



DIPARTIMENTO DI SCIENZE
GIURIDICHE E SOCIALI



ORSI SENZA CONFINI

14 DICEMBRE 2019

BIBLIOTECA - LABORATORIO DELLE IDEE FALCONE E BORSELLINO”
VIALE GIOVANNI BOVIO, 293 - PESCARA

La ricerca scientifica e l'orso bruno marsicano

Paolo Ciucci – *Dipartimento di Biologia e Biotecnologie, Università di Roma La Sapienza*



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'Science-based management'

- prendere decisioni e realizzare interventi gestionali sulla base di principi e conoscenze *scientifiche*

SCIENCE ADVANCES | RESEARCH ARTICLE

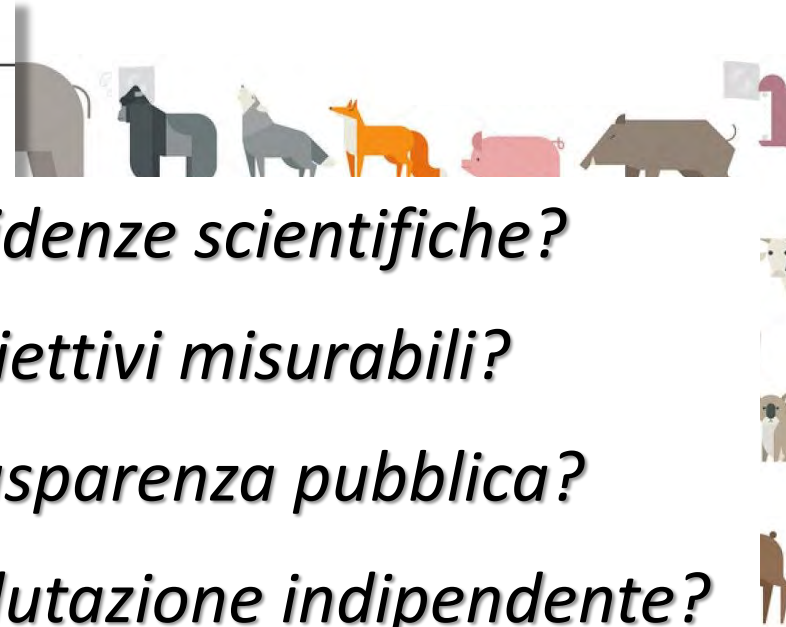
APPLIED ECOLOGY

Hallmarks of science missing from North American wildlife management

Kyle A. Artelle,^{1,2,3*} John D. Reynolds,¹ Adrian Treves,⁴ Jessica C. Walsh,¹ Paul C. Paquet,^{2,5} Chris T. Darimont^{2,3,5}

Resource management agencies commonly defend controversial policy by claiming an evidence-based approach. For example, proponents and practitioners of the "North American Model" of wildlife management, which guides hunting policy across much of the United States and Canada, assert that this model is the best approach for shaping policy. However, what that means is rarely defined. We propose a framework of scientific hallmarks of science relevant to natural resource management (measurable objective, and independent review) and test for their presence in hunt management plans on 667 Canadian provincial and territorial agencies across 667 management systems (species-jurisdiction). Most (60%) systems contained fewer than half of the indicator criteria assessed, with systems that were peer-reviewed, that pertained to "big game," and in jurisdictions at results raise doubt about the purported scientific basis of hunt management across the continent. Our framework provides guidance for adopting a science-based approach to safeguard wildlife management agencies from potential social, legal, and political conflict.

- *evidenze scientifiche?*
- *obiettivi misurabili?*
- *trasparenza pubblica?*
- *valutazione indipendente?*



La carenza di conoscenze scientifiche come principale minaccia per l'orso bruno marsicano

The Apennine brown bear: A critical review of its status and conservation problems

Paolo Ciucci¹ and Luigi Boitani²

Dipartimento di Biologia Animale e dell'Uomo, Università "La Sapienza" di Roma, Viale dell'Università 32, 00185 Roma, Italy

Abstract: The small and isolated population of brown bears (*Ursus arctos marsicanus*) in the Central Apennines, Italy, has been protected since the establishment of the National Park of Abruzzo, Lazio and Molise in 1923, but little active management has been implemented during the past decades to ensure effective conservation of this population. Being almost exclusively distributed within the National Park and its immediate surrounding mountains, the Apennine brown bear population suffered high human-caused mortality in the last 3 decades, but no reliable estimates of its size, trends, and vital statistics have ever been produced. Given the paucity of information available at the international level, we have critically reviewed the status of the Apennine brown bear population and have summarized data and information concerning past management. By describing the threats that appear to be the most immediate (lack of reliable knowledge, small population size, persistent illegal killing, administrative fragmentation across the bear range), we comment on what might and might not have worked in previous conservation assessments of this population. Our final aim is to substantiate more effective conservation efforts in the immediate future. The challenge of saving the Apennine brown bear calls for a renewed effort based on sound, applied research, addressing issues from basic ecology to the human dimension.

