

Bird Strikes and Migrants, estimated by Constant Effort Sites Ringing

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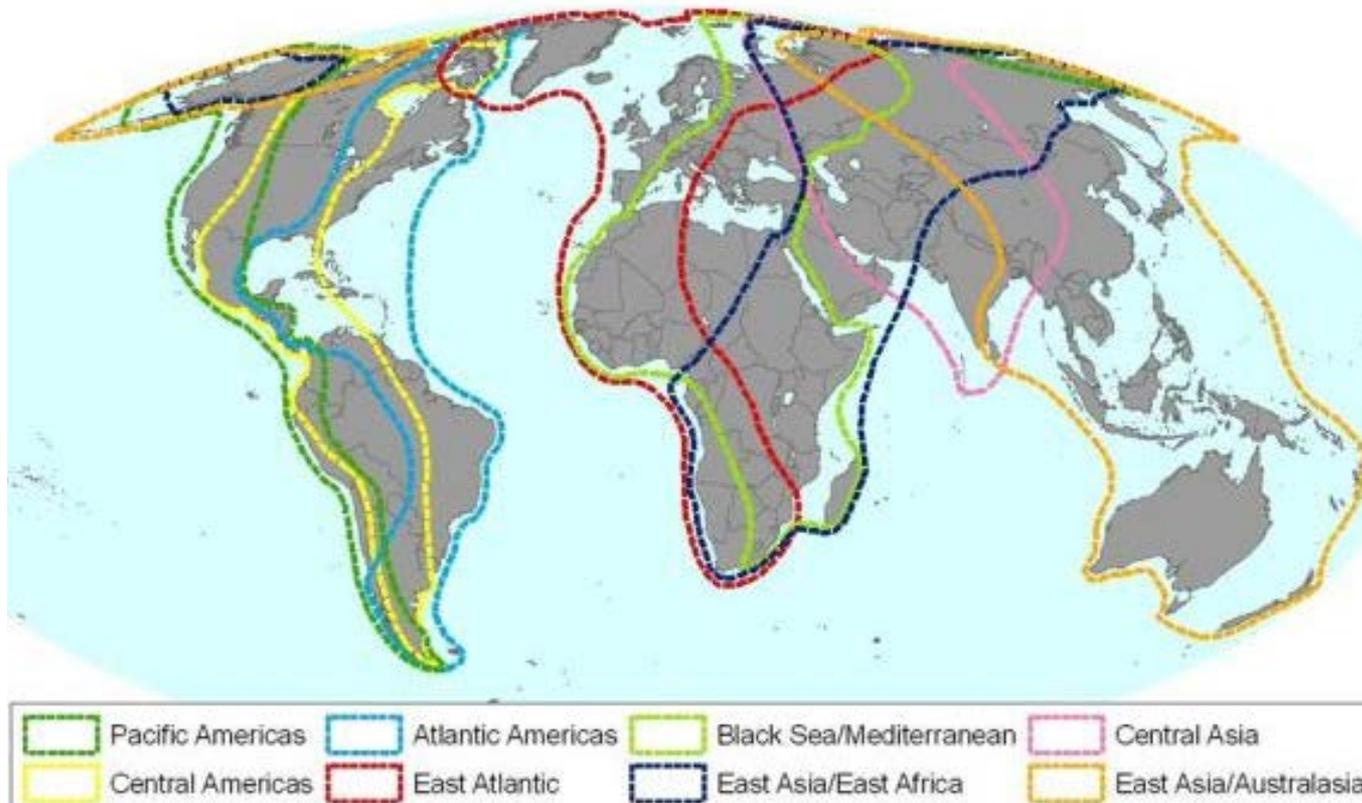
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José Luis Copete

In Medium Latitudes of Northern Hemisphere, Airports must be concern with Bird Migrants Risk



BirdLife International (2010) The flyways concept can help coordinate global efforts to conserve migratory birds. Presented as part of the BirdLife State of the world's birds website. Available from: <http://www.birdlife.org/datazone/sowb/casestudy/20>.

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A large flock of birds, possibly terns, is seen flying in a clear blue sky. The birds are scattered across the frame, with a higher concentration in the lower-left quadrant. The overall scene is bright and clear.

**The migrants are a problematic
group to manage for safety**

**In many countries migrants
overlap with residents and/or
winter visitors of the same
species**



The risk guidelines of an airport needs to consider the role of migrants, winter visitors and residents



*Strike 2004/ 05/05 honey bussard (Pernis apivorus)
female Photo F.V. Ríos .*

How can we disentangle migrants specimens from residents or/and winter visitors?

1- Avian radar

2- Strikes of Ringed (=Banded) Specimens

3- The exclusive migrant status of the species



How can we approach the migration picture without avian radar?

