



IMPACTS OF INFRASTRUCTURES ON VULTURES

**Vulture Multi-species Action Plan
European Regional Workshop**

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THREATS OR OPPORTUNITIES



Wind Farms & Powerlines

Roads

Railways

Aircraft

Rubbish dumps

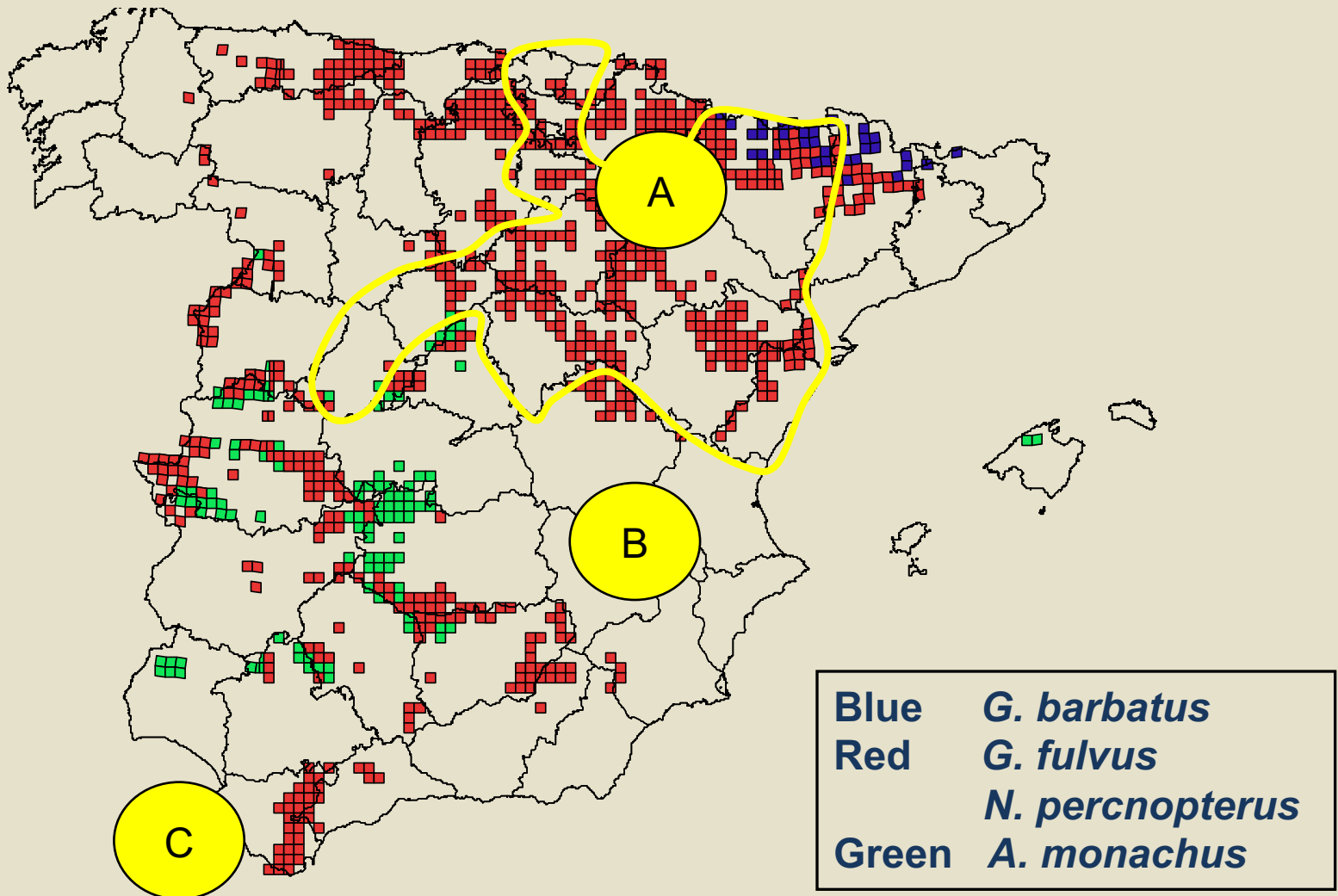
WIND ENERGY : COLLISIONS



- Eurasian Griffon vulture
- Bearded vulture
- Cinereous (Black) vulture
- Egyptian vulture
- Rüppell's Griffon Vulture
- White-Backed Vulture



