



Parc national
de la Vanoise

Asters
Conservatoire
d'espaces naturels
Haute-Savoie

The Bearded Vulture

*Wildlife and connected habitats
Admont, Austria, 11-12 december 2014*

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The Bearded vulture : a sensitive species

- **Reproductive strategy**

- > Adult survival
- > K selection : late reproduction
- > philopatry

- **Top of the food chain =**

- * **Sensitive to lead and intoxication**

- * **Sensitive to changes and impact of the environment**



The Bearded vulture : a sensitive species

- Feeding habits
« Bone breaker »



Extinction in the Alps & reintroduction programme

Last observation in the Alps (1913)

REINTRODUCTION

1. Choice of reintroduction sites

(Hirzel et al. - 2004 - Ecological requirements of reintroduced species an)



Preferential habitats (depending on the age of the birds)

- **for immature birds** : most important variable explaining bearded vulture distribution was ibex biomass.
- **for maturing subadults and adults** : correlated essentially with limestone substrates, while food abundance becomes secondary.

2. Reintroduction sites

since **1986** : *Rauris, Hohe Tauern (A)*

1987 : *Bargy, Haute Savoie (F)*

1991 : *PN Suisse, Engadine (CH)*

1993 : *PNM (F)/PN Alpi Marittime (I)*

As reintroduced bearded vultures tend to be philopatric.

Conservation - Connectivity at the alpine scale

- > European Endangered Species Programme : EEP (35 zoos et 5 breeding centers)
- > 198 released (1986 – 2014)
- > 127 wildborn (1997 – 2014)
- => Modelled population estimation currently reaches 197 individuals

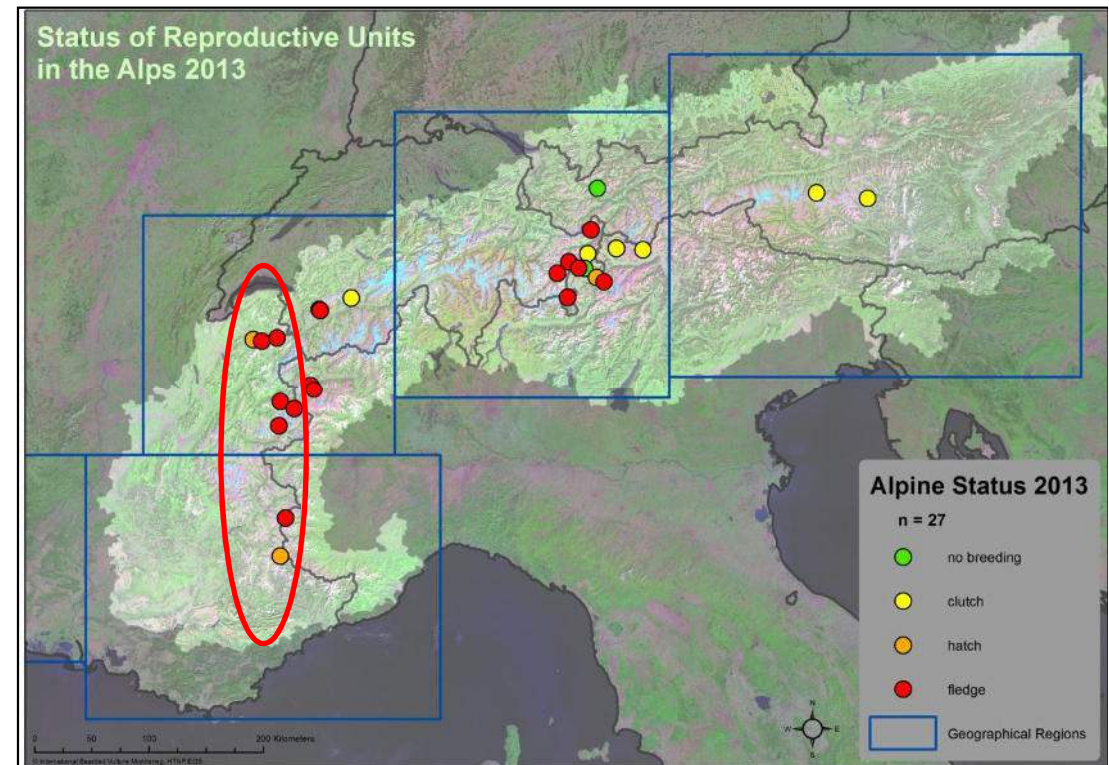


2013 : 27 mature pairs

**(9 breeding pairs
in the French Alps)**

Productivity 1997-2013 : 0,502

		Productivity				
		S-Western	N-Western	Center	Eastern	Alps
C2	Reproductive units	17	104	78	18	217
D	Clutch	7	87	67	16	177
E	Hatching	6	66	58	7	137
F	Fledglings	4	53	49	3	109
F/C2	Productivity	0,235	0,510	0,653	0,167	0,502
D/C2	% breeding	0,412	0,837	0,867	0,889	0,816
F/D	% success	0,571	0,609	0,754	0,188	0,616



(Schwarzenberger and Zink, 2013)

Significance of Genetic mixing

Corridors = Provide genetic flow and diversity to the Alpine population

The current population was founded by 37 individuals

The three most successful founders contributed 18.3% to the captive birds and 29.4% to the wild individuals

