

**Nicolas FERRY**

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Driving licence B

# **RESEARCH SKILLS**

**Community ecology – Spatio-temporal Interactions –**

**Behavioural ecology –Wildlife conservation**

**Biostatistic**

*Time-to-event / Recurrent event analysis, (Multi) Species Occupancy model, Circadian activity overlap*

*Simulation of camera trap data with two interacting species*

*Univariate frequentist (simple, generalized and mixed models) and multivariate approaches (longitudinal and spatial, co-inertia, RLQ), null model, non-parametrical statistics.*

*Metabarcoding and microbiota statistical analyses*

*2019: Bayesian modelling initiation (10h)*

*2019, 2020 & 2023: Workshop “Ecostat” (2 days)*

*2020: Workshop on Ecological Networks analyses (6h)*

*2020: MOOC Bayesian statistics (11h)*

**Fieldwork and laboratory work**

*Experimental designing, international team management.*

*Remote sensing (Camera trap, audio recorder, VHF, GPS, UAV)*

*Behavioural and demographic monitoring*

*Physiological and genetic survey (faecal analyses)*

*Vegetation survey*

*Skeletochronology*

Biological models: mammals, invertebrates, amphibians, birds

**Databases management**

*Creation, correction, improvement and cross-use of multiple large databases offline and online (e.g., multi-year/site camera trap databases, TRY vegetation database).*

**Languages**

French: Native language

English: Fluent in written (scientific English) and spoken English

Italian: Basic

**Software**

Biostatistics: R, R Studio

Programming: R, C#, C+ (basics)

GIS: QGIS

Infography: Inkscape, Gimp

Specialized software:

Kaleidoscope (audio), JWatcher (video)

# **FIELDWORK EXPERIENCES**

***Large mammals***

Red Deer Integrated monitoring (Germany – three years)

*Behavioural (Camera trap + GPS collars) and physiological (faecal sampling) survey: genetic, stress,*

*liver fluke, microbiome, metabarcoding, diet quality, seed load.*

Reproduction success (France & Germany – 6 months)

*Roe deer (VHF radio) and red deer (camera trap, GPS collars,*

*UAV thermal imaging) tracking*

Interaction modification by elephants (Zimbabwe – 3 months)

*Roaring playbacks, video recording of behaviour.*

Interspecific interference competition (Zimbabwe – 3 months)

*Recording of animal position with compass and*

*telemeter, analysis of water quality with probes.*

Road counts (Zimbabwe & France – 3 weeks)

*Species identification, activity, habitat recording*

*(rangefinder and GPS; large mammals). Night Index*

*of kilometric abundances (red foxes, cats, rabbits).*

Soundscape measurement (Germany – 1 month)

*Assessment of sound level (audio recorder).*

***Other animals***

Demographic survey *(Lyon, France – 1.5 month)*

*Activity, habitat and location recording (Transect method; Red squirrel).*

Population monitoring *(Vanoise, France – 1 week)*

*Observation, capture and individual identification of cubs (Alpine marmot).*

Capture - Mark - Recapture *(Lyon, France – 1 week)*

*CMR + skeletochronology (newts* T. cristatus)*.*

Species distribution *(France – 3 weeks)*

*Nest collection (ant species* T. immigrans).

***Plants***

Vegetation composition and structure *(Hwange, Zimbabwe - 3 months)*

*12 plots (25\*25m), species identification, structure measurement (height, crown diameter, basal area), identification of elephant impacts (e.g. broken trunks, evidence of herbivory)*

# **RESEARCH EXPERIENCES**

2025-present **PostDoctoral Researcher.** Laboratoire d'Ecologie des Hydrosystèmes Naturels et Anthropisés, UMR CNRS 5023, France. Datascientist Projet PEPR Villegarden.