WIND ENERGY : COLLISIONS



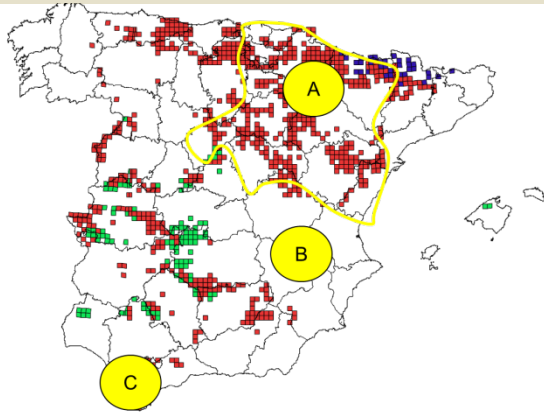
FATALITIES



Area	A	B	C
Wind farms	206	78	73
Turbines	4217	1071	908
Turbines sampled	57.4%	49.3%	100%

Collisions	2000-2015	2003-2012	1993- 2016
<i>Gyps fulvus</i>	2585*	21	1860 (88%)
<i>Gyps rueppellii</i>	-	-	5
<i>Gyps africanus</i>	-	-	2
<i>Aegyptius monachus</i>	2+3	-	1
<i>N. Percnopterus</i>	5	-	9
<i>G. barbatus</i>	-	-	-

