



XIV Congresso Italiano  
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# Abstract Book

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## SOMMARIO

### INVITED SPEAKERS

|                                                                                                                        |    |
|------------------------------------------------------------------------------------------------------------------------|----|
| <b>Squeezed upwards: Building an evidence-base for mountain ecosystems management from movement and behaviour data</b> |    |
| Börger L. ....                                                                                                         | 17 |
| <b>The overlooked mammal: Why humans should be part of conservation studies</b>                                        |    |
| Glikman J.A. ....                                                                                                      | 18 |
| <b>From Balkan caves to African rainforests: Challenges and lessons from studying bats across continents</b>           |    |
| Budinski I. ....                                                                                                       | 19 |

### SSESSIONE 1. ECOLOGIA E CONSERVAZIONE DEI MAMMIFERI IN UN MONDO CHE CAMBIA

|                                                                                                                                                                     |    |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|
| <b>At risk and overlooked: The silent decline of the garden dormouse in Europe</b>                                                                                  |    |
| Bertolino S. ....                                                                                                                                                   | 21 |
| <b>Global patterns of niche changes in alien mammals: potential drivers and significance for invasion projections</b>                                               |    |
| Biancolini D., Broennimann O., Guisan A., & Rondinini C. ....                                                                                                       | 23 |
| <b>Recovering in isolation: dynamics of the Alpine brown bear population over two decades post-reintroduction</b>                                                   |    |
| Bombieri G., Bragalanti N., Corradini A., Pedrotti L., Corlatti L., La Morgia V., Gervasi V., Rossi C., Hauffe H.C., Crestanello B., Righetti D., Salvatori M. .... | 24 |
| <b>Linking movement ecology and zoogeochemistry: red deer as drivers of nutrient redistribution in the Alps</b>                                                     |    |
| Corradini A., Ferraro K.M., Chaneil O., Figuières C., Bramoullé Y., Hawkinson V., Vanderlocht C., Ossi F., Righetti D., Schmitz O. J., Cagnacci F. ....             | 25 |
| <b>Genomic resilience in the Apennine chamois: insights from a genome-wide population survey</b>                                                                    |    |
| Colangelo P., Gramolini L., Franchini P., Solano E. ....                                                                                                            | 26 |
| <b>An integrated methodological approach reveals the coexistence of African and European bats on the Pelagian islands</b>                                           |    |
| Di Bari P., Gili F., Massaad M., Bueno R. S., Corso A., Baratti M., Garzoli L., Viganò M., Agnelli P., Mori E., Ancillotto L. ....                                  | 27 |
| <b>Community reshuffling dominates mammal responses to urbanization in a changing world</b>                                                                         |    |
| Dondina O., Orioli V., Tirozzi P., Viviano A., Mori E., Bani L., Ancillotto L. ....                                                                                 | 28 |
| <b>Seeing the unseen: spatially explicit capture-recapture models to estimate roe deer (<i>Capreolus capreolus</i>) density</b>                                     |    |
| Frigerio E., von Hardenberg A., Torretta E. ....                                                                                                                    | 29 |