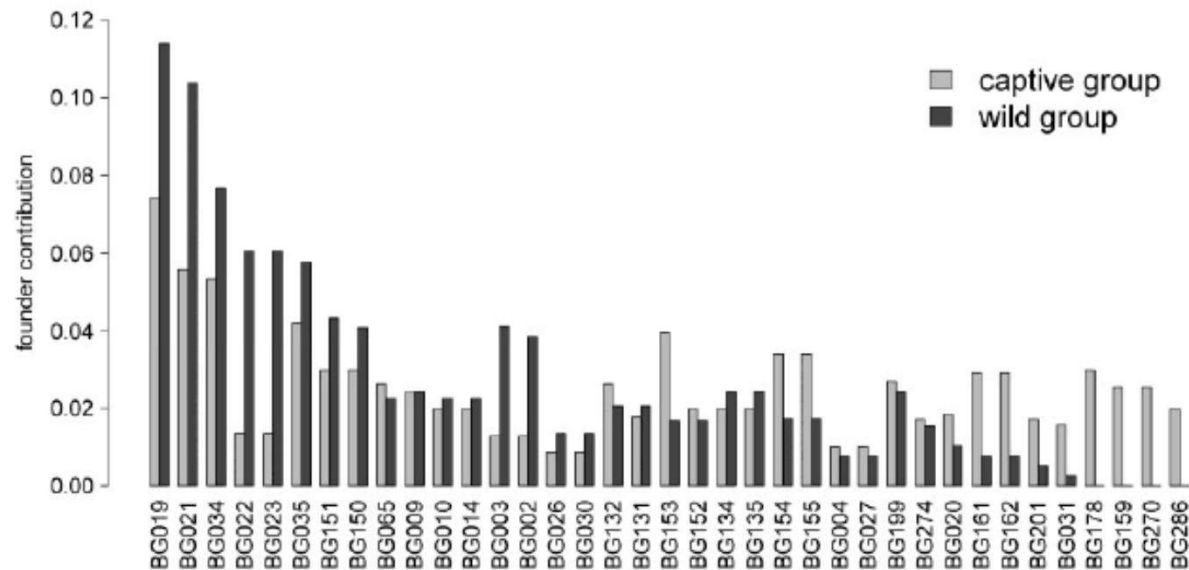


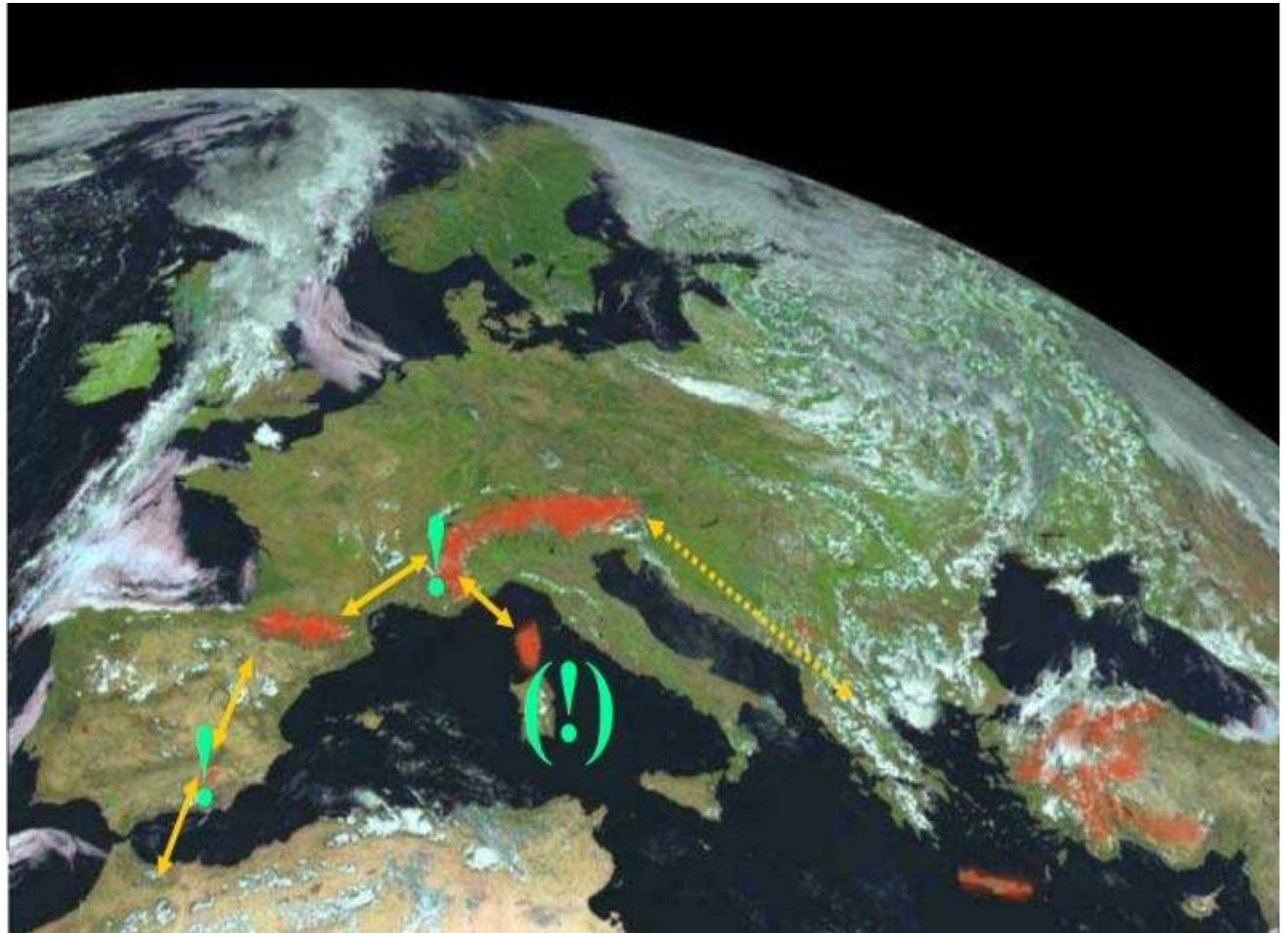
Figure 3: Contribution of the 37 founders to the two bearded vulture groups in 2010. The different founder individuals are listed on the X-axis and the Y-axis represents their relative contribution to the captive (light grey) and the wild (black bars) groups. Additional 10 founders lived in the captive population which did not reproduced so far.

European strategy of the Vulture Conservation Foundation

« Managers and ecologists face common “metapopulation” scenarios in which it is necessary to counteract the detrimental effects of genetic, demography and environment. »



=> Aim: to have an autonomous and genetically functional population from North africa, Turkey, mediterranean basin until the Alps.



