

Clément Calenge

Male

Driving licence: yes

Birth date: August, 23th 1976 (31 years old)

EDUCATION

Ph.D., Biometry, December 14th, 2005, at the University Lyon 1. Thesis title (translated) :
“Some statistical tools for the analysis of point patterns in the ecological space”

Professional master in “Applied Statistics for agronomic and pharmaceutic industries”
(September 2000), University of Montpellier II (rank first).

Maîtrise (four year university degree) in Population and Ecosystem Biology (September 1998), University Lyon 1.

Licence (three years university degree) in Population and Ecosystem Biology (June 1997),
University Lyon 1.

D.E.U.G. (two years university degree) in Life and Earth Science (September 1996), Univer-
sity Lyon 1.

WORK EXPERIENCE

January 2006 – present: Post-doctoral position at the Laboratory of Biometry and Evo-
lutionary Biology (LBBE) of the university Lyon 1, financed by a research convention
between the ONCFS (French wildlife and game management organization) and the CNRS
(French organization for the scientific research). Supervisor: Daniel MAILLARD (ON-
CFS Montpellier) and Jean-Michel GAILLARD (CNRS, Univ. Lyon 1). Aim: develop-
ment of a statistical methodology for the analysis of GPS data.

January 2003 – December 2004: Statistical consulting for the “Conservatoires et Jardins
Botaniques de Genève” (Herbaria of Geneva, Switzerland). Supervisor: Rodolphe SPICHIGER.
Aim: Analysis of the spatial distribution of herbarium data at the continental scale.

September 2002 – December 2005: Ph.D. at the University Lyon 1, financed by the
ONCFS. Supervisors: Daniel MAILLARD (ONCFS Montpellier) and Anne-Béatrice DU-
FOUR (LBBE). Thesis theme: Development of statistical methods for the analysis of the
spatial distribution and the habitat selection by the wildlife.

January 2001 – June 2002: Conscientious objector at the ONCFS in Montpellier. Su-
pervisor: Daniel MAILLARD. Aim: Statistical analysis and scientific publication of data
collected in the framework of various scientific programs (see publications section).

September 2000 – December 2000: Fixed-term contract at the ONCFS in Montpellier.
Supervisor: Daniel MAILLARD. Aim: Scientific publication of the analysis performed
during the previous training course.

February 2000 – August 2000: Training course performed for the professional master at
the ONCFS at Montpellier. Supervisor: Daniel MAILLARD. Aim: statistical analysis of
the impact of two hunting methods on the space use by the wild boar.

July 1999 – August 1999: Fixed-term contract at the ONCFS in Montpellier. Supervisor: Daniel MAILLARD. Aim: Scientific publication of the analysis performed during the previous training course.

September 1998 – June 1999: voluntary training course at the LBBE of the University Lyon 1. Supervisor: Jean-Michel GAILLARD (CNRS). Aim: Statistical analysis et publication of data collected during various scientific programs of the ONCFS.

TEACHING

Course of 8H (December 2000) to the students of the Ecole nationale du génie rural, des eaux et forêts (ENGREF, french school of forestry, water and wildlife management) in Montpellier (Supervisor: Régis Peltier), "The statistical estimation of the population size with the line transect method (software Distance 3.5)"

Course of 10H (December 2004 and November 2005) to the students of the professional master of statistical ecology at the university of Lyon (Supervisor: Anne-Béatrice Dufour), "Statistical analysis of habitat selection by the wildlife (R software)".

Course of 4H (October 2005 and October 2006) to the students of the professional master of ecology and evolution of the university Lyon (Supervisor: Sylvain Dolédec), "Statistical analysis of radio-tracking data with the R software"

Formation of 16H (April 2007) to the researchers of the French National Museum of Natural History in Paris (Supervisor: Sandrine Pavoine & Sophie Gachet), "The analysis of ecological data with adehabitat".