|                                                                                                                                                                                                                  |    |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|
| <b>Assessing temporal overlap, habitat preference and spatial co-occurrence in sympatric pine martens and stone martens</b>                                                                                      |    |
| Fusillo R., Marcelli M.....                                                                                                                                                                                      | 30 |
| <b>Quantifying migratory bat movements across seasons and years using acoustics and a Vertical-Looking Radar</b>                                                                                                 |    |
| Giuntini S., Aschwanden J., Preatoni D.G., Hertner F., Haest B., Schmid B. ....                                                                                                                                  | 31 |
| <b>People and wildlife: Ungulates' responses to humans' presence and activities across Europe</b>                                                                                                                |    |
| Iannarilli F., Cagnacci F., Wikelski M. and many other contributors across Snapshot Europe, Euromammals/ EuroCAM, Big_Picture, and the European Observatory of Wildlife.....                                     | 32 |
| <b>Sharing space, avoiding time: how Martes coexist with humans and domestic cats</b>                                                                                                                            |    |
| Manzo E., Iannarilli F., Bartolommei P., Bonacchi A., Gasperini S., Cozzolino R. ....                                                                                                                            | 40 |
| <b>Genetic structure of the largest terrestrial wild animal in Italy, the red deer <i>Cervus elaphus</i>: potential effects of isolation, human-mediated movements and hybridisation with non-native species</b> |    |
| Mori E., Pascariello K.M., Tolone M., Ancillotto L., Genovese M., Viviano A., Baratti M. ....                                                                                                                    | 33 |
| <b>Vulnerability of mammals to bushmeat hunting</b>                                                                                                                                                              |    |
| Pacifici M., Cristiano A., Mancini G., Nania D., Davoli M.....                                                                                                                                                   | 34 |
| <b>From The Woodland To The City: Genome-Wide Comparison Of Rural And Urban Red Squirrel Populations In Northern Italy</b>                                                                                       |    |
| Rodriguez Garcia A., Iacolina L., Tranquillo C., Santicchia F., Mazzamuto M.V., Martinoli A., Alberdi A., Apollonio M., Wauters L.A., Scandura M. ....                                                           | 35 |
| <b>Species traits mediate mammal density responses to human impacts</b>                                                                                                                                          |    |
| Santini L., Bowler D.E., Salguero-Gómez R., Martins I.S., Schrod F., Frelat R., Hedde M., Morueta-Holme N., Gauzere P., Violle C., Gouy R., Estopinan J., Beck M., Thuiller W. ....                              | 36 |
| <b>Bats of Rome: how urban landscape shape species' distributions</b>                                                                                                                                            |    |
| Saracino D., Ancillotto L., Forti Grazzini L., Giuliani M., Russo L.F., Mirante D., La Bella G., Martelli F., Cerretti P., Andrelo M., Di Giulio A., Carboni M., Colangelo P., Santini L.....                    | 37 |
| <b>Phylogeography and population structure of the Western European hedgehog (<i>Erinaceus europaeus</i> Linnaeus, 1758) across Italian islands and mainland</b>                                                  |    |
| Giangregorio P., Velli E., Crescenti F., Greco C., Caniglia R., Baccetti N., Gotti C., Baratti M., Colangelo P., Castiglia R., Scandura M., Bazzoni E., Cumbo V., Giannini F., Mucci N.....                      | 38 |
| <b>Outcome monitoring of water vole reintroductions in ecological restoration</b>                                                                                                                                |    |
| Weinzweig N., Galla G., Berger C., Perkins S., Cable J., Mckeown, N., Hauffe H.C. ....                                                                                                                           | 40 |

## SESSIONE 2.

### STRATEGIE COMPORTAMENTALI NEI MAMMIFERI: ADATTAMENTI EVOLUTIVI ALLE PRESSIONI AMBIENTALI

|                                                                                                                          |    |
|--------------------------------------------------------------------------------------------------------------------------|----|
| <b>Am I on the right track? Leisler's bats movements are shaped by both natural and anthropogenic landscape elements</b> |    |
| Ancillotto L., Santalmasi G., Bianchi M., Bonora L., D'Angelo G., Mori E. ....                                           | 42 |
| <b>Caught in the crossfire: sex-specific responses of Alpine chamois to heat stress and predator return</b>              |    |
| Brogi R., Brivio F., Azzolini S., Zanni M., Apollonio M. ....                                                            | 43 |

**Ecological, social and anthropogenic drivers of wolf feeding ecology in Italy**

Buelli C., Zanni M., Brogi R., Cavazza S., Del Frate M., Luccarini S., Berzi D., Costanzi L., Tirapelle C., Apollonio M..... 44

**Predators in the night, prey in the light: ecology, evolution and implications of temporal mismatch in predator-prey interactions among large terrestrial mammals**

Casali D., Brivio F., Bertolucci C., Grignolio S..... 45

**First insight into temporal activity patterns of three sympatric *Pipistrellus* species in a Mediterranean coastal forest ecosystem**

Castiello G., Israel A., Colangelo P., De Cinti B., Vaglio Laurin G., Castiglia R., Solano E. .... 46

**Summer tourism reshapes activity patterns and roadkill risk in alpine small carnivores**

Cattaneo M., Rocco N., Rosalino L.M., Bertolino S., Granata M..... 47

**Anti-predator behaviours of fox squirrels change across urban green areas**

Corsini M., Paniccia C., Hernandez J., and Cruz J. .... 48

**A complex relationship: behavioural interactions between wolves and wild boar**

Lazzeri L., Belardi I., Fattorini N., Fini G., Pallari N., Ferretti F..... 49

**The effects of urbanization on diel activity patterns of Italian mammals**

Limongiello L., Fidino M., Avramo V., Jamwal P.S., Mirone E., Di Febbraro M., Magle S., Loy A. .... 50

