3rd & 4th WORLD JACKAL DAY

PROCEEDINGS

19.04.2025 and 19.04.2026







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Impressum

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Editorial

Dear readers,

with great pleasure we present the Proceedings of the *3rd* and *4th World Jackal Day*. Building on the success of the first two events, this format was institutionalised in these years as both social annual highlight of the jackal research community and major outreach tool for the general public. Bringing together scientists, conservationists, wildlife managers, and stakeholders from all over the world, the format enables the sharing of knowledge and perspectives on one of the most adaptable and widely distributed mesocarnivores – the jackals.

The *'World Jackal Day – Scientific Forum'*, which is now becoming increasingly well established, has not only become a valuable forum for scientific exchange, but also a very practical venue for networking and socialising. We are delighted to note that more and more colleagues from many countries where jackal research is less established are taking the opportunity to find out about the 'state of the art' and to identify potential collaboration partners. Furthermore, the increase in the number of participating nations is also very encouraging – some of which come from regions that are not well represented elsewhere. Despite high turnover in the early years, a core group within the 'World Jackal Day' family has already established, looking forward to the gathering every year. This makes the loss of such family members all the more painful. First and foremost among them is Keith Somerville, who passed away in the autumn of 2024. He enthusiastically enriched the first editions - and will never be forgotten. The 3rd World Jackal Day was dedicated to his memory, and this volume of proceedings is also intended as a loving tribute to him.

We envision these proceedings as more than a documentary account of the two events. They are also intended to support future research and, above all, to encourage continued exchange, closer international cooperation, and the development of new strategies for long term ecosystem studies. We thank all institutions and partners who supported the events, enabling an open and constructive exchange across disciplines and borders. Above all, our gratitude goes to all authors for their valuable contributions and the scientific committee for their effort.

We hope this booklet offers every reader both pleasure and fresh ideas, and we look forward to welcoming you at the next *World Jackal Days*,

Jennifer Hatlauf & Robert Krickl
Vienna (Austria), 05.05.2026

About World Jackal Day

The following section contains a brief outline on the background, history, character and objectives of *World Jackal Day*.

History

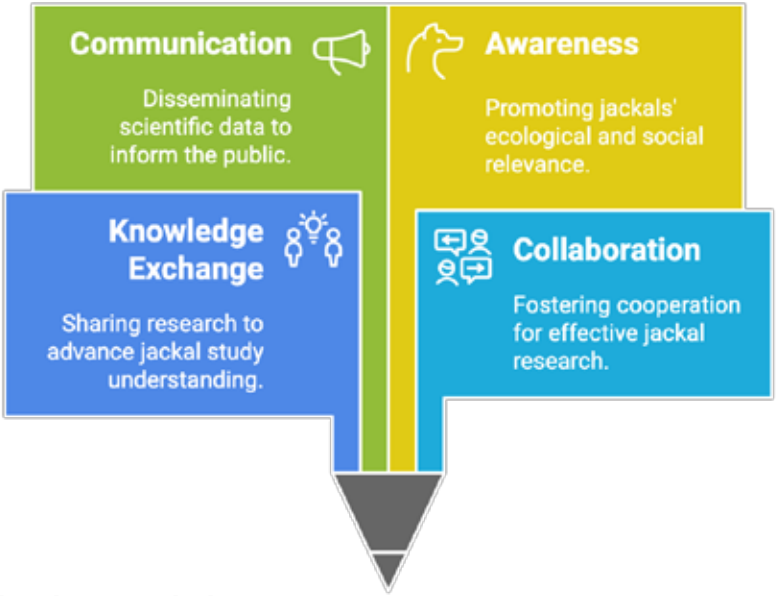
Jackals are highly adaptable canids with important ecological functions, yet they have historically received less scientific and public attention than many other wildlife species. To strengthen research exchange, international cooperation, and public awareness, the idea of *World Jackal Day* was initiated in 2021. Between 2022 and 2023, experts worldwide were consulted on a suitable date. The majority selected the 19th of April, corresponding approximately to the birth period of golden jackal (the most widespread and "etymologically oldest" jackal species) pups in Europe (the region of most recent expansion causing multiscale challenges). After implementation in the international calendar of commemorative days, the first *World Jackal Day* took place on 19. April 2023. Although the initiative originated in Austria, it was conceived from the outset as an international platform for science, conservation, wildlife management, and public communication.

Which species are addressed here?

Jackals are small to medium sized canids, grouped more by historical naming traditions than by strict taxonomy. On almost every continent, there is an animal traditionally referred to as "jackal": the "golden jackal" (C*anis aureus*) in Europe and Asia, the "black-backed jackal" (*Lupulella mesomelas*), the "side-striped jackal" (*Lupulella adusta*), the "African wolf/jackal" (*Canis lupaster*), and the "Ethiopian wolf/jackal" (*Canis simensis*) in Africa, the "coyote/American jackal" (*Canis latrans*) in North America and the "culpeo/Andean jackal" (*Lycalopex culpaeus*) in South America. This list can be further



complemented by extinct species exhibiting a high degree of convergence, like the “warrah/Falkland jackal“ (*Dusicyon australis*), and subspecies that were also historically called that way, like the “dingo/jackal of Australia“ (*Canis lupus dingo*). Although scientific studies have shown that some of these species are less closely related to each other than previously thought, they all share the characteristics of being small to medium-sized canids with similar appearances and comparable ecological niches. Wherever they occur, they play an important role not only in human folklore and mythology but also in ecosystems. Today, much research is being conducted on these animals, as some regions are experiencing significant declines, while in others, a highly interesting expansion of their range has been observed in recent years. This can create potential conflicts with various interest groups, making research and interdisciplinary collaboration essential. *World Jackal Day* focuses primarily on all “etymological jackals“, as well as related canid species.



Objectives and character

World Jackal Day now highlights this fascinating group of animals and their close relatives by scientifically dispelling common prejudices and providing the latest information on all aspects of these creatures: their diet, spatial use, general behaviour, and the human dimension concerning hunting and coexistence. *World Jackal Day* was founded with following primary objectives:

- Knowledge exchange – To provide a regular international forum for presenting new research, national updates and monitoring progress in jackal studies.
- Collaboration – To strengthen cross-border and cross-disciplinary cooperation among researchers, conservationists, and other stakeholders.
- Communication – To provide sound scientific information and newest data to the public.
- Awareness – To shape the profile of jackals as ecologically and socially relevant carnivores, ensuring they are considered in management and conservation planning.

World Jackal Day consists of two parts: 1.) An international scientific meeting and networking event called *"World Jackal Day - Scientific Forum"* and 2.) individual regional outreach activities.

The scientific meeting is held as an online conference so that researchers from all over the world are able to attend. It features a program of scientific talks and presentations providing national updates and current research on various jackal species. Furthermore, it offers a discussion forum for networking, collaboration and exchange of experience.

The public outreach activities are organised individually on a regional, mostly national, to international scale by local institutions. They may comprise talks, guided tours, exhibitions, media coverage and any other measures of communication.

The *World Jackal Day* is organised and communicated via www.worldjackalday.com. If you want to join in the scientific meeting or want to showcase and advertise your activities, please get in touch.



www.worldjackalday.com →

3rd WORLD JACKAL DAY

SCIENTIFIC PROGRAM

19.04.2025








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Scientific Meeting & Get-Together 2025

As part of the 3rd World Jackal Day on 19 April 2025, the scientific Get-Together was once again held as a joint online meeting for the exchange of current national reports and the latest research findings. It was hosted in a *ZOOM* webinar room provided by *BOKU University* and moderated by Jennifer Hatlauf, co-founder of *World Jackal Day*. Starting at 10:00 AM CET the meeting lasted over three hours.

Talks:

Jennifer Hatlauf (AT):
Introduction – About the World Jackal Day

Emiliano Mori (IT):
Population density and conservation gap analysis of the golden jackal in northeastern Italy

Ovidiu C. Banea (RO):
The golden jackal situation in Romania – new data on interannual dynamics of relative abundance in the Danube Delta Biosphere Reserve

Nataliia Brusentsova (UA):
Seasonal vocalization activity of golden jackals (Canis aureus) in the lyman ecosystems of the Odesa region (Ukraine)

Alexander Kopatz (NO):
The genetic story of three golden jackals at the expansion front

Arshyan Shahid (IN):
Ecological resilience and conservation perspectives on golden jackals across Indian landscapes

Open discussion / updates from countries

Summary, Outcomes and Discussion

During the scientific session, participants exchanged national updates and discussed current priorities in golden jackal research and management across Europe and beyond. The talks provided insights into a wide variety of topics and methods. The discussion platform was readily and extensively used.