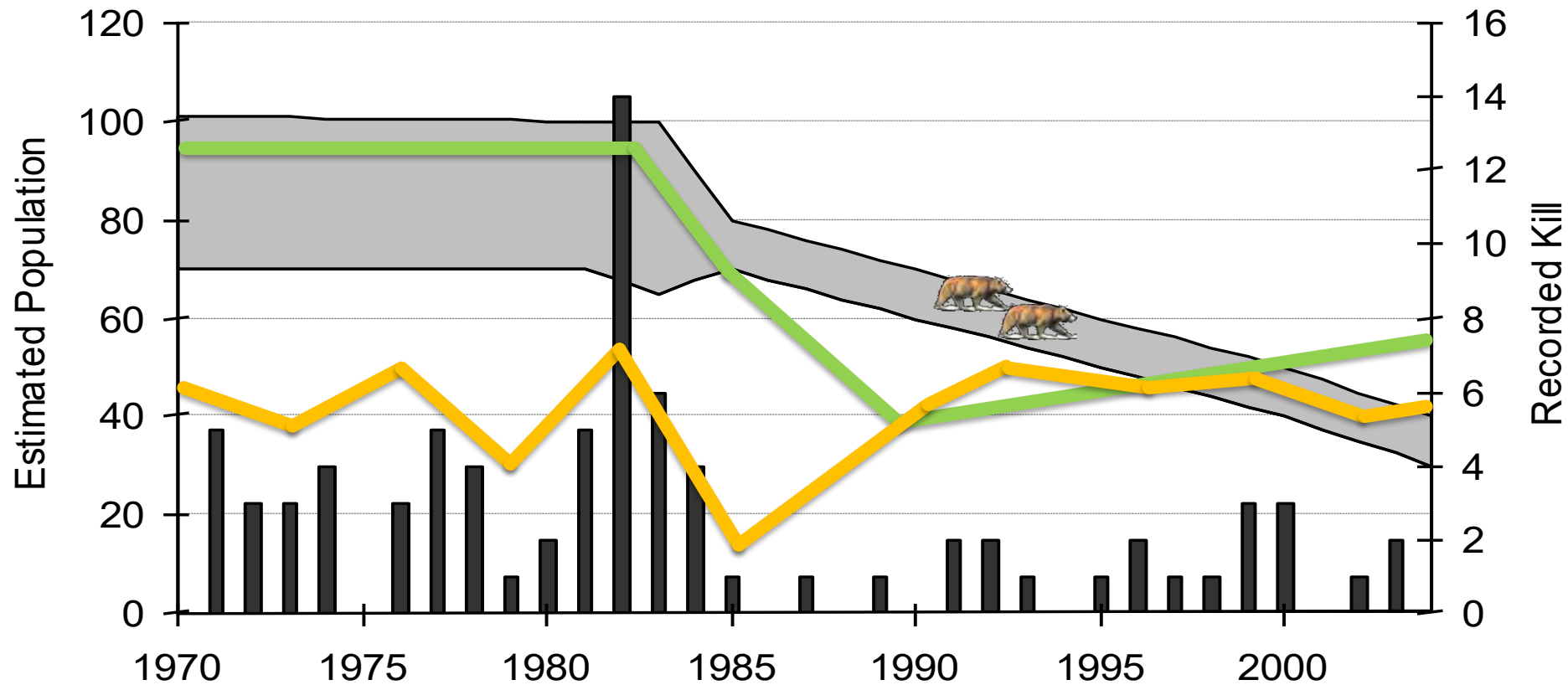
Key words: Abruzzo National Park, Apennines, brown bear, conservation status, Italy, *Ursus arctos marsicanus*

Ursus 19(2):130–145 (2008)



Foto: Gaetano De Peersis

Stime pregresse di popolazione (1970-2003)



Programma di *ricerca e monitoraggio*



Programma di *ricerca e monitoraggio*

- 26 orsi catturati (21 adulti, 2 cuccioli, 3 yearlings)
- 1014 VHF + 40532 GPS localizzazioni telemetriche
- > 3.472 escrementi
- > 1.108 campioni per genetica non invasiva
- > 7.601 ore di appostamento (317 gg)
- > 30 unità familiari conteggiate
- 39 siti tana inventariati
- ...

