

Karen Hardy

KAREN HARDY

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ACADEMIC QUALIFICATIONS.

1993 PhD University College London. British Academy Major State Studentship

1988 DEA (Diplôme des Etudes Approfondies) Institut de Paléontologie Humaine, Paris.

WORK AND EMPLOYMENT HISTORY

2008 - Current ICREA Research Professor at the Universitat Autònoma de Barcelona, Spain.

2016 - Current, Honorary Research Associate, University of Edinburgh, UK.

2008-2016 Honorary Research Associate, University of York, UK

2005-2008 - European Union Marie Curie Outgoing International Fellow. University of York. Visiting Fellow, University of Sydney Australia.

2002-2005 Post-Doctoral Research Fellow, University of Newcastle upon Tyne. Co-director: Scotland's First Settlers Mesolithic research project, Islay and Jura Caves project (with National Museums of Scotland).

1998-2002 Post-Doctoral Research Fellow, University of Edinburgh/ Co director: Scotland's First Settlers Mesolithic research project, Camas Daraich Mesolithic project.

1996 – 1998 Project manager, post excavation project, An Corran, Isle of Skye. National Museums of Scotland. UK

1995 – 1996 Research Assistant, Ethnography of stone tool use in Papua New Guinea, University of Durham, UK.

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Leaves of absence

Five periods of maternity leave (5 children): 1989-1990, 1991-1992, 1994-1995, 1999-2000, 2001-2002.

Membership of professional societies

Vice president, *Coastal Prehistory and Submerged Landscapes* Scientific Commission, UISPP

Fellow, ACBA (Associació Catalana de Bioarqueologia); Society of Antiquaries of Scotland; The Prehistoric Society; Archaeology Scotland.

Academic Editor

PLOS ONE

Reviewer

Funding agencies

ERC (European Research Council), National Science Foundation, USA, Danish Research Council, The Leakey Foundation, USA, National Geographic USA, Elettra - Sincrotrone Trieste Italy, University of Durham UK, Ikerbasque Spain.

Journals

Nature Communications, Scientific Reports, Proceedings of the National Academy of Science, PLOS ONE, Journal of Human Evolution, American Journal of Physical Anthropology, Economic Botany, Journal of Archaeological Science, Ethnoarchaeology, Journal of Island and Coastal Archaeology, Proceedings of the Royal Irish Academy, Archaeometry, Antiquity, Proceedings of the Prehistoric Society, Journal of Palaeolithic Archaeology, International Journal of Osteoarchaeology, Cereal Chemistry, Journal of Ethnopharmacology. Phytochemistry, Biology Reviews, Archaeological and Anthropological Sciences, Plants, World Archaeology, Lithic Technology, African Archaeological Review.

Invited talks

2020 and 2021 Highland Archaeology Week, Scotland. September 2020

2019. Keynote speaker, 12th Brazilian Symposium of Pharmacognosy and the 17th Latin American Symposium of Pharmacobotany, Petrópolis city, Rio de Janeiro State, Brazil. Paleomedicine and the use of plant secondary compounds in human evolution.
2019. University of Cantabria. Cómo reconstruir el uso de las plantas en el paleolítico temprano.
2018. EAA Barcelona. Conference organising committee member, and two presentations.
2018. Session organiser UISPP conference, Paris. Commission on Coastal Prehistory and Submerged Landscapes. (2 sessions: XX-1 The Archaeology of submerged landscapes; XX-2 Shell mounds, shell middens and coastal resources)
2018. Calpe Conference, Gibraltar. Neanderthal: The Conference. Omnivorous Neanderthals: Plants as food, medicine and raw materials in the Middle Palaeolithic
2017. Society of Antiquaries of Scotland and National Museums of Scotland.
2017. Coping with Climate: the legacy of *H.heidelbergensis*. University of Bristol, UK.
2016. Shell midden workshop and field trip leader. Senegal. German Archaeological Institute (DAI).
- 2015 International Radiocarbon Conference, November 2015. Poster presentation. Karen Hardy, Abdoulaye Camara. 5000 years of Shell Middens in the Saloum Delta, Senegal.
- 2014 University of Cranfield. 30 April. Dental calculus. A window into the past. Karen Hardy, Stephen Buckley.
- 2014 UISPP, Burgos, September 2014. 'The minutiae of life. Diet and local environment at Qesem Cave from material entrapped in dental calculus.' Karen Hardy, Anita Radini, Stephen Buckley, Rachel Sarig, Israel HersHKoviz, Ran Barkai, Avi Gopher
- 2014 UISPP, Burgos. September 2014. 'Coastal resource use in North West Scotland; combining traditional and new techniques' Karen Hardy
- 2014 UISPP, Burgos, September 2014. 'Creating a reference collection of hafting adhesives to interpret some "black spot" residues on lithic artefacts.' A. Ollé, L. Asryan, B. Bazgir, J. L. Fernández-Marchena, K. Hardy, S. Buckley, P. Loza, M. Marro, A. Pedernana

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2013 Palaeolithic-Mesolithic Discussion Group. Ancient biographies entrapped in dental calculus: a new route to understanding the past? University of Cambridge, UK. 25th January.