Connection : Alps/Pyrenees

Pyrenees situation : ~ 100 pairs

BREEDING RESULTS 2014

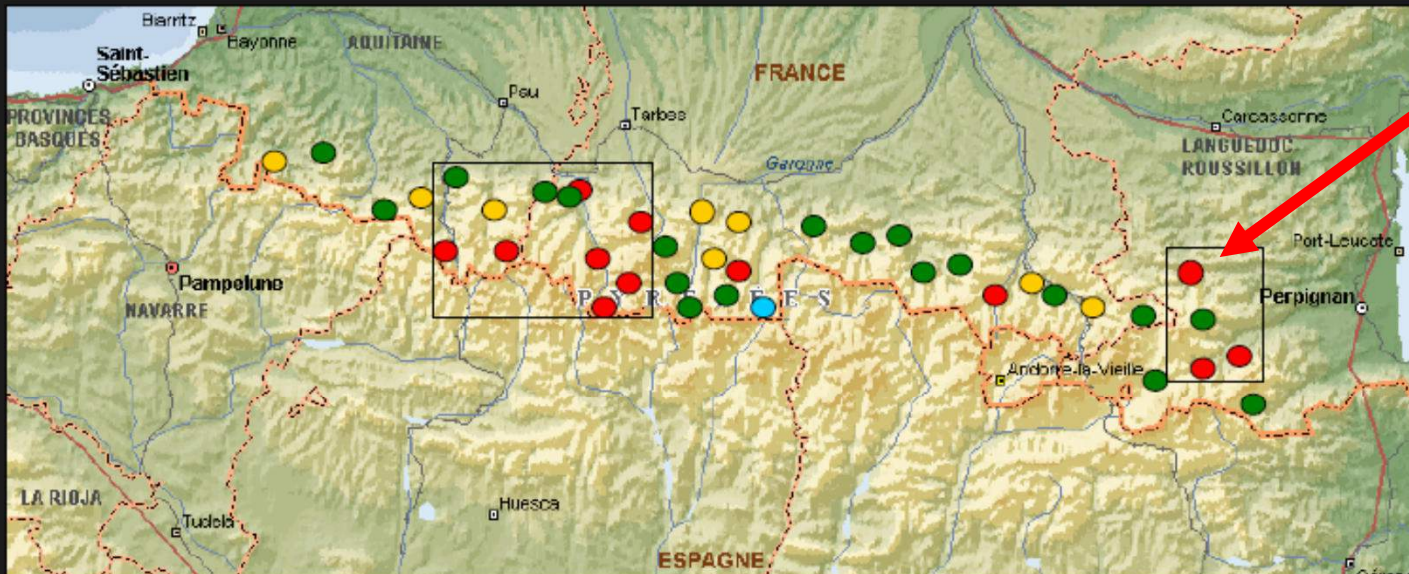
39 pairs (36 + 3 trios), 3 news – 30 clutches – 18 successfull eclosions – 12 youngs
Productivity : 0,31 – Breeding success : 0,40 – Clutch rate : 77%



Situation in Aude

Presence since 2000

1st reproduction in 2012



● No breeding pair (9)
● « Pair » in formation (1)

● Breeding failure (18)

● Young (12)

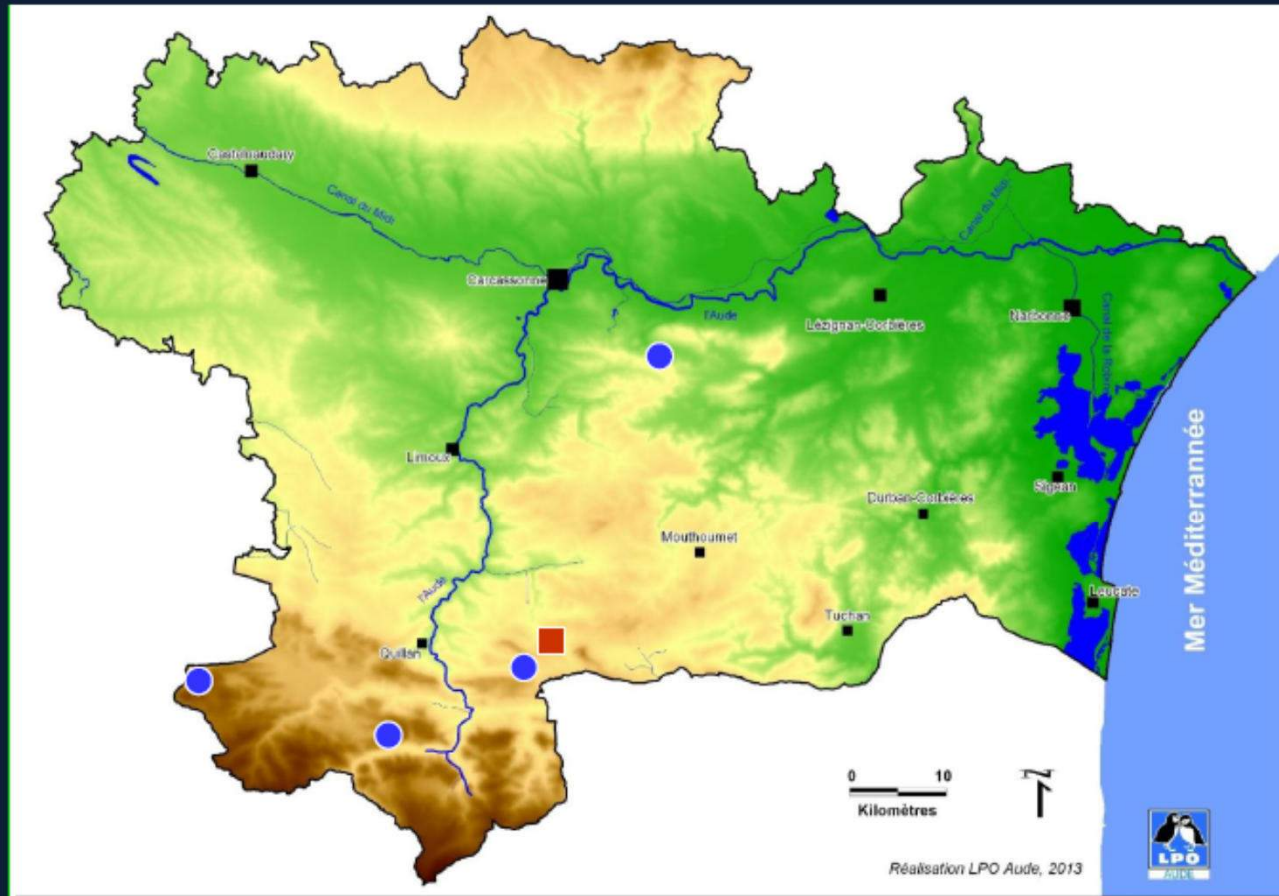


CONNECTIVITY : Alps/Pyrenees *(and Spain)*

In Aude, feeding plots are used to facilitate the dispersion

Network of feeding sites in Aude

- Specific BV feeding sites
- Farmer's « Placette » (individual feeding device)