**Urban wolves are less fearful of novelty, but more vigilant of change than wilder-living wolves. All however are scared of humans**

Marshall-Pescini S., Lazzaroni M., Brogi R., Brivio F., Range F., Apollonio M. .... 51

**Space use response of roe deer to the return of the grey wolf in an alpine area**

Toth R., Ossi F., Matteotti A., Moorcroft P., Cagnacci F. .... 52

**Hunting and outdoor recreation affect large herbivore activity patterns more than natural predators in a human-dominated landscape**

Salvatori M., Boer-Cueva M., Centomo E., Partel P.G., Dorigatti A., Ferraro E., Greco I., Rovero F., Bombieri G..... 53

**Urban environments and the structure of animal personality: insights from a native rodent**

Santicchia F., Tranquillo C., Mazzamuto M.V., Bisi F.I., Preatoni D., Martinoli A., Spada M., Di Biase R.M., Franceschi S., Marcheselli M., Pisani C., Bertolino S., Wauters L.A. .... 54

**Dispersing processes, not just seeds: individual small mammals drive seed–mycorrhizal co-dispersal beyond species' ranges**

Savazza S., Muggia L., Bertagni G., Burrascano S., Campaner L.F., Capitani M., Napoleone F., Stephens R., Vargiu N., Zanfei G., Mortelliti A. .... 55

**SESSIONE 3.****UOMINI E MAMMIFERI: IMPLICAZIONI SOCIALI, ECONOMICHE E SANITARIE****ETHAS: an ethical self-assessment framework for responsible mammal research and monitoring practices**

Basile S., Indovina A.R.E., Biasetti P., De Mori B. .... 57

**Widespread *Toxoplasma gondii* infection in expanding wolf populations in Italy**

Brivio F., Dini M.F., Musto C., Bassi P., Gobbi M., Barca L., Apollonio M., Galuppi R., Marshall-Pescini S. .... 58

### **Outsmarting the trickster, epidemiology and anatomical distribution of *Toxoplasma gondii* in the brain of red foxes from Italy and Australia**

Brustenga L., Rigamonti G., Liyanage K.L.D.T.D., Scarcelli S., D'Avino N., Gobbi M., Ranucci A., Moretta I., Morganti G., Diaferia M., Lucentini L., Vercillo F., Passamonti F., Jabbar A., Hufschmid J., Veronesi F. .... 59

### **Habitat, disturbance, and human perception: wolves at the edge of Mongolia's capital city**

Dolphin J., Mazzamuto M.V., Gankhuyag G., Delgerchimeg D., Sukhchuluun G., Munkhtsog B., Bayanmunkh U., Ankhbayar L., Koprowski J.L. .... 60

### **Ecological repellents for the protection of vineyards from damage caused by wildlife in the Cinque Terre National Park**

Duradoni D., Perrone M., Sottili C., Camiciottoli S., Conti L. .... 61

### **Lost in estimation: the fragility of density-based approaches for ordinary wildlife control and sanitary risk management**

Maglia I., Calabrese A., Pontiggia P., Mirabile M., Monaco A., Focardi F., Franzetti B. .... 62

### **Bushmeat trade and implication for Great Ape conservation in Cameroon**

La Gala S., Docampo E., Breda F., Dupain J. .... 64

### **Use of environmental sampling for One Health surveillance of bats**

Leopardi S., Festa F., Belfanti I., Ceglie L., Cretaio E., Crimauto M., Danesi P., Drzewniokova P., Manzi S., Mazzotta E., Montarsi F., Fincato A., Fortin A., Rault N., Scaravelli D., Squarise P., Palumbo E., Panzarin V. ... 66

### **Are electric fences an effective preventive measure for protecting agricultural production?**

Marsan A., Perrone M., Duradoni D. .... 67

### **No evidence of intraspecific scavenging behavior in wild boar. Is the carcass-driven transmission of African swine fever overestimated in the Mediterranean context?**

Barone G., Franzetti B., Calabrese A., Maglia I., Mirante D., Zampetti A., Santini L., Monaco A. .... 68

### **Predators at odds: contrasting wolf and human-induced mortality in red deer**

Nava M., Pedrotti L., Donini V., Marchesi S.S., Luzzago C., Ferrari N., Corlatti L. .... 69