2013 Travelling Workshop on Community Museums, Presentation: Archéologie et ethnoarchéologie dans la Delta du Saloum. LMI-PATEO network, Institut de Recherche pour le Développement (IRD), France. 25th February – 8th March.

2013 Omnivorous Neanderthals. New perspectives on diet and environmental knowledge in the Middle Palaeolithic. Tel Aviv University, Israel. 1st May.

2013 Orkney Archaeological Society. New ways to track old habits; dental calculus and what's inside it. 29th May. St Magnus Centre, Kirkwall, Orkney

2013 Lithic Research in Scottish Prehistory. Discussant. University of Glasgow, 13th December.

2006 Préhistoire et ethnographie du travail des plantes. Workshop, Ghent , Belgium.
Where would be without string? Karen Hardy

Conference and session organisation

2018. UISPP, Paris. **Session organiser**, session XX-I, session XX-II,
<http://www.uispp.org/>

2015 **Invited session organiser**. 21st EAA (European Association of Archaeology), Annual Meeting 2013, Glasgow, Scotland. AM 23. **Materiality and mobility**.

2013 **Session organiser**. 19th EAA (European Association of Archaeology), Annual Meeting 2013, Pilsen, Czech Republic. **Mesolithic survivals: Origins and perpetuation of wild resource use**.

2012. Session organiser. 18th EAA (European Association of Archaeology), Annual Meeting 2012, Helsinki, Finland, 29August–1st September **Not just meat: food before farming**.

2008. **Conference: Shell Energy**, Dakar, Senegal. Co-organiser. Funded by the Wenner Gren Foundation and the University of York.

2007 **Conference: Archaeological Invisibility and Forgotten Knowledge**, WAC (World Archaeology Congress) Inter-congress, Co-organiser Lodz University, Poland. Funded by Wenner Gren Foundation and University of Lodz.

Prizes, awards and esteem indicators.

Irene Levi Sala Prize for PhD. University College London 1993.

Hardy et al., 2012 (see publications list) selected as one of the 10 most important archaeological discoveries of 2012, Archaeological Institute of America.

Most read article in journal in 2016, 2017, 2018. **Hardy, K**, et al. 2015. The importance of dietary carbohydrate in human evolution. *The Quarterly Review of Biology*; 90(3)251-268 DOI: 10.1086/682587:

Projects and funding obtained.

Date	Role	Funder	Project	Award
2020-2025	Sub project lead	ERC	Animals Make Identities Due to Covid, my part of the project was moved so now I only receive expenses. My student who was going to be in the UAB, will now be based in Helsinki.	Was 75,000, now expenses only
2017 - 2023	Participant	AGAUR - Generalitat de Catalunya	TEDAS research group (<u>SGR 243</u>)	80,000 (26,666 to KH)
2020-2023	Participant	MICINN	PID2019-109254GB-C21.	5500 (2020-21)
2020-2020	Participant	Netherlands Organisation for Scientific Research	Swifterbant culture sites coprolite analysis	1050
2018-2020	Participant	National Science Centre, Poland	Khor Shambat, Sudan	4000
2020-21	PI	The Prehistoric Society	Early human populations of the north-west European frontier	€2040
2019-2021	PI	Society of Antiquaries of Scotland.	Early human populations of the north-west European frontier	€8,000
2016-2017	Participant	AHRC, UK Network grant. (Universities of Southampton, Brighton)	Coping with Climate: the legacy of <i>H. heidelbergensis</i>	Expenses
2016-2017	PI	The British Academy	Early human populating of the north-west European frontier	€11,000
2013-2016	PI	I+D micinn Spanish Ministry of Science and Innovation. (Project	Mesolithic and Neolithic dietary comparisons from material entrapped in dental	€45,000