Even though the scientific contributions hitherto only focused on the golden jackal, the number of participants from different countries increased. With surprise and delight, the participation and even presentation of a research group from Ukraine was noted – a country which is currently facing such great hardship. A survey revealed that, among the most strongly represented nations, India came top.



Amongst the answers to the question *"What are the most important topics for researching golden jackals?"*, the recent dispersal of the species was the most common:



The final question in the survey of participants *"What are the biggest conflicts in the shared landscapes of jackals and humans?"* resulted in this top list:



Among others, the following topics were addressed: rising population and hunting bags in Europe, interactions near human settlements in India, potential hybridisation, discussion on improving field methods, and long distance dispersal.



Some participants of the scientific meeting from all across the globe, joining in the group picture for the third World Jackal Day.



A special tribute and a minute's silence was paid following the death of Keith Somerville. For this reason, an obituary will also be included on the next page of the Proceedings:

In Memoriam Keith Somerville
(27.01.1957 – 19.09.2024)

Keith Somerville's death in 2024 deprived the jackal community of an unusually wide-ranging scholar. Trained in international politics and later specialising in African history and politics, he combined historical research, journalism and field observation to examine the complex relationships between people and wild animals. A former *BBC World Service* journalist, he later worked at the Institute of Commonwealth Studies, *University of London*, and the *University of Kent*, where he was associated with the *Durrell Institute of Conservation and Ecology*. He wrote on elephants and the ivory trade, lions, rhinoceroses and smaller carnivores, consistently showing that wildlife conservation cannot be separated from colonial history, land use, rural livelihoods, hunting, trade and public perceptions of animals. His interest in misunderstood species was particularly evident in his book *Jackals, Golden Wolves, and Honey Badgers.* Keith challenged the persistent portrayal of jackals as cowardly scavengers or indiscriminate livestock killers. He highlighted the adaptability, intelligence and ecological importance of Africa's black-backed and side-striped jackals, while documenting the long history of persecution produced by such negative representations. In 2023 he participated in the first *World Jackal Day*, delivering its first ever talk on African jackal species. Keith's scholarship was distinguished by intellectual breadth, independence and clarity. Through his books, teaching and engagement with colleagues, he contributed to a richer understanding of African wildlife. His knowledgeable and committed voice will be greatly missed.



Unforgettable: Keith Somerville as speaker at the 1st World Jackal Day.

The following pages provide abstracts of the given presentations from the Scientific Forum and the public outreach webinar 2025 →



Preliminary study of co-occurrence between domestic dogs (*Canis familiaris*) and two wild carnivores of the Patagonian steppe

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Keywords: Free-roaming dogs, Carnivore interactions, Spatial distribution, Multispecies occupancy, Patagonian steppe

As a result of their close relationship with humans, domestic dogs (*Canis familiaris*) are one of the most abundant carnivores in the world (Gompper, 2013). A large majority of them are roaming freely in the environment, which leads them to interact with wildlife. These interactions can be of different nature such as predation and aggression, diseases and parasites transmission, hybridisation and competition and can have a big impact on the ecosystem (Vanak & Gompper, 2009). This study focuses on the impact of roaming habits of

dogs on the distribution of two wild carnivore species: Culpeo fox (*Lycalopex culpaeus*) and Patagonian grey fox (*Lycalopex griseus*) in Puerto Deseado (Santa Cruz, Argentina) and its surrounding including a protected area and cattle fields.

The methodology was divided into two components. Since 2016, an annual dog census has been conducted in Puerto Deseado to estimate the dog population and to assess their spatial distribution. This census was carried out in inhabited areas by vehicle and on foot in zones inaccessible by car (Procopio et al., 2022). Data were collected using CyberTracker and were visualised with Kernel Density Estimation (KDE) in QGIS. To investigate the distribution of the target species, bait stations were deployed (32 lines of baiting stations, each consisting of 4 baiting stations 500 m apart, with a distance of 1000 m between lines). These stations work by attracting the target species and capturing evidence of their visit (footprints), increasing the chance of detection (Travaini et al., 2003). The collected data were analysed using multispecies occupancy models to evaluate the influence of the distribution of dogs on the distribution of Patagonian grey foxes and Culpeo foxes (Rota et al., 2016).

During the 2024 dog census, a total of 1356 dogs were recorded. Based on the collected data as well as the resulting Kernel density estimation, dogs appeared to aggregate more to the residential areas of Puerto Deseado, with a maximum density of 1277 dogs/km^2 and a minimum density of 142 dogs/km^2. The multispecies occupancy model revealed a significant negative interaction between dogs and Culpeo foxes (OR = 0.039, p = 0.002), suggesting negative spatial segregation between these two species. However, the interaction between the dog and the Patagonian grey fox showed a non-significant negative trend (OR = 0.438, p = 0.190). This indicates a potential spatial avoidance between the two species, but a random interaction cannot be excluded.

Our findings are an important first step towards understanding the effect of free-roaming dogs on two wild carnivore species of the Patagonian steppe. We have illustrated that free-roaming dogs may negatively interact with native wildlife. In this manner, they may pose a threat to biodiversity. Potential research could be done on their effects on disease and parasites transmission, aggression on other wildlife such as prey, or even the impact of hybridization on the genetics of wildlife species. A good understanding of these different factors would help to get a better overall idea of the full impact that dogs may have on wildlife and local ecosystems.

Acknowledgments:

This project was funded by: PI 29/B292 UNPA-UACO, National University of Austral Patagonia (UNPA), Grupo de Ecología Comportamental de Mamíferos (G.E.C.M), FELIS, Panthera, the Geoffrey's Cat Working Group (GCWG). A sincere thank you also to the Administración de Parques Nacionales (Argentina) for their valuable assistance in the field.

References:

Gompper, M. (2013). Free-Ranging dogs and wildlife conservation. In Oxford University Press eBooks. https://doi.org/10.1093/acprof:osobl/9780199663217.001.0001

Procopio, D. E., De San Pedro, M. E., Torlaschi, C. L., & Zapata, S. C. (2022). Como zorro en gallinero: matanza excedente de Choiques en Puerto Deseado por perros no supervisados. El Hornero, 37(2). https://doi.org/10.56178/eh.v37i2.412

Rota, C. T., Ferreira, M. a. R., Kays, R. W., Forrester, T. D., Kalies, E. L., McShea, W. J., Parsons, A. W., & Millspaugh, J. J. (2016). A multispecies occupancy model for two or more interacting species. Methods in Ecology and Evolution, 7(10), 1164–1173. https://doi.org/10.1111/2041 210x.12587

Travaini, A., Pereira, J., Martínez-Peck, R., & Zapata, S. (2003). Monitoreo de zorros colorados (*pseudalopex culpaeus*) y grises (*pseudalopex griseus*) en patagonia: diseño y comparación de dos métodos alternativos. Mastozoología Neotropical. https://www.redalyc.org/pdf/457/45710207.pdf

QGIS Development Team. (2023). QGIS Geographic Information System (Version 3.16.11). Open Source Geospatial Foundation. https://qgis.org

Vanak, A. T., & Gompper, M. E. (2009). Dogs *Canis familiaris* as carnivores: their role and function in intraguild competition. Mammal Review, 39(4), 265–283. https://doi.org/10.1111/j.1365 2907.2009.00148.x

Ecological Resilience and Conservation Perspectives on Golden Jackals (Canis aureus) Across Indian Landscapes

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The golden jackal (*Canis aureus*) is one of the most widely distributed wild canids in India, occupying a diverse array of habitats including arid grasslands, agro-pastoral mosaics, riverine forests, urban fringes, and coastal mangrove ecosystems. Despite their broad distribution and ecological adaptability, jackals remain underrepresented in carnivore research and conservation priorities. This talk synthesises current knowledge on jackal ecology across India, focusing on patterns of space use, diet, activity rhythms, and interactions with sympatric species, including domestic dogs. Through a review of field-based studies and regional assessments, the talk highlights the species' behavioural plasticity, generalist foraging strategies, and the role of anthropogenic pressures in shaping their spatial and temporal dynamics. Particular emphasis is placed on emerging challenges such as habitat fragmentation, hybridisation, disease spillover, and human-wildlife conflict in peri-urban and human-dominated landscapes. Insights are drawn from recent research in multiple biogeographic zones, including a case study from the Mumbai Metropolitan Region - where golden jackals continue to persist within an urban mangrove matrix despite intense developmental pressures. By contextualising the ecological role of jackals as mesocarnivores and scavengers, this talk advocates for their inclusion in broader landscape-level conservation frameworks and calls for more nuanced, data-driven management strategies that recognise their ecological function and coexistence potential.