2024-2025 **PostDoctoral Researcher.** Bavarian Forest National Park Administration, Germany. “*Development and application of methodology to study spatio-temporal interactions between species*”

2024 **PostDoctoral Researcher.** Bavarian Forest National Park Administration, Germany. “*Ökologische Effekte der Rückkehr der Wölfe in die Kulturlandschaft Mitteleuropas*”

2023-2024 **PostDoctoral Researcher.** Bavarian Forest National Park Administration, Germany. “*Integrative Auswertungen der Effekte der Erholungsnutzung auf Wildtiere als Basis für ein evidenzbasiertes Besuchermanagement”*

2020-2023 **PostDoctoral Researcher.** Bavarian Forest National Park Administration, Germany. “*Integrative Auswertungen der Effekte der Erholungsnutzung auf Wildtiere als Basis für ein evidenzbasiertes Besuchermanagement”*

2019 **Research Associate.** Lab. d’Ecologie Systématique et Evolution, UMR CNRS 8079, France.

2017 – 2018 **Teaching Assistant.** Laboratoire de Biométrie et Biologie Evolutive, UMR CNRS 5558, France. “*Bodyguard or unfair competitor: the trophic interaction modification at waterholes by the African elephant.”*

2014 – 2017 **Ph.D.** Laboratoire de Biométrie et Biologie Evolutive, UMR CNRS 5558, France. Surpervision: M. Valeix, S. Dray & H. Fritz. University Claude Bernard Lyon 1, France. “*Processes involved in large mammal communities: the role of the African elephant in the ecology of predator-prey relationships*.”

2014 **Internship** – 6 months. Laboratoire de Biométrie et Biologie Evolutive, UMR CNRS 5558, France. Surpervision: M. Valeix, S. Dray & H. Fritz. University Claude Bernard Lyon 1, France. “*Interspecific interference competition at the resource patch scale: interference competition between the African elephant and large herbivores.”*

2013 **Internship** – 2 months**.** Laboratoire d’Ecologie des Hydrosystèmes Naturels et Anthropisés, UMR CNRS 5023, France. Supervision: P. Joly. “*Effect of the intraspecific competition on the body mass of the crested newt (Triturus cristatus)*.”

# **PUBLICATIONS**

Accepted Velling, M., Peters, A., **Ferry, N.**, Bechert, U., Schwarzenberger, F., Göritz, F., Mysterud, A., Müller, J., Heurich, M. (2025) One-time administration of SpayVac® vaccine successfully prevents pregnancy in red deer (Cervus elaphus) in a temperate forest ecosystem. Accepted. in ***Eur. J. Wildl. Res.***

**Ferry, N.,** Dupont, P., Bender, A., Heurich, M. (2024) Introducing recurrent events analyses to assess species interactions based on camera trap data: a comparison with time-to-first-event approaches. ***Methods in Ecology & Evolution***

de Pelsmaeker, N., **Ferry, N**., Stiegler, J., Selva, N., von Hoermann, C., Müller, J., Heurich, M.Seasonal variability of scavenger visitations is independent of carrion predictability. Submit. in ***Basic & Applied Ecology***.

Rietz, J., van Beeck Calkoen, S. T., **Ferry, N.,** Schlüter, J., Wehner, H., Schindlatz, K. H., ... & Heurich, M. (2023) Drone-based thermal imaging in the detection of wildlife carcasses and disease management. ***Transboundary and Emerging Diseases***, 1-12.

Cordonnier, M., **Ferry, N.**, Bonnaud, E., Maurice, A.C., Renaud, E., Baudry, E. (2022) Drivers of predation rates by pet cats: a leading role of the environment more than intrinsic characteristics of the predator. ***Urban Ecosystems***, 25(4), 1327-1337.

Cordonnier, M., Perrot, A., **Ferry, N.**, Bonnaud, E., Baudry, E. (2022). Pet cat personality linked to owner-reported predation frequency. **Ecology and Evolution**, 13(1), e9651.

**Ferry, N.,** Dray S., Ipavec, A., Fritz, H., Wigley, B., Charles-Dmonique, T., Bourgarel, M., Sebele, L., Craine, J, Valeix, M. (2021) Effects of long-term exposure to high elephant densities on semi-arid African savanna woodland structure, species composition and functional traits. Is savanna woodland attaining a new equilibrium state? ***Journal of Vegetation Science,*** 32(6), e13101.