1- Naturalist observations

2- Number of species per month

3- "Citizen Science", C.E.S., a Population Indicator



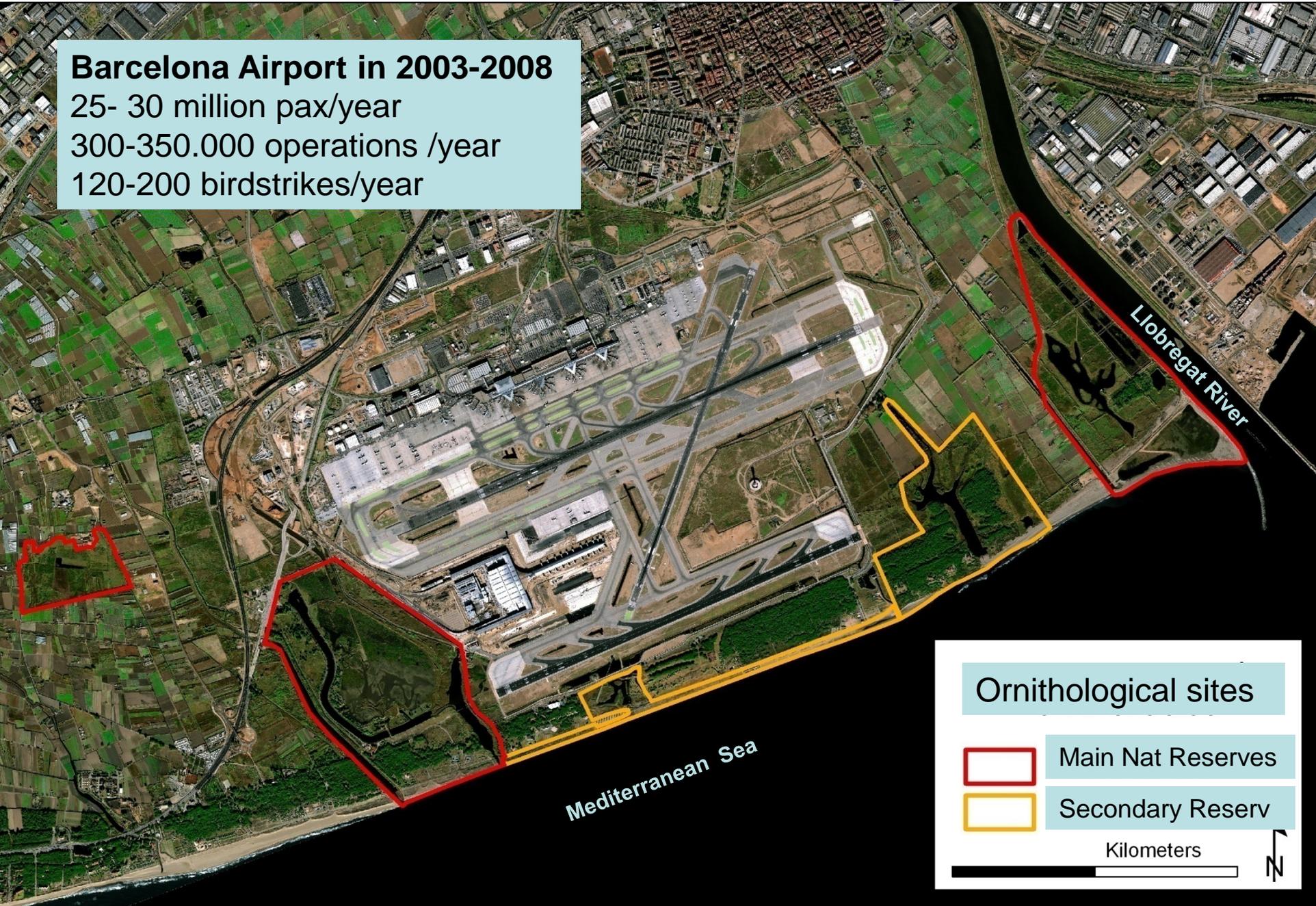
Barcelona, a Case Study

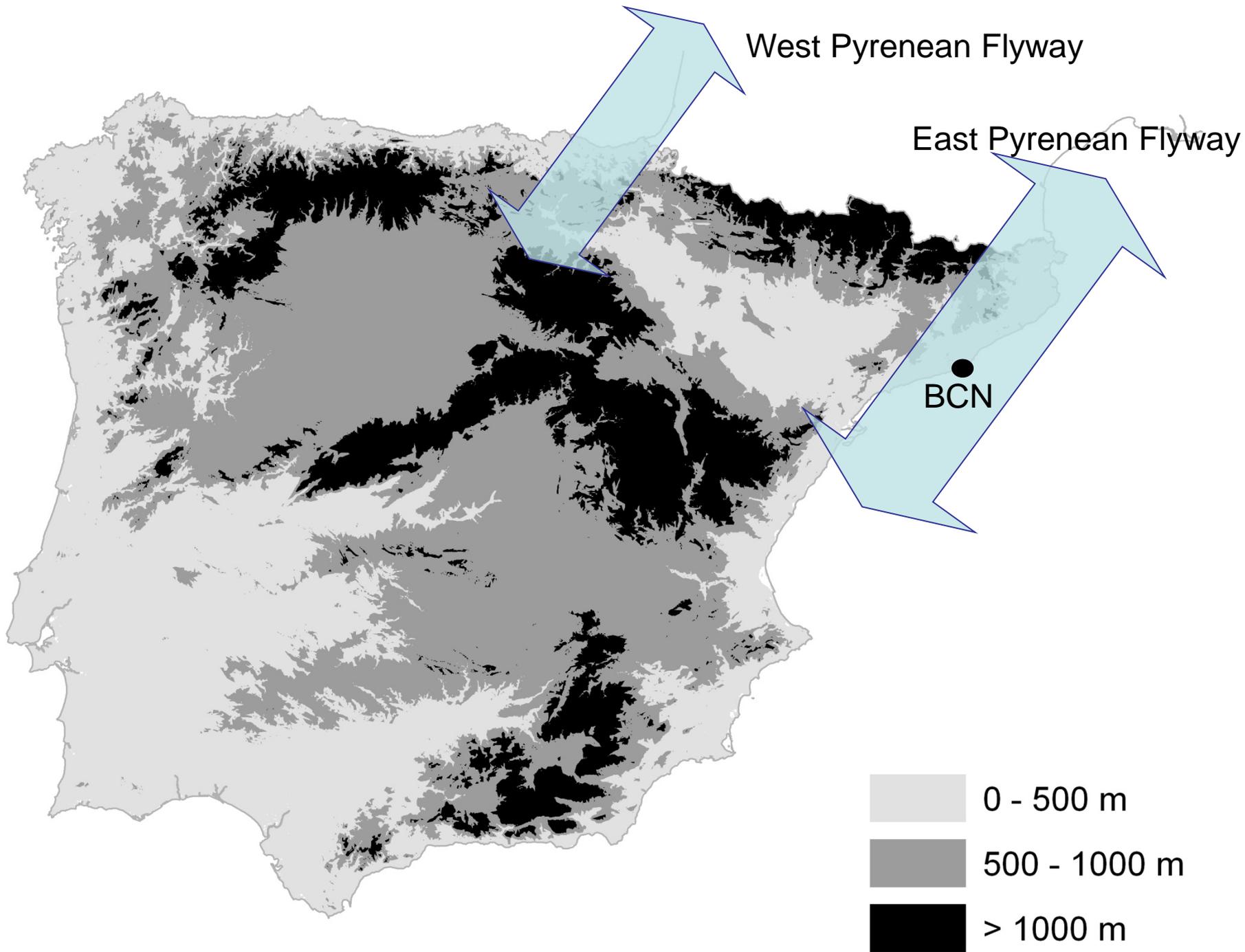
Barcelona Airport in 2003-2008

25- 30 million pax/year

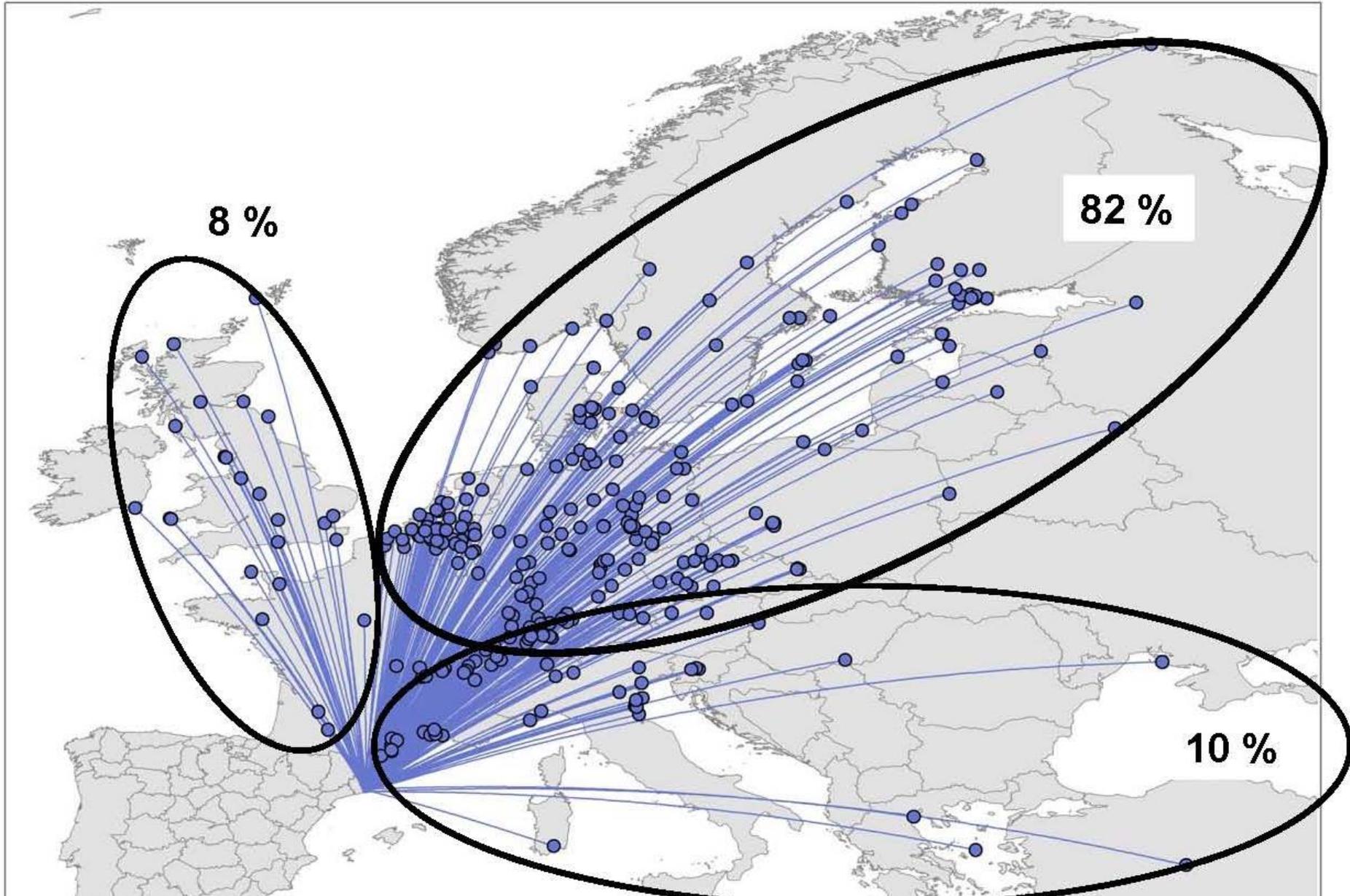
300-350.000 operations /year

120-200 birdstrikes/year





Foreign Ring Recoveries (438) in Baix Llobregat (near BCN Airport)



