

EURING Analytical Meeting & Workshop

Apr 17-21, 2023 - Montpellier, France

MONDAY 17th April

09:00 – 09:15 *Conference Introduction*

09:15 – 09:45 *Plenary Session* A. JOHNSTON

10:00 – 11:00 **Abundance in space**
HERLIANSYAH SOLLMANN EFFORD* MOQANAKI SANZ-PÉREZ

11:15 – 12:05 **Abundance estimation for management**
MCCREA* SKORA DAVIS* WANG*

LUNCH BREAK

13:30 – 14:30 **Novel approaches to abundance estimation**
YACKULIC RONDON FRAYSSE CHOPARA* KISSLING

14:45 – 15:45 **Causal inference for management**
HOUNYÈMÈ* FINK* BINLEY STANLEY PRAMANIK

15:55 – 17:10 **Advances in monitoring**
ALENGA PATTON BARDON RUSHING NILSEN BOERSCH-SUPAN

17:30 – 18:15 *Honorary Plenary talk* E. CAM

18:30 – 21:00 *Ice Breaker* CEFE Experimental Field

TUESDAY 18th April

08:45 – 09:00 *Announcements*

09:00 – 09:30 *Plenary Session* M. PAQUET

09:45 – 11:00 **Movement and habitat selection**
PANCHAUD BADGER* GOMEZ BUDERMAN* SOUCHAY MCCLINTOCK

11:15 – 12:05 **Connectivity**
GONNERMAN* KERVELLEC GREGORY VIOLLAT

LUNCH BREAK

13:30 – 14:20 **Natal dispersal and migration**
ACKER FORTUNA SOUC CHANDLER

14:45 – 15:45 **Phenology**
CLARKE ENGLISH KETWAROO LHEUREUX CUCHOT

15:55 – 17:10 **Drivers of vital rate variation**
CUBAYNES PAYOPAYO* SCHATZ BERGERON GICQUEL GRZEGORCZYK

17:30 – 20:00 *Poster Session* Hall Delegation CNRS

WEDNESDAY 19th April

08:45 – 09:00 *Announcements*

09:00 – 09:30 *Plenary Session* A.M. LEE

09:45 – 10:50 **Vital rates across space and time**
NATER KORNER-NIEVERGELT MILLERET MATTSSON FAURE

11:15 – 12:05 **Survival and movement in context**
DSUL SCHIRMER BADIA-BOHER CHRISTIAN

LUNCH BREAK

13:30 – 19:00 *Excursions* Campus Entrance

FRIDAY 21st April

09:00 – 09:15 *Announcements*

09:15 – 09:45 *Plenary Session* T. ARNOLD

10:00 – 10:50 **Management and Conservation I**
GREGORY SCHAUB DEBETENCOURT BAILEY

11:15 – 12:05 **Management and Conservation II**
DUNHAM* SUTHERLAND* CONQUET STREBEL

LUNCH BREAK

13:30 – 17:30 *Workshops*

THURSDAY 20th April

08:45 – 09:00 *Announcements*

09:00 – 09:30 *Plenary Session* M. GAMELON

09:45 – 11:00 **Individual heterogeneity, sociality, and kinship**
SILK KLAICH BARBRAUD CONN RIECKE SARZO*

11:15 – 12:05 **Distribution and conservation of rare and endangered species**
SANDERCOCK BAUDUIN DASNON IANNARILLI*

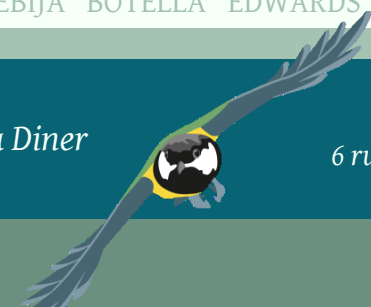
LUNCH BREAK

13:30 – 14:30 **Novel approaches for species distributions**
KERY FERNÁNDEZ-LÓPEZ GRIDER LASGORCEUX SANDERLIN*

14:45 – 15:45 **Communities and species interactions**
GANGULY LOUVRIER MAHAJAN METZ BARRAQUAND

15:55 – 17:10 **Species movement life history and detectability**
THORUP DAVIES ADEBIJA BOTELLA EDWARDS FERRAZ