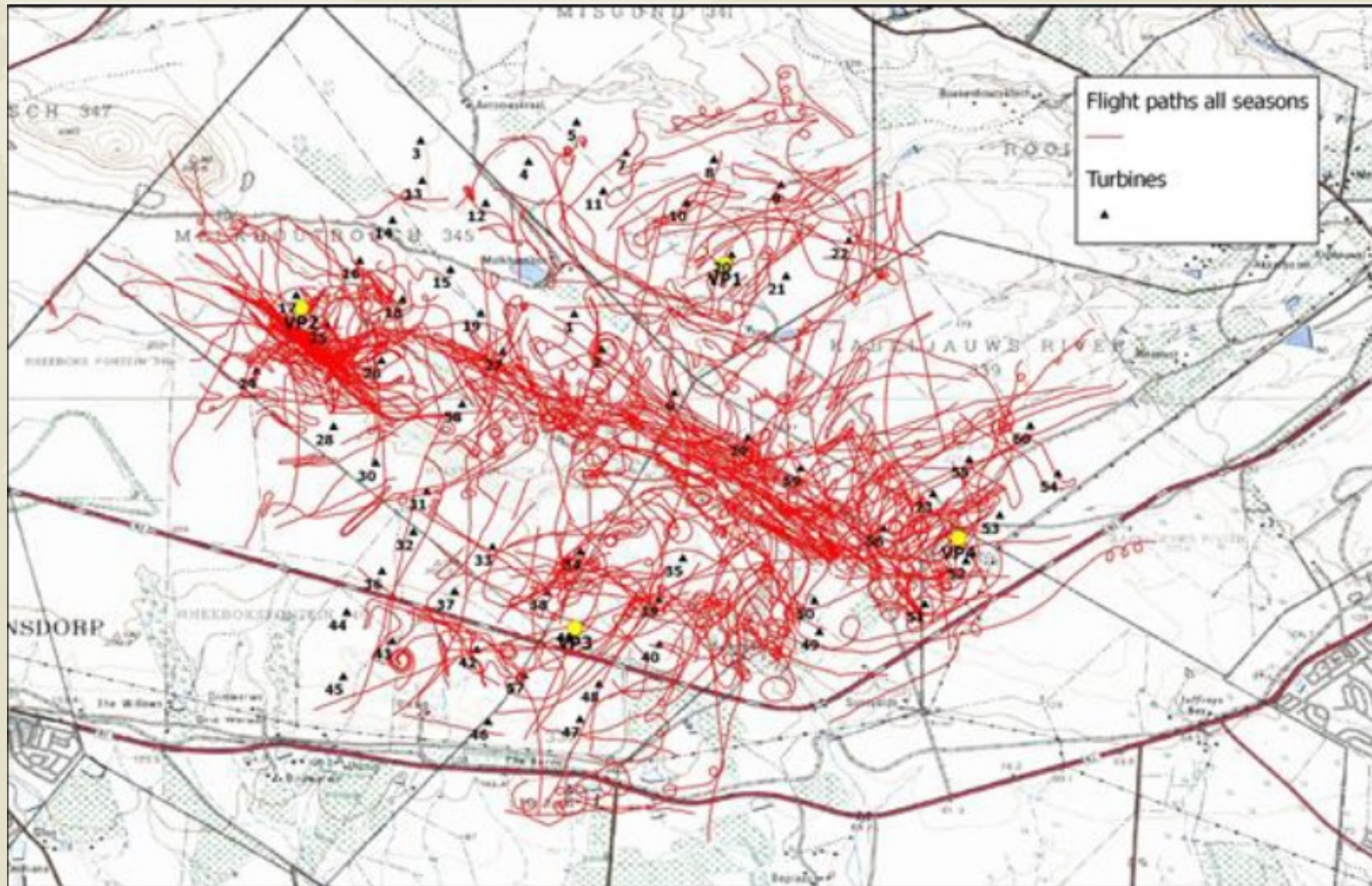
FATALITY RATES



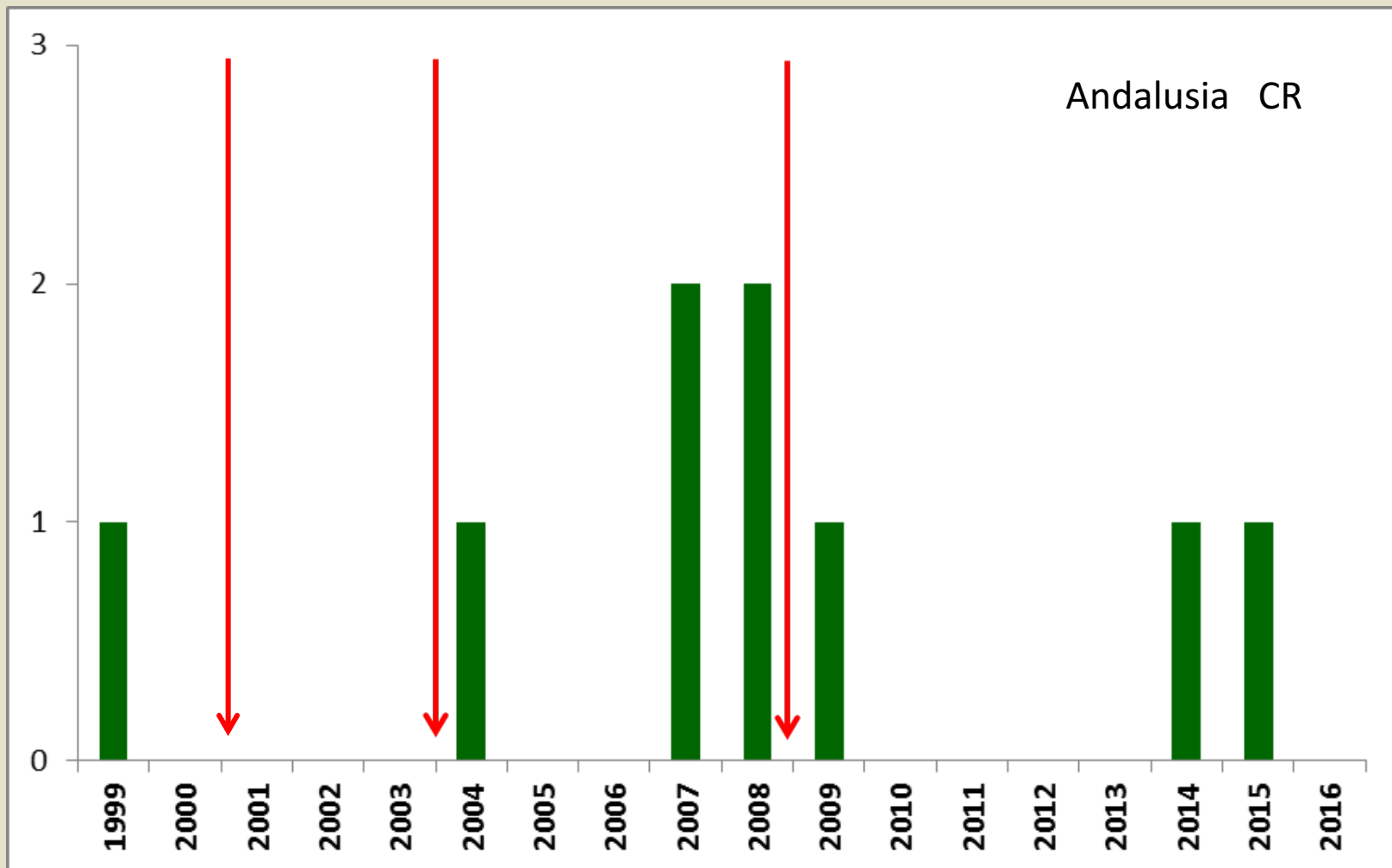
Area	A	B	C
Wind farms	125	64	63
Turbines	3305	1879	908
Turbines sampled	57.45%	49.39%	100%
Fatality rates	0.18	0.002	0.15-0.36