Evidences of Migrants Strikes in Barcelona Airport

- Strikes of Ringed (=Banded) Specimens

Peregrine Falcon (*Falco peregrinus*), Kestrel (*Falco tinnunculus*), Buzzard (*Buteo buteo*), Avocet (*Recurvirostra avosetta*)



Strike 2004/ 05/05 honey bussard (*Pernis apivorus*) female Photo F.V. Ríos .

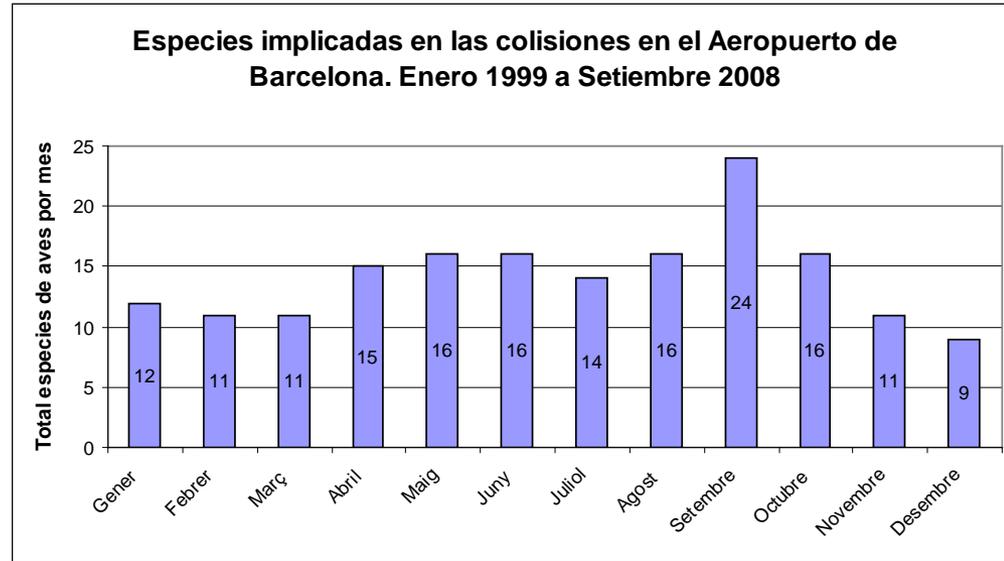
- Presence of exclusive migrant status species in birdstrikes (5 cases) in 2005-2008;

Honey Buzzard (*Pernis apivorus*), White stork (*Ciconia ciconia*), Montagu's Harrier (*Circus pygargus*) and Merlin (*Falco columbarius*)

Evidences of Migrants Strikes in Barcelona Airport

– Number of Species per month

The peak of species implicated in bird strikes is in September (Max migration pass)



Diversity of avian species striked by month in Barcelona Airport from 1999 a 2008.