Seasonal vocalization activity of golden jackals *Canis aureus* L., 1758 in the lyman ecosystems of the Odesa region (Ukraine)

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Keywords: Seasonal activity, howling, acoustic monitoring

In Ukraine, jackal research has mainly focused on the distribution and characteristics of populations in specific areas (Roženko and Volokh 2010; Rusev 2020). Studies using the acoustic method (Giannatos et al. 2005; Trbojević et al. 2018) have not been conducted before. We decided to test the acoustic method and find out the seasonal features of jackals' vocalization in the lyman ecosystems of the southwestern part of the Odesa region.

The research was conducted in the Tuzlivski Lymany National Nature Park (Odesa region) in 2024 and in January 2025. The vocalization activity data were obtained from one transect for each month, except April, May and November. The howling broadcast was played using a portable JBL Charge 4 at 9 call stations at a distance of 2–2.7 km from each other. The broadcast was performed three times with an interval of 5 minutes. The location of each jackal group answer or single howl was recorded and mapped.

The number of jackal group answers to the broadcasted howls ranged from 1 to 7 per month. The highest detected number was in March, September, October and January (Fig. 1). The lowest number of howling jackal groups was registered in July

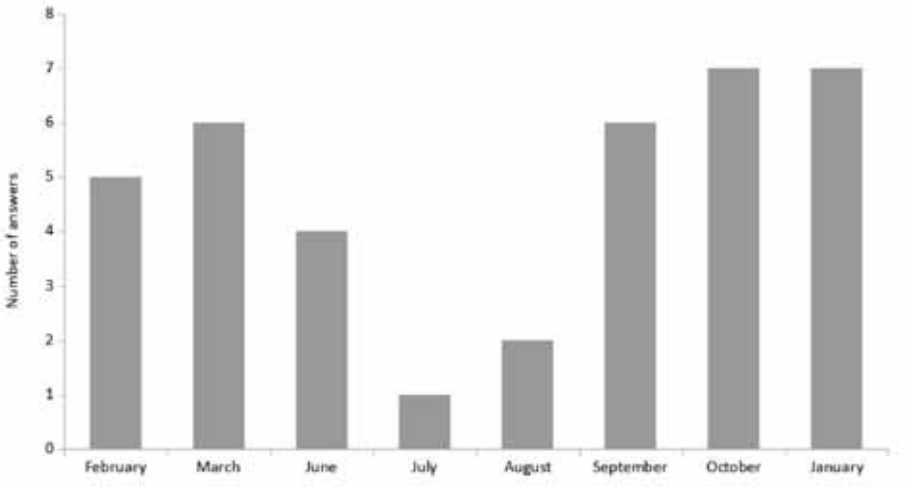


Fig. 1. Seasonal changes in jackal group answers.

and August. Our results differ significantly from data obtained by researchers in Bulgaria (Acosta-Pankov et al. 2018). In their work, the highest activity of jackals was observed in summer.

In the Lyman ecosystems of the southwestern part of the Odesa region, the most active vocalisation of jackals is observed in the cold period of the year. Therefore, it can be recommended that the counting and mapping of jackal groups be conducted from October to March during further research in the Odesa region of Ukraine.

Acknowledgments:

We thank the Administration of Tuzlivski Lymany National Nature Park for their support.

References:

Acosta-Pankov I, Spassov N, Banea OC (2018) Seasonal differences in howling response of golden jackals *Canis aureus* L., 1758 (Mammalia: Canidae) in eastern Bulgaria. Acta Zool Bulg 70(4):539–545.

Giannatos G, Marinos Y, Maragou P, Gatsadorakis G (2005) The status of the Golden Jackal (*Canis aureus* L.) in Greece. Belg J Zool 135(2):145–149.

Roženko N, Volokh A (2010) The golden jackal (*Canis aureus* L., 1758) as a new species in the fauna of Ukraine. Beitr Jagd- Wildforsch 35:237–246.

Rusev I (2020) The golden jackal (*Canis aureus*) in the Tuzlivski Lymany National Nature Park. Theriol Ukr 20:46–57. https://doi.org/10.15407/TU2007

Trbojević I, Trbojević T, Malešević D, Krofel M (2018) The golden jackal (*Canis aureus*) in Bosnia and Herzegovina: density of territorial groups, population trend and distribution range. Mamm Res 63:341–348. https://doi.org/10.1007/s13364-018-0365-1

The Golden Jackal (*Canis aureus moreoticus*, I. Geoffroy Saint-Hilaire, 1836) situation in Romania: New Data on Interannual Dynamics of Relative Abundance in the Danube Delta Biosphere Reserve (2022–2025)

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Keywords: Golden jackal, density assessment, bioacoustic monitoring, Danube Delta

This study presents the actual stock assessment of the golden jackal species in Romania and the hunting bag data together with a research study on interannual dynamics of the golden jackal population in the Danube Delta Biosphere Reserve (ROSCI0065), covering the period 2022-2025.

In Romania, the golden jackal has reached an estimated population of 34,309 individuals. For the 2024-2025 hunting season, the national wildlife management authority approved a harvest quota of 28,965 individuals, which represents 84.4% of the estimated population. During the 2023-2024 hunting season, a total of 17,424 individuals were harvested.

In Danube Delta, the monitoring was conducted based on bioacoustic stimulation methods and systematic surveys, with a total of nine field surveys. The calling stations were arranged in transects of 6-9 points at 2.5-3 km intervals to assess the



Fig. 1. Golden Jackal situation in Romania.

local density and relative abundance annually. The surveys were conducted during winter periods from 2022 to 2025. The number of stations varied slightly, with 70 stations covering 495 km² in 2022-2023, 65 stations covering 459 km² in 2023-2024, and 67 stations covering 474 km² in 2024-2025.

A control area in Merhei-Sulimanca recorded densities of 0.85 in 2022/2023, 0.94 in 2023/2024, and 1.41 territorial groups per 10 km² in 2024/2025.

The relative abundance of territorial groups (2-3 individuals during wintertime) and the annual densities of the species for the study area were 78 territorial groups with a density of 1.58 groups/10 km² in 2022/2023, 56 groups with a density of 1.24 groups/10 km² in 2023/2024, and 111 groups with a density of 2.34 groups/10 km² in 2024/2025.

Extrapolating from the monitored areas (10% of ROSCI0065), the estimated total jackal population in the Danube Delta was

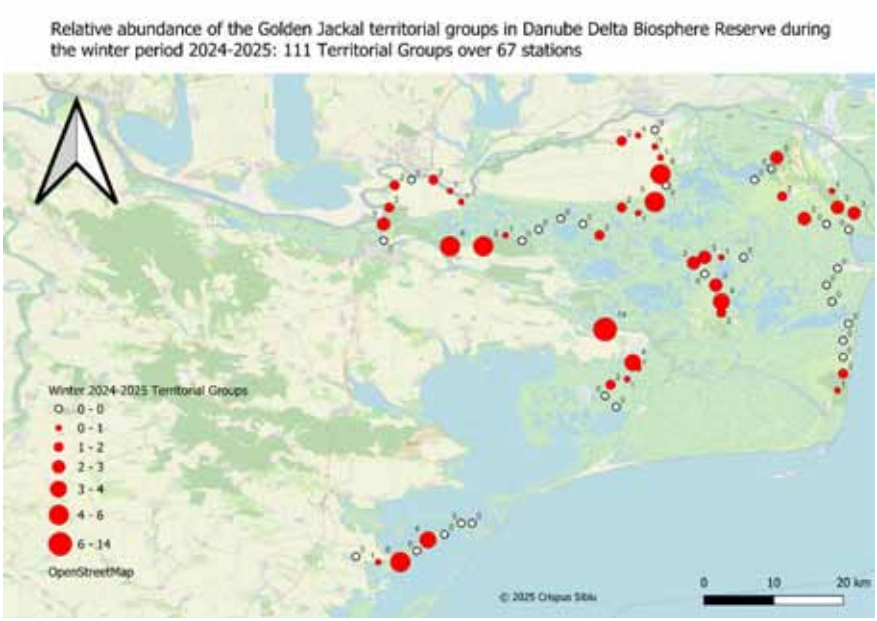


Fig. 2. The relative abundance of the Golden Jackal species covering 474,69 km², 10% of the Danube Delta Biosphere Reserve ROSCI0065.

1,352-2,028 individuals (~676 territorial groups) in 2022/2023, 1,062-1,593 individuals in 2023/2024 (~531 territorial groups), and increased to 2,002-3,003 individuals in 2024/2025 (~1,001 territorial groups).