735-935 Vultures /year

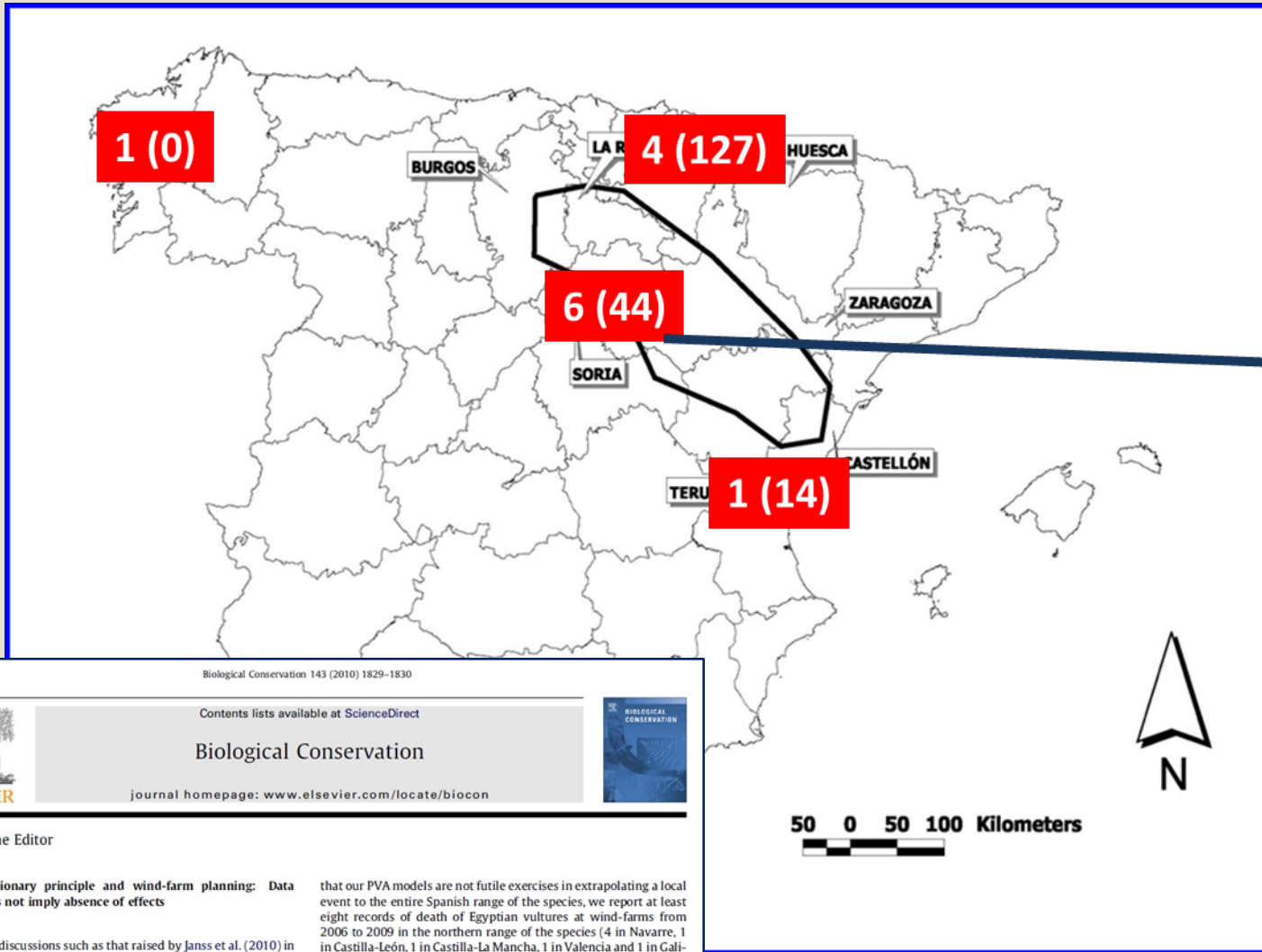
PRE-CONSTRUCTION



THE NEED OF LONG TERM POST CONS MONITORING (Egyptian Vulture)



