

Indagine sulla presenza di ibridi di stambecco – capra domestica sulle Alpi: il contributo della citizen science

Barbara Moroni^a, Alice Brambilla^{b,c}, Luca Rossi^a, Pier Giuseppe Meneguz^a, Bruno Bassano^b, Paolo Tizzani^a

***barbara.moroni@unito.it**

^a Department of Veterinary Science, University of Turin, Grugliasco, Italy

^b Alpine Wildlife Research Centre, Gran Paradiso National Park, Noasca (TO), Italy

^c Department of Evolutionary Biology and Environmental Studies, University of Zurich, Switzerland



Novembre 2020, Rocciamelone (Alpi Graie, Piemonte)

stambecco bianco

 Tutti

 Immagini

 Shopping

 Video

 Notizie

 Altri

Circa 115.000 risultati (0,61 secondi)



Stambecco bianco

**Animale misterioso
sulle Alpi, parla
l'esperto: "Stambecco
bianco? No, raro
incrocio con una
capra"**



Home / Stambecco bianco? Più probabile che si tratti di un ibrido

**Stambecco bianco? Più
probabile che si tratti di un
ibrido**



Tatiana Marras · 26 Novembre 2020

0

ANIMALI | 25 Nov | .Norma Raimondo

**Il mistero dello stambecco bianco e senza corna sulle pendici
del Rocciamelone**

**Stambecco bianco e senza corna, la
scoperta in Val di Susa**

Animale, pur non avendo mimetismo, è leader del branco





montaggio di


PAOLO MONCHIERI

TGR





REVIEW

Hybridisation in European ungulates: an overview of the current status, causes, and consequences

Laura IACOLINA*  Department of Chemistry and Bioscience, Aalborg University, Frederik Bajers Vej 7H, 9220 Aalborg, Denmark, and Aalborg Zoo, Mølleparkvej 63, 9000 Aalborg, Denmark. Email: lauraiacolina@gmail.com

Alpine ibex *Capra ibex ibex* x domestic goat *C. aegagrus domestica* hybrids in a restricted area of southern Switzerland

Marco Giacometti, Renato Roganti, Dario De Tann, Nasikat Stahlberger-Saitbekova & Gabriela Obexer-Ruff

 OPEN ACCESS  PEER-REVIEWED

RESEARCH ARTICLE

Introgression from Domestic Goat Generated Variation at the Major Histocompatibility Complex of Alpine Ibex

Christine Grossen  Lukas Keller, Iris Biebach, The International Goat Genome Consortium, Daniel Croll

Published: June 19, 2014 • <https://doi.org/10.1371/journal.pgen.1004438>

Genetic variability and conservation problems in Alpine ibex, domestic and feral goat populations (genus *Capra*)

By E. RANDI, G. TOSI, S. TOSO, RITA LORENZINI, and GEA FUSCO

Istituto Nazionale di Biologia della Selvaggina, Bologna, and Dipartimento di Biologia, Università di Milano, Italy

*Receipt of Ms. 12. 3. 1990
Acceptance of Ms. 30. 5. 1990*

Giacometti et al., 2003

phological data and genetic analysis. All presumed hybrids were larger and heavier than Alpine ibex. Horns of hybrids were longer than those of Alpine ibex, and some male horns lacked nodes. In two males studied, the first horn increment was longer than the second. In some cases the pelage colour revealed characteristics untypical for ibex such as prominent leg markings and dark brown colour in young animals. Microsatellite analysis in one male revealed ibex spe-



Iacolina et al., 2018

occurrence of ibex \times goat hybrids. Introgression is likely to have resulted from natural and captive breeding with domestic herds, the former due to more or less recent spatial overlap during winter, the latter due to early re-introduction attempts (Stüwe & Nievergelt 1991, Giacometti et al. 2004, Grossen et al. 2014). The consequences of ibex hybridisation with domestic goats span from morphological changes such as increased body size, longer male horns with smaller nodes, prominent leg markings, and dark brown colour in young individuals (Giacometti et al. 2004), to maladaptive alteration of reproductive biology (Stüwe & Nievergelt 1991) and potentially improved immune responses (Grossen et al. 2014). Turček and Hickey

MAMMALIAN HYBRIDS

A Check-List with Bibliography

by

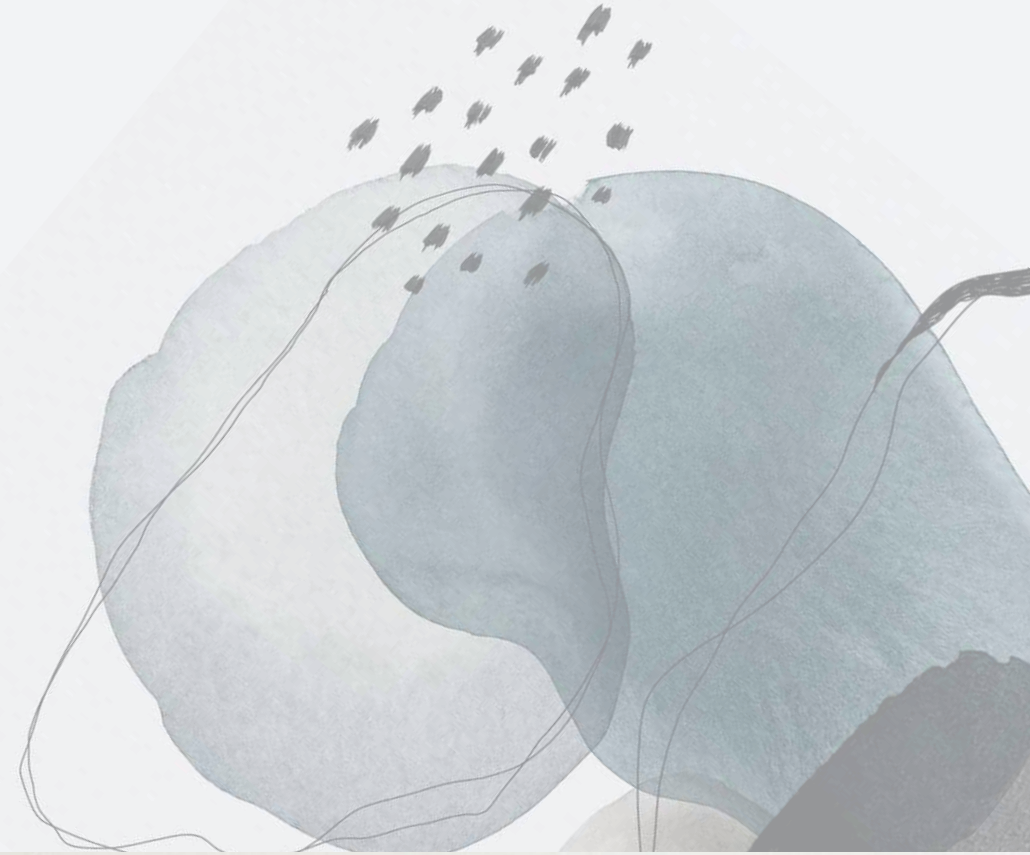
ANNIE P. GRAY, M.A.