		code HAR2012-3537)	calculus.	
2012	PI	Society of Antiquaries of Scotland.	Lub Dubh Aird; a prehistoric landscape?	£1400
2012	PI	AGUAR (Agència de Gestió d'Ajuts Universitaris i de Recerca)	Research visit to the University of York, UK	€8438
2010-2012.	PI	I+D micinn Spanish Ministry of Science and Innovation. (Project code HAR2009-07123)	Mesolithic-Neolithic in north west Scotland	€55,000
2010-2012	PI	AECID Spanish Agency for International Development Cooperation	The Sereer Niominka of the Saloum Delta, Senegal	€20,000
2010		AGUAR Agència de Gestió d'Ajuts Universitaris i de Recerca)	Connect-EU Lideratge	€5332.5
2010	Joint PI	Irish Heritage Lottery Fund	Reference collection of indigenous Irish starchy plants, part 2	€6,000
2010	Joint PI	University of York pump priming fund	Integration of sea levels and archaeology, Isle of Skye	£9500
2010	Joint PI	British Academy Small Research Grant	Starch granules at Catalhoyuk	£7500
2008	Participant and project leader	Batista i roca (Generalitat de Catalunya)	Arqueologia de la gestió dels recursos litorals costa oest escòcia	€7500
2008	Joint PI	Irish Heritage Lottery Fund	Reference collection of indigenous Irish starchy plants, part 2	€6,000
2007	Joint PI	Wenner Gren Foundation	Conference grant	\$15,000
2007	PI	University of York	Strategic Equipment Fund	£10,000
2006	Joint PI	Wenner Gren Foundation	Conference grant	\$15,000
2005	PI	European Union (Individual fellowships)	EU Marie Curie <i>Outgoing International Fellowship</i>	£203,823
2005	PI	European Union (Individual fellowships)	EU Marie Curie <i>Intra European Fellowship (IEF)</i>	Equiv. OIF, Not accepted

2003	author	British Academy <i>Small Research Grant</i>	SEM analysis of bone tools	£4,500
2003	author	Various, incl. Munro Fund	Islay Caves project	~£5000
2003	author	British Academy <i>Small Research Grant</i>	Research on ethnographic material from Papua New Guinea	£4,250
2002	author	British Academy <i>Large Research Grant</i>	Sea Loch Survey, Inner Sound	£19,765
1998-2005	Joint PI	Historic Scotland; AHRC; The Prehistoric Society; Society of Antiquaries of London; Society of Antiquaries of Scotland; Many private donations.	Scotland's First Settlers and Camas Daraich projects	~£200,000
1995	author	British Academy <i>Small Research Grant</i>	Analysis of ethnographic stone tool collection and field notes from Papua New Guinea	£3,700

Publications

Book and special issue editor

Hardy, K., Bailey, G. 2021. Guest Editors. Coastal Prehistory and Submerged Landscapes: Molluscan Resources, Shell-Midden Formation and Underwater Investigations. *Quaternary International Special Issue*. 584

Hardy, K., L. Kubiak-Martens (eds.) 2016. *Wild Harvest: Plants in the Hominin and Pre-Agrarian Human Worlds*. Studying Scientific Archaeology Series, 2. Oxbow Books, Oxford.

Bailey G. **K. Hardy**, A. Camara (eds.) 2013. *Shell Energy. Mollusc shells as coastal resources*. Oxbow Books, Oxford.

Hardy K (Ed.) 2010. *Archaeological Invisibility and Forgotten Knowledge*. BAR International Series 2183.

Journal articles and book chapters

2022

Hardy, K., Bocherens, H., Brand Miller, J., Copeland, L. 2022. Reconstructing Palaeolithic diet, the case for carbohydrates. *Journal of Human Evolution*, 162, 103105.

Hardy, K., 2022. The consumption of plants by Neanderthals. In *Updating Neanderthals*, edited by Francesca Romagnoli, Florent Rivals, Stefano Benazzi. Elsevier, chapter 9.

Hardy, K. 2022. Shape shifting. Academia, motherhood and new perspectives on some very old questions. In, M. Díaz-Andreu, M. Portillo, *Arqueología e interdisciplinaridad: la microhistoria de una revolución en la arqueología española (1970-2020)*

Hardy, K., 2022. Starch granule analysis. In; Kubiak-Martens, L., van der Linden M. (Eds) *Neolithic Human Diet Based on Studies of Coprolites from the Swifterbant Culture Sites, The Netherlands*. Nederlandse Archeologische Rapporten. Cultural Heritage Agency of the Netherlands. Chapter 12.