THE NEED OF LONG TERM POST CONS MONITORING (Egyptian Vulture)



2005-2012

Biological Conservation 143 (2010) 1829–1830

Contents lists available at ScienceDirect

Biological Conservation

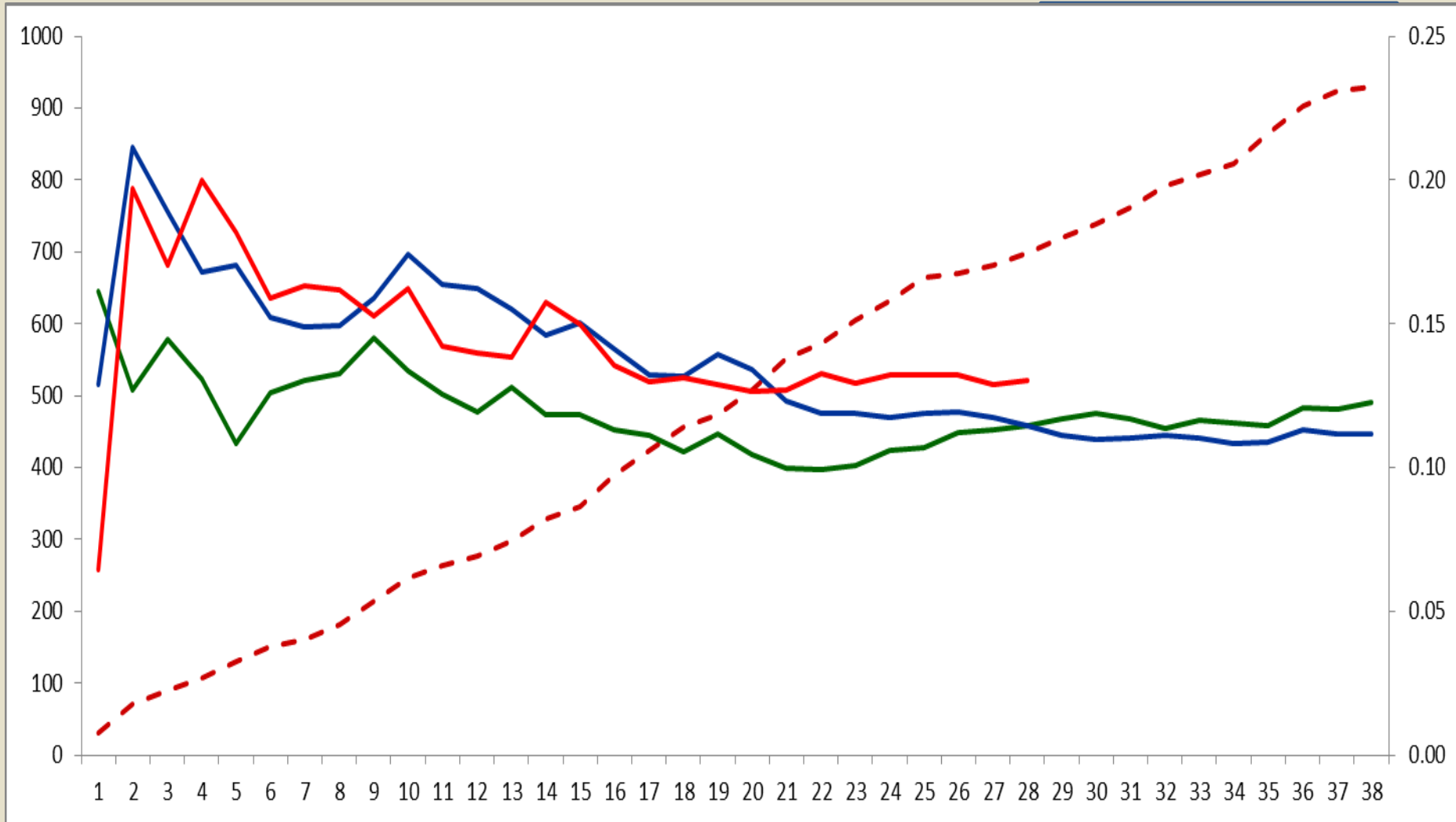
journal homepage: www.elsevier.com/locate/biocon