202. *Capra hircus* Linnaeus [Domestic Goat]

× *Capra ibex ibex* Linnaeus [Alpine Ibex]

Reciprocal crosses are possible. The hybrids are believed to be fertile in both sexes. They are hornless if a hornless domestic breed is used.

Ackermann, K. 1898; Antonius, O. 1951; Bronzini, E. 1949; Cavazza, F. 1931*b*; Hertwig, P. 1936; Hilzheimer, M. 1933; Lotsy, J. P. 1922; Magliano, A. 1936*a*, 1936*b**; Marno, E. 1868; Przibram, H. 1910; Rörig, A. 1903; Schmidt, M. 1861, 1864; Van Reesema, F. S. 1949.



204. *Capra ibex ibex* Linnaeus [Alpine Ibex]

× *Capra falconeri* Wagner [Markhor]

The skull of a presumed ibex × markhor hybrid has been reported. Hilzheimer, M. 1933*.

× *Capra hircus* Linnaeus [Domestic Goat]

Reciprocal crosses are possible. The hybrids are fertile in both sexes. See *Capra hircus* × *Capra ibex ibex* (No. 202).

de sauvagerie. Ils se mêlaient volontiers avec les chèvres domestiques qui pâturaient sur les hauteurs de Fionnay ou de Lourtier.

Combien de fois, l'un ou l'autre de ces bouquetins faisaient des intrusions dans la station de Fionnay, au grand désespoir de leur protecteur le brave garde chasse Basile Gard. Des cas d'hybridation entre le bouquetin et la chèvre domestique se sont ainsi produits dans la vallée et c'est la raison pour laquelle, une implantation faite dans ces conditions, n'est pas à conseiller.

Renè Fellay, IMPLANTATION ET TRANSPLANTATION DU BOUQUETIN EN VALAIS (Capra Ibex. L.)

rition: «Les bouquetins se croisent très facilement avec les chèvres et donnent des bâtards incapables de reproduction... Les troupeaux de chèvres s'emparent d'une partie de la nourriture et refoulent les ibex vers les parties escarpées et dangereuses.»

Pierre Morend, 1963 «QUELQUES NOTES SUR LE BOUQUETIN (CAPRA IBEX) AU MONT-PLEUREUR (BAGNES)»





Chèvres abandonnées à la fin de l'été



Troupeau de chèvres femelles pendant la période d'accouplement (décembre-janvier)

A photograph of two ibex in a rocky, mountainous landscape. One ibex is in the foreground on the left, facing left, with large, curved horns. Another ibex is in the lower right, facing right. The background is a steep, rocky hillside under a clear sky.

Objectif

Quelle est la fréquence et distribution du phénomène d'hybridation du bouquetin des Alpes?

Matériaux et méthodes



Photo Luca Giordano

Collection des rapports

Présence et absence d'hybrides

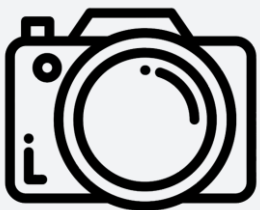
Rapports génétiques



Q1

Hybride génétique confirmé

Reponse au questionnaire, photo ou rapports oraux



Evaluation d'experts des photos

Q2

Matériel photographique de bonne qualité

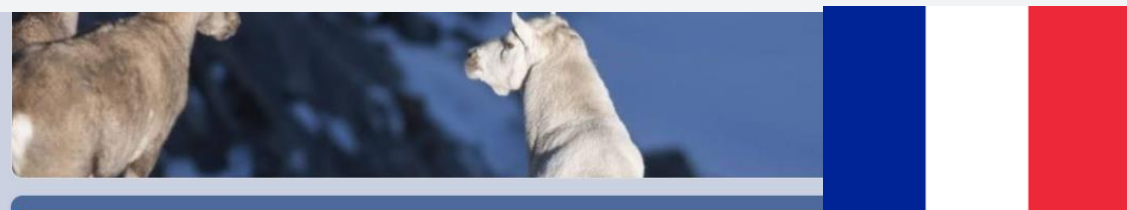


Hybride phénotypique
Ou chevre

Q3

Communication orale ou matériel photographique de mauvaise qualité





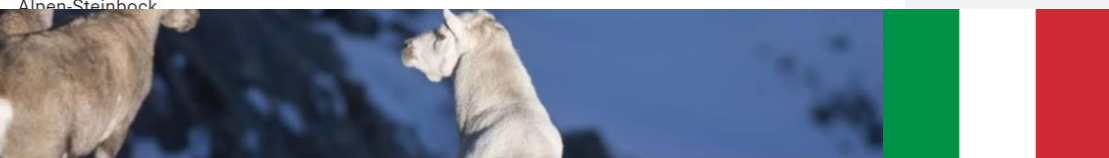
Bouquetin des Alpes – Réseau Hybridation

Ce formulaire fait partie d'un projet axé sur le phénomène d'hybridation des bouquetins.