Source : R. NEOUZE (LPO Grandes Causses)

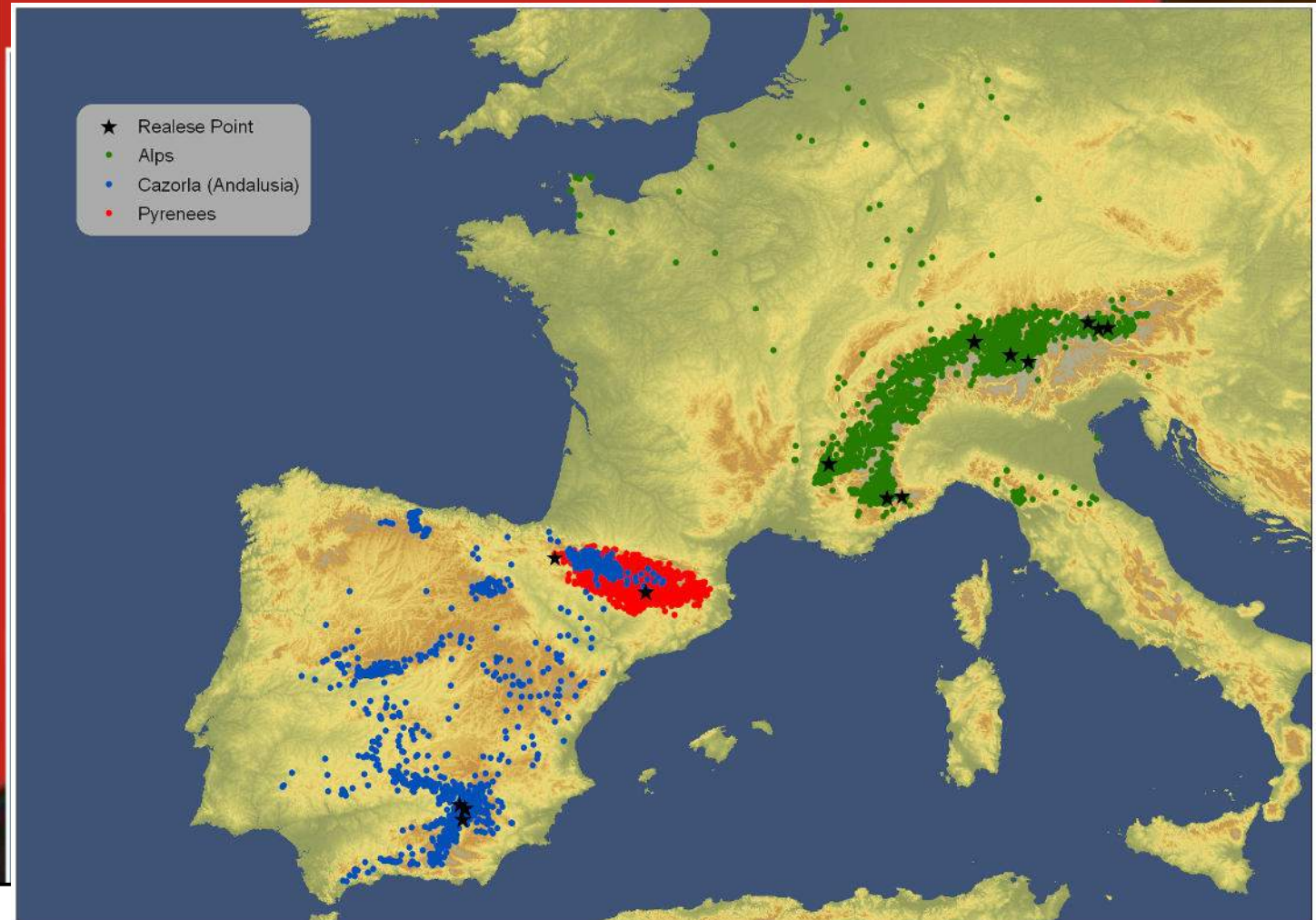
CONNECTIVITY : Alps/Pyrenees *(and Spain)*

Releases of Bearded vultures in Grands Causses and Vercors

The « corridor » programme



Locations of Bearded Vultures released in Andalusia since 2006 (in blue)



**Breeding center
of Guadalentin**

**31 birds released
(2006-2014)**

Main threat : poison

Distribution of mean-day locations of individual satellite-tracked pre-adult bearded vultures of the wild Pyrenean population (n = 9), and the reintroduced populations of Andalusia (n = 13) and the Alps (n = 24). Stars show release points.

MARGALIDA A., CARRETE M., HEGGLIN D., SERRANO D., ARENAS R., DONÁZAR J. A. « Uneven large-scale movement patterns in wild and reintroduced pre-adult bearded vultures: conservation implications » - 11 juin 2013

CONNECTIVITY



> Situation in CORSICA

High decline of the population : 5 pairs less since 2009
(5 pairs in 2014: only 1 fledgling)

Unconfirmed hypothesis: Birds fly over to the continent

> Situation in BALKANS

Balkan Vulture Action Plan (2002)

Countries: Bulgaria, Macedonia, Albania, Greece, Serbia, Bosnia & Herzegovina, Serbia, Croatia, Greece, Ukraine (Crimea), Romania and Turkey

Serious threats : Illegal use of poison in the nature, Shooting, Disturbance, Electrocution, Collision...

