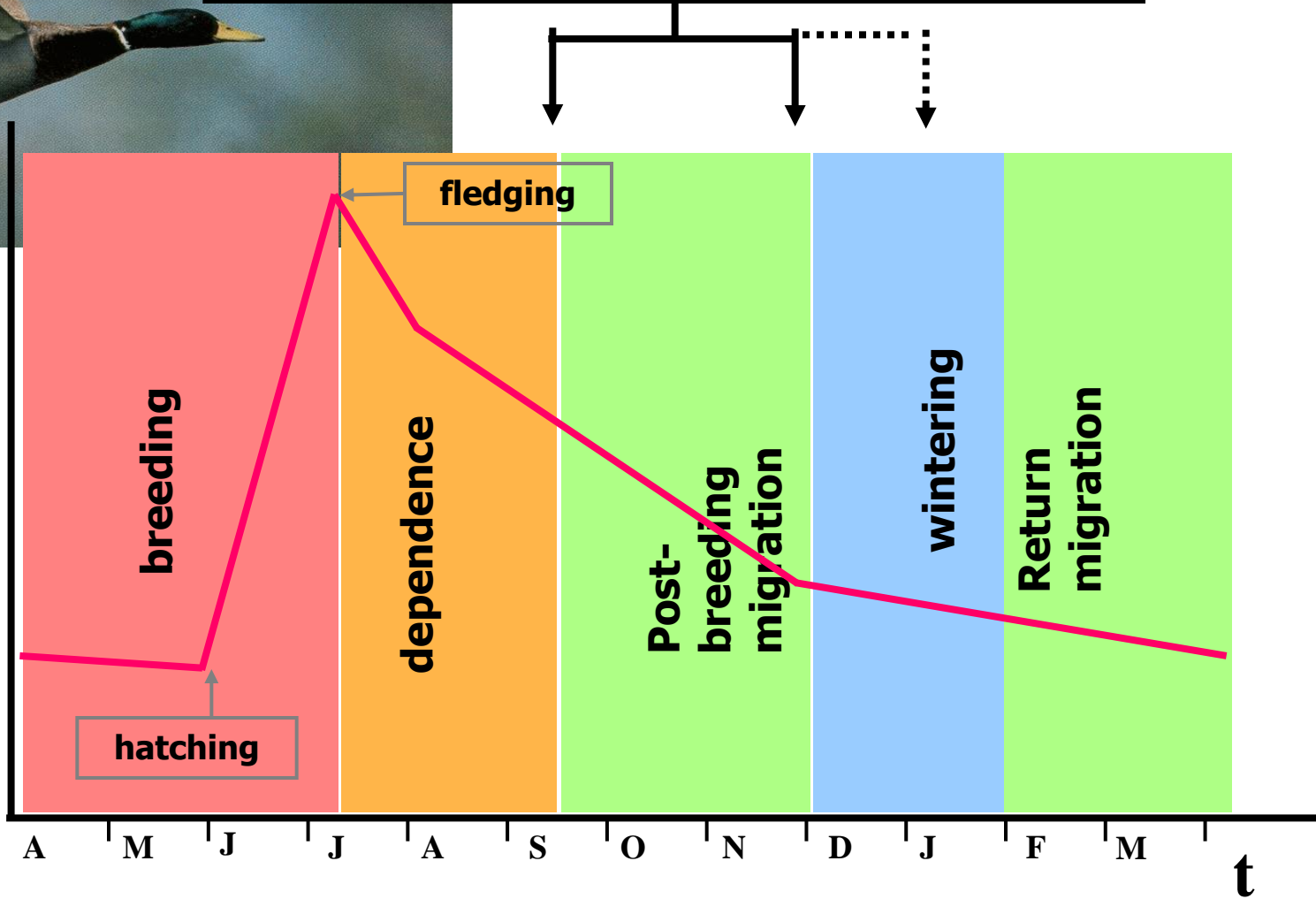
**additive mortality due to IKB along the
flyway of same populations**

Mortality caused by IKB

Any loss of individuals through IKB the same toll on the population?

**NO. Mortality impact vs phenological phase of mortality.
Biological bases of art. 7.4 Birds Directive and of
EU “Key Concepts Document”**