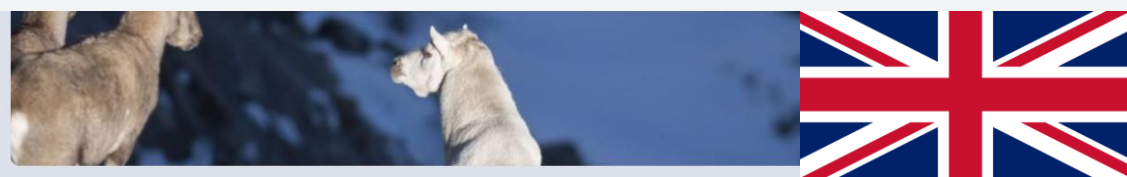
Steinbock – Hybridisierungs-Studie

Diese Umfrage ist Teil des Forschungsprojektes zur Untersuchung der Hybridisierung zwischen Hausziegen und Steinbock.



Stambecco alpino - Network sul fenomeno dell'ibridazione

Questo questionario è parte di un progetto finalizzato allo studio del fenomeno dell'ibridazione nello stambecco alpino.



Alpine Ibex - Hybridization network

This form is part of a project focused on Alpine ibex hybridization phenomenon.

13. Sur la base de vos informations, l'hybride présumé est: *

Contrassegna solo un ovale.

- un individu solitaire
- un individu observé chez un groupe de chèvres revenues à l'état sauvage
- un individu observé chez un groupe de chèvres domestiques
- un individu observé chez un groupe de bouquetins
- je ne sais pas

14. Dans la zone où l'hybride présumé a été localisé, y a-t-il eu des chèvres en alpage? *

Contrassegna solo un ovale.

- oui
- non
- je ne sais pas

15. Y a-t-il ou y a-t-il eu des chèvres abandonnées/revenues à l'état sauvage à proximité de la localisation de l'hybride présumé? *





Quotidiano Canavese

@QCanavese

PARCO GRAN PARADISO - Ibridazione dello stambecco: un questionario online per le segnalazioni



PARCO GRAN PARADISO - Ibridazione dello stambecco: un questionario online per le segn...
quotidianocanavese.it



Parco Gran Paradiso

@PNGranParadiso

Il #PNGP partecipa ad un progetto di ricerca sul fenomeno dell'#ibridazione nello #StambeccoAlpino. Chiediamo a tutti gli appassionati di #montagna di inviare segnalazioni di ibridi avvistati, anche nel passato, sulle nostre montagne.

pngp.it/notizie/ibrida...

Dante Alpe



Department of Veterinary Sciences DSV - UNITO

@DSVunito

Our Parasitology team is leading a new project to monitor a phenomenon which is increasing in frequency in the Alps: the #hybridization among Alpine ibexes and domestic goats

An online form is available to report suspected cases



@PNGranParadiso

@Barbara_Mo_roni

@tizzani207

Traduci il Tweet



ENTE PARCO • CONOSCERE IL PARCO • ATTIVITÀ • EVENTI E INIZIATIVE • CONSERVAZIONE E RICERCA

Cerca

Ibridazione dello stambecco alpino: un questionario online per le segnalazioni



Ente Parco → Ultime notizie → Ibridazione dello stambecco alpino: un questionario online per le segnalazioni

13 APR 2021

Progetto di ricerca sull'ibridazione dello stambecco Alpino

Il Parco Nazionale Gran Paradiso partecipa ad un progetto di ricerca sul fenomeno dell'ibridazione nello stambecco Alpino. La ricerca è coordinata dal Dipartimento di Scienze Veterinarie dell'Università di Torino e coinvolge esperti di tutta Europa.

Il principale obiettivo del progetto è raccogliere segnalazioni di individui ibridi nati dalla riproduzione tra stambecchi e capre.



A photograph of two ibex in a rocky, mountainous landscape. One ibex is in the foreground on the left, facing left, with large, curved horns. Another ibex is in the lower right, facing right. The background is a steep, rocky hillside under a clear sky.