Dimensione della popolazione

Ursus 19(2):105–121 (2008)

Wildlife Genetics International



A preliminary estimate of the Apennine brown bear population size based on hair-snag sampling and multiple data source mark–recapture Huggins models

Vincenzo Gervasi^{1,4}, Paolo Ciucci^{1,7}, John Boulanger^{2,8}, Mario Posillico^{3,9}, Cinzia Sulli^{4,10}, Stefano Focardi^{5,11}, Ettore Randi^{6,12}, and Luigi Boitani^{1,13}

Biological Conservation 152 (2012) 10–20

Contents lists available at SciVerse ScienceDirect

Biological Conservation

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



A multiple data source approach to improve abundance estimates of small populations: The brown bear in the Apennines, Italy

Vincenzo Gervasi^{A,*}, Paolo Ciucci^A, John Boulanger^B, Ettore Randi^C, Luigi Boitani^A



Journal of Mammalogy, 96(1):206–220, 2015
DOI:10.1193/jmammal/gyu029

Estimating abundance of the remnant Apennine brown bear population using multiple noninvasive genetic data sources

P. CIUCCI^B, V. GERVASI, L. BOITANI, J. BOULANGER, D. PAETKAU, R. PRIVE, AND E. TOSONI

Popul Ecol
DOI 10.1007/s10144-017-0587-0

ORIGINAL ARTICLE

Estimating survival in the Apennine brown bear accounting for uncertainty in age classification

Vincenzo Gervasi¹ · Luigi Boitani¹ · David Paetkau² · Mario Posillico^{3,4} · Ettore Randi^{4,5} · Paolo Ciucci¹



THE SOCIETY OF POPULATION ECOLOGY

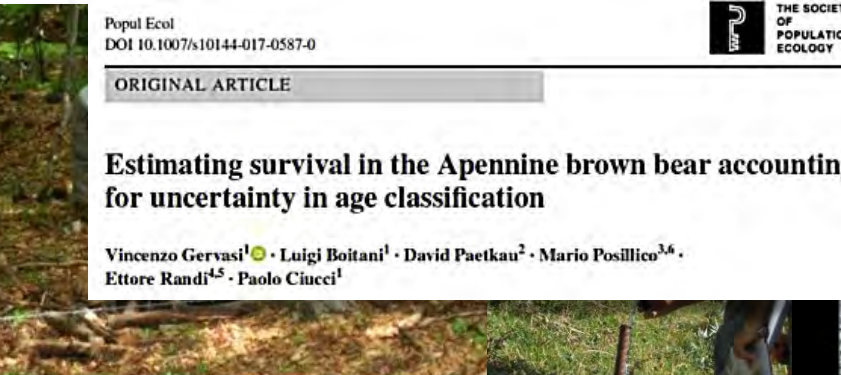


2004

2008

2011

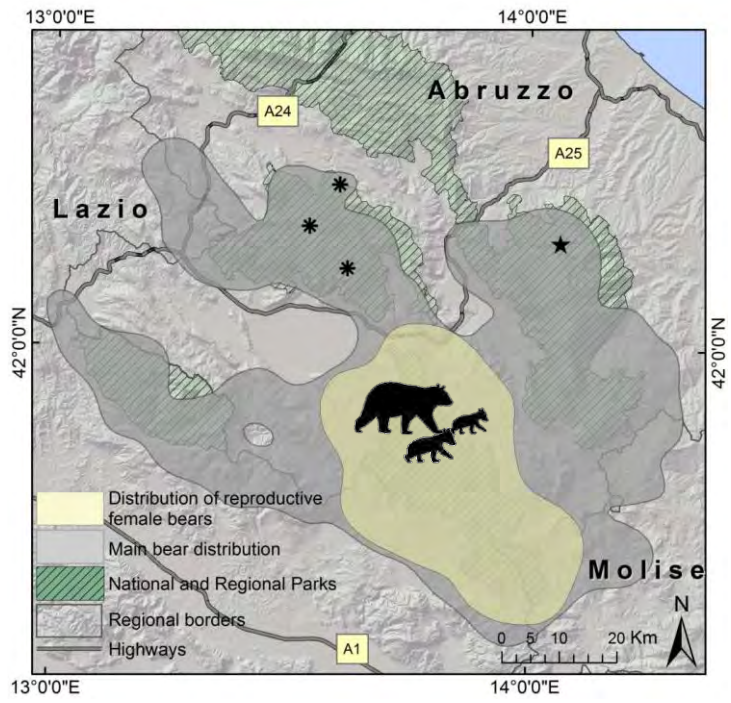
2014



Distribuzione (2005-2014)