A network of partners

- International Bearded vulture Monitoring (IBM)

- > 15 stakeholders involved



- French species actions plan (PNA 2010-2020)

- French LIFE programs

- > Past : 1998- 2002 (reintroduction) and 2003-2007 (reintroduction, limit threats)

- > LIFE GypHelp (2014-2018) : limit human threats with bearded vulture as an umbrella species



- > LIFE GypConnect (2015 ?) : facilitate a corridor between Pyrenees and Alps

International Observation Day

- Annually in October
- Counting over the whole Alps
- Participation of Professionals and Volunteers (over 400 people)

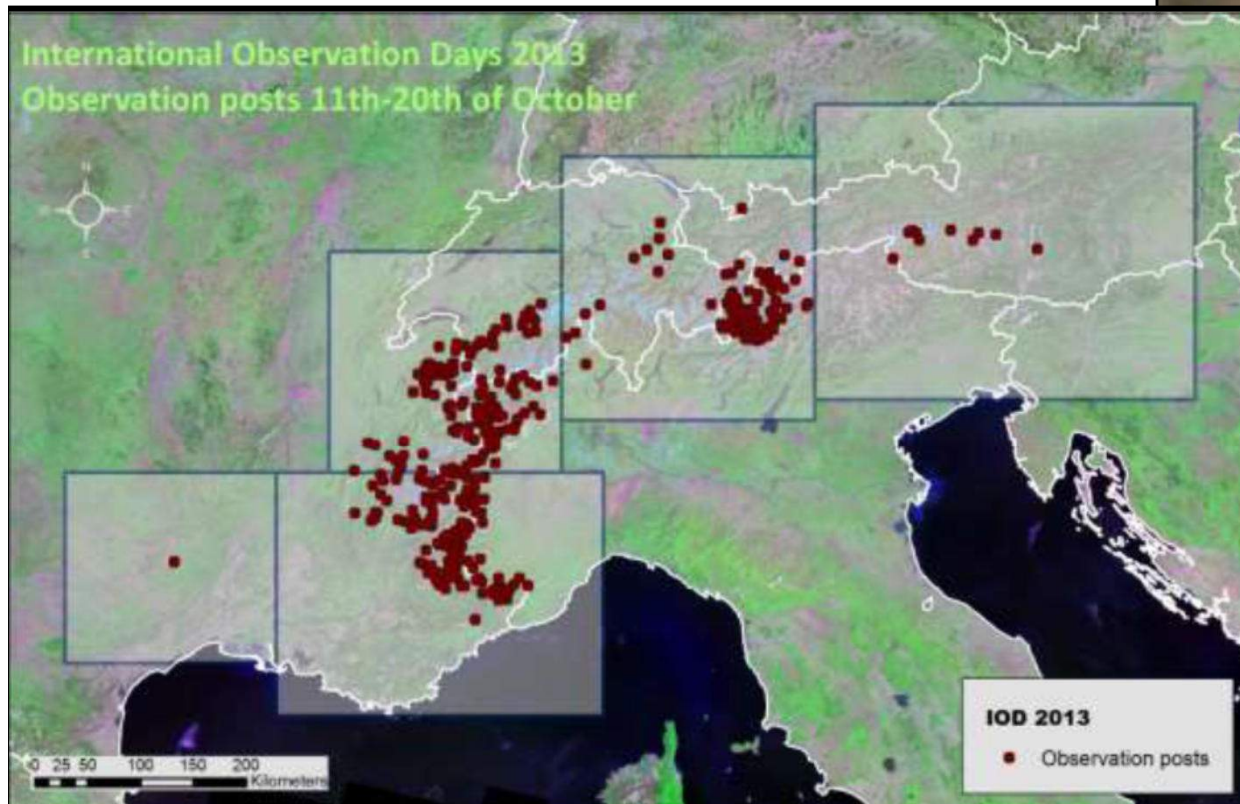


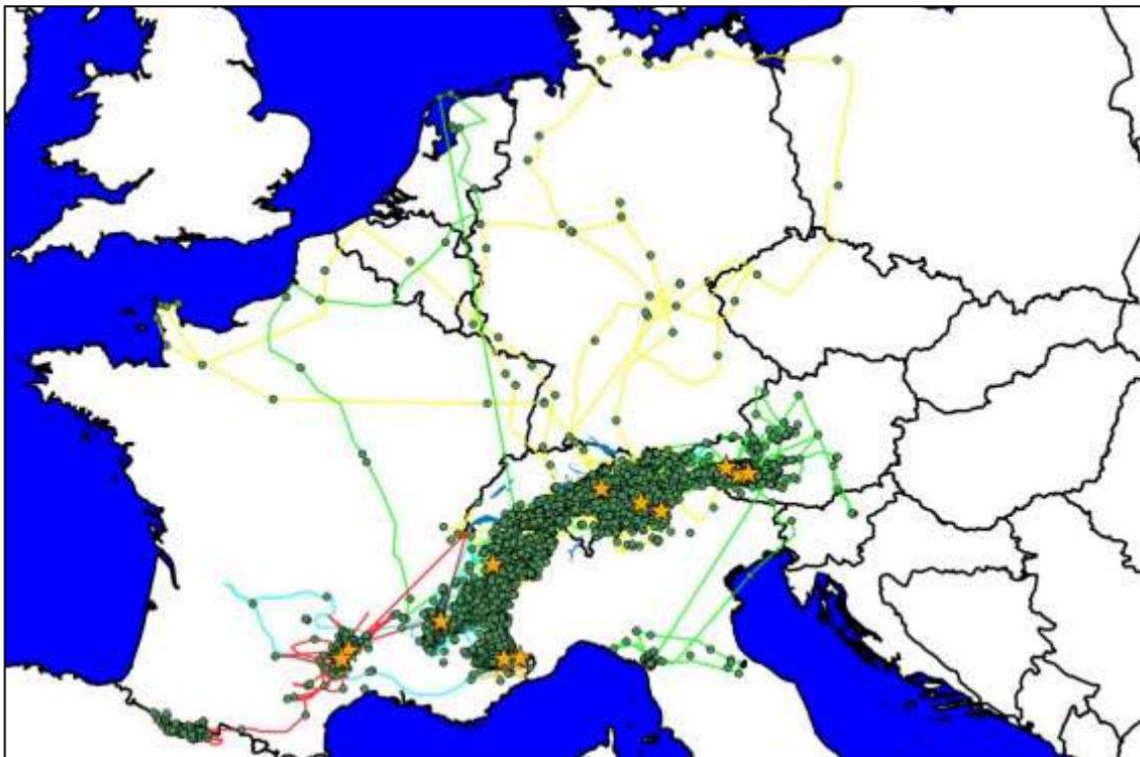
Figure 1: Observation points for the International Observation Day at the Alps. (R. Zink, 2013)

