

# *Curriculum vitae* of Miguel Nuno Bugalho

## **Institutional Address**

Centre for Applied Ecology “Prof. Baeta Neves”  
School of Agriculture  
Tapada da Ajuda  
1349-017 Lisbon, Portugal  
Email: [migbugalho@isa.utl.pt](mailto:migbugalho@isa.utl.pt)  
Tel: +351 21 365 3333  
Fax: +351 21 362 3493

## **Job Functions**

Researcher (Program Ciência 2007) at the Centre for Applied Ecology, School of Agriculture, Technical University of Lisbon

## **Academic degrees**

PhD Animal Ecology (1999), University of Aberdeen (Department of Zoology) and the Macaulay Land Use Research Institute, United Kingdom

MSc Ecology (1994), University of Aberdeen, United Kingdom

First degree in Forestry (1992), Natural Resources Management, Technical University of Lisbon

## **Research aims**

My general research area is on animal ecology and particularly on the foraging ecology of herbivores. I am interested in knowing how different herbivores, namely wild ruminants, use plant resources and how plants and ecosystems respond to these animals. This may provide opportunities for using herbivores as habitat management and conservation tools. At another level, I have been collaborating with the Mediterranean Program of the World Wide Fund for Nature (WWF) on the conservation of biodiversity and ecosystem services of Mediterranean evergreen oak woodlands.

## **Post-Doctoral experience**

Dept. Biology and Nicholas School of Environment, Duke University, North Carolina, USA (with Profs Rob Jackson, Jim Clark and Inés Ibanez): “Effects of deer herbivory on sapling and tree seedling diversity of a temperate forest”.

CSIRO, Division of Plant Industry, Canberra, Australia (with Dr. Hugh Dove): “Using natural plant markers in the nutrition of herbivores”.

Centre for Applied Ecology, School of Agriculture, Technical University of Lisbon, Portugal: “The feeding ecology of deer: effects on the natural regeneration of oaks” and “Effects of deer on productivity and nutrient cycling of an evergreen oak woodland”.

**Research Award:** “Biodiversity and sustainability of cork oak woodlands”, awarded by the Industrial Cork Group “Amorim” (2008).

## **Other relevant activities**

Since 2007, I have been collaborating with the World Wide Fund for Nature (WWF, Mediterranean Program), on the conservation of biodiversity and ecosystem services of evergreen oak woodlands in Portugal.

## **Scientific Reviewer for:**

“Conservation Biology” (2011)  
“European Journal of Wildlife Research” (2010)  
“Grass and Forage Science” (2010)  
“Agro-forestry Systems” (2009)  
“Rangeland Journal” (2009)  
“Journal of Arid Environments” (2008)  
“Biodiversity and Conservation” (2008)  
“Animal” (2008)  
“Zoological Science” (2008)  
“Canadian Journal of Zoology” (2006, 2007 and 2008)  
“New Zealand Journal of Zoology” (2006)  
“Wildlife Biology” (2006)

“Livestock Production Science” (2006)  
“Oecologia” (2005)  
“Ecological Modeling” (2005)  
“Journal of Science of Food and Agriculture” (2004 and 2005)  
“Oryx” – International Journal of Conservation (2005)  
“Folia Zoologica”, Academy of Sciences of Czech Republic (2005)  
“Animal Science” (2002)  
“Journal of Agricultural Science, Cambridge” (2001 and 2011)  
“Journal of Animal Science (2001)

**Member of the following Societies:**

Ecological Society of America (2005)  
British Ecological Society (1995)  
Portuguese Society of Agricultural Sciences (1995)  
Portuguese Grassland Society (1994).  
Portuguese Society of Forest Science (1992)

**Publications**

International, recorded in Science Citation Index:

**Bugalho MN**, Caldeira MC, Pereira JS, Aronson JA, Pausas J. (2011). Mediterranean oak savannas require human use to sustain biodiversity and ecosystem services. *Frontiers in Ecology and the Environment*, 5: 278-286. (accompanied podcast interview at: <http://www.frontiersinecology.org/beyond/?p=275>)

**Bugalho MN**, Lecomte, X. Caldeira MC, Branco MR (2011). Establishing grazing and grazing-excluded patches increases plant and invertebrate diversity in a Mediterranean oak woodland. *Forest Ecology and Management*, 261:2133-2139.

Moreira F., Catry F., Lopes T., **Bugalho M.N.** and F. Rego (2009). Comparing survival and size of resprouts and planted trees for post-fire forest restoration in central Portugal. *Ecological Engineering*, 35: 870-873.

**Bugalho M.N.**, Barcia P., Caldeira M.C. and J. O. Cerdeira (2008). Stable isotopes as ecological tracers: an efficient method for assessing the contribution of multiple sources to mixtures *Biogeosciences*, 5, 1351–1359.

Barcia P., **Bugalho M.N.**, Campagnolo M.L., Orestes J. (2007). Using N-alkanes to estimate diet composition of herbivores: A novel approach. *Animal*, 1:141-149.

Ramos J.A., **Bugalho M.N.**, Cortez P. Iason G. (2006). Selection of trees for rubbing by red and roe deer in forest plantations. *Forest Ecology and Management*. 222: 39-45.

**Bugalho M.N.**, Milne J.A., Mayes R.W., Rego F.C. (2005). Plant-wax alkanes as seasonal markers of red deer dietary components. *Canadian Journal of Zoology*, 83: 465-473.