Published by Associazione Teriologica Italiana
Hystrix, the Italian Journal of Mammalogy
 Online first — 2017 OPEN ACCESS
 Available online at:
<http://www.italian-journal-of-mammalogy.it/article/view/12049/pdf>
 doi:10.4404/hystrix-2013-2009

Research Article
Distribution of the brown bear (*Ursus arctos marsicanus*) in the Central Apennines, Italy, 2005–2014
 PAOLO CIUCCI^{1,*}, TIZIANA ALTEA², ANTONIO ANTONUCCI³, LUCA CHIAVERINI¹, ANTONIO DI CROCE⁴, MAURO FARRIZIO⁵, PAOLO FORCONI⁶, ROBERTA LATINI⁷, LUIGI MAJORANO⁸, ANTONIO MONACO⁹, PAOLA MORINI⁸, FILIPPO RICCI⁹, LUCIANO SAMMARONE¹⁰, FEDERICO STRIGLIONI¹¹, ELISABETTA TOSONI¹, REGIONE LAZIO BEAR MONITORING NETWORK^{12,13}



Idoneità ambientale e connettività



Contents lists available at ScienceDirect

Biological Conservation

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

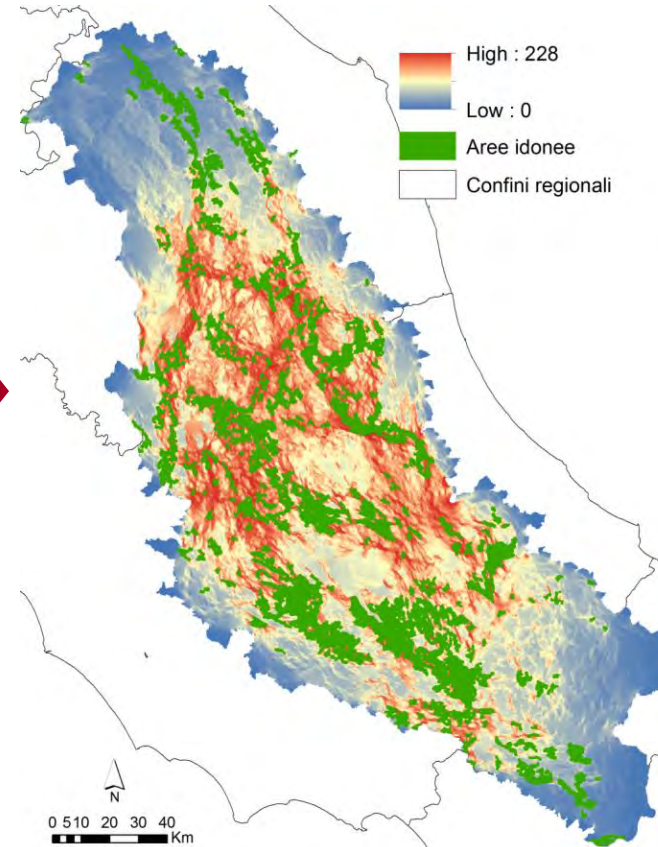
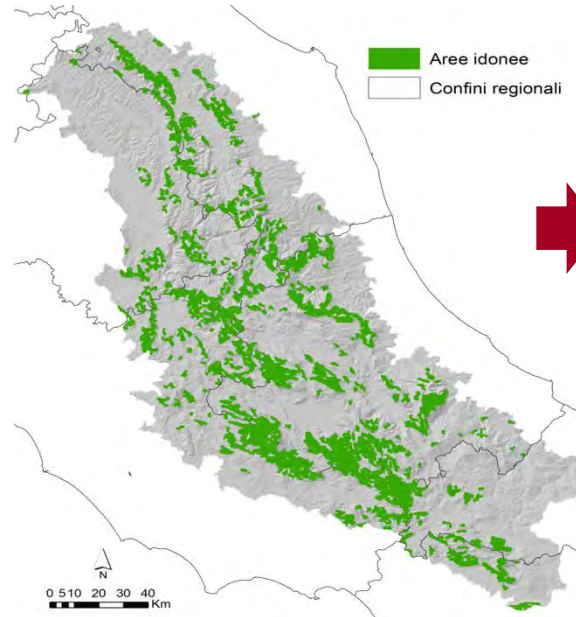
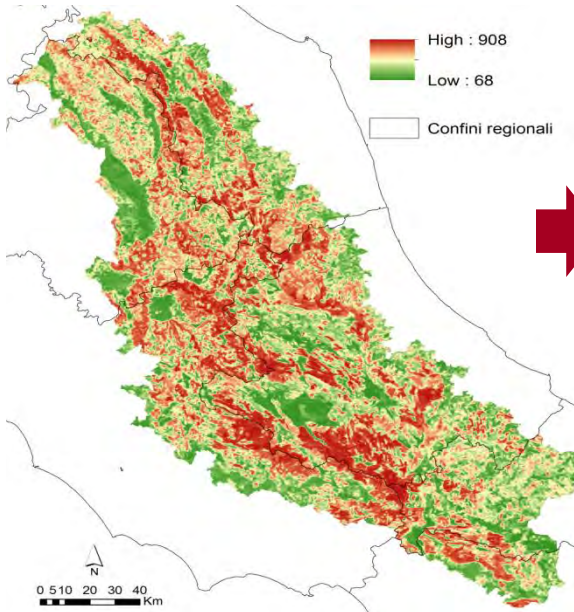