Résultats préliminaires

Photo Luca Giordano

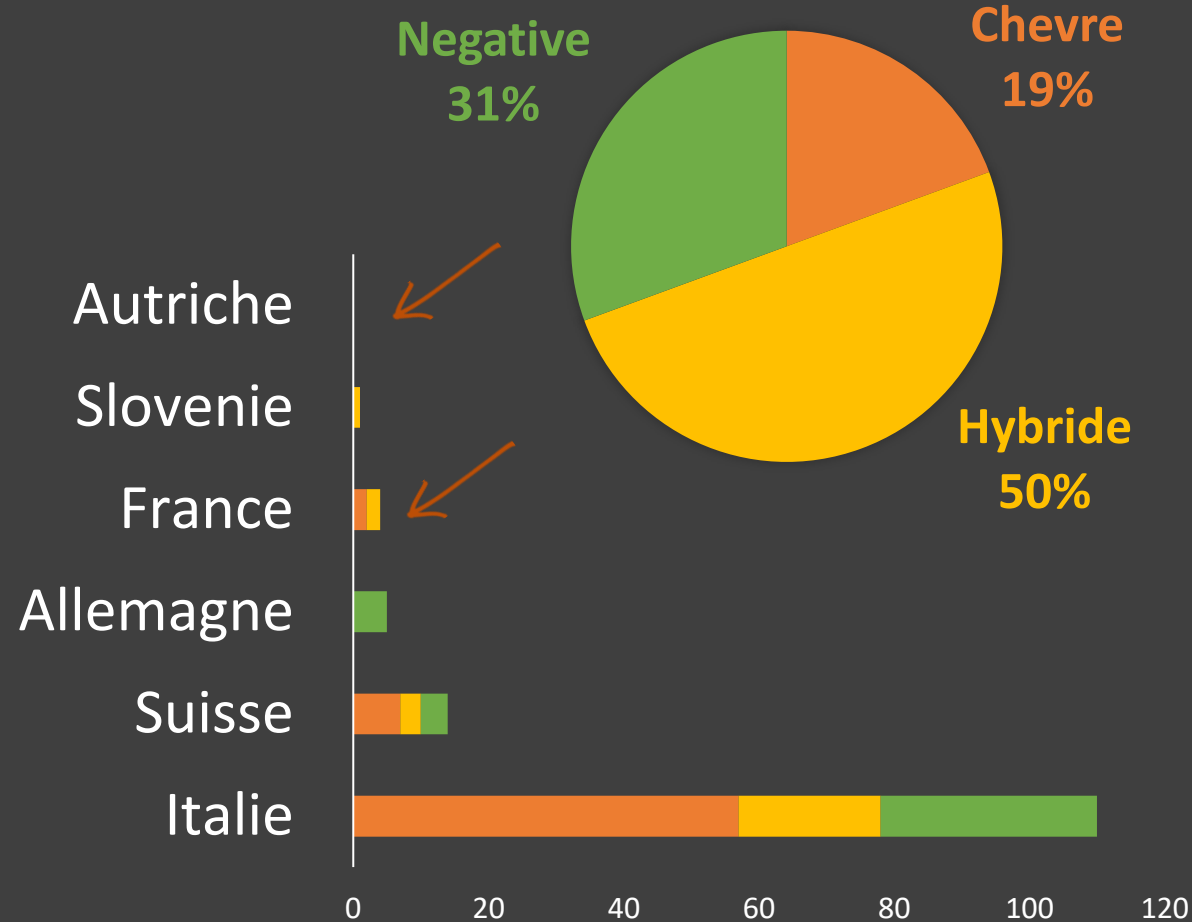


Photo Raffaele Turvani

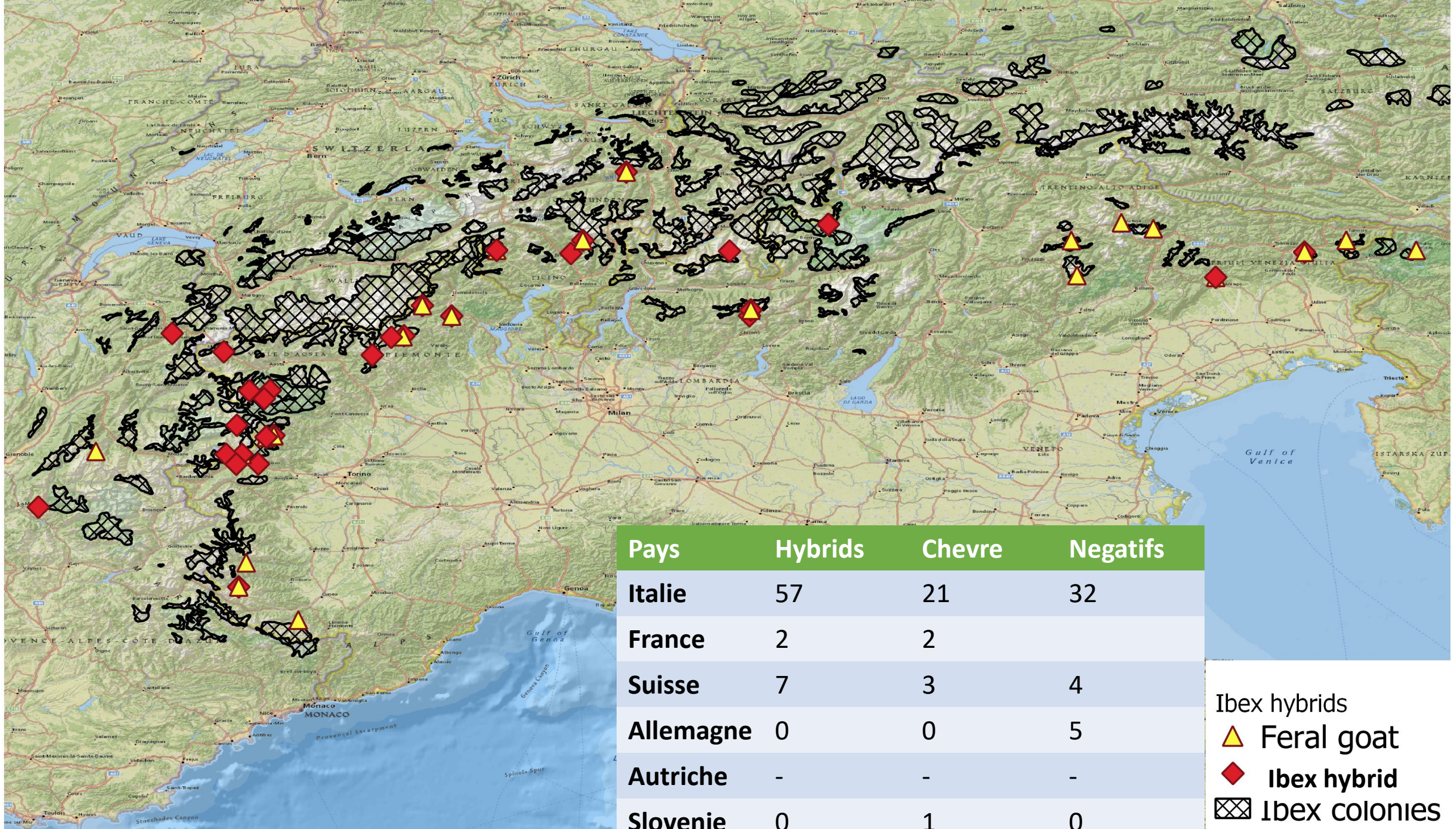
Rapport-nous
aujourd'hui s'il
vous plait!