Letter to the Editor

The precautionary principle and wind-farm planning: Data scarcity does not imply absence of effects

Scientific discussions such as that raised by Janss et al. (2010) in relation to our paper (Carrete et al., 2009) help to clarify issues in the field of wind energy planning, thus relegating non-technical issues to the domain of public opinion. In our paper, we report that our PVA models are not futile exercises in extrapolating a local event to the entire Spanish range of the species, we report at least eight records of death of Egyptian vultures at wind-farms from 2006 to 2009 in the northern range of the species (4 in Navarre, 1 in Castilla-León, 1 in Castilla-La Mancha, 1 in Valencia and 1 in Galicia; Consellería Medio Ambiente, Generalitat Valenciana, authors et al. 2009). The absence of scientific consensus on the

IMPACT ON POPULATIONS



OTHER SITES IN EUROPE WITH VULTURE FATALITIES



FRANCE: N/A

ITALY: N/A

**GREECE: 4 + 1 Crete (All Griffon Vultures); 1 Cinereous
Vulture 0.07 Vultures /T/year
(*Carcamo et al. 2011; Dotau et al. 2011*)**

JORDAN: 0

BULGARIA: 1 Griffon V.

PORTUGAL: 3 Griffons (*Strix, 2012*)

POWERLINES: ELECTROCUTIONS & COLLISIONS



- But also +



POWERLINES: ELECTROCUTIONS & COLLISIONS



A subject difficult (impossible) to cover entirely

Where to work against E & C?

Baseline information of populations

Prioritize areas

Methodology & Database for NGO's, Govts. and Companies

Law enforcement for NEW (bird-friendly) and OLD (correct)

Vulture Multi-species Action Plan

POWERLINES: ELECTROCUTIONS & COLLISIONS



UICN

Identificación de mortalidad por electrocución de aves rapaces en el sudoeste de Marruecos
Identification de la mortalité des rapaces par électrocution dans le sud-ouest du Maroc