TALKS

Invited seminar (December 2004) at the school of "le Bouchet" (ONCFS Orléans), "Statistical methods for the analysis of the ecological niche" (Supervisor: Eve Corda, ONCFS)

Invited seminar (May 2007) to the researchers of the Imperial college at Silwood Park, U.K. (Organizer: Penny Hancock), "Factor analyses of the ecological niche".

Invited talk (May 2007) at the first workshop of the French group of researchers on animal movement "Analyse et modélisation des déplacements individuels et collectifs" (GDR Ethology 2822) that held in Toulouse, France (organizers: Benhamou, S., Degond, P. & Theraulaz, G.), "Autocorrelation and trajectory segmentation".

COMPUTING

Strong skills in computer science: Excellent knowledge of the R statistical software, of MS Access, of several Geographic Information Systems (GRASS, Arcview, Idrisi and Landserf), of LaTeX, and of programming in C.

Author and maintainer of the package 'adehabitat' for the R software (<http://cran.r-project.org/src/contrib/Descriptions/adehabitat.html>).

LANGUAGES

English scored 920 to the TOEIC test in 2007, French (mother tongue)

PUBLICATIONS

Journals referenced in the current contents (Impact Factor 2006: IF)

1. **Calenge, C.**, Darmon, G., Basille, M., Loison, A. & Jullien J.M. The factorial decomposition of the Mahalanobis distances in habitat selection studies. In press in *Ecology* (IF: 4.782).
2. Darmon, G., **Calenge, C.**, Loison, A., Maillard, D. & Jullien J.M. (2007) Combining analyses of social and spatial patterns to explore scales of population structure and colonisation processes in mouflon. In press in *Canadian Journal of Zoology* (IF: 1.393).
3. Dolmia, N.M., **Calenge, C.**, Maillard, D. & Planton, H., (2007) Preliminary observation of the elephant's migration and home range in Zakouma National Park, Chad. In press in *African Journal of Ecology* (IF: 0.685).
4. **Calenge, C.** & Dufour, A.B. (2006) Factorial Analysis of Selection Ratios: a new method to analyse habitat selection. *Ecology*, 87: 2349-2355 (IF: 4.782).
5. **Calenge, C.** (2006) The package adehabitat for the R software: a tool for the analysis of space and habitat use by animals. *Ecological modelling*, 197: 516-519 (IF: 1.888).
6. Brenot, J.F., Ellison, L., Rotelli, L., Novoa, C., **Calenge, C.**, Léonard, P. & Menoni, E. (2006) Is body mass of rock ptarmigan greater in the Pyrenees than in the Alps ? *Wildlife Biology*, 11: 281-285 (IF: 0.730).
7. Spichiger R., **Calenge, C.** & Bise, B. (2006) The discriminant analysis of the spatial distribution of vegetal species occurrences: II. The spatial distribution of major tree communities in Paraguay. *Candollea*, 60, 578-595 (IF: 0.674).
8. **Calenge, C.**, Chessel, D. & Spichiger, R. (2006) The discriminant analysis of the spatial distribution of vegetal species occurrences: I theoretical aspects. *Candollea*, 60, 563-575 (IF: 0.674).
9. **Calenge, C.**, Dufour, A.B. & Maillard, D. (2005) K-select analysis: a new method to analyse habitat selection in radio-tracking studies. *Ecological modelling*, 186, 143-153 (IF: 1.888).
10. Loe, L.E., Bonenfant, C., Mysterud, A., Langvatn, R., Gaillard, J.-M., Klein, F., **Calenge, C.**, Ergon, T., Pettorelli, N., & Stenseth, N.C. (2005). Climate predictability and breeding phenology in red deer: timing and synchrony of rutting and calving in Norway and France. *Journal of Animal Ecology*, 74, 579-588 (IF: 3.390).
11. **Calenge, C.**, Maillard, D., Invernica, N. & Gaudin, J.C. (2005) Reintroduction of roe deer into a Mediterranean habitat: female mortality and dispersion. *Wildlife Biology*, 11, 153-161 (IF: 0.674).
12. **Calenge, C.**, Maillard, D., Fournier, P. & Fouque, C. (2004) Efficiency of spreading maize in the garrigues to reduce wild boar damage to Mediterranean vineyards. *European Journal of Wildlife Research*, 50, 112-120 (IF: 0.506).
13. Spichiger R., Calenge C. & Bise, B. (2004) The geographical zonation in the Neotropics of tree species characteristic of the Paraguay-Paraná Basin. *Journal of Biogeography*, 31, 1-13 (IF: 2.878).
14. **Calenge, C.**, Maillard, D., Gaillard, J.M., Merlot, L. & Peltier, R. (2002) Elephant damage to trees of wooded savanna in Zakouma National Park, Chad. *Journal of Tropical Ecology*, 18, 599-614 (IF: 1.277).
15. Maillard, D., **Calenge, C.**, Jacobs, T., Gaillard, J.M. & Merlot, L. (2001) The kilometric index as a monitoring tool for populations of large terrestrial animals: a feasibility test in Zakouma National Park, Chad. *African Journal of Ecology*, 39, 306-30 (IF: 0.685).