Our findings highlight the necessity of adaptive management strategies for this species within the Danube Delta, balancing biodiversity conservation and applied ecology.

Population density and conservation gap analysis of the golden jackal in northeastern Italy

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Keywords: Friuli Venezia Giulia, population assessment, Canis aureus

Despite its sharp expansion across Europe, data on population density and abundance of golden jackal are lacking in several European countries, and drivers of population growth in new areas are still unclear. In Italy, the presence of *Canis aureus* is known since 1984, but only in recent times, an established population has formed in the northeastern part of the country. However, no data on population density are available for Italy. We performed acoustic surveys in the Friuli Venezia Giulia

region and reviewed occurrence data to assess the species' distribution, population size, and conservation coverage. We also plotted jackal occurrences on a map of habitat suitability to determine whether the establishment of a territorial group is driven by habitat suitability. We found a density of 0.51–0.63 territorial groups / 10 km^2 in the core area of the population, in line with data from other parts of Europe. We also assessed the abundance of golden jackal in the whole region with direct and indirect methods, estimating a minimum number of 64 groups. We found a relatively low overlap between golden jackal occurrences and the network of Natura 2000 areas, as well as between the species' potential suitable habitats. Conversely, jackal groups were significantly more often found in areas of high suitability than single individuals. The golden jackal has increased remarkably in central and western Europe in recent decades, and the Friuli Venezia Giulia region can be considered an area of stable presence, as well as a model for investigating the species' expansion dynamics. Our results highlight that the *Canis aureus* population in northeastern Italy is large and expanding, and yet the current network of Natura 2000 areas may not efficiently protect the species in the near future.

The genetic story of three golden jackals at the expansion front

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The natural spreading of golden jackal (*Canis aureus*) across Europe can be considered remarkable, in space as well as in a comparably short time period. While a few sightings have been reported in the far north of Europe, so far only three individuals have been registered. The first individual in Norway was documented in 2019 near the town of Lakselv in the county of Finnmark, where the assumingly male has settled. Since spring 2023, no more signs of its presence have been recorded. In 2020, another individual established its home range further west, near the village of Kåfjord in the county of Troms. Species, individual and sex could be determined using DNA from a collected faeces sample. A third male individual was detected, also by DNA, near the village of Varangerbotn

in the spring of 2024 in Finnmark. Tests using the DNA showed that the genotype of the individual in Kåfjord shares the genetic make-up of golden jackals in Estonia and the Caucasus. This result is similar in terms of distance to killed individuals found in neighbouring Finland and at the western expansion front in Spain. Here, the genetic results showed close similarities to golden jackals found in Slovakia, Austria, Hungary, as well as the Balkans. Results for the newest, third individual in Norway are currently pending. Due to numerous observations of golden jackal also in Finland, it can be assumed that the individuals detected in Norway came via that route. Migrating individuals may also come from the east, Russia. That, however, could not be tested yet. All three individuals reported so far in Norway settled near the coast. The Gulf Stream keeps the coast of the Barents Sea milder than further inland and also the sea free of ice, providing presumably less harsh conditions for the species to settle. Nonetheless, observations of golden jackal that far north, in a substantially different environment, i.e., habitat, weather conditions and temperatures, food availability, etc., as well as potential impact on flora and fauna, such as the Arctic fox (*Vulpes lagopus*), raise a lot of questions that we cannot answer yet.

3rd WORLD JACKAL DAY

REGIONAL ACTIVITIES AND OUTREACH

19.04.2025







Austria: Postage Stamp

A special postage stamp was emitted on the occasion of the *World Jackal Day* in Austria – as a tool for communicating the topic to a wider audience and as a souvenir for commemoration of the event. While sticking to a general design, the motif is changed on an annual basis: In 2025, the third year of *World Jackal Day*, a picture of a black-backed jackal (*Lupulella mesomelas*) was chosen. This is a very special image: one of the last photos of a jackal that Keith Somerville took on his last safari to Namibia. This was done in memory and honour of the recently deceased veteran of *World Jackal Day* (cf. page 17).

The postage stamps were emitted as personalised stamps by the *Austrian Post* in a limited number and a postage value of € 0.95 respectively. Special envelopes were produced for “first day covers” that were sent on the particular day of the event on April, 19th. Mint postage stamps or “first day covers” on the respective *World Jackal Day* can be acquired via the website www.worldjackalday.com.



Austrian postage stamp commemorating the third World Jackal Day.



Austria: New T-Shirts, mugs, bags,...

For advertising *World Jackal Day* and jackal research in general, new products were manufactured showing the logo and golden jackals. The earnings are supporting the organization of the event and production of the proceedings. Everyone interested in one of them is invited to get in contact via email to office@goldschakal.at.

International coverage

Several newspapers and online media around the world picked up the opportunity of *World Jackal Day* to report on jackals. We would like to highlight a particularly fine example that we came across online: the public school *PM Shri Kendriya Vidyalaya Tuting* in Arunachal Pradesh, India, used *World Jackal Day* as an opportunity for pupils to stage a whole presentation about these animals in their assembly hall.

Austria, Germany, Switzerland: Public Webinar

On the occasion of the *3rd World Jackal Day* on 19 April 2025, the open-access public webinar for the German-speaking countries (*"3. Internationaler Tag der Schakale"*) was held once again. Moderated by Robert Krickl, the event brought current jackal research to a broad, non-specialist audience and, as in previous years, combined regional updates with an international perspective. Jennifer Hatlauf looked back on a decade of the *Golden Jackal Project Austria*, which has been coordinating research on the species at *BOKU University* since 2015. She placed Austria's situation within the wider European range expansion and gave the audience a first impression of the golden jackal's diet at the expansion front, setting the scene for the more detailed dietary research to come (cf. page 55). In the international guest talk, Ancolie de Bergeyck from Belgium took the audience to the Patagonian

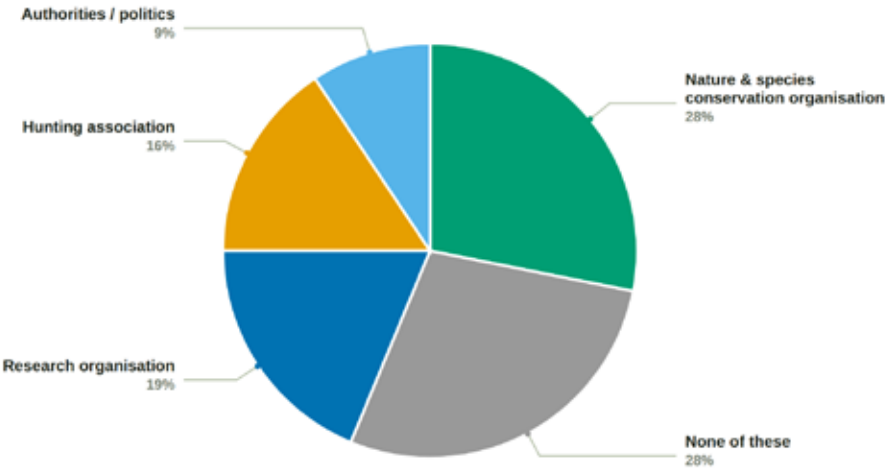


Slide of the webinar showing the programme.



Group picture of the presenters of the webinar for German speaking countries.

steppe of Argentina. Her study examined how free-roaming domestic dogs (*Canis familiaris*) affect two native wild canids – the culpeo (*Lycalopex culpaeus*) and the Patagonian grey fox (*Lycalopex griseus*). Combining an annual dog census with bait-station surveys, she found a clear negative spatial association between dogs and culpeos, suggesting that free-roaming dogs can push native carnivores out of shared areas – a reminder that the challenges of human-wildlife coexistence are a global phenomenon. Alexander Kopatz (*Norwegian Institute for Nature Research*) reported news from Norway on the golden jackal – at the very northern edge of its expansion. So far, only three individuals have been confirmed in Norway, each documented by DNA – near Lakselv, near Kåfjord and near Varangerbotn. Genetic analyses linked the animals to golden jackals from Estonia and the Caucasus, and the pattern suggests that they most likely reached Norway via Finland. That jackals can settle this far north, in such a different climate, raises questions about the species‘ adaptability. Ursula Sterrer shared the latest news on the golden jackal in Switzerland and showed all the C1 (confirmed records from the past years), rising throughout the period. However, no reproduction of jackals has been confirmed yet. The wishes for further topics in the next World Jackal Days included mostly “interaction with other carnivores”, “Ethiopian jackal and its conservation”, “agriculture”, potential diseases and jackals in urban settings.