A large scale species

- Erratic youngs

→ Needs a transnational collaborative work

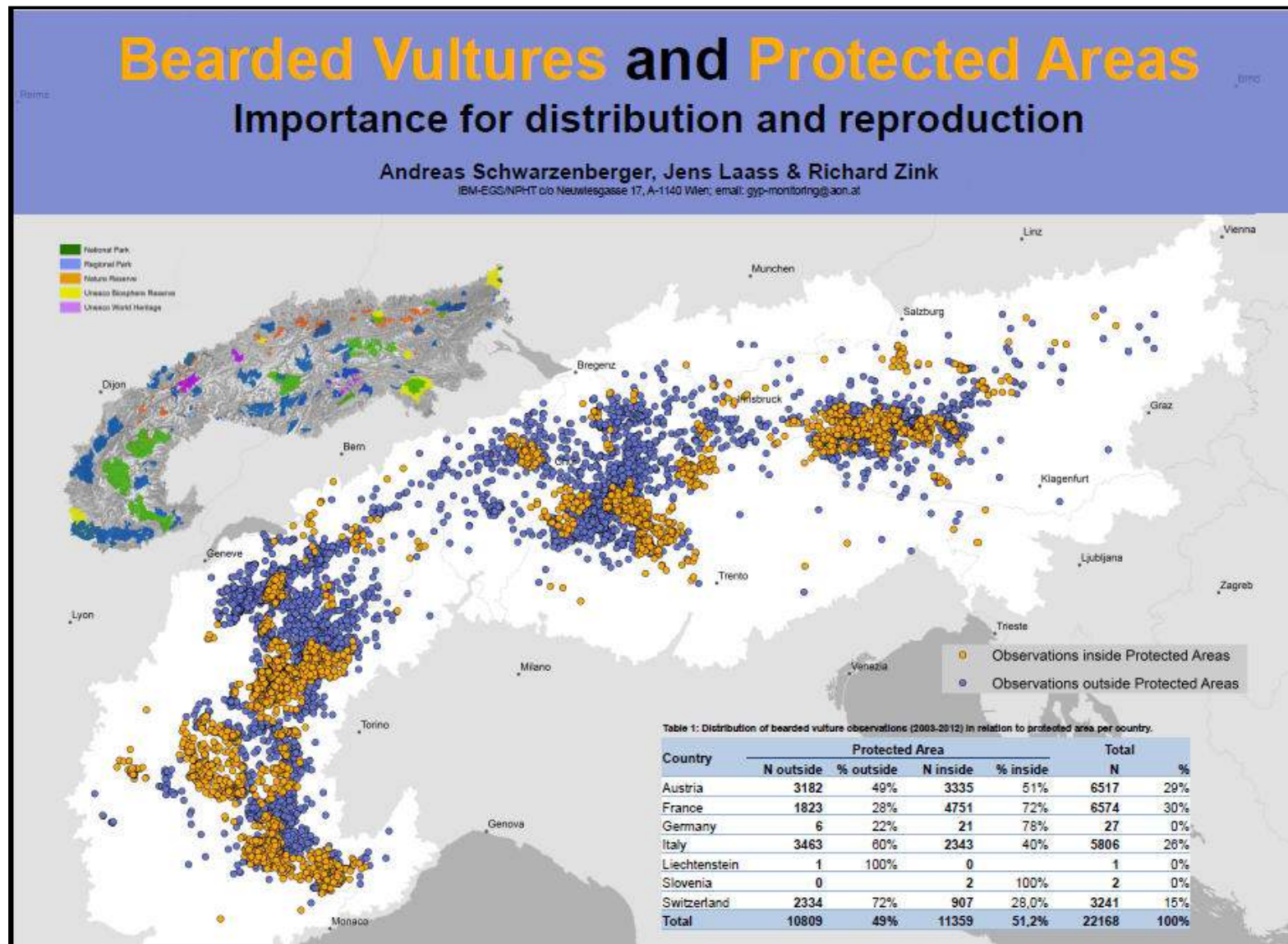
Layrou : bird release
in Grands Causses in 2013



(Zink and Izquierdo, 2014)



Significance of Protected Areas



THREATS

The Alpine Population is continuously growing,
of course it remains vulnerable.

2-3 more mortality cases / year would turn positive trend into negative.



- **Saturnism** : 6 bearded vultures intoxicated with lead in the wild



- **Poison** : anti- inflammatory drugs for cattle

- **Shooting**

- **Disturbance of nests by human activities**

- > Flights (paragliding, helicopters,...)
- > Climbing
- > ...