Other publications

1. **Calenge, C.** Exploring Habitat Selection by Wildlife with adehabitat. In press in Journal of Statistical Software, Special issue “Ecology and Ecological modelling with R” (Eds. Kneib, T. & Pedzoldt, T.).
2. Spichiger R., Bise, B., Calenge C. & Chatelain, C. (2006). Biogeography of the forests of the Paraguay-Paraná basin. Chap. 8 dans Pennington, R.T., Lewis, G.P., Ratter, J.A. (Editeurs). Neotropical Savannas and Seasonally Dry Forests: Plant Diversity, Biogeography, and Conservation, CRC press.
3. **Calenge, C.**, Maillard, D., Dufour, A.B. (2006). Un outil statistique pour l’exploration de la sélection de l’habitat avec des données de radio-pistage. Pp 58-61 in Rapport scientifique de l’office national de la chasse et de la faune sauvage.
4. Julien, A., Jullien, J.M., Loison, A., Maillard, D., **Calenge, C.**, Dubray, D. & Lopez, J.F. (2004). Sélection de l’habitat par le chamois (*Rupicapra rupicapra rupicapra* L.) dans la Réserve nationale de chasse et de faune sauvage des Bauges (Savoie/Haute-Savoie). Rapport scientifique de l’office national de la chasse et de la faune sauvage.
5. **Calenge C.**, Birkan, M. & Lebreton P. (2003) Niche separation among mountain galliformes in the Vanoise National Park, France. *Game and Wildlife Science*, 20, 259-285.
6. **Calenge, C.**, Maillard, D., Vassant, J. & Brandt, S. (2003) Summer and hunting season home ranges of wild boar (*Sus scrofa*) in two habitats in France. *Game and Wildlife Science*, 19, 281-301.
7. Maillard, D., **Calenge, C.**, Invernia, N. & Gaudin, J.C. (2002) Home range size and reproduction of female roe deer reintroduced into a Mediterranean habitat. *Zeitschrift für Jagdwissenschaft*, 48, 194-200.
8. Léonard, Y., Maillard, D., Suisse-Guillaud, T., Wanner, M. & **Calenge, C.** (2002) La stratégie d’adaptation du chevreuil au milieu montagnard : premiers résultats d’une étude menée dans les Alpes du Sud. *Faune Sauvage*, 257, 6-13.

Papers submitted or in revision

1. Basille, M., **Calenge, C.**, Marboutin, E., Andersen, R. & Gaillard J.M. Assessing habitat selection using multivariate statistics: some refinements of the Ecological-niche factor analysis, In revision for *Ecological modelling*.
2. **Calenge, C.** & Basille, M. A general Framework for the exploration of the ecological niche. Submitted to *Ecological Modelling*
3. **Calenge, C.**, Dray, S. & Royer, M. The concept of animals trajectories from a biometrician’s perspective. Submitted to *Ecological Informatics*
4. Martin, J., **Calenge, C.**, Quenette, P.Y., Allainé, D. Importance of movement constraints in habitat selection studies. Submitted to *Ecological Modelling*.