A. Godino, J.R. Garrido, R. El Khamlichi, D. Burón, C. Machado, M. Amezcua, A. Iriz, C. Numa, V. Barrios



PLoS one

Reduced Large-Scale Conservation



POWERLINES: ELECTROCUTIONS & COLLISIONS



Journal of Wildlife Management 74(8):1852–1862; 2010; DOI: 10.2193/2009-521



Management and Conservation Article

Predicting and Correcting Electrocution of Birds in Mediterranean Areas

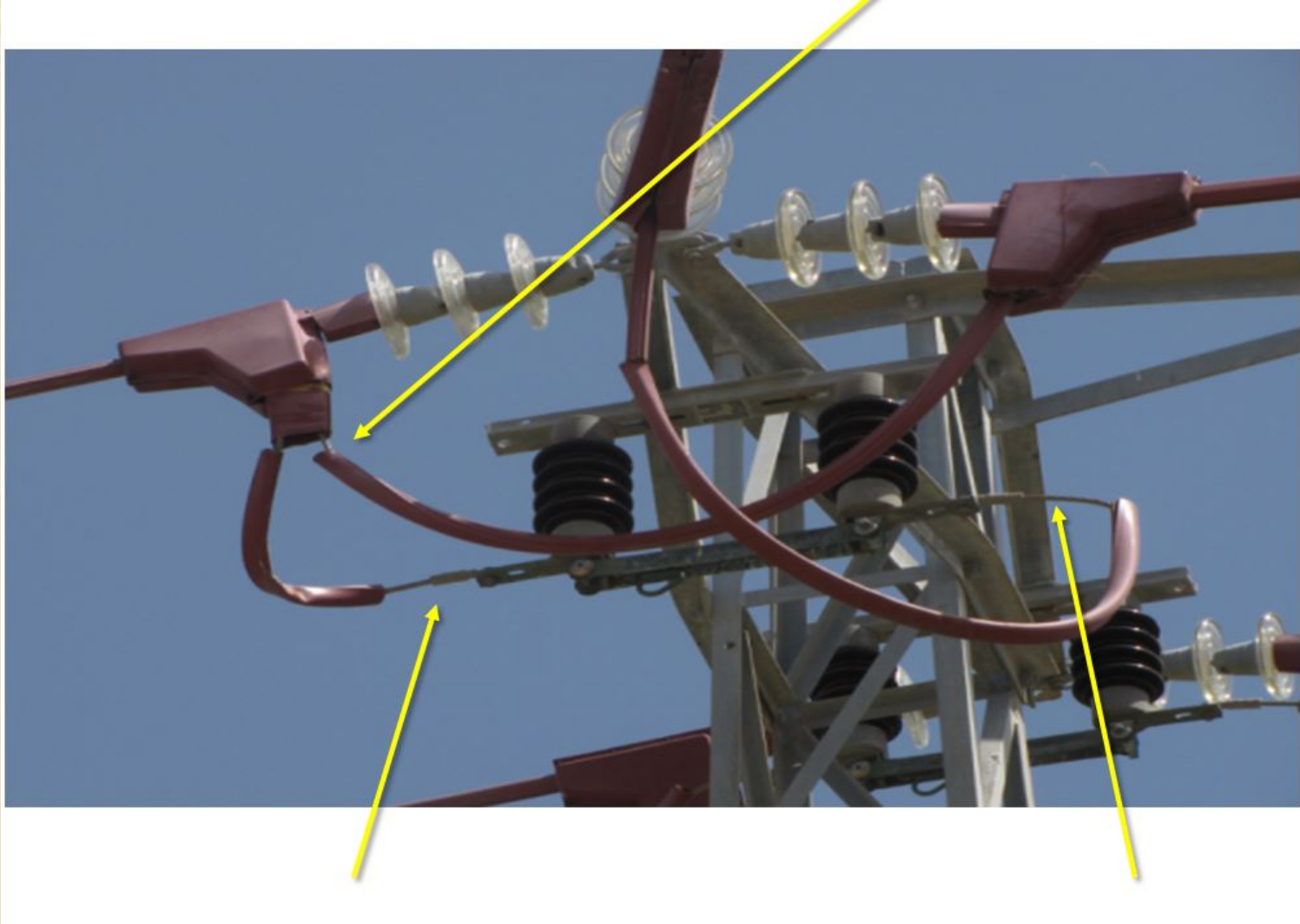
ALBERT TINTÓ,¹ *Conservation Biology Group, Departament de Biologia Animal, Universitat de Barcelona, Facultat de Biologia, Avinguda Diagonal 645, 08028 Barcelona, Catalonia, Spain*

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POWERLINES: BUT.....