As in every year, the webinar offered a lively opportunity for exchange between science and the public. The stakeholders were diverse, as previous webinars showed.

When asked what spontaneously comes to mind when thinking of jackals, the answers ranged as follows:



4th WORLD JACKAL DAY

SCIENTIFIC PROGRAM

19.04.2026









Scientific Forum 2026

For the 4th World Jackal Day on 19 April 2026, the scientific get-together continued as the established joint online meeting for exchanging current reports and the latest research findings. The title of this format was changed to *"World Jackal Day - Scientific Forum"*. It was again hosted in a *ZOOM* webinar room provided by *BOKU University* and moderated by Jennifer Hatlauf. Starting at 10:00 AM CET, the meeting lasted approximately two hours. Almost half the participants joined the conference for the first time.

Talks:

Jennifer Hatlauf (AT):
Introduction

Robert Krickl (AT):
About the World Jackal Day & Jackals and Extinction

Suvi Viranta (FI):
IUCN Canid Specialist Group taxonomic revision work on jackals – work in progress

Jonas Custers (AT/BE):
Resting site selection by a golden jackal navigating through an alpine environment

Evgeniy Raichev and Stanislava Peeva (BG):
Project start: Jackal and wolf behaviour near sheep farms

Jennifer Hatlauf (AT):
Country update: Austria

Open discussion / updates from countries.

Summary, Outcomes and Discussion

The event brought together an international audience: participants joined from across Europe and beyond, among them Austria, Greece, Bulgaria, Belgium, Italy, Czech Republic, Slovenia, Lithuania, Finland, Estonia and, from further afield, Japan. It was encouraging to see both long-standing supporters who have followed the event since its very first edition and a large share of newcomers attending for the first time – a reflection of the steadily growing interest in the golden jackal and its relatives.

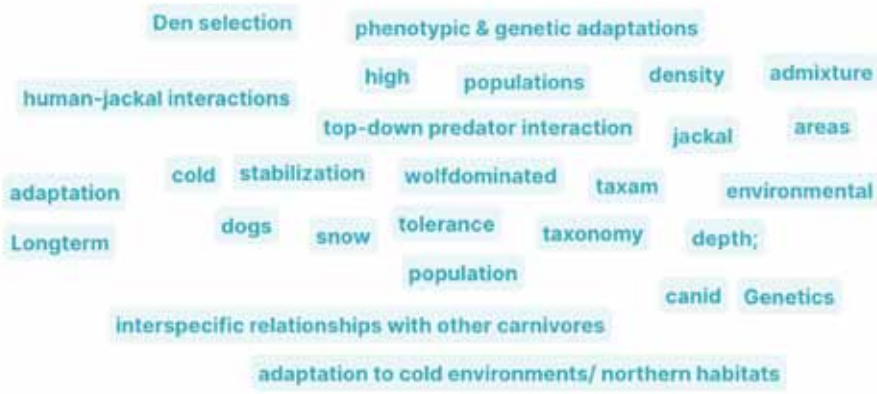


Some participants of the 4th World Jackal Day, preparing for the group picture.

A survey revealed that, among the most strongly represented nations, Greece and Austria came top.



As in previous years, the session closed with a live audience poll inviting participants to name the topics they consider most important for future golden jackal research. The responses painted a clear picture: genetics and taxonomy – including questions of admixture and of phenotypic and genetic adaptations – featured strongly, alongside the species' remarkable adaptation to cold environments and northern habitats. Participants equally emphasised human-jackal interactions and the golden jackal's interspecific relationships with other carnivores, from top-down predator effects to life in wolf-dominated systems, as well as den selection, population density and long-term, environmental monitoring. Taken together, the forum underlined a shared interest in understanding both the evolutionary background of jackals and their ongoing ecological integration at the expansion front.



Results of a live poll in the course of the scientific meeting of World Jackal Day 2026 on the posed question: "What are the most important topics for future golden jackal research?".

The following pages provide abstracts of the given presentations from the Scientific Forum and the public outreach webinar 2026 →



Resting site selection by a golden jackal navigating through an alpine environment

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The golden jackal (*Canis aureus*) is appearing in regions where it has never been recorded before, while crossing major anthropogenic and natural barriers in the landscape (Krofel et al. 2017; Šálek et al., 2015; Sorensen & Lindsø, 2021). The dispersal capabilities of the species are pivotal for their adaptive nature and range expansion (Jønsson et al., 2016; Lanszki et al., 2018). Although golden jackals are well established in Austria, there has been no documentation of individuals navigating through or settling in high-altitude alpine environments (Hatlauf et al., 2021). In this study, we closely investigated the resting site selection of a young male golden jackal fitted with a GPS collar during its dispersal in the Slovenian and Austrian Alps. We examined how this golden jackal‘s resting site selection is influenced by different environmental factors in the alpine environment. We predicted that its resting sites would be located in areas providing cover and structural fragmentation.

The golden jackal was GPS collared in June 2023 on the Pokljuka plateau, Slovenia. The collar was programmed for irregular acquisition intervals (approx. 2-4 h), and its positional accuracy was validated at four static test points before deployment (mean horizontal error = 8.3 m). After interpolating the data to obtain regular 2 h intervals, we determined the resting sites by calculating a 250 m radius buffer around each interpolated location (Torretta

et al. 2023). We identified buffers in which the consecutive time spent was at least six hours as resting sites. Next, we determined a range of environmental covariates for all interpolated GPS, which we used to model the golden jackal's resting site selection with a Bayesian binary logistic regression model. We obtained parameter estimates using Bayesian inference via Markov Chain Monte Carlo (MCMC) methods with the "brms" package (Bürkner, 2017) in the statistical software RStudio (Posit team, 2024). We used non-informative ("flat") priors for all parameters and ran three chains on three computer cores, with 4000 iterations per chain and a warm-up phase of 1000 iterations.

Model estimates indicated that most environmental covariates have negligible effects with high uncertainties. Only the mean aggregation index had a slight negative effect on resting site selection: odds ratio ≈ 0.51 (95% credible interval 0.26–0.97). This means that the dispersing golden jackal was more likely to choose locations as a resting site in fragmented landscapes.

Our study about the unique case of a golden jackal dispersing and settling in an alpine environment provides new insights into an example of the dispersal capabilities of the species, particularly their ability to navigate steep terrain, high-altitude landscapes, and anthropogenic barriers. The only landscape characteristic positively affecting the studied golden jackal's resting site selection during dispersal was landscape fragmentation. The consecutive successful settlement and reproduction of this golden jackal in Carinthia suggests that suitable habitat exists even in regions traditionally deemed marginal for jackal survival. These findings highlight the species' behavioural flexibility and help explain the rapid and ongoing expansion of golden jackals across Europe.

References:

Bürkner, P. (2017). brms: An R Package for Bayesian Multilevel Models Using Stan. Journal Of Statistical Software, 80(1). https://doi.org/10.18637/jss.v080.i01

Hatlauf, J., Bayer, K., Trouwborst, A. et al. New rules or old concepts? The golden jackal (*Canis aureus*) and its legal status in Central Europe. Eur J Wildl Res 67, 25 (2021). https://doi.org/10.1007/s10344-020-01454-2

Jønsson, K. A., Tøttrup, A. P., Borregaard, M. K., Keith, S. A., Rahbek, C., & Thorup, K. (2016). Tracking Animal Dispersal: From Individual Movement to Community Assembly and Global Range Dynamics. Trends in Ecology & Evolution, 31(3), 204–214. https://doi.org/10.1016/j.tree.2016.01.003

Krofel, M., Ćirović, D., & Stoyanov, S. (2017). Golden jackal expansion in Europe: A case of mesopredator release triggered by continent-wide wolf persecution? Hystrix, the Italian Journal of Mammalogy, 28(1), 9-15. https://doi.org/10.4404/hystrix-28.1-11819

Lanszki, J., Schally, G., Heltai, M., & Ranc, N. (2018). Golden jackal expansion in Europe: First telemetry evidence of a natal dispersal. Mammalian Biology, 88, 81-84.

Posit team (2024). RStudio: Integrated Development Environment for R. Posit Software, PBC, Boston, MA. URL http://www.posit.co/.

Šálek, M., Červinka, J., Banea, O.C. et al. (2014). Population densities and habitat use of the golden jackal (*Canis aureus*) in farmlands across the Balkan Peninsula. Eur J Wildl Res 60, 193–200. https://doi.org/10.1007/s10344-013-0765-0

Sørensen, O. & Lindsø, L. (2021). The golden jackal *Canis aureus* detected in Norway – management challenges with naturally dispersed species new to the country. 74. 74-87.