**Ferry, N.,** Mbizah, M., Loveridge, A.J., Macdonal, D.W., Dray, S., Fritz, H., Valeix M. (2020) Environment-mediated trophic interaction modification in large mammal communities: can African elephants affect where African lions kill their prey through modification of vegetation structure? ***Oecologia***, 192, 779-789***.***

**Ferry, N.,** Cordonnier, M., F.D. Hulot, F. Dakwa, L. Sebele, S. Dray, H. Fritz, M. Valeix. (2020) Heterogeneity of water quality in artificial waterholes: do African herbivores show preferences and does it lead to interference competition? ***Journal of Arid Environments,*** 104014.

**Ferry, N.,** Dray, S., Fritz, H. and Valeix, M. (2016) Interspecific interference competition at the resource patch scale: do large herbivores spatially avoid elephants while accessing water? ***Journal of Animal Ecology***, 85: 1574-1585.

Submitted **Ferry, N.**, Fiderer, C., Peters, A., Ballmann, A., Spicher, V., Stein, J., Heurich, M. Asymetry of predation? Proximate co-occurrence reveals strong predator attraction towards prey but an absence of prey response towards predators. Submit. in ***PCI Ecology***

**Ferry, N.,** Henrich, M., Peterka, T., Heurich, M. Installation and control of camera traps can affect the visitation rate of wildlife. Submit. in **Remote Sens. Ecol. Conserv.**

Peters, A., **Ferry, N**., Dormann, C.F., Heurich, M. Recreation and hunting intensity alter the spatio-temporal interactions between recreationists and wildlife in a protected area. Submit. in **JAE**.

Große, S., **Ferry, N.,** De Pelsmaeker, N., Premier, J., Fiderer, C., Bastianelli, M., von Hoermann, C., Müller, J., Heurich, M. Succession, hierarchy and interactions of vertebrate scavengers in a temperate forest ecosystem. Submit. in **BAAE**.

In prep.  ***Ferry, N***., Velling, M., Peters, A., Fiderer, C., Rehbein, S., Heurich, M. Do parasites affect movement performance? A case study on red deer facing the invasive Giant liver fluke nematode, using non-invasive approaches. In prep. for **Oecologia**.

**Ferry, N**., Maisonnette, E., Dutour, M., Cordonnier, M., Léna, J.P., Lovelater, S., Dray, S., Fritz, H., Valeix, M. Does the presence of African elephants Loxodonta Africana reduce the predation risk perceived by plains zebra *Equus quagga* at waterhole? In prep. for ***BES.***

# **MAIN COLLABORATORS**

**M. Heurich** *(BFN Park, Freiburg, Germany)* – Human-Wildlife and Remote Sensing / **P. Dupont** *(NMBU, As, Norway)* – Spatial CMR, species occupancy **/ E. Bonnaud** *(ESE, Orsay, France)* – Food-web ecology / **J.-P. Léna** *(LEHNA, Lyon, France)* – Behavioural ecology & biostatistics / **S. Dray** *(LBBE, Lyon, France)* – Community & spatial ecology / **M. Valeix** *(LBBE, Lyon, France)* – Interspecific interactions

# **CONFERENCES**

2024 **Ferry, N.,** Dupont, P., Bender, A., Heurich, M., *Assessing species interaction with recurrent event analyses: methods and applications examples*. **SFEcologie & Evolution 2024**, Lyon, France.

2024 **Ferry, N.,** Peters, A., Velling, M., Fiderer, C., Heurich, M. *Human Recreation & Hunting Activities Effect on Red Deer*. **BFNP Red Deer Workshop**, Grafenau, Germany

2023 **Ferry, N.**, Dupont, P., Bender, A., Heurich, M., *Assessing species interaction with recurrent event analyses: a comparison with time-to-first event approaches*. **GDR Ecostat 2023**, online

2021 **Ferry, N.,** Peters A., Cerere, J., Bertolino, S., Ossi, F., Fiderer, C., Heurich, M., Cagnacci, F.. *Assessing changes in the spatio-temporal behaviour of wildlife during the COVID-19 lockdown.* **XIII EURODEER meeting**, online.