Population size - mortality



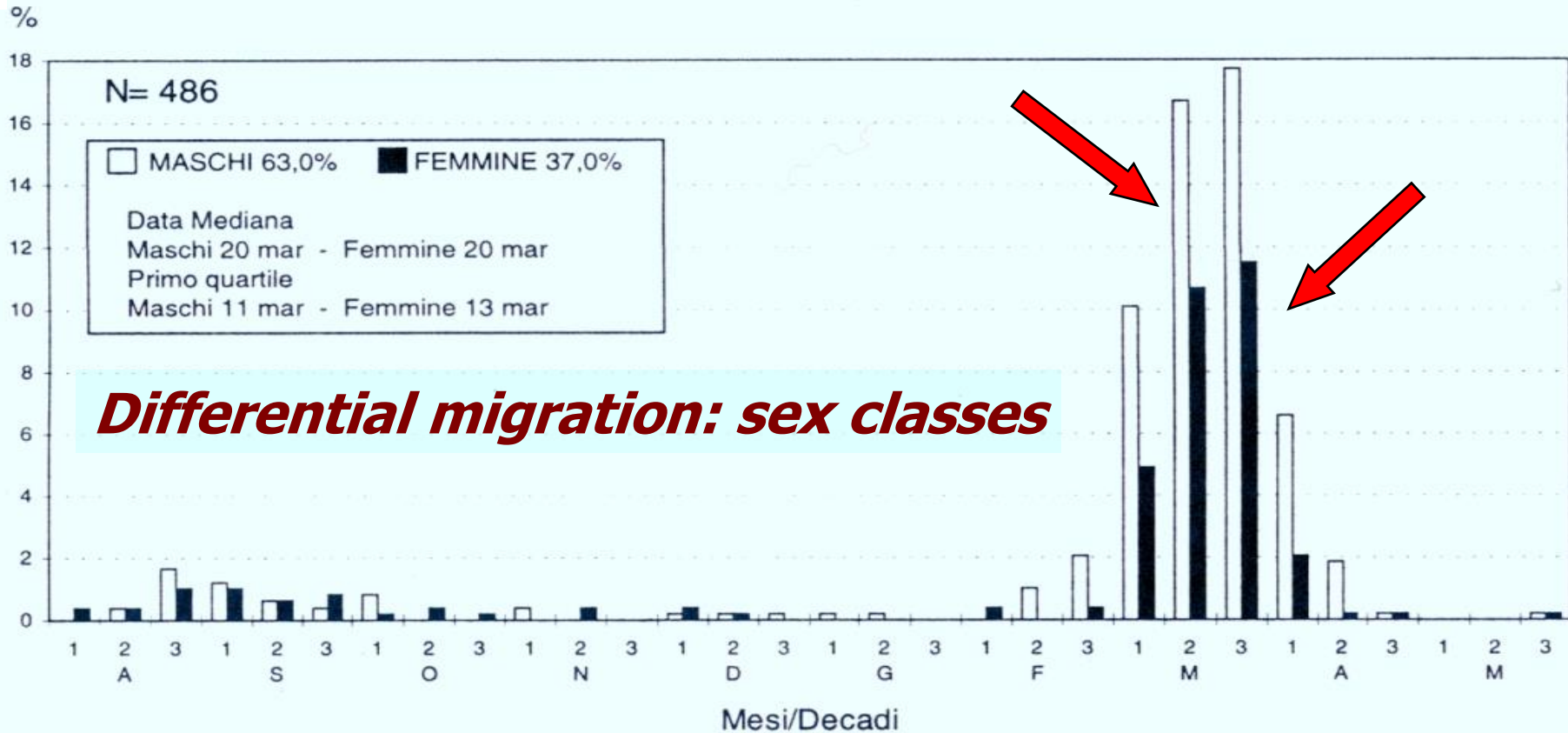


Fig. 30 - Marzaiola. Migrazione differenziale dei sessi in base ai dati di ricattura (Garganey. *Differential migration of sexes on the basis of Italian recoveries of foreign ringed birds: males - white; females - black. Median and first quartile dates are reported.*)

Garganey: return migration of sex classes through Italy.
from: Dall'Antonia et al., 1996