Torretta, E., Corradini, A., Pedrotti, L., Bani, L., Bisi, F., & Dondina, O. (2023). Hide-and-Seek in a Highly Human-Dominated Landscape: Insights into Movement Patterns and Selection of Resting Sites of Rehabilitated Wolves (*Canis lupus*) in Northern Italy. Animals, 13(1), 46. https://doi.org/10.3390/ani13010046

IUCN Canid Specialist Group taxonomic revision work on Jackals – work in progress.

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Keywords: Canidae, taxonomy, species, IUCN

Past years have seen major changes in understanding of canid taxonomy and phylogeny. Genetics have revealed cryptic species as well as ancient interspecific hybrization even with the possibility of hybrid origin for some species (e.g. Gopalakrishnan et al. 2018). Moreover, phylogenetic analyses have increased the understanding of the evolutionary process within the family questioning the relationships in the higher taxonomy (genera) (Krofel et al. 2022).

These uncertainties led the IUCN Canid Specialist Group to set up a Canid Taxonomy Revision Taskforce to review and revise the taxonomy of all the living canid species and their subspecies. The taskforce considers all available data (genetic, phenotypic, biogeographic) important for making taxonomic syntheses. Evaluation of the available data is visualized using the traffic light system introduced by Kitchener et al. (2017). In this presentation we will provide a review on our process and give a short report on our progress and status on both the African wolf (*Canis lupaster*) and golden jackal (*Canis aureus*) subspecies.

Solid understanding of taxonomy is not only important for academic purposes, but also vital for the conservation work. In the IUCN red listing, species or subspecies are evaluated for the vulnerability and extinction risk. Our goal here is to ensure

that the Canidae taxonomy reflects and respects the unique evolutionary processes, and all the best current scientific knowledge of the field.

References:

Gopalakrishnan, S., Sinding, M.-H.S., Ramos-Madrigal, J., Niemann, J., Samaniego Castruita, J.A., Vieira, F.G., Carøe, C., Montero, M. de M., Kuderna, L., Serres, A., González-Basallote, V.M., Liu, Y.-H., Wang, G.-D., Marques-Bonet, T., Mirarab, S., Fernandes, C., Gaubert, P., Koepfli, K.-P., Budd, J., Rueness, E.K., Sillero-Zubiri, C., Heide-Jørgensen, M.P., Petersen, B., Sicheritz-Ponten, T., Bachmann, L., Wiig, Ø., Hansen, A.J., Gilbert, M.T.P., 2018. Interspecific Gene Flow Shaped the Evolution of the Genus *Canis*. Curr. Biol. 28, 3441-3449.e5. https://doi.org/10.1016/j.cub.2018.08.041

Kitchener, A., Breitenmoser, C., Eizirik, E., Gentry, A., Werdelin, L., Wilting, A., Yamaguchi, N., Abramov, A., Christiansen, P., Driscoll, C., Duckworth, W., Johnson, W., Luo, S.-J., Meijaard, E., O'Donoghue, P., Sanderson, J., Seymour, K., Bruford, M., Groves, C., Tobe, S., 2017. A revised taxonomy of the Felidae. The final report of the Cat Classification Task Force of the IUCN/SSC Cat Specialist Group. Cat News Spec. Issue 80 pp.

Krofel, M., Hatlauf, J., Bogdanowicz, W., Campbell, L. A. D., Godinho, R., Jhala, Y. V., Koepfli, C.-P., Moehlman, P., Senn, H., Sillero-Zubiri, C., Werhahn, G., & Álvares, F. (2022). Towards resolving taxonomic uncertainties in wolf, dog and jackal lineages of Africa, Eurasia and Australasia. Journal of Zoology, 316(3), 155-168.

Jackals and Extinction

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Keywords: Canis aureus, Canis simensis, Dusicyon australis, Dusicyon avus

Given that the spread of the golden jackal (at least in Europe), is currently one of the biggest talking points – a brief overview is given on strongly contrasting trends within 'jackals' populations. This group is defined here primarily in etymological terms, i.e. as a common (often unscientific) designation for animals that show similarities in physical appearance and ecological role. The most striking example is *Dusicyon australis*, commonly referred to as the Falkland Islands-wolf, -fox or, indeed, -jackal (e.g. Pöppig, 1851). This species survived the human colonisation of the island beginning in 1764 and the associated persecution for just over a century, until becoming extinct in 1876 – thus sadly being generally regarded as *'the first canid known to have been exterminated in historical times'* (e.g. Rawlence et al., 2024). Both *Dusicyon australis* and its presumed mainland ancestor *D. avus* cluster morphologically with jackals rather than with more closely related South American canids (Meloro et al., 2017). The latter species also became extinct only 3-5 ka ago, probably not only due to environmental changes but coupled with increased anthropogenic impacts (Prevosti et al., 2015). If the common names 'marsupial wolf' or 'Tasmanian tiger' had not become established, the thylacine (*Thylacinus cynocephalus*) – which was officially declared extinct in 1936 – would also fall into this category, as it has been shown to exhibit greater convergence with jackals than with wolves (Rovinsky et al., 2001). Yet even

amongst the in fact more closely related 'true jackals' still existing today, there are some sad records: The Ethiopian wolf (*Canis simensis*), with a long record of common names like 'red jackal' or 'Simien jackal', was addressed *'the rarest canid in the world and the most endangered African carnivore'* (IUCN/SSC Canid Specialist Group, 2011). Multifactorial causes, including, amongst others, habitat loss and fragmentation, human persecution, roadkills and multiple severe epidemic events, resulted in a total population number in the low three-figure range (e.g. Marino et al., 2024). Finally, also among the golden jackal (*Canis aureus*) known for its recent range expansion in Europe, there are contemporary reports of markedly declining populations in other parts of the world, e.g. in India (e.g. Pillay et al., 2011) or Sri Lanka (e.g. Jayaweera et al., 2024). And even in Europe, the picture needs to be viewed in a more nuanced way: Quite apart from the fact that golden jackal populations continued to decline across many of their traditional ranges in Europe throughout most of the 20th century (Arnold et al., 2012), it must ultimately be pointed out that local extinctions are still being recorded even in the 21st century (Gasteratos & Fondoulakou, 2018). This overview is primarily intended to encourage critical reflections and to broaden perspectives in both spatial and temporal terms.

References:

Arnold, J., Humer, A., Heltai, M., Murariu, D., Spassov, N., Hackländer, K. (2012). Current status and distribution of golden jackals Canis aureus in Europe. Mammal Review, 42(1), 1-11.

Gasteratos, I., Fondoulakou, Z. (2018): The presence and the extinction of the golden jackal from the island of Corfu, north-western Greece. Hellenic Zoological Archives, 9, 86.

Jayaweera, U., Seneviratne, S.S., Jayaratne, C. (2024): Ecology and conservation of an insular population of golden jackal in Sri Lanka. 41-44 In: Hatlauf, J. & Krickl, R. (Eds), Proceedings of the 1st & 2nd World Jackal Day. aureus, Vienna.

IUCN/SSC Canid Specialist Group (2011): Strategic plan for Ethiopian wolf Conservation. 79p., IUCN/SSC Canid Specialist Group, Oxford (UK).

Marino, J., Lai, S., Eshete, G., Sillero-Zubiri, C. (2024): Conservation with hard borders: Ethiopian wolves are threatened by fragmentation and isolation. Wildlife Biology, 2024(6), e01331.

Meloro, C., Hunter, J., Tomsett, L., Portela Miguez, R., Prevosti, F.J. and Brown, R.P. (2017), Evolutionary ecomorphology of the Falkland Islands wolf *Dusicyon australis*. Mam Rev, 47: 159-163.

Pillay, R., Johnsingh, A.J.T., Raghunath, R., Madhusudan, M.D. (2011): Patterns of spatiotemporal change in large mammal distribution and abundance in the southern Western Ghats, India. Biological Conservation, 144(5), 1567-1576.

Rawlence, N. J., Crane, R., Burns, E., Fleury, K. (2024). Mounted specimen of Falkland Islands wolf (*Dusicyon australis*) in Tūhura Otago Museum: X-ray imaging and additional historical information. Archives of Natural History, 51(1), 177-182.

Pöppig, E. (1851): Illustrierte Naturgeschichte des Thierreichs, Anatomie, Physiologie und Geschichte der Säugethiere, der Vögel, der Lurche, der Fische und der wirbellosen Thiere - Erster Band, Naturgeschichte der Säugethiere. 312p., J.J. Weber, Leipzig.