Combining multi-state species distribution models, mortality estimates, and landscape connectivity to model potential species distribution for endangered species in human dominated landscapes

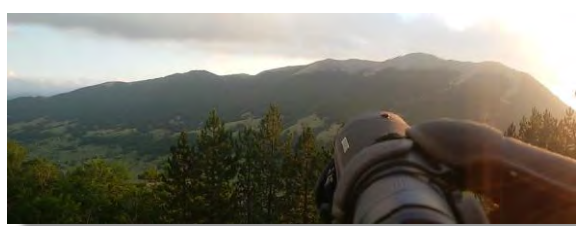


Luigi Maiorano*, Luca Chiaverini, Matteo Falco, Paolo Ciucci

Department of Biology and Biotechnologies "Charles Darwin", University of Rome "La Sapienza", Viale dell'Università 32, 00185 Roma, Italy



Riproduzione



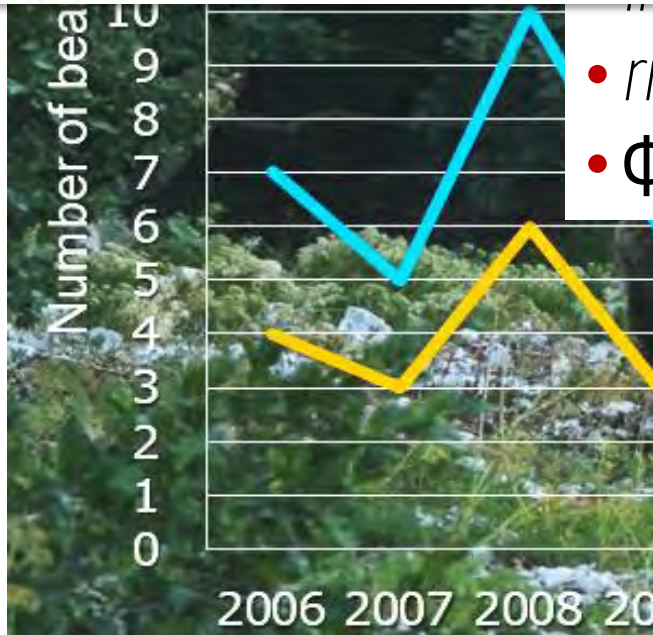
Popul Ecol
DOI 10.1007/s10144-017-0587-0



ORIGINAL ARTICLE

Estimating survival in the Apennine brown bear accounting for uncertainty in age classification

Vincenzo Gervasi¹ · Luigi Boitani¹ · David Paetkau² · Mario Posillico^{3,6} · Ettore Randi^{4,5} · Paolo Ciucci¹



— FWC — Cubs

zione cucciolata: 1,9 piccoli
zione piccoli: 1,4 anni

livestock grazing, hunting with dogs) and persistent risks of illegal (i.e., poison) and accidental (e.g., predation by free-ranging dogs, vehicle accidents) mortality. Whereas our findings concur in further emphasizing the need to efficiently mitigate direct and indirect anthropogenic causes of mortality (Falcucci et al. 2009), they reveal that a large and formerly undetected proportion of mortality could specifically target cubs and young bears. From this perspective, further demographic assessment is urgently needed to investigate the fate of a representative sample of cubs and of young bears dispersing in the peripheral portions of the range.

