



LIFE UNDER GRIFFON WINGS LIFE14 NAT/IT/000484

Griffon vulture status in the Apennines: from reintroduction to management

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ISTITUTO ABRUZZESE AREE PROTETTE





Parco Naturale Regionale Sirente Velino Qui proteggiamo Natura e Cultura

Corpo Forestale dello Stato, Ufficio Territoriale per la Biodiversità, Castel di Sangro (AQ)



Why?

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GRIFFON VULTURE REINTRODUCTION:

Was it feasible?

What about former populations in the Apennines?







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Foto di Francesco Culicelli



But strong uncertainties !!!







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Ninety-three Griffon vultures, released from two sites

(RN Monte Velino and Monte Genzana) from 1994 to 2002























- However reproductive population is gradually increasing, the griffon vulture is still considered at **Critical Risk** in Italy.
- High anthropogenic mortality: 58% in the Apennines, out of 91 dead from Summer 1994 to Spring 2016 (4.1/year, ± 5.9)
 PLUS MANY (34%) UNDETERMINED!









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Management and conservation require **proactive** and timely actions, ... but also knowledge:

- Distribution, ranging behaviour, habitat selection, activity patterns, habitat suitability
- Exploitation of natural vs. supplementary food
- Availability of carcasses and abundance of livestock
- Population structure (sex ratio, age classes)
- Survival, dispersal, mortality, risk mapping
- Genetics, ecotoxicology

Almost all of the above need capturing and marking vultures, FIRST!







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- Forty attempts (2010-2015), 13 successful captures (32%)
 - **190 vultures** (128 different birds)
 - 14,6 vultures/successful capture (SD 9.5; 1-36)









- GPS transmitters fitted with a teflon backpack (1.8% body weight)
- Equipped vultures mantained for 24 hours in the aviaries
- Eventually re-fitting the backpack and vulture release











- **26** adult vultures fitted with GPS: 9 FF 16 MM;
- November 2010-March
 2015: 6.076 vulture-days;
- 37.806 total fixes
- Average **1.454** fixes/vulture (SD: 1.517 ; 39-6003);
- 233 days telemetry/individual vulture (SD: 220; 8-844).







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- Males and females have similar home range size:
 - MALES: 2.302 km² (SD: 1.464) - FEMALES 2.751 **km²** (SS: 1.623) (*p*>0.5)
- Home ranges are significantly larger in summer than in winter:
 - SUMMER: 2.623 km² (SD: 1.098) - WINTER 1.531 km² (SD: 1.326)









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Sex and the vultures: for what is worth?

In monomorphic species with equal reproductive investment we expect a sex ratio = 1M:1F

Out of 89 sexed vultures in the Apennines: SEX RATIO = 2.07M : 1F (χ^2 =10.8, p=0.001)









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GPS telemetry => clusters of GPS fixes

November 2010-April 2015:

- 326 surveys
- 83% on GPS clusters
- 69%: carcass found!
- 1.3 carcasses/surveys (1-15)











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GPS telemetry => clusters of GPS fixes











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What kind of food?

Taxon	Ν	%
CATTLE	113	39.1
EQUIDS	124	42.9
SHEEP/GOATS	42	14.5
RED-DEER	5	1.7
WILD BOAR	4	1.4
DOG	1	0.3
TOTAL	289	



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Supplementary vs. natural food

- 10:1 ratio: 125 tons theoretically exploited in the study area vs. 12 tons at the feeding point (28% of feeding points not exploited by the vulture!!)
- 1.062 GPS fixes associated to natural feeding and 151 GPS fixes corresponding to suppletive feeding bouts (1:7)







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First achievements

- Vultures and wind farms:
 - The Regional committee for Environmental Impact Assessment currently relies also on vulture telemetry data to evaluate projects and support decisions
- Vultures and hunting
 - Ban of lead ammunitions for wild boar hunting in main vulture feeding grounds

Forecoming...

• Habitat models: feeding, nesting, roosting, mortality risk... as a paradigm for environmental management, like for the brown bear!









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But also ...

- Networking and information exchange
- Public participation
- Affordable estimates of ranging livestock and of available of carcasses
- Survival estimation
- Improved treatment of rescued vultures
- Reduce (and prevent) poisoning







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Future target: management of a pan-Mediterranean population?

THANK YOU FOR YOUR ATTENTION !