Prevosti, F.J., Ramírez, M.A., Schiaffini, M., Martin, F., Udrizar Sauthier, D.E., Carrera, M., Sillero-Zubiri, C., Pardiñas, U. F.J. (2015): Extinctions in near time: new radiocarbon dates point to a very recent disappearance of the South American fox *Dusicyon avus* (Carnivora: Canidae). Biological Journal of the Linnean Society, 116(3), 704-720.

Rovinsky, D.S., Evans, A.R., Adams, J.W. (2021): Functional ecological convergence between the thylacine and small prey-focused canids. BMC Ecol Evo, 21, 58.

Country updates on golden jackals: Austria

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Keywords: range expansion, citizen science, legal status

The golden jackal (*Canis aureus*) is now a well-established and steadily expanding species in Austria. The Golden Jackal Project Austria at the Institute of Wildlife Biology and Game Management (BOKU University, Vienna) has been researching and developing standardised monitoring methods and a long-term observation baseline since 2015. The collection of presence data began in 2015 by emailing all hunting associations and establishing a citizen science project.

Presence was first documented through a combination of bioacoustic stimulation, camera trapping in cooperation with hunters and conservation organisations, later with specific projects using scat-detection dogs, nationwide questionnaire surveys, and an online reporting system for the public. Together with a growing network of citizen scientists and volunteers, this multi-method approach continues to improve, with the goal of supporting the spatial resolution of golden jackal records across the country. However, because of a lack of funding from the parties responsible for monitoring species and for the reporting system, a country-wide assessment was not yet possible, and knowledge of population numbers remains guesswork.

Still, in recent years, records have accumulated well beyond the initial areas of occurrence, and the species has increasingly been detected in higher, alpine terrain. A GPS-collared individual that dispersed from the Slovenian Alps and

subsequently settled and reproduced in Carinthia illustrates the golden jackal's capacity to cross steep, high-altitude and human-modified landscapes (see Custers et al., this volume). Reproduction has now been confirmed in several regions, and Vorarlberg remains the only Province without a single record.

The legal status of the golden jackal in Austria remains a subject of ongoing discussion, as the species does not fit neatly into existing management and conservation categories. This regulatory uncertainty, shared with several other Central European countries, has practical consequences for monitoring, reporting and management.

To support future decisions and to enhance knowledge about the golden jackal in the expansion front, the golden jackal project is conducting basic research on feeding and behaviour (https://forschung.boku.ac.at/de/projects/17069; see QR-Code). In the near future, the project webpage will launch its own mobile APP, the "SchakalMelder" (www.goldschakal.at/melden), to further assist data collection. This platform can be facilitated and implemented internationally.

Looking ahead, the priorities for Austria are to consolidate standardised long-term monitoring, to clarify the species' legal and management status, and to further engage the public in documenting the ongoing expansion of the golden jackal.



Logo of mobile app

Link to feeding project

Feeding habits of golden jackals in Central Europe at the expansion front: preliminary findings

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Keywords: Canis aureus, diet, stomach content analysis, trophic ecology, range expansion

The golden jackal (*Canis aureus*) is expanding rapidly into northern and western Europe, yet its diet in newly colonised areas is still poorly understood. We examined 32 stomachs from road-killed and hunted jackals collected in Austria, Italy and Poland between 2021 and 2026. Stomach contents were sorted into food categories and analysed by relative frequency of occurrence and by weight. The mean stomach content weighed 262 g (maximum 1,013 g), with up to five categories per animal. Small mammals and plant material were the most frequent items, while cervids (including hunting remains) and household food contributed most to biomass; birds were prominent in both measures. Wild boar appeared only in the Polish samples (a first sign of regional differences) and maggots pointed to scavenging. Plastic and paper were found in three stomachs. These preliminary results confirm opportunistic omnivory of jackals, a trait that likely aids their spread, and highlight the influence of human-derived food and the importance of good waste management. Despite the small sample, they advance our understanding of the species' feeding ecology and show the need for further research.

At the golden jackal expansion front: predicting habitat suitability in Austria

Clemens Mühlberger

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Keywords: Canis aureus, species distribution model, MaxEnt, habitat suitability, range expansion, Austria

The golden jackal is spreading through Central Europe, so knowing where it is likely to settle in Austria matters for future protection and management. The last Austrian models are more than ten years old and rested on expert assumptions, so we built a new species distribution model. Because records are mostly presence-only (camera traps, hunting-bag and roadkill data), we used a Maximum Entropy (MaxEnt) approach and included only sightings of two or more animals (n = 30) to capture established groups rather than single dispersers. The model identified roughly 37 % of Austria as suitable habitat, corresponding to an estimated 1,900-15,500 potential territories (2-16 km² each). Suitability rose with forest cover and fell with elevation and distance to rivers, broadly matching the older expert models. Yet jackals have recently been colonising higher, alpine areas, which shows the limits of prediction alone for such a generalist: suitability maps do not necessarily predict where the species will settle in the future. However, the results underline the need for a coordinated, nationwide monitoring scheme with open data sharing between institutions and stakeholders.

4th WORLD JACKAL DAY

REGIONAL ACTIVITIES AND OUTREACH

19.04.2026







International coverage

A lot of newspapers around the world picked up the opportunity of *World Jackal Day* to report on jackals. This time, a particularly large number of contributions were documented especially in Germany. Among the broadcasting coverage, two one-hour programmes on *Radio ORANGE*, the largest community radio station in the German-speaking world, should be mentioned. Moreover, the event achieved considerable visibility in online and social media. The geographical reach of the digital response was also broad. Ukraine's *Kuialnyk National Park* published an English-language article addressing the ecological importance of jackals and approaches to conflict prevention. Posts on diverse platforms originated from, among other places, India, Sri Lanka, Croatia and the western Balkans, Ethiopia, and the African safari-tourism sector. Typical content included wildlife photographs, concise species profiles, information on the ecological role of jackals as predators and scavengers, and appeals to replace widespread fears and negative myths with evidence-based information. Some notable examples include: A fine example of educational engagement came from *UK Public School* in Denkanikottai, Tamil Nadu, India, which published a dedicated *YouTube* Short for World *Jackal Day 2026*. It illustrates how the campaign extended beyond scientific and conservation institutions into school-based environmental education and communication. Another example is the video "World Jackal Day" published by a Chinese animation artist. This is evidence that *World Jackal Day* was adapted into popular animated storytelling, introducing the awareness day in an accessible and family-oriented format. One former example of museal outreach is provided by the *Museum of Archaeology and Anthropology* at the *University of Cambridge*, UK, taking the opportunity of posting a historical jackal-related Egyptian artefact on this occasion. Thus, the museum demonstrated the long-standing cultural significance of jackal imagery and reached an audience interested in heritage and archaeology.

Austria: Postage Stamp

A special postage stamp was emitted on the occasion of the *World Jackal Day* in Austria – as a tool for communicating the topic to a wider audience and as a souvenir for commemoration of the event. While sticking to a general design, the motif is changed on an annual basis: In 2026, the fourth year of *World Jackal Day*, a picture of a coyote (*Canis latrans*) was chosen – a species that was historically often addressed as “American jackal“. Although a public talk on this canid could finally not be realised in 2026, we are looking forward to have a contribution in the following years.

The postage stamps were emitted as personalised stamps by the *Austrian Post* in a very limited number, of a postage value of € 1.00 respectively. Special envelopes were produced for “first day covers” that were sent on the particular day of the event on April, 19th. Mint postage stamps or “first day covers” on the respective *World Jackal Day* can be acquired via the website www.worldjackalday.com.

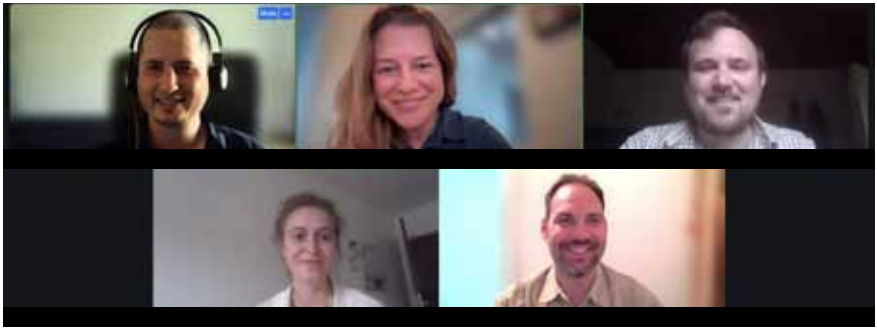


Austria, Germany, Switzerland: Public Webinar

On the occasion of the *4th World Jackal Day* on 19 April 2026, the open-access public webinar for the German-speaking countries (*"4. Internationaler Tag der Schakale"*) was held once again. Opened by Jennifer Hatlauf (*BOKU University*), the event was designed as a science-communication format that makes current jackal research accessible to a broad, non-specialist audience – from nature enthusiasts and hunters to students, conservationists and interested members of the public.