RAPPORTS N= 136

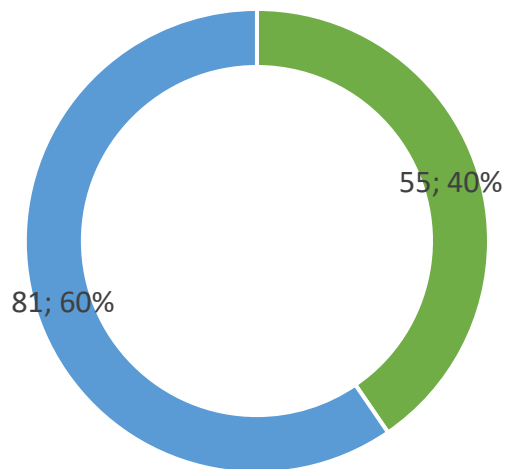


	Italie	Suisse	Allemagne	France	Slovenie	Autriche
Hybrides	57	7	0	2	0	0
Chevres	21	3	0	2	1	0
Negatifs	32	4	5	0	0	0



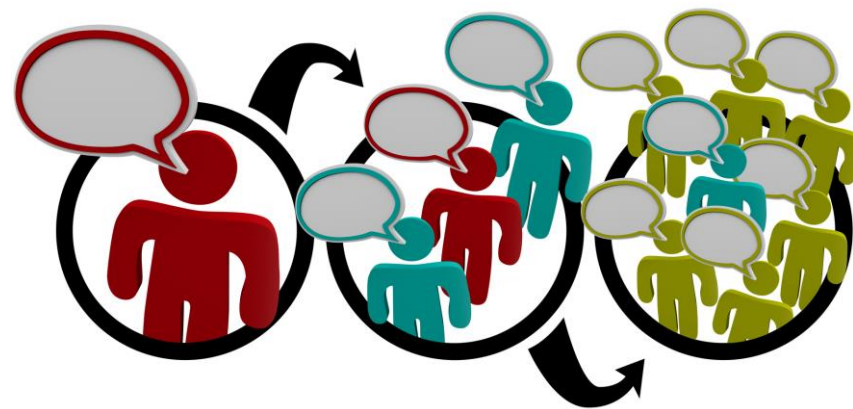
Qui nos a répondu?

Responses



■ Questionnaire online ■ email-appel

- 55 reponses au questionnaire online
- 81 rapports par email-appel telephonique



• Photo: Luca Giordano

• Balme, Piemonte (Italia)

Q2



Bouquetin "pur"