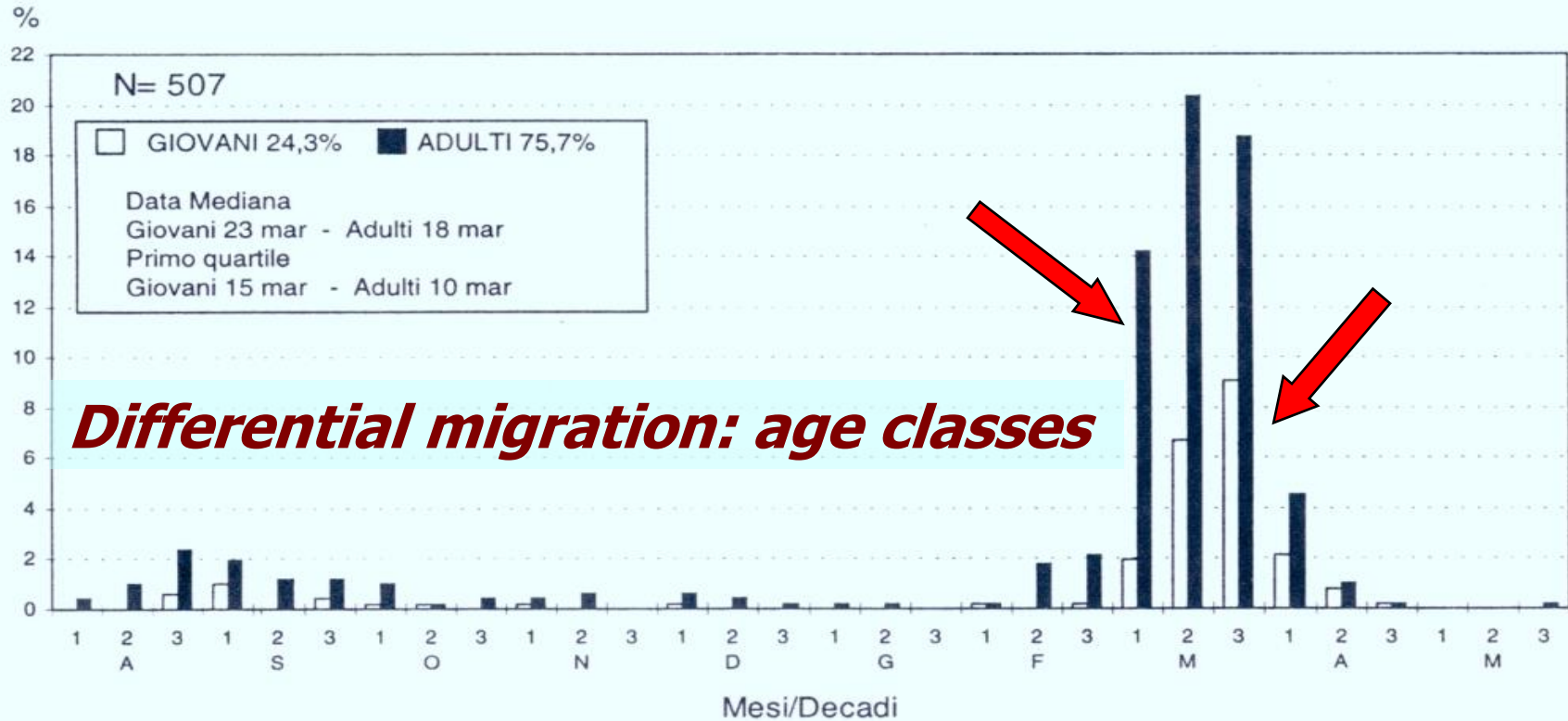


Fig. 31 - Marzaiola. Migrazione differenziale delle classi di età in base ai dati di ricattura (Garganey. Differential migration of age classes on the basis of Italian recoveries of foreign ringed birds: juveniles - white; adults - black. Median and first quartile dates are reported).

***Garganey: return migration of age classes through Italy.
from: Dall'Antonia et al., 1996***

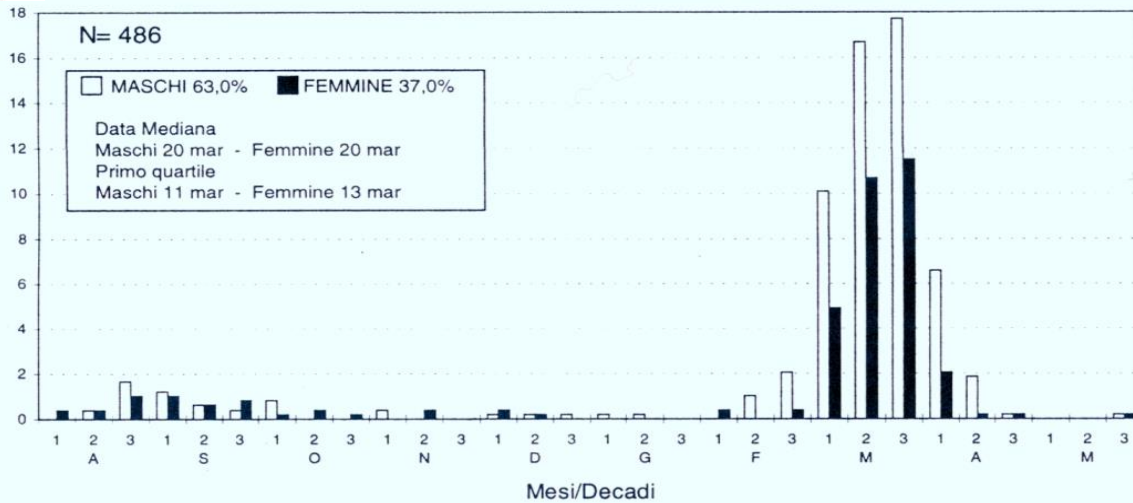


Fig. 30 - Marzaiola. Migrazione differenziale dei sessi in base ai dati di ricattura (Garganey. Differential migration of sexes on the basis of Italian recoveries of foreign ringed birds: males - white; females - black. Median and first quartile dates are reported).

Differential migration: IKB even during a short phase of return migration will affect the demographically most important component of the population Gravity factors