19:00 – 23:00 *Gala Diner* Gazette café
6 rue Levat, Montpellier



EURING Analytical Meeting & Workshop

Apr 17-21, 2023 - Montpellier, France

Monday 17th April

Conference introduction

09:00 – 09:15

Amphithéâtre Délégation CNRS

09:15-09:45 **Alison Johnston** **Plenary:** People and birds: The challenges and power of citizen science data in ornithology

09:45 – 10:00 *Break*

Abundance in space

10:00 – 11:00

Chair: Brett McClintock
Amphithéâtre Délégation CNRS

10:00 Riki **Herliansyah** Animal density estimation for unmarked populations using a spatially explicit model
10:12 Rahel **Sollmann** Mt or not Mt: Temporal variation in detection probability in spatial capture-recapture models
10:24 Murray **Efford** (remote) Robust sampling designs for spatially explicit capture-recapture
10:36 Ehsan **Moqanaki** Population-level determinants of density for a historically persecuted large carnivore
10:48 Ana **Sanz-Pérez** Estimating demographic parameters and abundance of the Pyrenean Brown bear population using open SCR

11:00 - 11:15 *Break*

Abundance estimation for management

11:15 – 12:03

Chair: Erlend Nilsen
Amphithéâtre Délégation CNRS

11:15 Rachel **McCrea** (remote) Evaluating and correcting for the effect of dependence in the integrated analysis of removal and capture-recapture data
11:27 Leslie **Skora** Estimating brown bear abundance along salmon spawning streams in Katmai National Park, Alaska
11:39 Amy **Davis** (remote) A multi-method dynamic removal model for evaluation of abundance and management effectiveness overtime
11:51 Yiran **Wang** (remote) Bayesian genetic mark-recapture methods for estimating seasonal river run size of stock populations

12:03 – 13:30 *Lunch break* *CEFE experimental field*

Novel approaches to abundance estimation

13:30 – 14:30

Chair: Mahdich Tourani
Amphithéâtre Délégation CNRS

13:30 Charles **Yackulic** Sharing abundance: Integrating long-term count data with short-term capture-recapture data in a marginalized multistate Jolly-Seber framework
13:42 Diego **Rondon** A Bayesian Multi-state model for estimating the effect of inbreeding and age on population dynamics
13:54 Rémi **Frayse** Modelling misidentifications in capture-recapture experiments
14:06 Rishika **Chopara** (remote) A framework for goodness-of-fit testing in ecological modelling
14:18 Michelle **Kissling** Aligning statistical and biological populations for abundance estimation

14:30 – 14:45 *Break*

Causal inference for management

14:45 – 15:45

Chair: Thomas Riecke
Amphithéâtre Délégation CNRS

14:45 Romuald **Hounyèmè** (remote) From responses of macroinvertebrate metrics to the definition of reference thresholds
14:57 Daniel **Fink** (remote) Estimating spatially explicit population trajectories with citizen science data and double machine learning
15:09 Allison **Binley** Redistributing resources from monitoring to action: Quantifying the value of citizen science data in conservation decision making
15:21 Annabelle **Stanley** Making informed decisions for private lands conservation under uncertainty and spatial complexity: A case study on the Northern Bobwhite
15:33 Priyanjana **Pramanik** What-if thinking in conservation policy research: Expanding the use of synthetic controls

15:45-15:57 *Break*

Advances in monitoring

15:57 – 17:09

Chair: Marc Kéry
Amphithéâtre Délégation CNRS

15:57 Yoba **Alenga** Bat sonotype as a novel insight into the Congo Basin Rainforest dynamic
16:09 Philip **Patton** The effect of fully automated animal recognition on mark-recapture estimates
16:21 Gaël **Bardon** RFIDeep: unfolding the potential of deep learning for radio-frequency identification
16:33 Clark **Rushing** Estimation of seasonal survival and migration phenology of migratory birds from automated telemetry data using continuous-time multi-state models
16:45 Erlend **Nilsen** Structured citizen science as a means to monitor wildlife populations
16:57 Philipp **Boersch-Supan** Modelling life cycle-event phenology using biometrics collected by citizen science ringers