- Naturalistic observations

In some days of heavy spring migration of swift and swallows, we had bird strikes.

Constant Effort Sites Ringing

A Citizen Science Pan-European Program

Constant effort ringing program aim to monitor the population changes of widespread passerine and near-passerine species, through a program of systematic mist-netting in specific habitats.

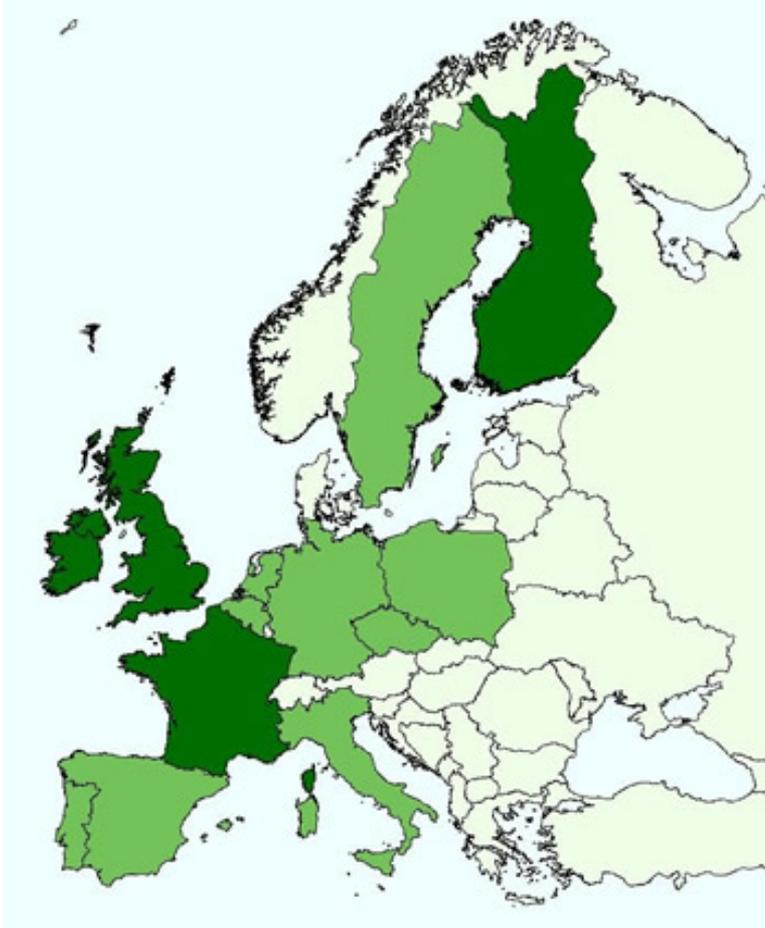
In constant effort ringing, **ringing effort is kept constant at a site on each visit and between years.** The same number and placement of nets are used each time, and the length of time that the nets are operated on each visit is kept constant at each site, and the seasonal pattern of visits, is standardized across years and across sites.