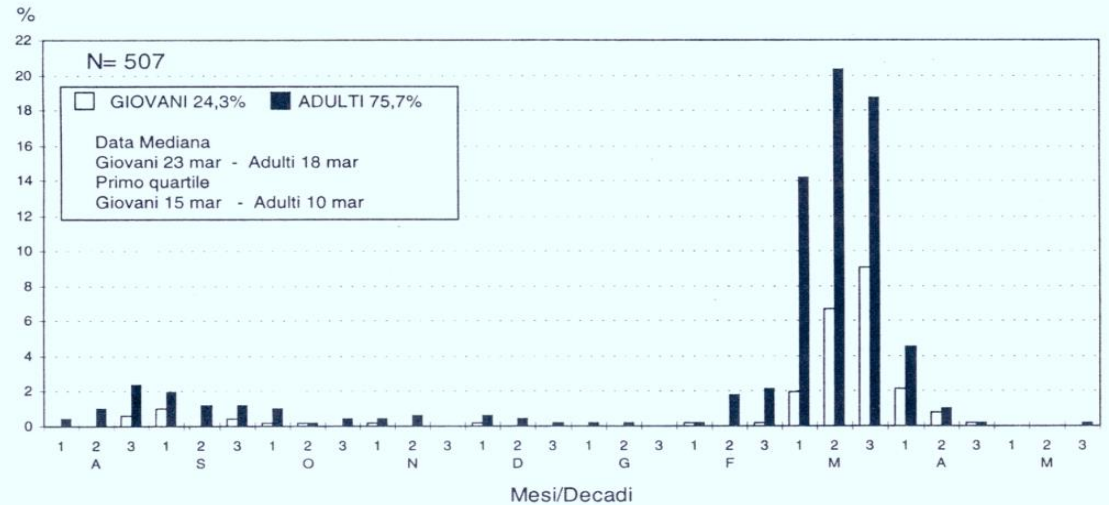
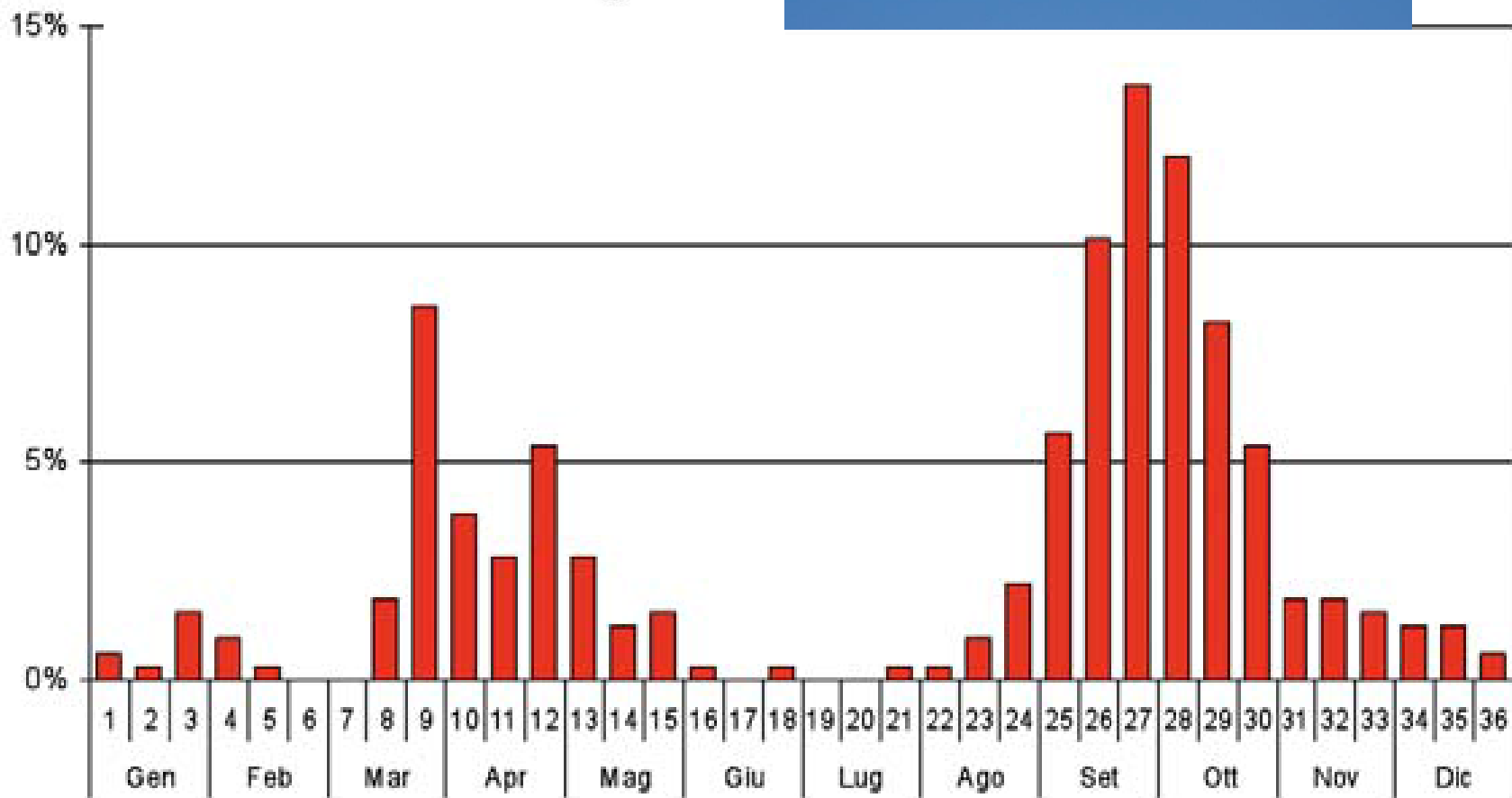
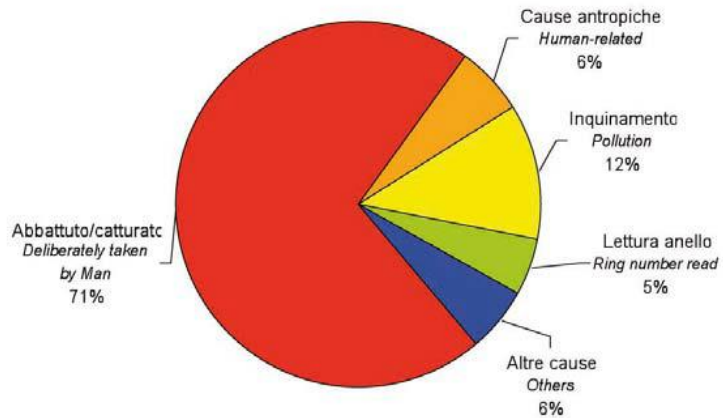