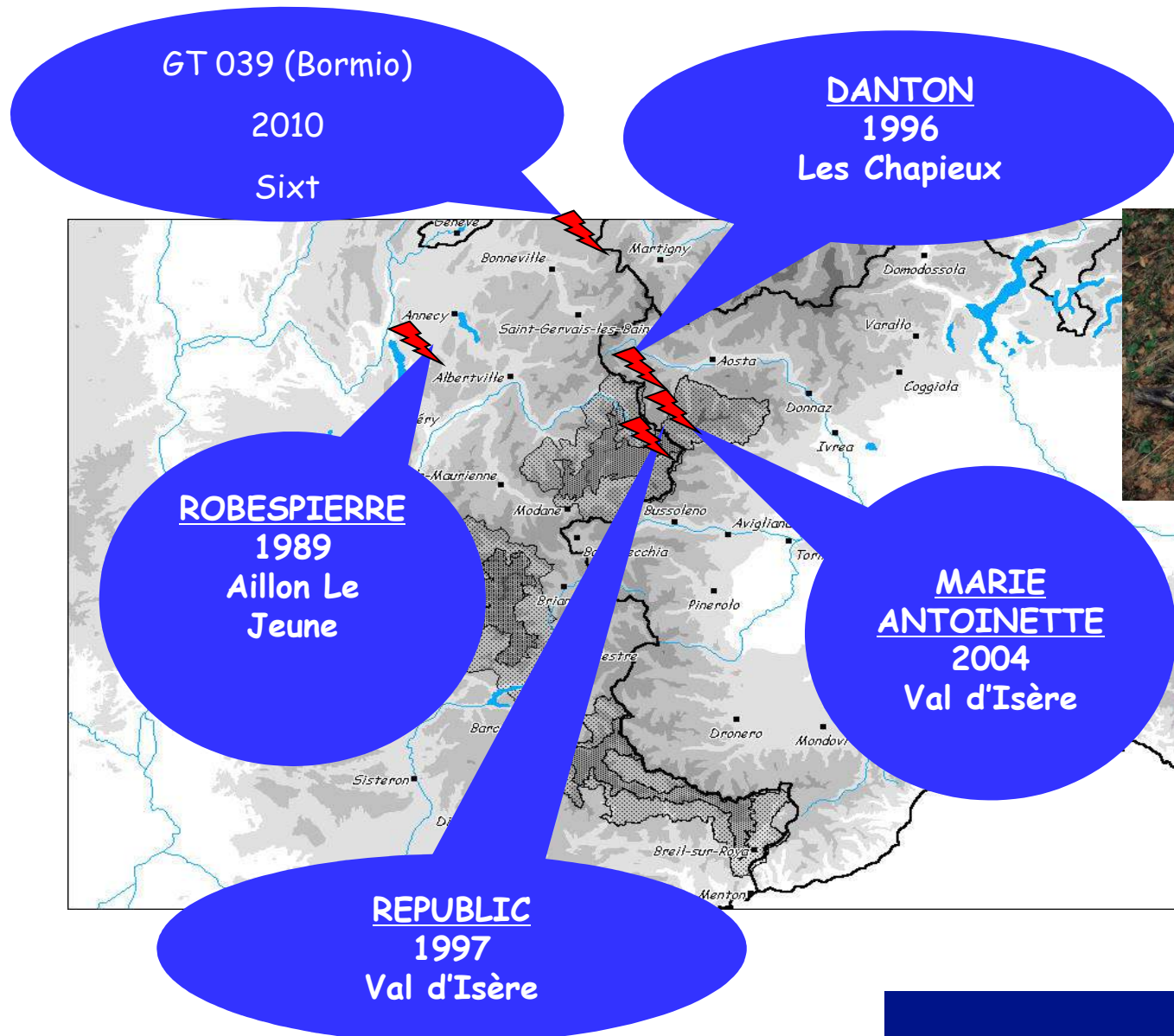
- **Aerial obstacles**

- > Power lines
- > Ski lifts
- > Wind farms



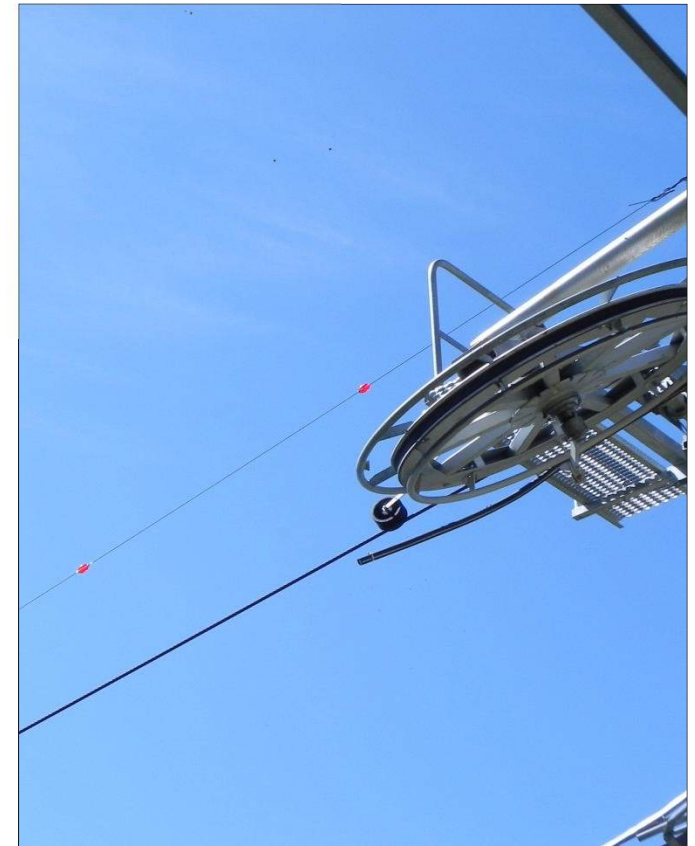
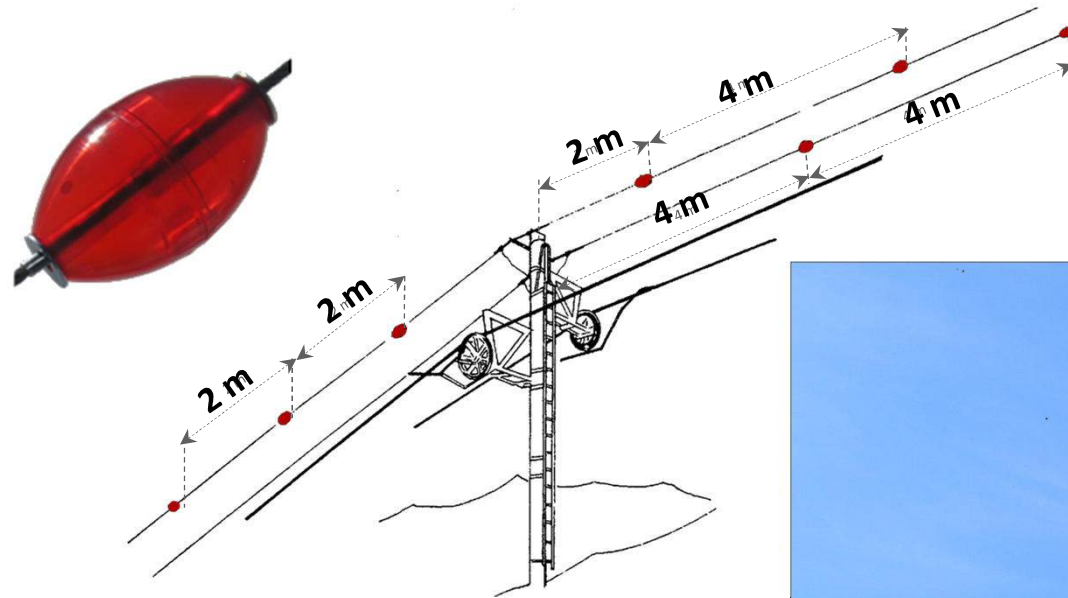
AERIAL CABLES