**Bugalho M.N.**, Dove H, Kelman W, Wood J and Mayes, R.W. (2004). Plant wax alkanes and alcohols as herbivore diet composition markers. *Journal of Range Management* 57:259-268.

**Bugalho M.N.** and Milne J.A. (2003). The composition of the diet of red deer (*Cervus elaphus*) in a Mediterranean environment: a case of nutritional constraint? *Forest Ecology and Management*, 181: 23-29

Kelman W., **Bugalho M.N.** and Dove H. (2003). Cuticular wax alkanes and alcohols used as markers to estimate diet composition of sheep (*Ovis aries*). *Biochemistry Systematics and Ecology*, 31: 919-927

**Bugalho M.N.**, Milne J.A., Mayes R.W. (2002). The effects of feeding selectivity on the composition of the diet of herbivores as estimated by n-alkane analysis. *Grass and Forage Science*, 57:1-7

**Bugalho M.N.**, Milne J A, Racey, P.A. (2001). The foraging ecology of red deer in a Mediterranean environment: is a larger body size advantageous? *Journal of Zoology, London*, 255:285-289

Books and chapters in books:

**Bugalho M.N.**, Plieninger T., Aronson J., Ellatifi M., and Crespo D.G. (2009). Open woodlands: a diversity of uses (and overuses). In: Aronson J., Pereira J.S. and Pausas J. (Eds) *Cork Oak Woodlands on the Edge: Ecology, Biogeography, and Restoration of an Ancient Mediterranean Ecosystem*. (pp: 33-45). Island Press, Washington DC.

Berrahmouni N., Regato P., Ellatifi M., Daly-Hassen H., **Bugalho M.N.**, Bensaid S., Díaz M., and Aronson J. (2009). Ecoregional Planning for Biodiversity Conservation. In: Aronson J., Pereira J.S. and Pausas J. (Eds) *Cork Oak Woodlands on the Edge: Ecology, Biogeography, and Restoration of an Ancient Mediterranean Ecosystem*. (pp: 213-216). Island Press, Washington DC.

**Bugalho M.N.** and Abreu J.M. (2008). The multifunctional role of grasslands In: C. Porqueddu and M.M. Tavares de Sousa (Eds), *Sustainable Mediterranean Grasslands and Their Multifunctions*. Option Méditerranéennes, 79: 25-30.

**Bugalho M.N.** (2008). Grazing as a management tool: the prevention of forest fires. In: Belo Moreira, Seita Coelho (Eds). *Grazing and forest fire prevention*. ISA Press, Lisboa, Portugal (in print). (In Portuguese)

**Bugalho M.N.** (2002). Red deer in a Southern Portuguese estate: the Tapada Real . Fundação da Casa de Bragança. 72 pp. (In Portuguese)

Pereira J.S., Correia A.V., Correia A.P., Pereira J.M.C., Caldeira M.C., Freit A.C., **Bugalho M.N.** et al. (2002). Florestas e Biodiversidade. In: Santos, F.D.; Forbes, K. Moita R.(Eds). *Climate Change in Portugal : Effects, Scenarios and Mitigation Measures*. Gradiva. Lisboa. (in Portuguese)

Other publications (Books of Proceedings, Portuguese Scientific Journals, Reports):

Branco O, **Bugalho MN**, Silva LN, Bareira R., Vaz P. Silva-Dias, F (2010). Hotspot areas for biodiversity and conservation in Montados. Technical Report. WWF MedPo.

**Bugalho MN** and Rocha P. (2009). Socio-economic benefits of Natura 2000: Case study of the ecosystem services provided by the Natural Park of Vale do Guadiana. Output of the European Commission project: Financing Natura 2000: Cost estimate and benefits of Natura 2000 Contract No.: 070307/2007/484403/MAR/B2.

Silva L., **Bugalho M.N.**, do Ó A.(2008).Heat waves and forest fires: Summer 2003 in Portugal. WWF Report. In: (Eds) Stolton S., Dudley N. and Randall J. *Natural Security Protected areas and hazard mitigation*. WWF Report pp:74-79

**Bugalho MN**, Lecomte X., Sara P. Caldeira MC. (2006) "Effects of deer on grassland diversity and the natural regeneration of oaks". *Revista de Ciências Agrárias*, 29:145-150. (In Portuguese)  
Caldeira, M.C., **Bugalho, M.N.**, Pereira J.S. (2000). Biodiversity and Ecosystem Functioning. *Revista de Ciências Agrárias*. 23:3-18. (In Portuguese)

**Bugalho MN**, Milne JA, Mayes RW.(1998). The diet of red deer in Southern Portugal in relation to food availability. In *Advances in Deer Biology* (Ed by Z. Zomborszky), pp: 216-218. Pannon University of Agriculture, Kaposvar, Hungary.

**Bugalho M.N.**, e Borralho, R.(1996) Some comments on predation and competition and their role on the structuring of natural communities. *Silva Lusitana*. 4:71-77.

**Bugalho, M.N.** (1995). Food Utilization and Niche Separation on Large Mammalian Herbivores. *Revista de Ciências Agrárias*. 18:75-82.

**Bugalho, M.N.** (1995). Disturbance - its relevance for the study of plant communities. *Silva lusitana*, 3 (1): 65-72

**Bugalho, M.N.** (1994). Grazing and Nature Conservation. *Pastagens e Forragens*. 14/15: 257-262 (In Portuguese)

Lisbon, February 2012