Rischio di estinzione e strategie di conservazione

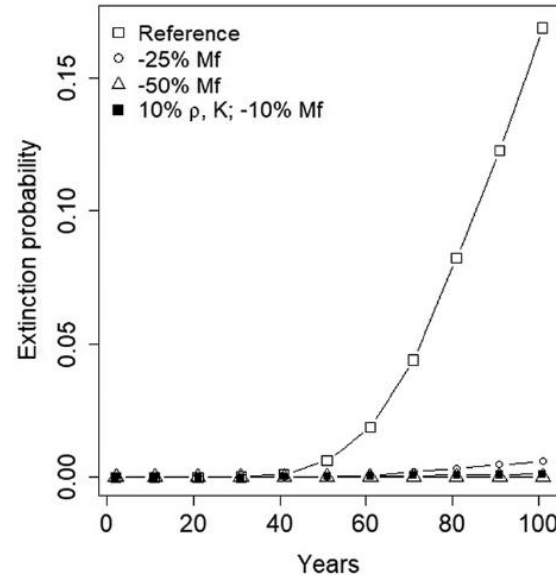
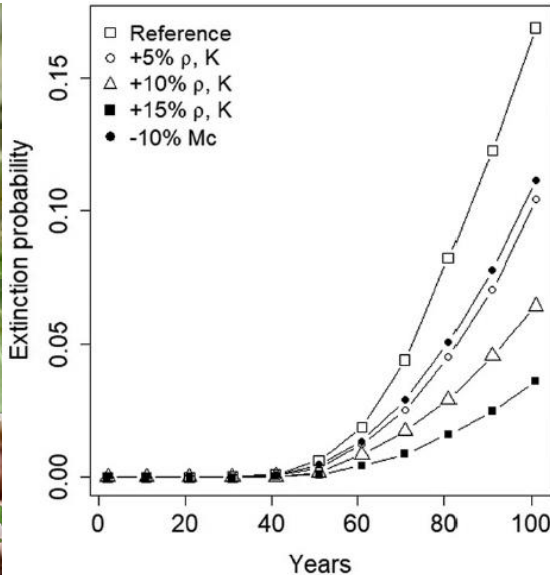
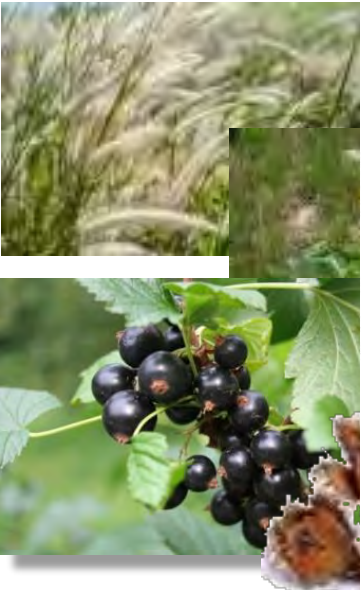
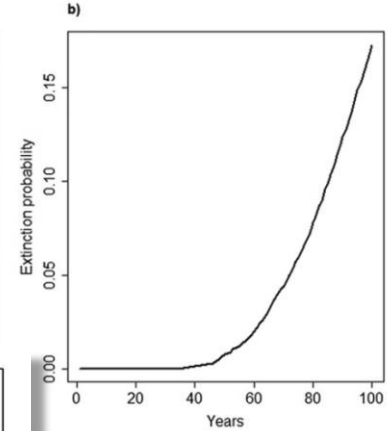
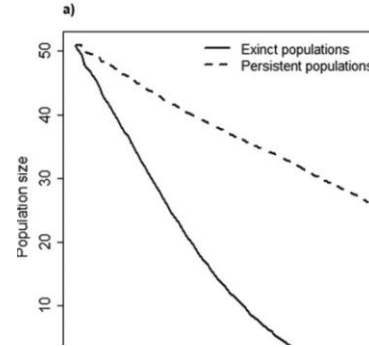
The European Zoological Journal, 2018, 243–253
Vol. 85, No. 1, <https://doi.org/10.1080/24750263.2018.1478003>



Demographic projections of the Apennine brown bear population *Ursus arctos marsicanus* (Mammalia: Ursidae) under alternative management scenarios