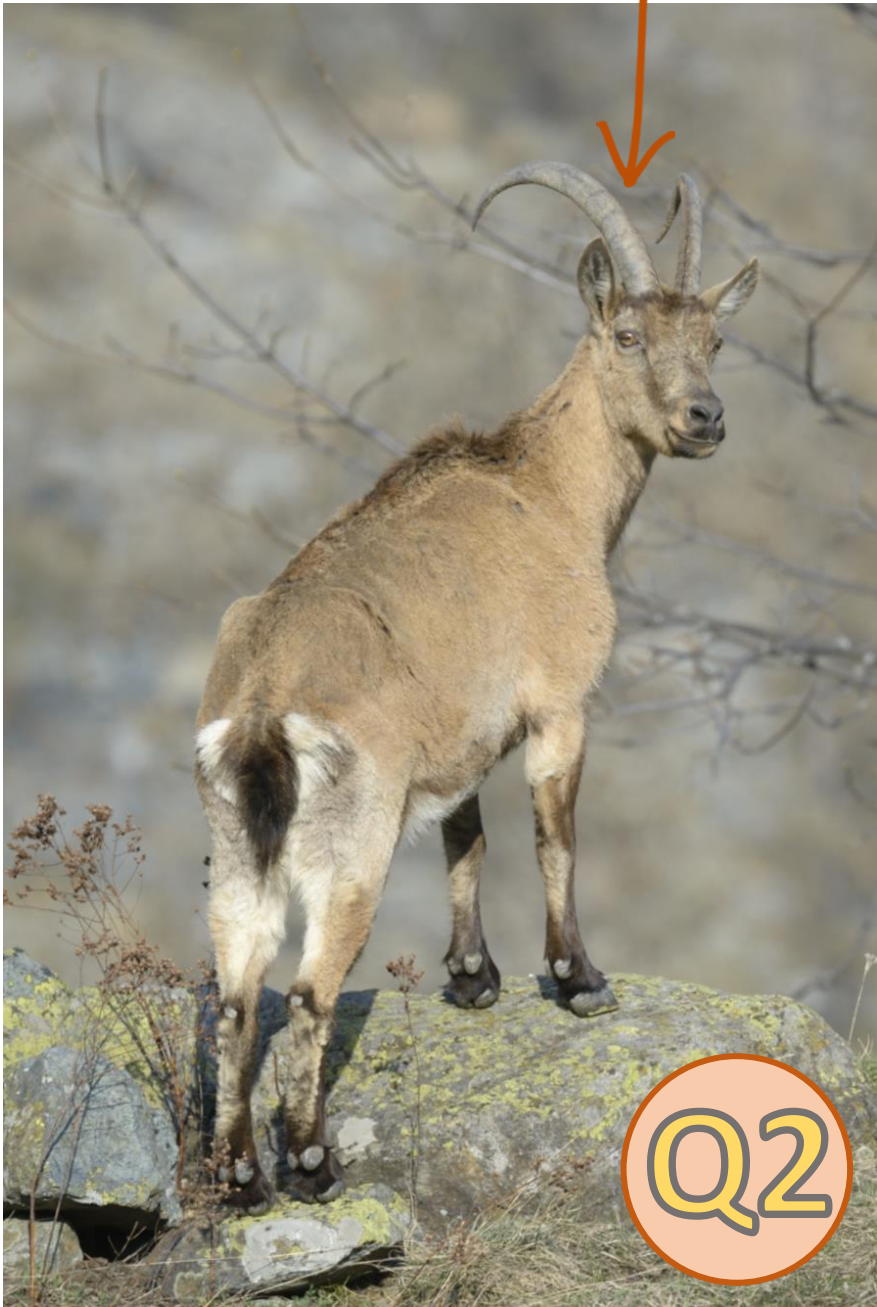


Photo Luca Giordano
Balme, Piemonte (Italia)

- Photo: Luca Giordano
- Balme, Piemonte (Italia)

Q2



Bouquetin "pur"



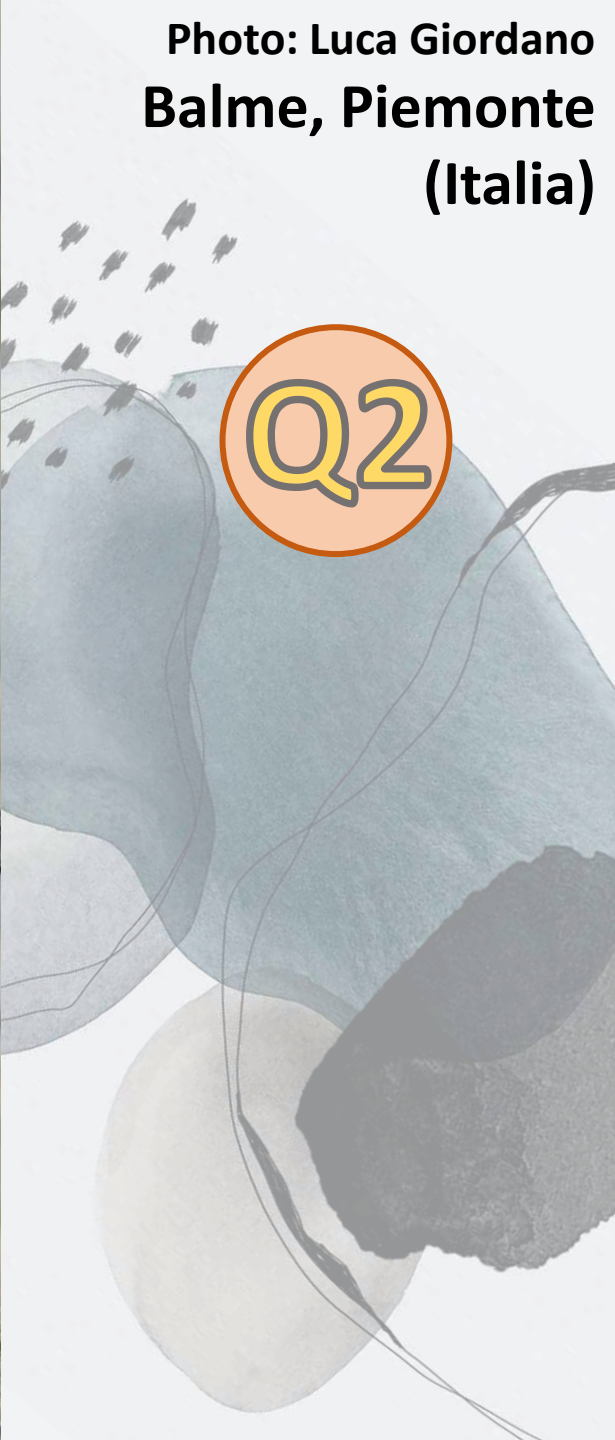


C

Q2

- Photo: Luca Giordano
- **Balme, Piemonte (Italia)**

Photo: Luca Giordano
Balme, Piemonte
(Italia)