17:09 – 17:30 *Break*

Honorary plenary talk

17:30-18:15

Emmanuelle **Cam**

30 years of data collection, capture-mark-recapture (CMR) modeling and teaching: what is seen matters, what is unseen matters as much, and sometimes we estimate quantities that are unobservable

Amphithéâtre Délégation CNRS

Ice-breaker

18:30-23:00

CEFE experimental field

Tuesday 18th April

Announcements

08:45 – 09:00

Amphithéâtre Délégation CNRS

09:00-09:30 **Matthieu Paquet** **Plenary:** Estimating immigration and density dependence using Integrated Population Models

09:30 – 09:48

Break

Movement and habitat selection

09:48 - 10:48

Chair: Richard Chandler

Amphithéâtre Délégation CNRS

09:48 Clara Panchaud Accounting for animal movement in spatial capture-recapture
 10:00 Janelle Badger (remote) Integrating movement data into mark recapture analysis: Case study of false killer whale (*Pseudorca crassidens*) abundance estimation around the main Hawaiian Islands
 10:12 Sara Gomez Linking variation in juvenile meerkat foraging behaviour to growth rates and survival later in life: a biologging and state space modelling approach
 10:24 Guillaume Souchay Follow the yellow brick road: Using does to find the leverets
 10:36 Brett McClintock A multistate Langevin diffusion for inferring behavior-specific habitat selection and utilization distributions

10:48 - 11:15

Break

Connectivity

11:15 – 12:03

Chair: Charles Yackulic

Amphithéâtre Délégation CNRS

11:15 Matthew Gonnerman (remote) An individual based model trained on multiple data sources estimates population connectivity for harvested eastern wild turkeys
 11:27 Maëlis Kervellec Mapping connectivity from non-invasive surveys with spatial capture-recapture models: A focus on the Pyrenean brown bear population
 11:39 Killian Gregory An integrated framework to combine migratory connectivity and demographic data
 11:51 Lise Violat Animal demography in motion: Integration of individual spatial component in demographic variability of Bonelli eagle

12:03 – 13:30

Lunch break

CEFE experimental field

Natal dispersal and migration

13:30 – 14:18

Chair: Michelle Kissling

Amphithéâtre Délégation CNRS

13:30 Paul Acker Capture-recapture animal model for quantitative genetic decomposition of variance in seasonal migration versus residence
 13:42 Rita Fortuna Using a multistate capture-recapture animal model to estimate additive genetic variance in early-life seasonal movement
 13:54 Charly Souc A multi-event CMR analysis applied to reveals the influence of the natal colony for age-specific movement patterns of the Yellow-legged gull (*Larus michahellis*)
 14:06 Richard Chandler Directional natal dispersal in a trailing-edge population of black-throated blue warblers

14:18 – 14:45

Break

Phenology

14:45 – 15:45

Chair: Paul Acker

Amphithéâtre Délégation CNRS

14:45 James Clarke Accounting for phenology and varying spatial scales in the production of UK butterfly abundance estimates using citizen science data
 14:57 Simon English Quantifying phenology and migratory behaviours of hummingbirds using single-site dynamics and mark-detection analyses
 15:09 Fabian Ketwaroo How to walk the BeeWalk: Modelling Bumblebee citizen science data
 15:21 Edel Lheureux Distinguish the biological process from the observation process in a tagging-recapture experiment to study the migration phenology of the Atlantic salmon (*Salmo salar*)
 15:33 Paul Cuchot Not all resident birds reproduce earlier in warmer springs : inferring habitat-dependency of phenological sensitivity to temperature using a Bayesian sigmoid modelling approach applied to constant ringing effort sites

15:45-15:57

Break

Drivers of vital rate variation

15:57 – 17:09

Chair: Chloé Rebecca Nater

Amphithéâtre Délégation CNRS

15:57 Sarah Cubaynes Modeling the impacts of canine distemper virus on the Yellowstone wolf population
 16:09 Ana Payo-Payo (remote) Long-lasting effects of harsh early-life conditions on adult survival of a long-lived vertebrate
 16:21 Camille Schatz Intra- and interspecific demographic variation in two phylogenetically related seabirds
 16:33 Rachel Bergeron Post-weaning survival in kangaroos is high and constant until senescence: Implications for population dynamics
 16:45 Morgane Gicquel Age-related survival in the European cranes population
 16:57 Emilienne Grzegorzczuk Is hidden demographic heterogeneity a common phenomenon?