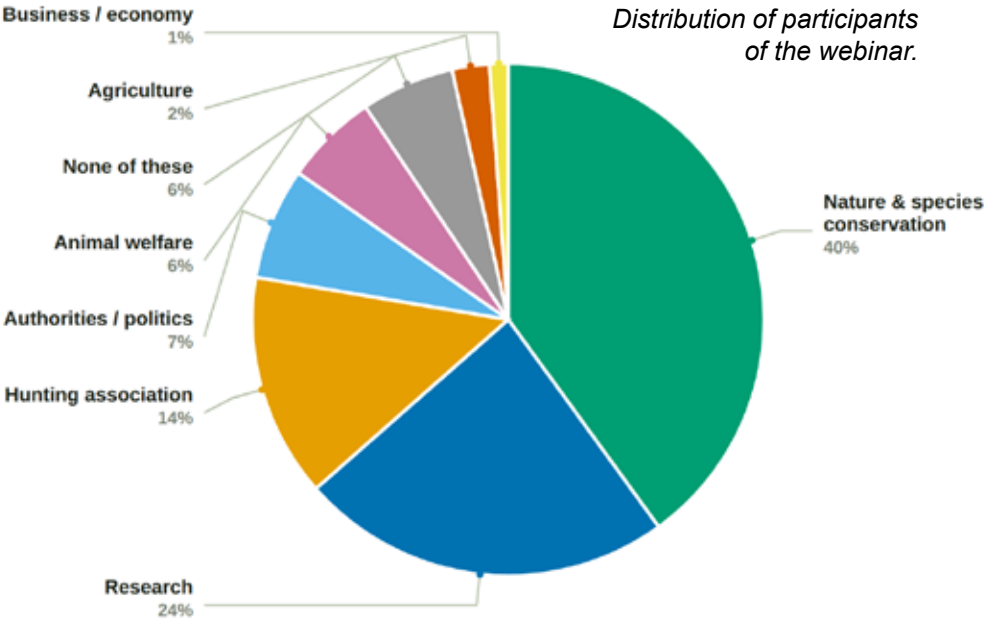
In terms of content, the programme deliberately combined the big picture with the very latest research. Robert Krickl (*Krickl Research*) opened with an engaging introduction to the "jackals of the world", placing the golden jackal within the wider, often surprising diversity of jackal-like canids, and followed up with a thought-provoking talk on jackals and extinction (cf. page 50).





Group picture of presenters of the webinar for German speaking countries.

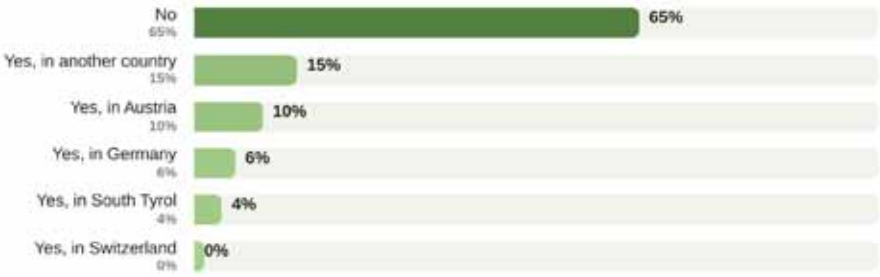
Research talks then brought the audience right to the expansion front, presenting fresh results on what golden jackals actually feed on and where they might live in Central Europe. Firstly, Verena Scanferla (*BOKU University*) presented preliminary results from the latest stomach-contents data. She later drew attention to human-derived items – in a few cases even plastic and paper – found in some stomachs, underlining the influence of anthropogenic food sources and the importance of good waste management (cf. page 55). Secondly, Clemens Mühlberger (*BOKU University*) presented a new habitat-suitability model for the golden jackal in Austria. While almost 40 % of Austria seems to be suitable habitat, at the same time, Mühlberger stressed the limits of such predictions – golden jackals are already colonising higher, alpine areas (cf. page 56). He made a clear case for a coordinated, nationwide monitoring scheme with open data sharing. Felix Böcker (*FVA Baden-Württemberg*) provided a national status and news report for Germany, and Jennifer Hatlauf closed the session with news from ongoing research from the *Golden Jackal Project Austria* (cf. page 53).

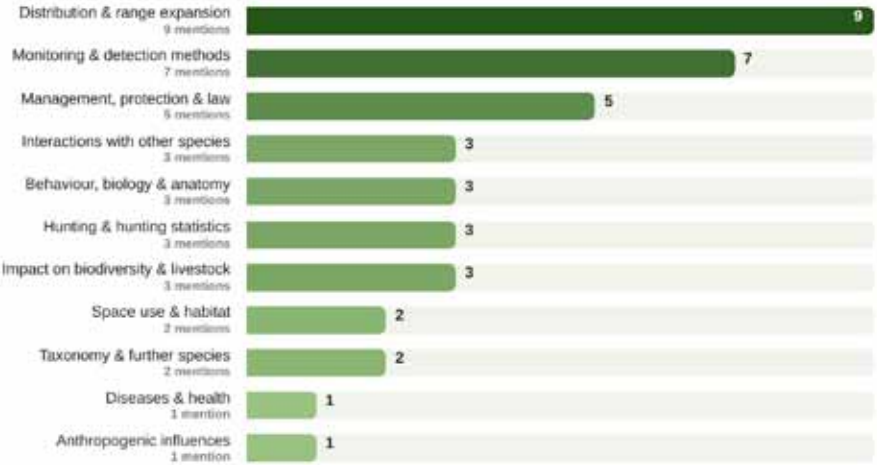


Distribution of participants of the webinar.

The webinar again proved to be a valuable opportunity for knowledge exchange between science and the public. With more than 100 participants, almost 77 % were new and did not attend a previous *World Jackal Day*. It was a diverse group, with the majority belonging to nature conservation.

When asked, “Have you ever seen a jackal?“, quite a few attendees answered with yes:





Results of the live poll during the regional outreach webinar of 4th World Jackal Day 2026 on the question: "Which topics would you like to learn about at the next Jackal Day?".

As in previous years, the session closed with a live audience poll on the topics participants would like to see addressed at future events. The responses again reflected a strong interest in the distribution and ongoing range expansion of the golden jackal, in monitoring and detection methods, and in questions of management, protection and legal status.

The question-and-answer sessions reflected the broad public interest in jackals. Many questions circled around detection and monitoring – how to tell jackals apart from foxes and wolves by scat, tracks, thermal images or calls, the hope of eDNA for diet analysis, and the wish for a roadkill or wildlife-monitoring scheme. Distribution and expansion formed a second focus, from the species' push northwards and its use of road and railway corridors to specific regions, the first settled pair in Germany, and whether habitat-suitability models could be transferred from Austria to Germany. Feeding ecology (actively hunted versus scavenged food), den-site selection and distance to settlements, and interactions with other

species – competition and possible hybridisation with wolves, and effects on fox populations – were raised repeatedly. Finally, participants engaged with questions of legal status and management, from strict protection to hunting law and authorised removals under EU species-protection law, and with the golden jackal‘s wider ecological role.

Thanks to the partners of the outreach activities and webinar.



Call for action:

World Jackal Day serves as a tool for communication on the subject of jackals. Please report any activities so that they can be distributed via www.worldjackalday.com and documented and chronicled here.



You are also encouraged to send in your best camera trap pictures for the next proceedings.

Literature



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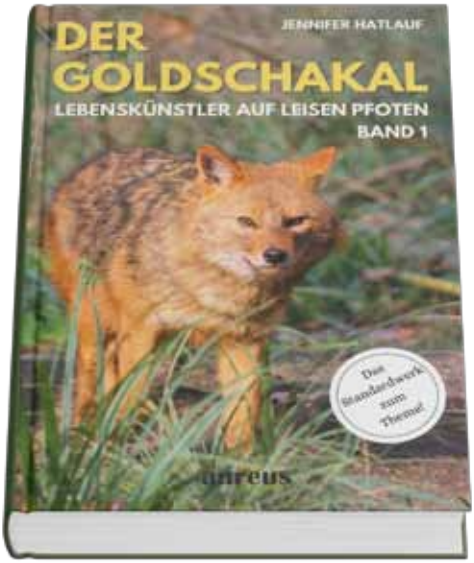
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