Fig. 31 - Marzaiola. Migrazione differenziale delle classi di età in base ai dati di ricattura (Garganey. Differential migration of age classes on the basis of Italian recoveries of foreign ringed birds: juveniles - white; adults - black. Median and first quartile dates are reported).

seasonal aspects:

- all data have recovery date, allowing to describe the seasonal frequency of recoveries of birds illegally killed.
- this aspect, together with the geographical perspective, will be useful **for policy forces** to plan and prioritize actions on the ground
- will produce info at the species / country / blackspot level



Decade - Ten days period

How? Can we improve our knowledge on the methods used in IKB and for the various species/groups of species?

YES

methods used for IKB activities

- most data report the method through which a bird was killed
- analyses will produce an overview of methods used, also from an historical, geographical, and seasonal perspective



Large-scale conservation effects of local situations of IKB. Problems related to local concentrations of migrants:

- **Do we know enough about the role of bottleneck areas for migrants?**

YES(?), but only for the major ones and for diurnal migrants

**Need to collate data on nocturnal migrants – Passerines
(Data mostly from ringing stations and largely available)**

Large-scale conservation effects of local situations of IKB. Problems related to local concentrations of migrants:

- Do we know enough about the role of bottleneck areas for migrants?
- **Why are birds concentrating in specific sites/areas?**

Large-scale conservation effects of local situations of IKB. Problems related to local concentrations of migrants:

- Do we know enough about the role of bottleneck areas for migrants?
- Why are birds concentrating in specific sites/areas?

Analyses of already existing data on average physical conditions vs date, latitude, longitude would offer a broad overview of use of flyway.

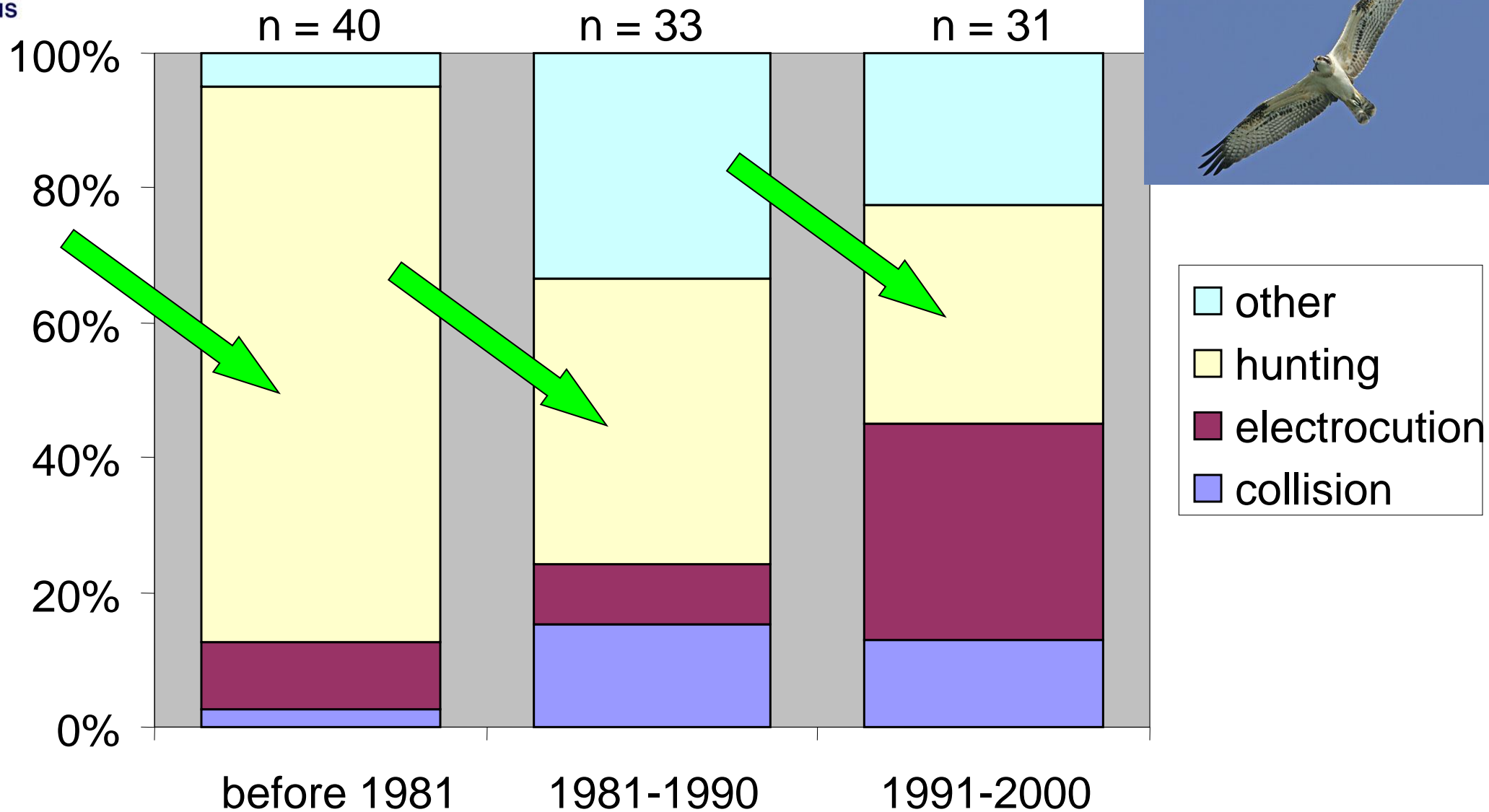
Millions of geo-referenced data collected, stored at the national ringing centres across Europe, and available for analyses