17:09 – 17:30

Break

Poster session

17:30-20:00

Hall Délégation CNRS

EURING Analytical Meeting & Workshop

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Wednesday 19th April

Announcements

08:45 – 09:00

Amphithéâtre Délégation CNRS

09:00-09:30 Aline Magdalena Lee **Plenary: The magic of mark-recapture**

09:30 – 09:48 *Break*

Vital rates across space and time

09:48 - 10:48

Chair: Paul Conn

Amphithéâtre Délégation CNRS

09:48 Chloé Rebecca Nater An integrated distance sampling model to estimate variation in demographic rates across space and time
10:00 Fränzi Korner-Nievergelt Demographic indices from constant ringing effort sites in Switzerland
10:12 Cyril Milleret Mapping population-level mortality risks of an emblematic and controversial large carnivore, the wolf
10:24 Brady Mattsson Importance of biases associated with ground counts of nestlings in an arboreal nester, the red kite (*Milvus milvus*)
10:36 Johanna Faure The post-release survival of a deep-sea skate caught as bycatch by demersal longline fishery in Crozet, Southern Ocean

10:48 - 11:15 *Break*

Survival and movement in context

11:15 – 12:03

Chair: Michael Schaub

Amphithéâtre Délégation CNRS

11:15 Maria Dzul Can “true” survival be without global resights: it depends on “true” movement
11:27 Saskia Schirmer Seasonal and spatial explicit survival estimates - Combining the multinomial reencounter model with an individual-based temporal model
11:39 Jaume-A. Badia-Boher Evaluating permanent emigration and subsequent biases in survival in territorial raptors using spatial capture-recapture methods: the case of the Bonelli's eagle
11:51 Murray Christian Accurately estimating the demographic contribution of immigration: a southern elephant seal case study

12:03 – 13:30 *Lunch break*

CEFE experimental field

Excursions

13:30 – 19:00

Mountain hike

Pic Saint Loup

Bird watching trip

Maison de la nature

Wines and castle

Château de Flangergues

Thursday 20th April

Announcements

08:45 – 09:00

Amphithéâtre Délégation CNRS

09:00-09:30 Marlène **Gamelon** **Plenary:** Biotic interactions matter: how intra- and interspecific competition shape vital rates and population dynamics

09:30 – 09:48

Break

Individual heterogeneity, sociality, and kinship

09:48 - 11:00

Chair: Sarah Cubaynes

Amphithéâtre Délégation CNRS

09:48 Matthew **Silk** Demographic models of social networks
 10:00 Javier **Klaich** Estimating individual survival under a social network analysis when detection is imperfect
 10:12 Christophe **Barbraud** Selection against immigrants: demographic evidence and testing the familiarity hypothesis in seabirds
 10:24 Paul **Conn** Using close-kin mark-recapture to estimate abundance and survival of bearded seals in Alaska
 10:36 Thomas **Riecke** Estimating latent fitness heterogeneity using structural equation models
 10:48 Blanca **Sarzo** (remote) Justice for the weaklings! Survivorship bias in individual heterogeneity CMR models

11:00 - 11:15

Break

Distribution and conservation of rare and endangered species

11:15 – 12:03

Chair: Frédéric Barraquand

Amphithéâtre Délégation CNRS

11:15 Brett **Sandercock** Estimating den use and reproductive rates of arctic fox with multistate occupancy models
 11:27 Sarah **Bauduin** Using occupancy to monitor populations. Case study: the wolf in France
 11:39 Anaïs **Dasnon** Estimating seabird populations breeding in sparse colonies in remote areas
 11:51 Fabiola **Iannarilli** (remote) Leveraging sharing of camera trap data to inform biodiversity conservation at large scales

12:03 – 13:30

Lunch break

CEFE experimental field

Novel approaches for species distributions

13:30 – 14:30

Chair: Guillaume Souchay

Amphithéâtre Délégation CNRS

13:30 Marc **Kéry** Integrated distance sampling models for simple point counts
 13:42 Javier **Fernández-López** A unified framework for estimating animal abundance from hunting statistics: the thinned Poisson Point Process model
 13:54 John **Grier** A novel method for estimating pathogen presence, prevalence, load, and dynamics at multiple scales during a disease outbreak
 14:06 Florian **Lasgorceux** Inferring niche models with unknown sampling effort estimated from opportunistic data
 14:18 Jamie **Sanderlin** (remote) Innovations for biodiversity monitoring using acoustic methods in the southwestern United States: What does this mean for rare species?