### **Odi et amo: social perception of *Callosciurus finlaysonii* in Cilento National Park**

Papaleo L., Notomista T., Chiacchio M., De Riso L., Senese A., Merola A., Nicodemo A., Iudici A., Russo V.G. .... 70

### **Longitudinal dynamics of rural attitudes and fear during wolf recovery in the Italian Alps**

Ravaglia D., Chapron G., Mosso C.O., Perrone D., Skrbinek T., Majic Skrbinek A. & Marucco F. .... 71

### **Estimating the ecosystem services provided by the brown bear**

Tattoni C., Ciolli M., Bisi F., Araña J.E. .... 72

### **Wildlife Recovery Centres (WRCs): new partners for surveillance of emerging zoonotic pathogens**

Vuillermoz B., Robetto S., Nogarol C., Haudemand N., Mandola M.L., Orusa R. .... 73

## **SESSIONE 4.**

### **SENTINELLE D'ALTA QUOTA: MAMMIFERI ED ECOSISTEMI MONTANI**

#### **Functional importance of high-elevation Alpine lakes for bats**

Bellè A., Zanardi M., Froidevaux J.S.P., Belloni G., Bertolino S. .... 75

#### **A requiem for Tina & Milo: Snow loss and prey mismatch threaten alpine stoats**

Granata M., Cattaneo M., Di Febbraro M., Bertolino S. .... 77

#### **Sympatric *Lepus* spp. in the the central Italian Alps host significantly different gut microbiotas**

Hauffe H.C., Marinangeli L., Crestanello B., Praeg N., Rzehak T., Seeber J., Illmer P., Nonnis Marzano F., Galla G. .... 78

|                                                                                                                                                             |    |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------|----|
| <b>Population dynamics of the Apennine chamois in Abruzzo, Lazio and Molise National Park (ALMNP); insights from the last natural population</b>            |    |
| Improta R., Grignolio S., Panaccio M., Latini R., Brivio F. ....                                                                                            | 79 |
| <b>Population dynamics and body condition of snow voles in the Alps and Apennines: towards a long-term monitoring network in response to climate change</b> |    |
| La Morgia V., Bertolino S., Loss V., Cussotto S., Borghesio C., Chiesa E., Granata M., Manzo E., Bonacchi A., Gasperini S. & Bartolommei P. ....            | 80 |
| <b>Spatio-temporal interactions between roe deer and red deer in the Alpine environment: the role of temperature and wolf</b>                               |    |
| Lorenzetti L., Donini V., Iacona E., Ferretti F., Pedrotti L., Corlatti L. ....                                                                             | 81 |
| <b>Insights on the effects of the Vaia storm on mammal communities in Alpine forests</b>                                                                    |    |
| Marconi M., Bombieri G., Biallo A., Centomo E., Dal Farra S., Salvatori M., Bonari G., Mortelliti A., Rovero F. ....                                        | 82 |
| <b>Cross-continental insights into montane ecosystem change: linking evolutionary space-use strategies and population dynamics in tree squirrels</b>        |    |
| Mazzamuto M.V., Merrick M., Santicchia F., Bisi F., Preatoni D., Martinoli A., Wauters L., Koprowski J. ....                                                | 83 |
| <b>Using animal-borne proximity loggers to estimate home range in a wild-living small mammal</b>                                                            |    |
| Morocutti E., Zenth F., Corlatti L. ....                                                                                                                    | 85 |
| <b>Optimal Monitoring of Mammals in Alpine Environments: Development of Multi-species Protocols and Assessment of the Umbrella Effect</b>                   |    |
| Mortelliti A., Butini G., D'Antiga M., Delahaye E., Tolusso S., Zanfei G. ....                                                                              | 86 |