Q2

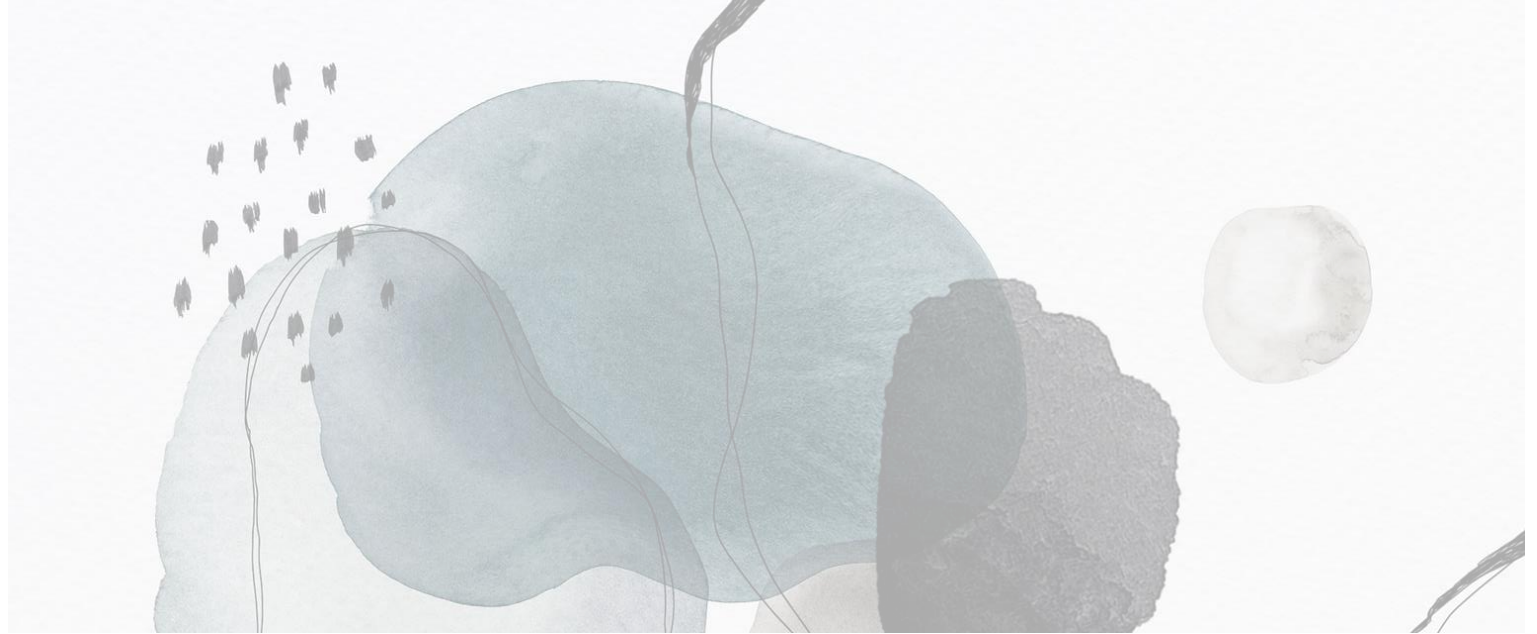
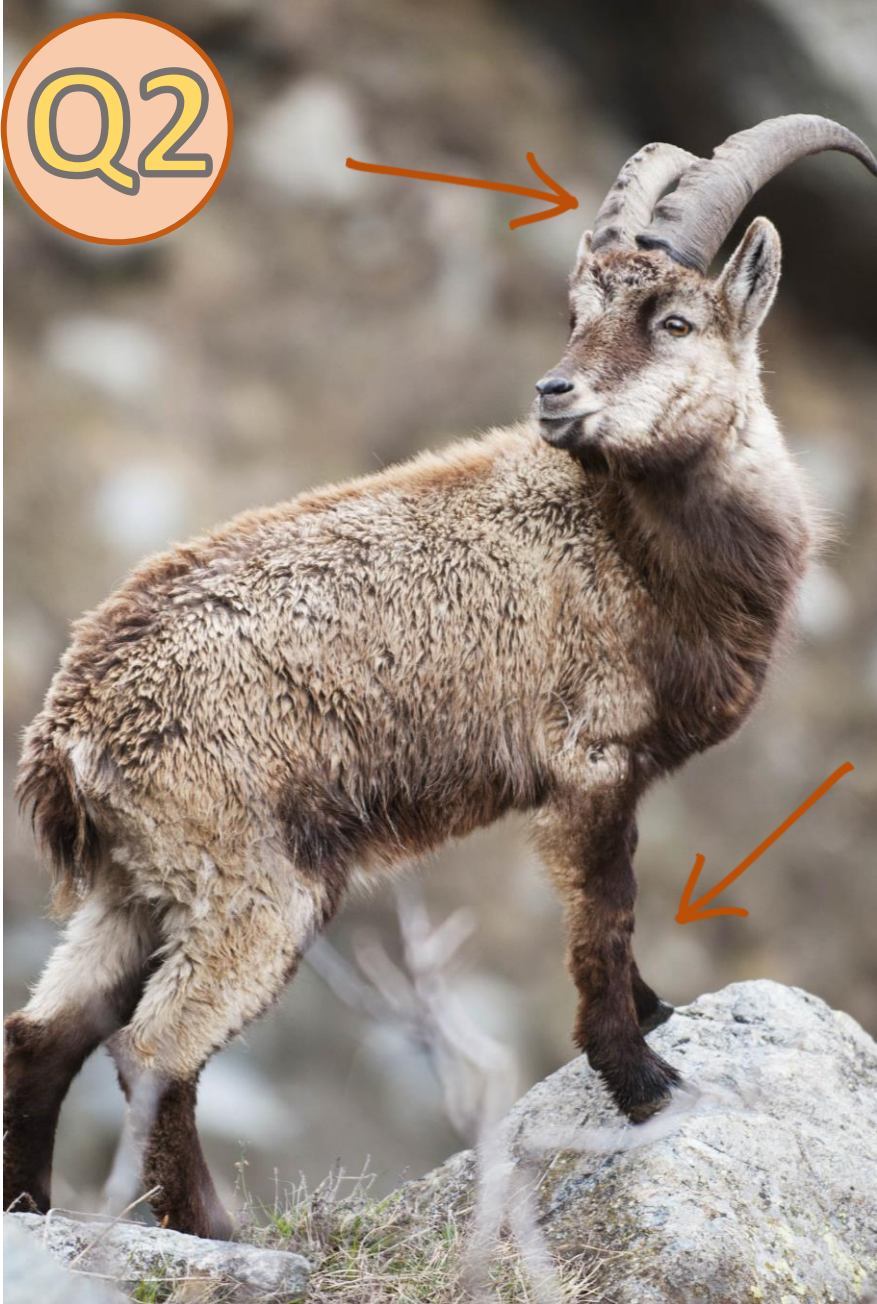
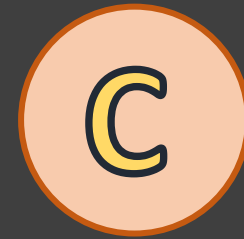


Photo: Simone Miotto
Balme, Piemonte (Italia)