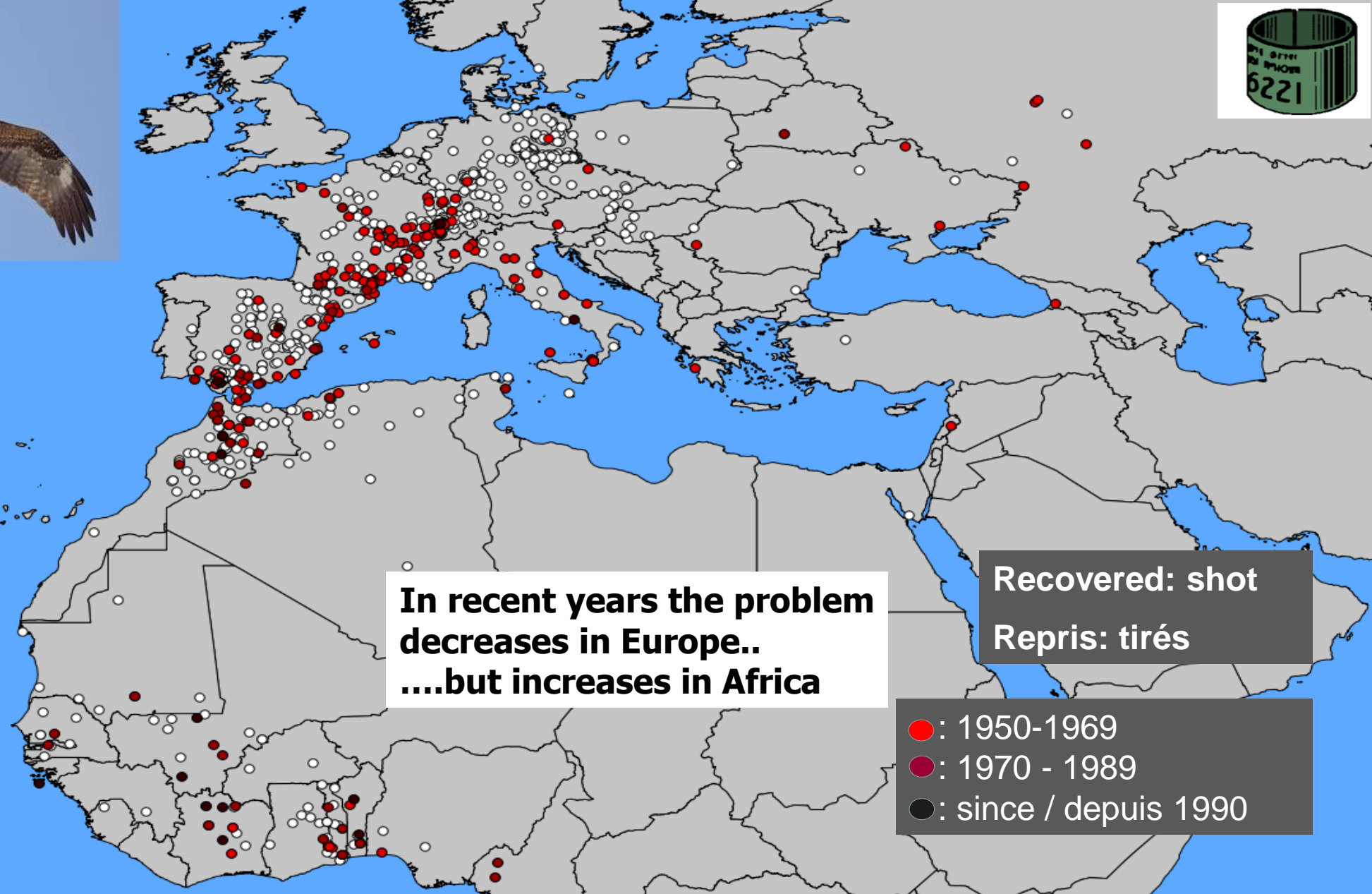
Historical / cultural trends? Can we improve our knowledge on possible changes in attitude towards IKB?