## POSTER

|                                                                                                                                                                                                                                                                                                          |    |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|
| <b>N. 1 Recolonization and demographic dynamics of the wolf (<i>Canis lupus italicus</i>) in the coastal area of Rome</b>                                                                                                                                                                                |    |
| Antonelli M., De Lorenzis A., Albornoz A., Belghazi F., Bianchi V., Caliendo C., Da Valle J., De Marzi B., Donfrancesco S., Erba E., Fedrigo G., Gallicchio D., Gentile C., Giulianini G., Lonardo G., Mastrantonio M., Mengarelli F., Marchesi S., Parentela F., Sinti G., Vanini V., Salvatori V. .... | 88 |
| <b>N. 2 Increasing proximity between wolves and humans in Italy: an evidence-based management protocol</b>                                                                                                                                                                                               |    |
| Aragno P., Salvatori V., La Morgia V., Gervasi V., Fazzi P., Marucco F., Angelucci S., Genovesi P. ....                                                                                                                                                                                                  | 90 |
| <b>N. 3 Anthropogenic pressure on Carnivore Occupancy Patterns in Madagascar</b>                                                                                                                                                                                                                         |    |
| Avesani Zaborra F., Fortelli A., Marucco F. ....                                                                                                                                                                                                                                                         | 91 |
| <b>N. 4 Wolf-prey interactions in a protected area in the Tuscan Apennine</b>                                                                                                                                                                                                                            |    |
| Avetta V., Ancillotto L., Bernetti I., Bianchi M., Bongi P., Bruni V., Calandrella A., Chiaia V., Girotti P., Lombardini M., Mori E., Palumbi M., Piacentini L., Primi R., Pucci C., Santalmasi G., Santini G., Viola P., Zaccaroni M. ....                                                              | 92 |
| <b>N. 5 Sex allocation in red deer <i>Cervus elaphus</i>: Testing maternal effects across contrasting environments</b>                                                                                                                                                                                   |    |
| Antonini P., Nava M., Pedrotti L., Gugiatti A., Nicoloso S., Donini V., Corlatti L. ....                                                                                                                                                                                                                 | 93 |
| <b>N. 6 The Alpine <i>Mustela</i>: a promising camera-trap system for investigating predator- prey dynamics at high altitudes</b>                                                                                                                                                                        |    |
| Bagnasco M., Chiesa E., Knödler S., Bertolino S., Granata M. ....                                                                                                                                                                                                                                        | 94 |

N. 129

## Many tools, many choices: a user-oriented overview of AI tools for camera trapping data

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Camera traps are one of the most relevant and widely used tools in wildlife ecology, that enable the non-invasive collection of large amounts of data across broad spatio-temporal scales and ecosystems. The extensive use of camera trapping has produced image volumes that exceed the capacity of manual annotation, creating a major bottleneck in the research workflow and calling for solutions capable of processing these data with reduced human intervention. In recent years, different AI-based tools and platforms have emerged to streamline species identification and data management, potentially reducing processing time significantly. Yet, selecting the most appropriate tool can be a complex task for many users. Researchers often have specific requirements for data annotation to meet the study goals, the type of datasets, and other challenges such as computing resources and data policies. This poses trade-offs between automation, flexibility and data control. This work presents a user-oriented overview of different widely used tools and platforms that include AI-based procedures, such as Agouti, Wildlife Insights, DeepFaune and TRex. The aim is to examine the practical trade-offs of the different tools in order to offer valuable insights for choosing appropriate AI-assisted approaches in different data processing scenarios and on how these tools can be realistically integrated into monitoring and research programs.

We conducted a comparative assessment of selected tools based on criteria relevant to end users: (i) data-type requirements, such as pictures, videos and included metadata, (ii) workflow flexibility, (iii) level of technical expertise required, (iv) suitability for different research objectives and (v) practical constraints related to infrastructure, internet connectivity and data ownership. The analysis was informed by official documentation, published use cases and study-case applications by the authors.

The reviewed tools differ in design and intended use. Wildlife Insights focuses on collaborative management of large-scale datasets, making it well suited for international or multi-project initiatives, but offers limited customisation. Agouti implements data standards (CamtrapDP) and secured data storage and ownership, but does not support automatic video processing. DeepFaune software represents a local, lightweight solution, enabling offline operations, but offers fewer features for data handling and for collaboration. TRex offers high flexibility and customisation potential but generally requires more advanced technical skills.

This overview highlights different trade-offs between automation, user control, model choice, scalability and implementation effort. Tool selection is highly context-dependent and should be guided by research goals, available resources (including users' expertise and manpower) and operational constraints. From a user's perspective, practical aspects such as ease of use, how results are presented and how data are handled throughout the workflow can be as influential as model reliability and performance. By adopting a pragmatic, user-oriented perspective, this overview aims to support researchers and data managers in making informed decisions when integrating AI tools into camera trap-based studies and data processing.