Collision and electrocution risks : powerlines and skilifts



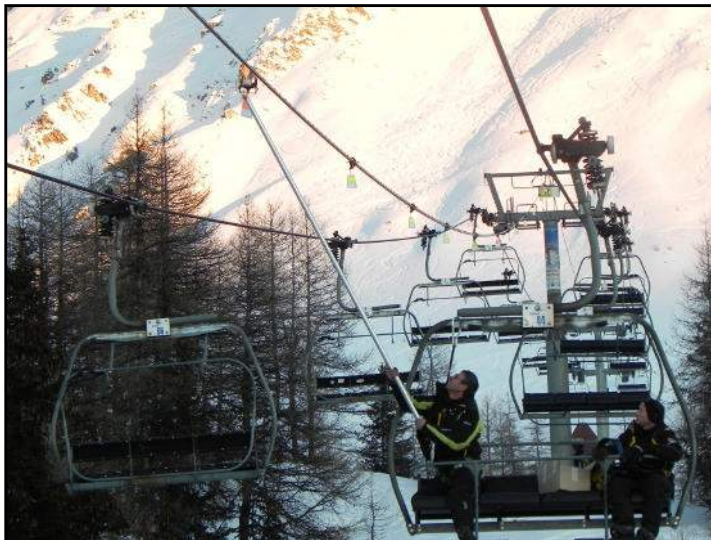
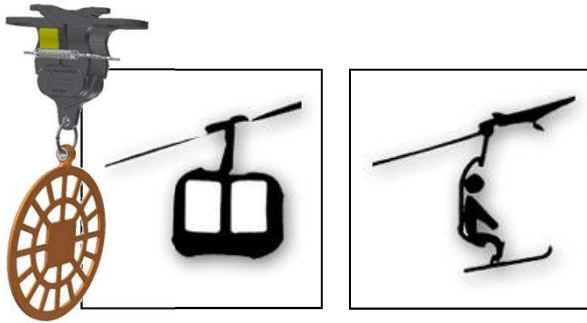
AERIAL CABLES : equipment of skilifts

✓ Bottomlift



AERIAL CABLES : equipment of skilifts

✓ Chairlift, gondola....

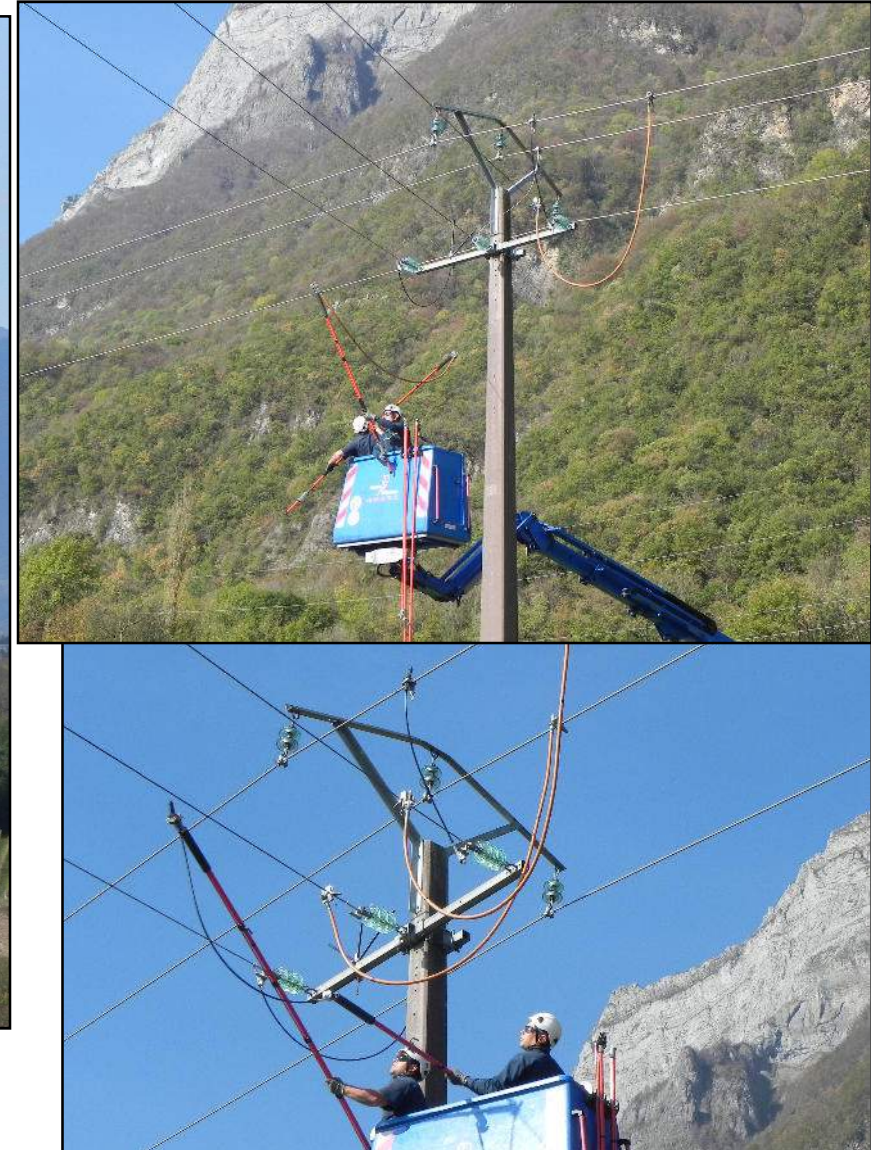


AERIAL CABLES : equipment of powerlines

RISK of PERCUSSION Firefly Alpine



RISK of ELECTROCUTION Dissuasive bars



AERIAL CABLES : equipment of powerlines



AERIAL CABLES : equipment of powerlines





**Thanks a lot for your attention !
Presentation in collaboration with ASTERS (F)**



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