YES

Historical:

- **historical trend in number & frequency of species reported due to IKB
(the EURING Data Bank hosts data since over 1 century)**
- **historical analyses can describe trends in recoveries of birds victims of IKB
(on a flyway & country perspective)**



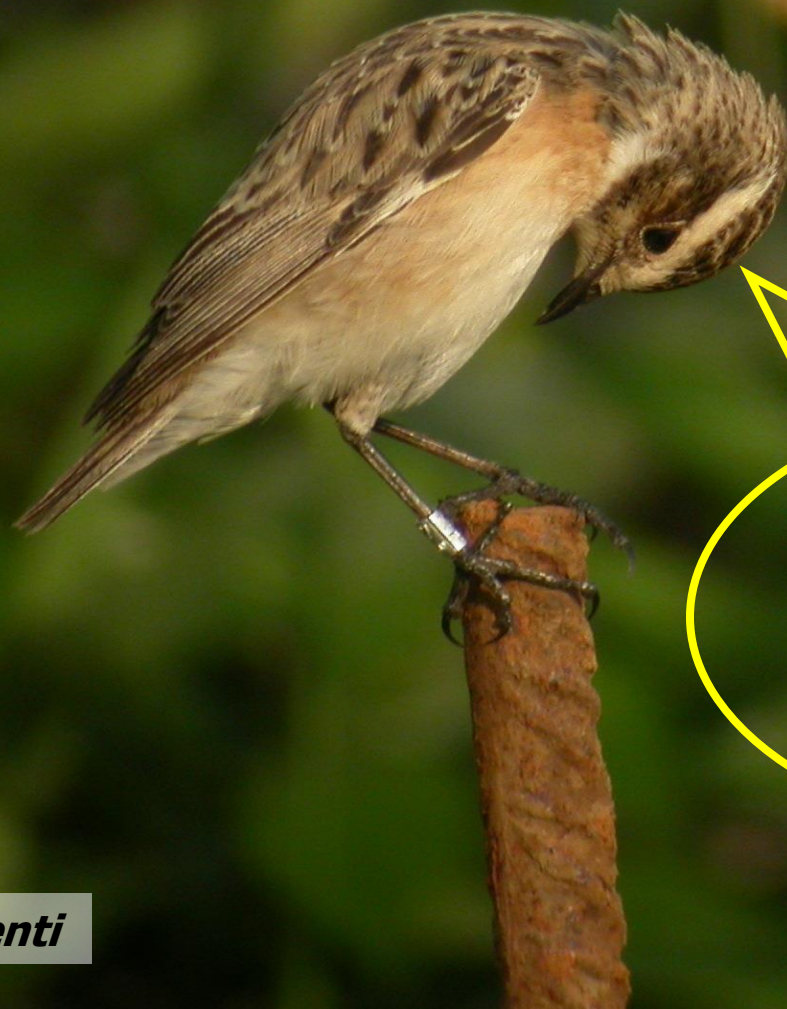


**In recent years the problem decreases in Europe..
....but increases in Africa**

**Recovered: shot
Repris: tirés**

- : 1950-1969**
- : 1970 - 1989**
- : since / depuis 1990**

**Mediterranean surely not enough:
need for a flyway approach to IKB issues**

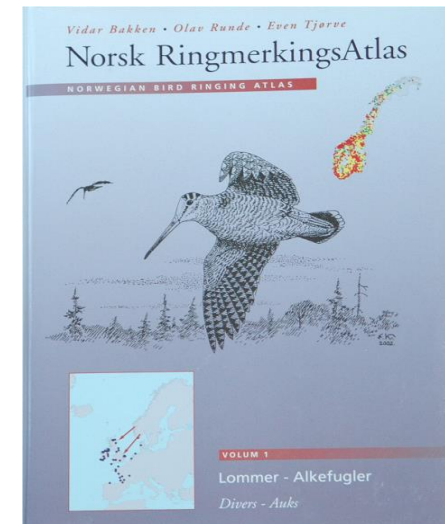
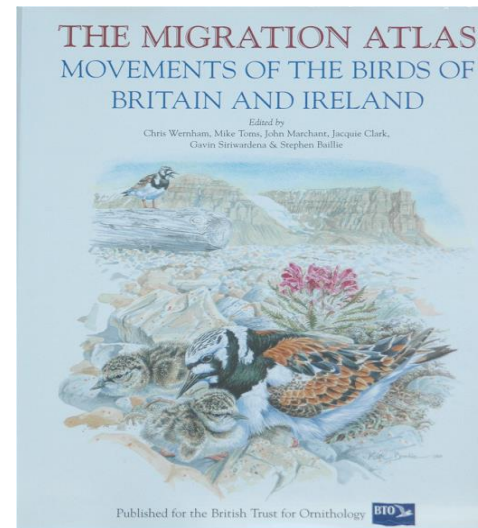
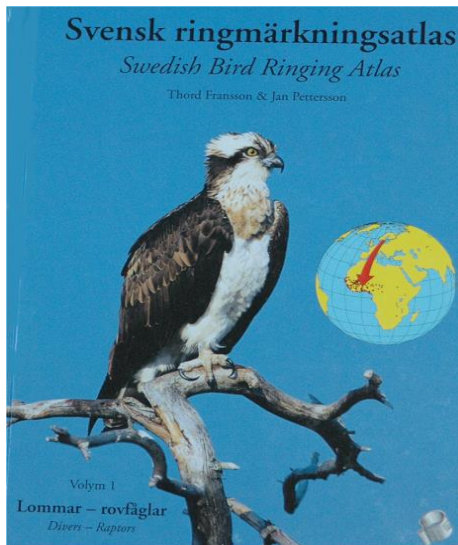


***we URGENTLY need
a European
Migration Atlas!***

photo Stefano Laurenti

In Europe:

- Netherlands 1984
- Sweden 2001
- UK 2002
- Norway 2003-2006
- Denmark 2007
- Hungary 2008
- Italy 2008-2009
- Czech and Slovak Republics 2008
- Croatia 2013
- Germany 2014




www.euring.org

<http://www.euring.org/edb/index.htm>

***CMS cooperative project with EURING
for an atlas of Animal migration
Included in workplan out of COP11
1st step European migration atlas***



photo Adriano De Faveri



***A European migration atlas
a key contribution to detailed knowledge
on migratory patterns and strategies for
conservation, management and to halt IKB***


photo Adriano De Faveri

***To halt IKB
absolute need for awareness
and education to change
attitudes towards birds***



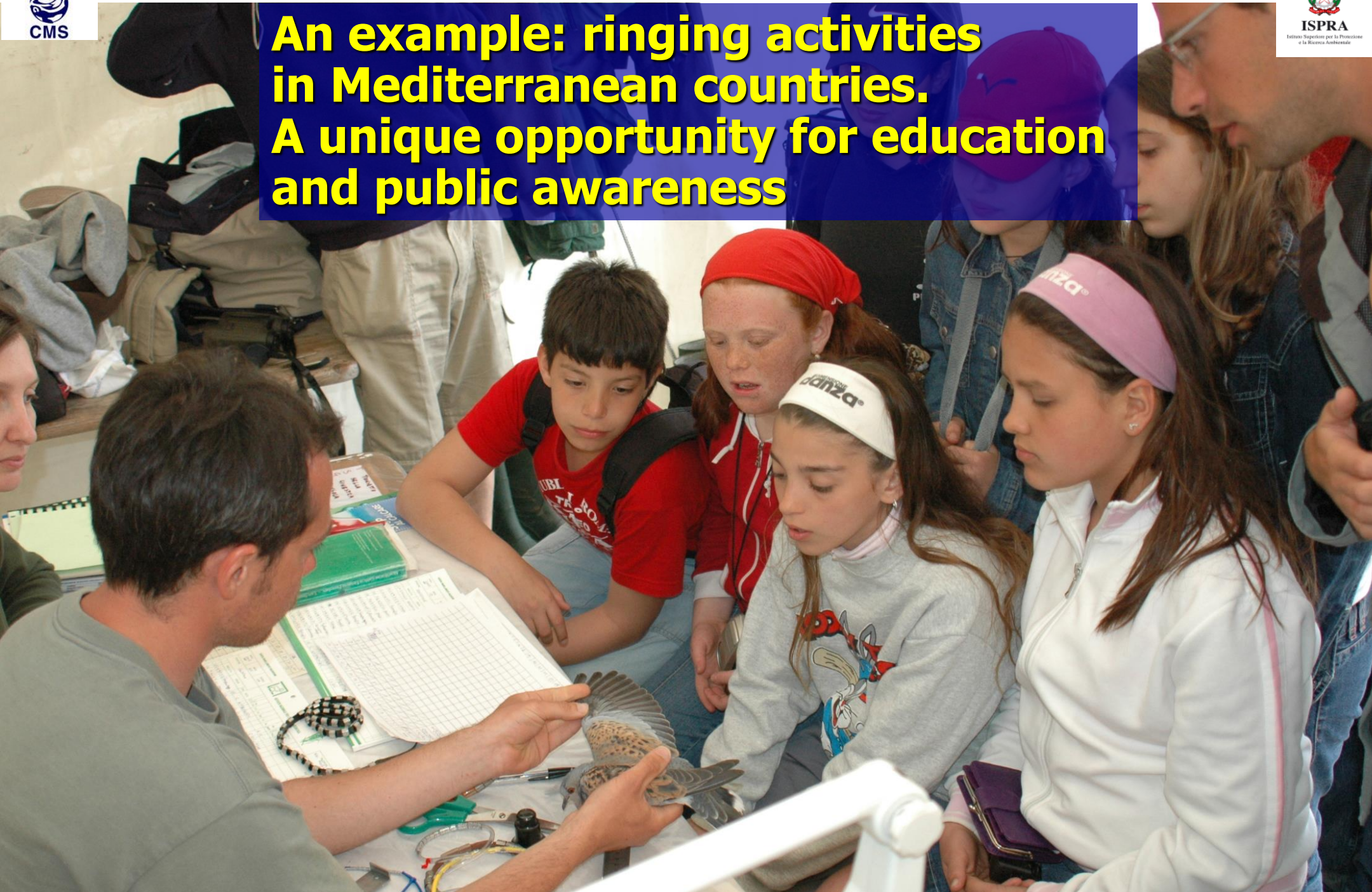


***Ventotene island
tiny yet of huge seasonal
importance for
staging migrants***



Millions of birds have been killed on this tiny island since Roman times by traps, nets and shooting

An example: ringing activities in Mediterranean countries. A unique opportunity for education and public awareness







Opening on 18 June 2006

A great local interest



A new asset for the local economy







***Untouched leaves
a hope for migrants***



***Local Municipality asked:
for the island to become a Natural Reserve
for hunting to be totally banned – 20 yrs now
(hunting vs €€€....)***



***Let's work together
to halt IBK
in the Mediterranean
and beyond***

***for their future
for our future***

Tempus fugit..

Thanks!



Photo Stefano Laurenti