Ringing is a Citizen Science activity



Constant Effort Sites Ringing

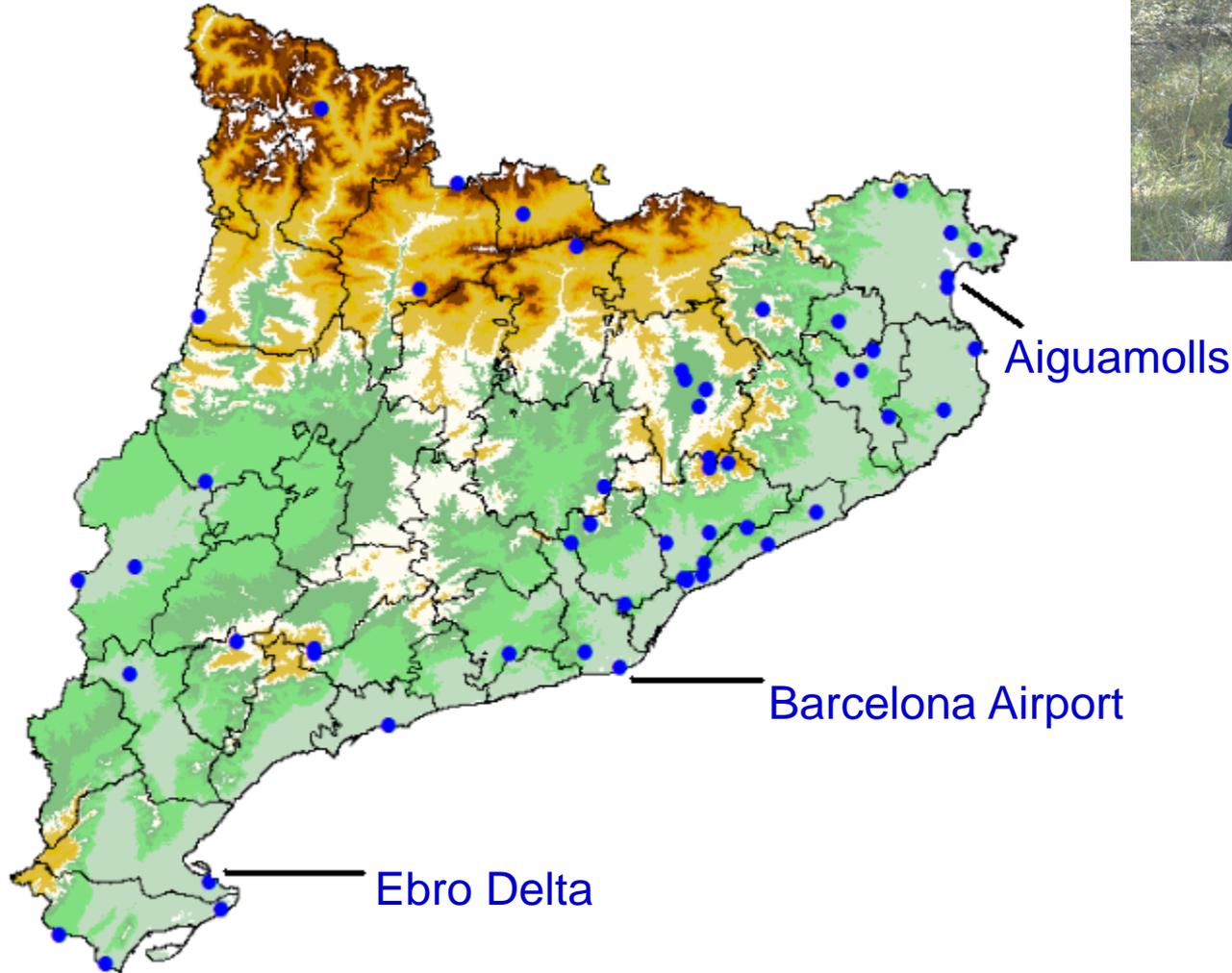


<http://www.euring.org/>

	Year started	Number of sites	Number of visits	Number of nets
UK	1983	120	12	6-12
Finland	1987	35	12	6-20
France	1989	30	3	15-50
Spain; Catalonia SYLVIA	1991	38	10	7-15
Spain (PASSER)	1995	46	10	2-13
The Netherlands	1994	51	12	6-12
Sweden	1996	29	12	3-15
Germany (Hiddensee)	1997	26	12	2-11
Germany	1999	35	12	6-20
Poland	1999	10	12	8-10
Belgium	2002	N.A.	N.A.	N.A.
Italy	2002	19	N.A.	N.A.
Portugal	2002	10	N.A.	N.A.
Czech Republic	2003	1	9	N.A.

Summary of CES Schemes in Europe operating at June 2004.
Details are given on the average number of sites operating in each year, the number of visits made and nets used at each site

Migrant Data: Median Fortnight registers from Mars to May / August to November from 3 coastal sites



<http://www.cdrtcampos.es/trino/anillamiento.html>



Constant Effort Sites Ringing in Catalonia (Sylvia Program)

From <http://www.sioc.cat/estacions.php>

<http://www.ornitologia.org/ca/quefem/monitoratge/seguiment/sylvia/index.html>

Testing the role of Migrants for Bird Strikes

Migrant Data: Median Fortnight registers from March to May / August to November

Bird Strikes Data: Median Fortnight registers from January 2005 to December 2008

Null Hypothesis 1 Independence between Migrant Population and Bird Strikes

Null Hypothesis 2- The bird Strikes during Non Migrant periods are equal than Migrant periods.