2019 **Ferry, N.,** Mbizah M., Dray. S., Fritz H., Loveridge A., Macdonald D., Valeix M. *Can a herbivore modify trophic interaction of top predators?* **Petit Pois Déridé 2019**, Saclay, France.

2019 **Ferry, N.,** Mbizah M., Dray. S., Fritz H., Loveridge A., Macdonald D., Valeix M. *Can a herbivore modify trophic interaction of top predators?* **GDR Ecostat 2019**, Avignon, France.

2018 **Ferry, N.,** Dray S., Fritz H., Ipavec A., Wigley B., Charles-Dominique T., Bourgarel M., Sebele L., Valeix M. *Long-term high density of African elephants clears the understorey and promotes a new stable woody vegetation composition.* **SFEcologie & Evolution 2018**, Rennes, France.

2018 **Ferry, N.,** Cordonnier M., Hulot F., Lena J., Fritz H., Dray S., Valeix M. *Bodyguard or unfair competitor: Is the African elephant a modifier of predator-prey relationships at waterholes?* **SFEcologie & Evolution 2018**, Rennes, France.

2017 **Ferry N.,** Dray. S., Fritz H., Valeix M. *Interspecific interference competition at the resource patch scale: do large herbivores spatially avoid elephants while accessing water?* **Rencontres Décrypthèse**, Lyon, France.

2017 **Ferry, N.,** Mbizah M., Dray. S., Fritz H., Loveridge A., Macdonald D., Valeix M. *Mediation of predator-prey relationships by ecosystem engineers: the indirects effects of African elephants on kill site selection by African lions?* **Rencontres Décrypthèse**, Lyon, France.

2016 **Ferry N.,** Dray. S., Fritz H., Valeix M. *Interspecific interference competition at the resource patch scale: do large herbivores spatially avoid elephants while accessing water?* **SFEcologie** 2016, Marseille, France.

2016 **Ferry N.,** Dray. S., Fritz H., Valeix M. *Interspecific interference competition at the resource patch scale: do large herbivores spatially avoid elephants while accessing water?* **FST Scientific Day**, Lyon, France.

# **INVITED PRESENTATION**

2024 *Human Recreation & Hunting Activities Effect on Red Deer*. University of Kassel, Kassel, Germany.

2019 *Processes involved in large mammal communities: the role of the African elephant in the ecology of predator-prey relationships.* ESE seminar**,** Orsay, France.

2017 *Can a herbivore modify trophic interaction of top predators?* WildCRU seminar**,** Oxford, U.K.

# **TEACHING**

**Level Type Discipline Duration**

B.Sc. 1st year Tutorial Mathematics for Life Science 138h

B.Sc. 1st year Tutorial Career guidance 17h

B.Sc. 2nd year Lecture Ecology and statistics 3h

B.Sc. 2nd year Tutorial Ecology and statistics 12h

B.Sc. 3rd year Practical work Statistic and R software utilisation 12h

B.Sc. 3rd year Practical work Biodiversity identification 42h

M.Sc. 1st year Lecture Multispecies Occupancy Model 3h

# **SUPERVISION**

2020-25 Peters Anne, Ph.D. Degree, Bavarian Forest National Park Administration, Germany (4 years, mentor). *Impact of human recreation activities on large mammal activity and space use.*

2022-23 Liufeng Wang, Master’s Degree, Copenhagen University (12 months, co-supervision)

*The effect of German National Park zoning on the diel activity patterns of three major ungulates*

2022-23 Selina Grosse, Master’s Degree, Konstanz University, Germany (8 months, co-supervision)

*Succession, hierarchy and interactions of vertebrate scavengers in a temperate forest ecosystem*