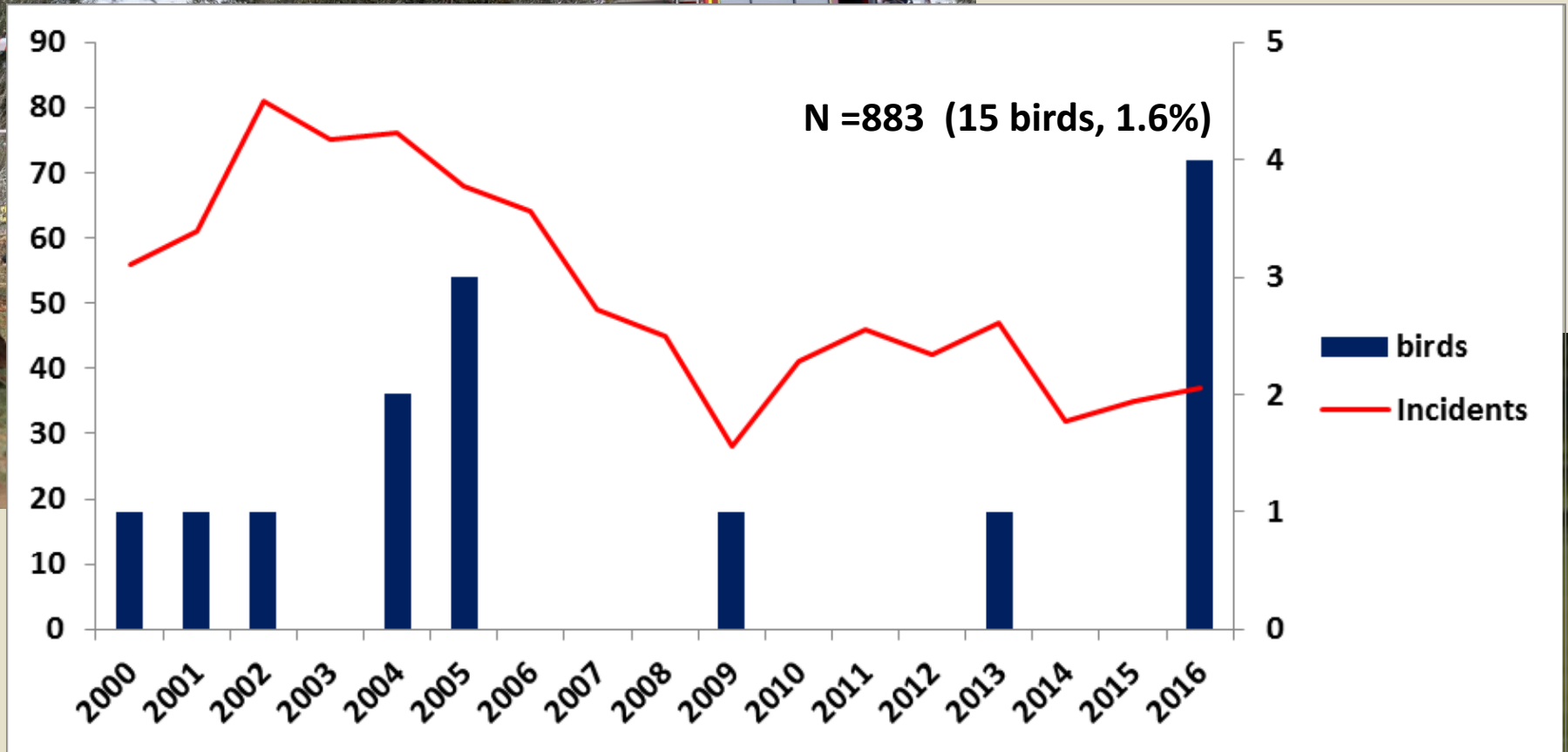


AIRCRAFTS

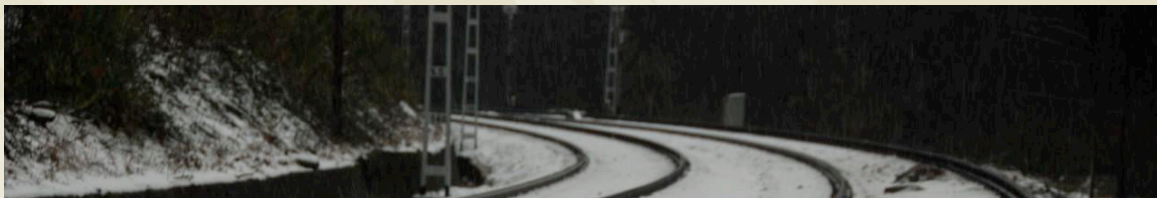


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AIRCRAFTS (II)



RAILWAYS



ROADS



WASTE MANAGEMENT



2015

WASTE MANAGEMENT: BEST PRACTICES AND
IMPACT TO CONSERVE MIGRATING SOARING BIRDS
(MSB's) IN THE RIFT VALLEY-RED SEA FLYWAY

- FINAL REPORT -



Justo Martín Martín
José Rafael Garrido López
Álvaro Camiña Cardenal



Species Action Plan

BUT... THEY INTERACT



Vulture Multi-species Action Plan

IMPACTS OF INFRASTRUCTURES



Effect of impacts on populations

Research methods not standardized

ESIA (quality)

Avoidance but Lack of supervision: Mitigation,
off-sets afterwards

LAWS; REGULATIONS & REQUIREMENTS



Worldwide:

PS6

Principles of Equator

EU:

- Birds Directive 2009/147/CE, conservation of all wild birds inside **and outside** protection areas
- Habitats Directive 92/43/EEC, **Articles 6** and 7
- EIA Directive 85/337/EEC
- SEA Directive 2001/42/EC

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Good
Data

A lot of
data =
Good science

Vulture Multi-species Action Plan

THANK YOU

Acknowledgements