Testing the role of Migrants for Birdstrikes

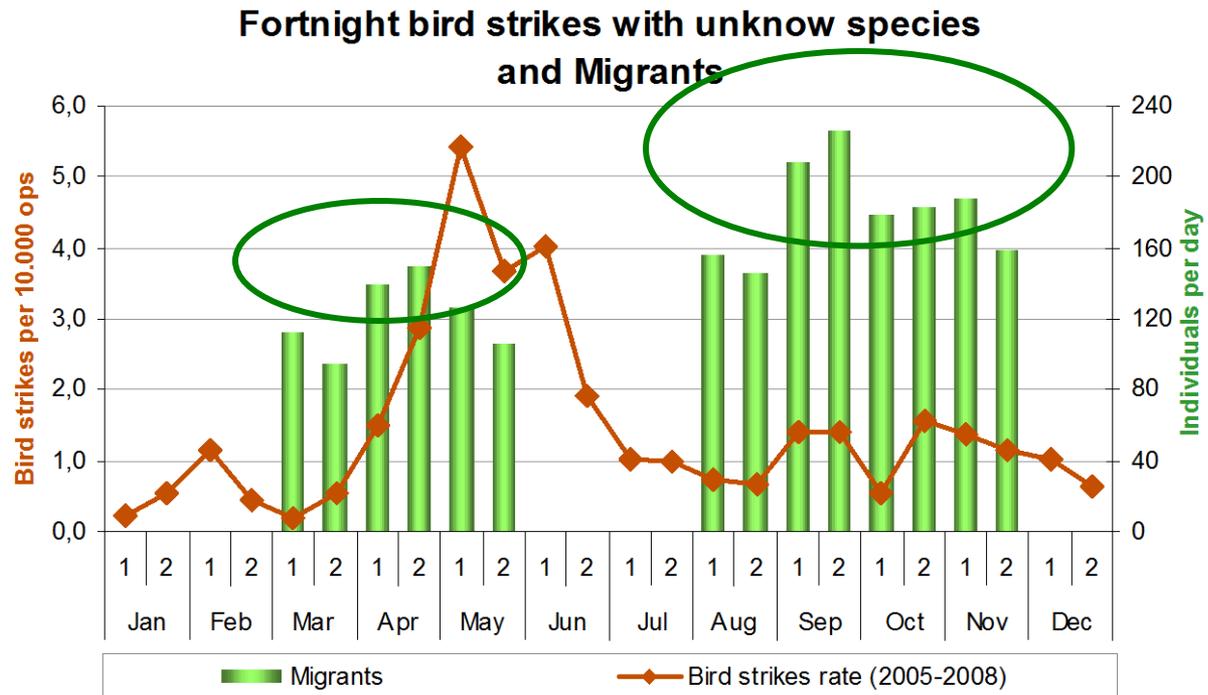
Migrant Data: Median Fortnight registers from March to May /August to November

Birdstrikes Data: Median Fortnight registers from January 2005 to December 2008

Null Hypothesis 1 Independence between Migrant Population and Birdstrikes

1- In autumn the migrant population is 33 % greater than spring but the birdstrikes are 32% lesser than spring.

2-Spearman correlation test $N=14$, $P=0.82$ Non Significant. Null Hypothesis Accepted.



Testing the role of Migrants for Bird Strikes

Migrant Data: Median Fortnight registers from March to May /August to November

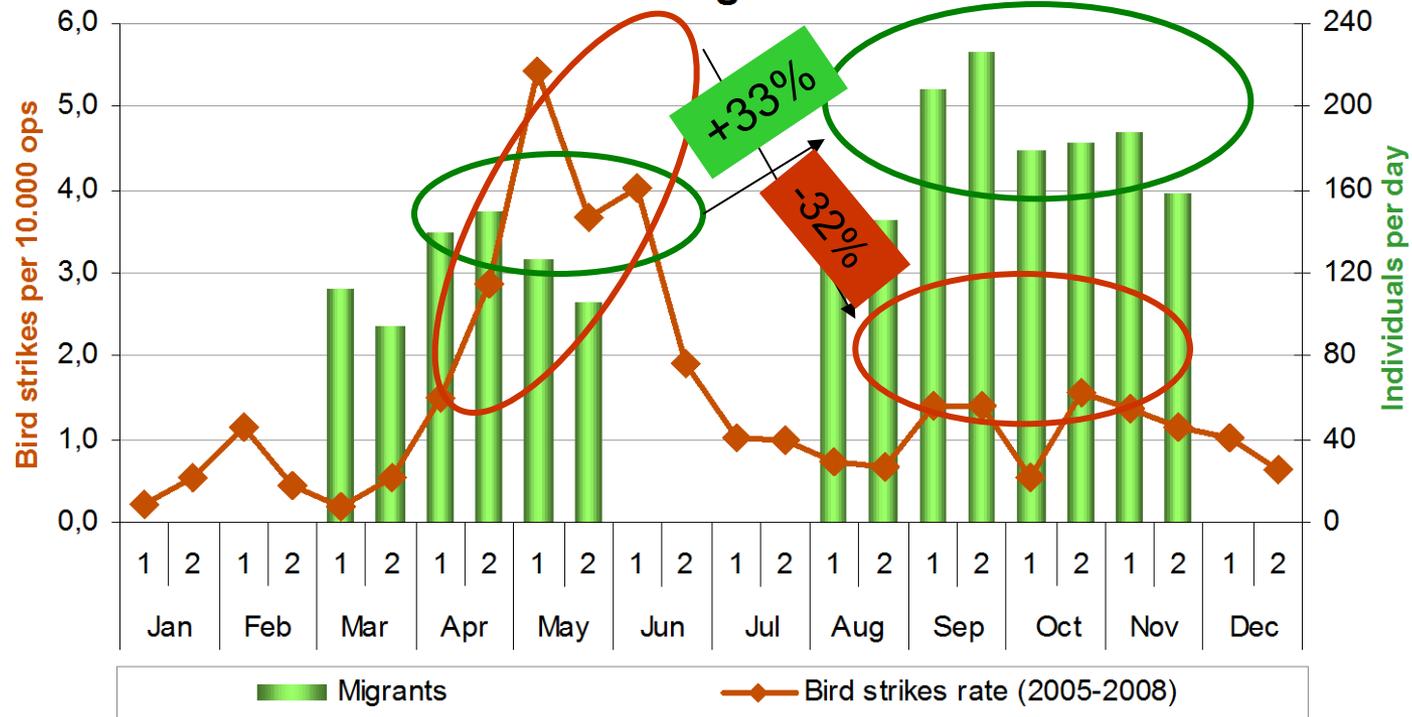
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Fortnight bird strikes with unknow species and Migrants