- Photo: Maurizio Chiereghin
- Balme, Piemonte (Italia)
- **2010**



- Photo: Fulvio Marangoni
- **Mondrone (Torino)**
- **2020**

Q2



Q3





- Photo Kutin Marko
- **Slovenia**

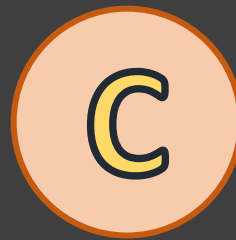
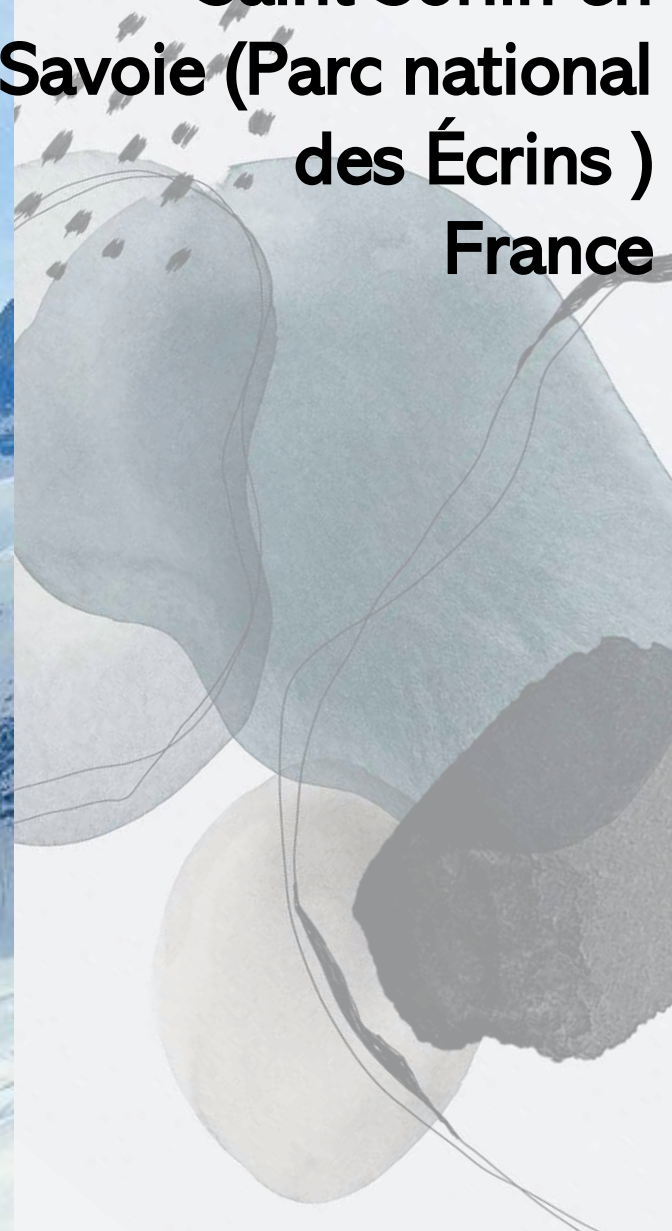


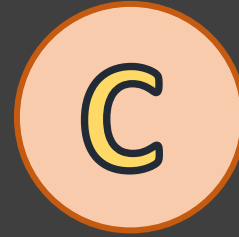




Photo: Eric Vannard
**Saint Sorlin en
Savoie (Parc national
des Écrins)
France**







- Photo: Etienne Marlè
- **Lachat d'en haut,
commune de Passy, France**
- **2019**





- Photo: Omar Giordano
- **Valle Varaita- Cuneo (Alpi Cozie) Italia**
- **2021**





Q2

- Photo: Marco Viglezio
- Val Malvaglia, Svizzera
- 2005 (anno di abbattimento)
- Esposto al Museo di Storia Naturale di Lugano



- Photo: Marco Viglezio
- Incrocio tra capra nera Verzasca (madre) e stambecco (padre)

- **Svizzera**
- **1977**



- Photo: Marco Viglezio
- **Femmina ibrida
allevata assieme ad
altre capre, carattere
selvatico**
- **Malvaglia,
Svizzera**
- **1980**



- Photo: Luca Pelliccioli
- **Alta valle seriana
Valbondione – Maslana
(Alpi Orobic) Italia**
- **2005**



- Stessa località (Valbondione)
- foto del 2000
- Esemplare tassidermizzato presente nel museo di storia naturale Bergamo



- Photo: Andrè Roveyaz
- **Courmayeur, Italia**
- **2020**










- Photo: Andrè Roveyaz
- **Courmayeur, Italia**
- **2020**

Discussion



Photo Luca Giordano

- Le phénomène d'hybridation bouquetin/chevre est sous-estimé et négligé dans les Alpes 
- Les documents historiques remontent aux années 1930 (ou avant!) 
- L'apport de la «citizen science» a permis une bonne couverture des reportages sur l'arc alpin 
- La collaboration et le network d'experts ont assuré la qualité et la fiabilité des rapports 
- Pôle d'hybridation dans le Piémont (Balme) depuis au moins 10 ans 

Implications?



- Pollution génétique

- Risque de transmission d'agents pathogènes

Gale sarcoptique

Brucellosis

Micoplasmosis

CAEV

...



- Indiscernable des hybrides caprins dans les zones fortement hybridées (Balme)



- **Differentes strategies à adopter pour limiter la presence/diffusion d'hybrids**

1. **Élimination des hybrides et des chevres férales**
2. **éducation des bergers**
3. **Une cōntrole accru des gardes de la faune en fin de paturage**
4. **Cōntroles génétiques chez des sujets phénotypiquement anormaux ou dans des zones groupées**

Citizen science!



Avez-vous des
hybrides à
signaler?



Alice Brambilla, Luca Rossi, Pier Giuseppe
Meneguz, Bruno Bassano, Paolo Tizzani

Merci pour
votre attention!

Grazie ai coautori e a
tutti gli esperti che
hanno inviato foto e
materiale!



*barbara.moroni@unito.it