2022 Dunja Aleksic, Master’s Degree, Bourgogne-Franche Comté University, France (6 months, supervision)

*Fecal dietary indicators as proxies for dietary quality and nutritional status – the effects of sex, population density, human disturbance and habitat features on the fecal nutrient composition of the Bohemian Forest red deer*

2021 Auriane Eisenberg, 2nd year Agronomy Engineering School, AgroSup, Dijon, France (4 months, supervision)

*Overview of the presence of Red Deer (Cervus elaphus) infection with Giant Liver Fluke (Fasciola magna) in the Bavarian Forest National Park*

2020-21 Johanna Euba, Master of Science, BOKU University, Vienna (6 months – co-supervision)

*Insights on Covid-19 lockdown effects: Eurasian lynx (lynx lynx) spatio-temporal behaviour regarding prey and human activities*

2020-22 Fieldwork Internships (Red deer monitoring): 36 students from Bsc. to Msc.’s Degree

2017 Elsa Maisonnette, Ecological Licence’s Degree, Uni. of Lyon 1, France (2 months)

*Effect of the African elephants presence on the predation risk perceived by zebra at waterhole.*

Elise Say-Sallaz, Ecological Master’s Degree, Uni. of Lyon 1, France (6 months – Co-supervision)

*Assessment of food competition / facilitation between African elephants and other large herbivore species through spatial segregation at multi-scale level.*

2016 Farisayi Dakwa, Ecological Bachelor’s Degree, Uni. Bulawayo, Zimbabwe (3 months field session)

*Bodyguard or competitor: the African elephant as modifier of predator-prey relationships at waterholes*

# **ADMINISTRATION EXPERIENCE**

2020 - 2021 EuroMammals Pager leader - *Assessing changes in the spatio-temporal behaviour of wildlife during the COVID-19 lockdown*

2016 Member of the organisation committee of the annual Scientific Day Decrypthèse (Outreach lectures, Lyon, France) gathering 60 participants

2015 – 2016 Treasurer of the organisation committee of the international Ecology and Behaviour meeting 2016 (Lyon, France) gathering 100 participants from 9 countries. http://eb2016.sciencesconf.org/

2014 – 2016 Treasurer of the DocE2M2 association gathering PhD students from five biological scientific thematics of the University of Lyon 1, in the Ecole Doctorale E2M2

# **GRANTS AND AWARDS**

2017 Mobility Awards French Research Federation 300 €

2017 Oral presentation Rencontre DECRYPthèse 300 €

2016 Poster presentation FST Scientific Day 300 €

2014-2017 PhD grants Ministry of Higher Education and Research 65.000 k€

# **QUALIFICATIONS**

2020 **Qualification for Lecturer position** in Biology of organisms *(French CNU Section 68 – 20268332858)*

2018 **Ph.D. Ecology.** “*Processes involved in large mammal communities: the role of the African elephant in the ecology of predator-prey relationships*.” Uni. Claude Bernard Lyon 1, France.

2014 **M.Sc. Ecosciences, Microbiology.** University Claude Bernard Lyon 1, France. (Rank: 1/19)

2012 **B.Sc. Biology of Organisms and Populations.** Uni. Lyon 1, France. (Rank: 13/96)

2011 **B.Sc. Biodiversity and Ecology.** University Aix-Marseille III, France.

# **REFEREES**

**Pr. MARCO HEURICH –** *Current mentor*

[marco.heurich@npv-bw.bayern.de](mailto:marco.heurich@npv-bw.bayern.de)

University of Freiburg, Germany

**Dr. MARION VALEIX -** *Thesis director*

[marion.valeix@univ-lyon1.fr](mailto:marion.valeix@univ-lyon1.fr)

UMR 5558 LBBE, Uni. Lyon 1, France

**Dr. STEPHANE DRAY -** *Thesis supervisor*

[stephane.dray@univ-lyon1.fr](mailto:stephane.dray@univ-lyon1.fr)

UMR 5558 LBBE, Uni. Lyon 1, France