V. GERVASI & P. CIUCCI*

Department of Biology and Biotechnologies, La Sapienza University of Rome, Italy



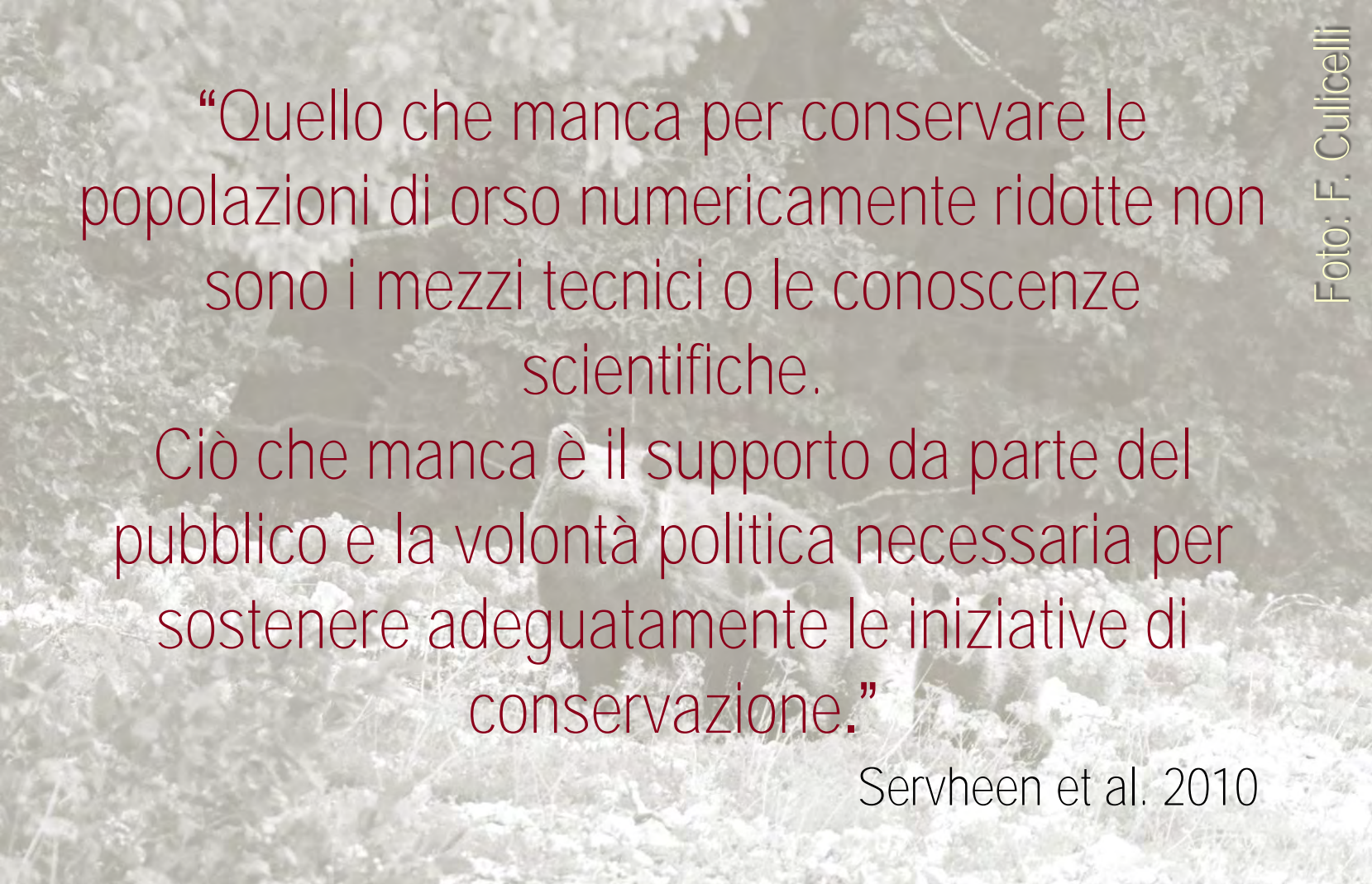
In estrema sintesi...



Foto: F. Culicelli

In estrema sintesi...

- popolazione ridottissima, erosa geneticamente: **elevati rischi di estinzione**
- autonoma riproduttivamente ma accrescimento marginale (e instabile): **mortalità eccessiva e scarso reclutamento**
- **buona produttività dell'habitat e buone condizioni ambientali ma necessità di gestione pro-attiva**
- **ricerca e ricerca applicata** (aspetti demografici, genomici, ecologici, di gestione delle attività antropiche e del **conflitto, accettabilità sociale...**)



“Quello che manca per conservare le popolazioni di orso numericamente ridotte non sono i mezzi tecnici o le conoscenze scientifiche.

Ciò che manca è il supporto da parte del pubblico e la volontà politica necessaria per sostenere adeguatamente le iniziative di conservazione.”