Testing the Role of Migrants for Bird Strikes

Null Hypothesis 2 The bird Strikes during Non Migrant Periods are equal than Migrant Periods.

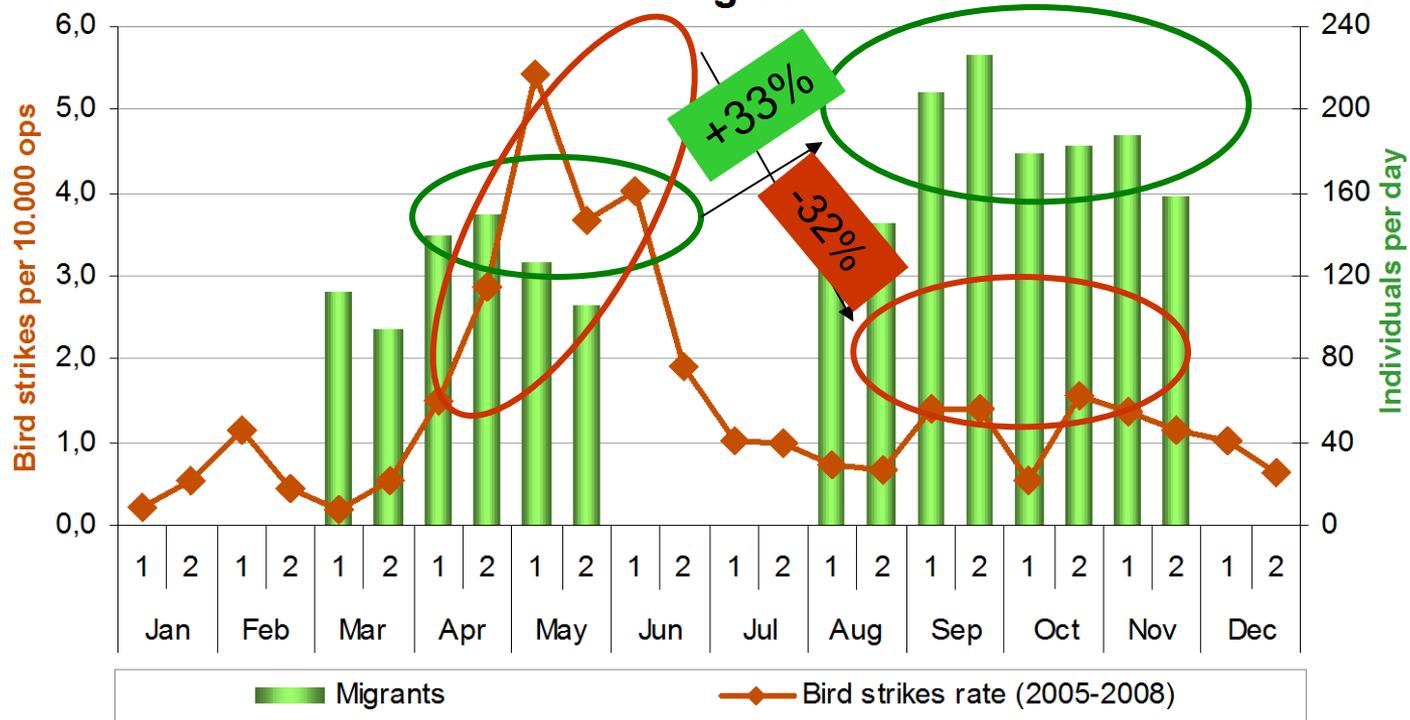
Homogeneity between medians, U-Mann Whitney test
U=52, Non Mig N=10, MigN=14, P=0.29 Non Significant. Null Hypothesis Accepted



Testing the role of Migrants for Birdstrikes

Hypothesis 1 and 2 have similar results (Independence between Migrant Population and Bird Strikes) in the case of total Bird Strikes for all the species

Fortnight bird strikes with unknow species and Migrants



Conclusions

1 In Barcelona Airport the relationships between Migrant Population Bird and Bird Strikes are weak with song birds

2 The population estimates refers only to diurnal small birds

3 The Constant Effort Ringings Sites brings a useful tool to analysed the role played by Migrant Birds in Bird Strikes of some European Airport.

4 The Citizen Science offers new tools to help the Bird Strike Prevention



Thanks for your attention !!



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