14:30 – 14:45

Break

Communities and species interactions

14:45 – 15:45

Chair: Rahel Sollmann

Amphithéâtre Délégation CNRS

14:45 Divyajyoti **Ganguly** Three's company: Integrating detection data from multiple methods to examine meso-carnivore co-occurrence in India
 14:57 Julie **Louvrier** How much data do you need to detect co-occurrence with multi-species occupancy models: A simulation study
 15:09 Prashant **Mahajan** Interspecific interactions and co-existence among canids in the semi-arid landscape of western India
 15:21 Matt **Metz** Estimating the abundance of wolf-killed prey through multiple detection methods in a mark-recapture framework
 15:33 Frédéric **Barraquand** The various concepts of independence in integrated population models

15:45-15:57

Break

Species movement, life history, and detectability

15:57 – 17:09

Chair: Brett Sandercock

Amphithéâtre Délégation CNRS

15:57 Kasper **Thorup** Historical changes in migration patterns
 16:09 Jacob **Davies** Quantitative year-round modelling of the movements of European waterfowl populations
 16:21 Emmanuel **Adebija** Testing avian body size conformity to Bergmann's and Allen's rules along a latitudinal gradient in Nigeria
 16:33 Christophe **Botella** A dynamic species distribution model fitted to heterogeneous occurrences explains a plant invasion trajectory
 16:45 Brandon **Edwards** Estimating landbird detectability from autonomous recording unit data
 16:57 Gonçalo **Ferraz** Decline in avian detection more evident than secondary forest colonization in a 30-year old Amazon forest disturbance frontier

Gala diner

19:00-23:00

Gazette Café - 6 rue Levat 34000 Montpellier

EURING Analytical Meeting & Workshop

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Friday 21st April

Announcements

09:00 – 09:15

Amphithéâtre Délégation CNRS

09:15-09:45 **Todd Arnold** **Plenary:** Density dependence, individual heterogeneity, and demographic compensation: new approaches to age-old questions

09:45 – 10:00

Break

Management and conservation I

10:00 - 10:48

Chair: Thomas Riecke

Amphithéâtre Délégation CNRS

10:00 **Stephen Gregory** Power analysis for real-World sampling strategies

10:12 **Michael Schaub** Lessons to be learned by comparing fisheries stock assessment methods (SAMs) with integrated population models (IPMs)

10:24 **Benjamin Debetencourt** Estimating chimpanzee demography, social structure and territory range with camera trap data in Moyen Bafing National Park, Guinea

10:36 **Liam Bailey** Monitoring changes in carrying capacity through time to assess conservation outcomes in a large social carnivore

10:48 - 11:15

Break

Management and conservation II

11:15 – 12:03

Chair: Julie Louvrier

Amphithéâtre Délégation CNRS

11:15 **Kylee Dunham** (remote) Design and evaluation of long-term monitoring programs to inform annual life cycle modeling, conservation, and adaptive harvest management of migratory waterfowl in North America

11:27 **Chris Sutherland** (remote) Opposite effects of global and local density-dependent dispersal on metapopulation stability and persistence

11:39 **Eva Conquet** Effects of season-density interactions on the vital rates of an African lion population

11:51 **Nicolas Strebel** Multi-species population indices for sets of species that include disappearing or newly occurring species

12:03 – 13:30

Lunch break

CEFE experimental field

Workshops

13:30 – 17:30

Animal Movement Modeling

Instructors:

Mevin Hooten, Devin Johnson, Brett McClintock, Juan Morales

Grande Salle Réunion CEFE

Integrated Models in population Ecology + Species Distribution Modeling

Instructors:

Marc Kéry, Michael Schaub, Nicolas Strebel

Amphithéâtre Délégation CNRS

An Introduction to Close-Kin Mark-Recapture

Instructors:

Paul Conn

Salle Polyvalente CEFE