Servheen et al. 2010



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Grazie dell'attenzione

paolo.ciucci@uniroma1.it



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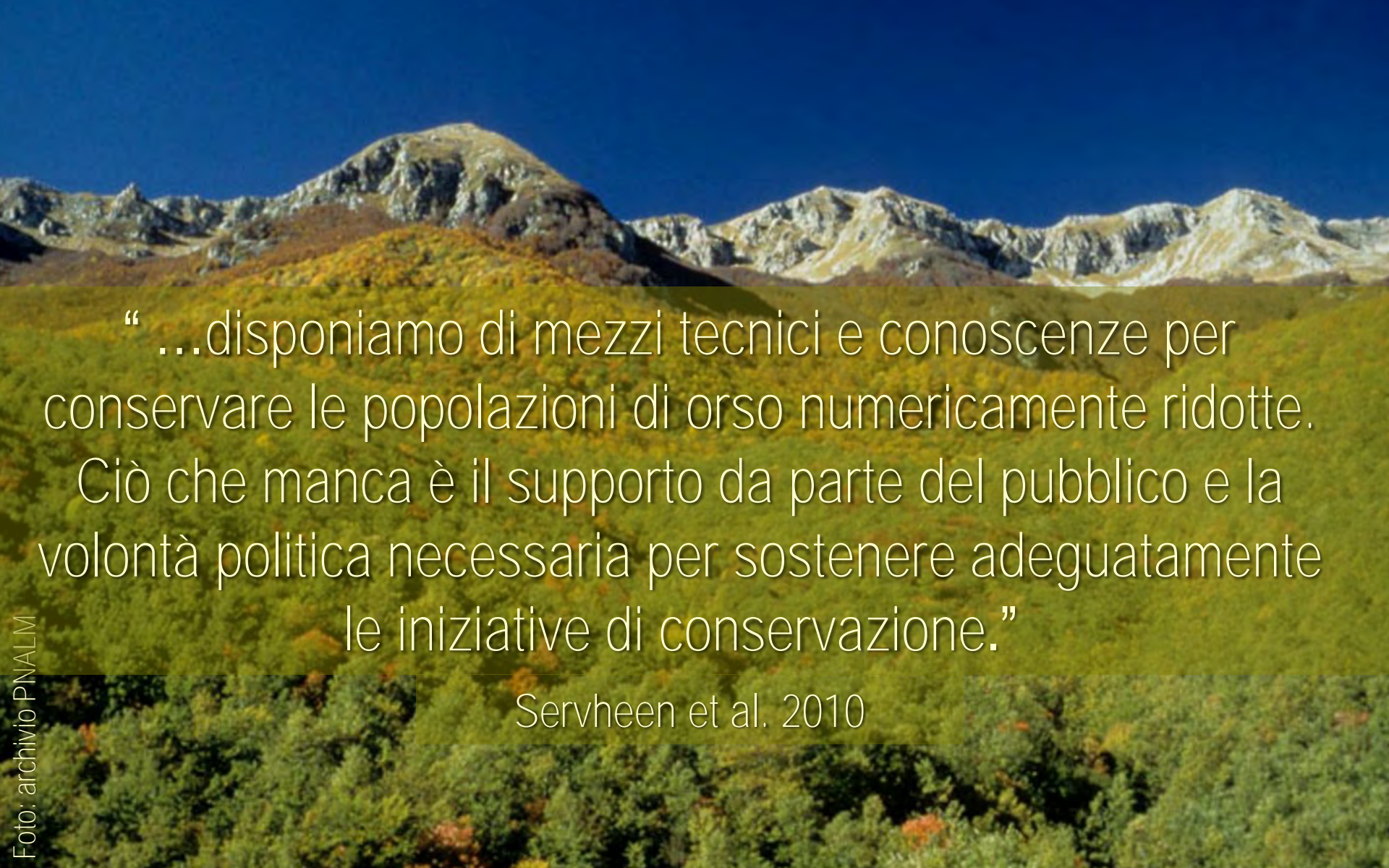


MINISTERO DELL'AMBIENTE
E DELLA TUTELA DEL TERRITORIO E DEL MARE



Sintesi

- popolazione unica, ridottissima, erosa geneticamente
- autonomia riproduttiva ma tasso di accrescimento nullo o marginale (e instabile): mortalità eccessiva e scarso reclutamento
- **attualmente, buona produttività dell'habitat e buone condizioni ambientali, necessità di gestione pro-attiva**
- necessità di ricerca e ricerca applicata: aspetti demografici, genomici, ecologici, di gestione del conflitto, **di accettabilità sociale ...**



“ ...disponiamo di mezzi tecnici e conoscenze per conservare le popolazioni di orso numericamente ridotte. Ciò che manca è il supporto da parte del pubblico e la volontà politica necessaria per sostenere adeguatamente le iniziative di conservazione.”

Servheen et al. 2010