2021

J. Dunne, M. Jórdeczka, M. Chłodnicki, **K. Hardy**, L. Kubiak-Martens, M. Moskal-del Hoyo, M. Osypińska, M. Portillo, I. Sobkowiak-Tabaka, K. Manning and R.P. Evershed, 2021 Diet and subsistence strategies of the Mesolithic and Neolithic societies of Khor Shambat 1, Sudan. *Antiquity*, First View. 1-20

Hardy, K., Ballin, T., Bicket, A. 2021 Rapidly Changing Worlds. Finding the Earliest Human Occupations on Scotland's North-west Coastline. *Quaternary International* 584. <https://doi.org/10.1016/j.quaint.2020.10.060>

Hardy, K., Bailey, G. 2021. Introduction. Coastal Prehistory and Submerged Landscapes: Molluscan Resources, Shell-Midden Formation and Underwater Investigations. *Quaternary International Special Issue* 584

Hardy, K. 2021. Paleomedicine and the Evolutionary Context of Medicinal Plant Use. *Revista Brasileira de Farmacognosia* **31**,1–15.

2020

Bailey, G.N., Momber, G., Bell, M., Tizzard, L., **Hardy, K.**, Tidbury, L., Benjamin, J., Bicket, A., Bell, M., Hale, A. 2020. Great Britain: The Intertidal and Underwater Archaeology of Britain's Submerged Landscapes. In Bailey, G.N., Galanidou, N, Peeters, H., Joens, H., Mennenga, M. (Eds.). *Prehistoric Archaeology of the European Continental Shelf*. Springer.

2019

Hardy, K. 2019. Paleomedicine and the use of plant secondary compounds in the Paleolithic and Early Neolithic. *Evolutionary Anthropology*: 28(2) 60-71.

2018.

Hardy, K., Buckley, S., Copeland, L. 2018. Pleistocene dental calculus: Recovering information on Paleolithic food items, medicines, paleoenvironment and microbes. *Evolutionary Anthropology* 2018:1-8. <https://rdcu.be/9pIn>

Hardy, K. 2018. Plant use in the Lower and Middle Palaeolithic: Food, medicine, and raw materials. *Quaternary Science Reviews*. 191:393-405.
<https://doi.org/10.1016/j.quascirev.2018>

Copeland, L., **Hardy, K.** 2018. Archaeological Starch. *Agronomy* 8(1), 4;
doi:[10.3390/agronomy8010004](https://doi.org/10.3390/agronomy8010004)

2017

Hardy, K., Buckley, S. 2017. Earliest evidence of bitumen from *Homo* sp. teeth is from El Sidrón. *American Journal of Physical Anthropology*.

Weyrich, LS, Duchene S, Soubrier J, Arriola L, Llamas B, Breen J, Morris AG, Alt KW, Caramelli D, Dresely V, Farrell M, Farrer AG, Francken M, Gully N, Haak W, **Hardy K**, Harvati K, Held P, Holmes EC, Kaidonis J, Lalueza-Fox C, de la Rasilla M, Rosas A, Semal P, Soltysiak A, Townsend G, Usai D, Wahl J, Huson DH, Dobney K, Cooper A. 2017. Neanderthal behaviour, diet, and disease inferred from ancient DNA in dental calculus. *Nature* 544(7650), 357-361.

Camara A., **Hardy K.**, Carre M, Dioh M., Gueye, M., Sall, M., Pique R. Diouf ,

MW. 2017. Amas et sites coquilliers du delta du Saloum. Passé et présent.

L'Anthropologie

Hardy, K. Shell middens. 2017. In M Allen (ed.) *Molluscs in Archaeology*. Studying Scientific Archaeology Series 3, Oxbow Books, Oxford: 259-272.

Radini, A., Buckley, S., Nikita, E., Copeland, L., **Hardy, K***. 2017. Beyond Food: The rich and varied pathways for inclusion of microscopic remains into ancient dental calculus. 2017. *Yearbook of Physical Anthropology* 162, 71-83.

DOI:10.1002/ajpa.23147 ***Corresponding and senior author.**

Hardy, K., Radini, A., Buckley, S., Blasco, R., Copeland, L., Burjachs, F., Girbal, J., Yll, R., Carbonell, E., Bermudez de Castro J. 2017. Diet and environment 1.2 million years ago revealed through analysis of dental calculus from Europe's oldest hominin at Sima del Elefante, Spain. *The Science of Nature* 104, (1-2) 2

2016

Hardy, K., Benjamin J, Bicket A, McCarthy J, Ballin T. 2016. Lub Dubh Aird: a seamless Mesolithic landscape in northwest Scotland. *Proceedings of the Society of Antiquaries of Scotland* 145. 27-39.

Hardy, K., Buckley, S., Huffman, M. 2016. Doctors, chefs or hominin animals? Non-edible plants and Neanderthals. *Antiquity* 90, 1373-1379.

Radini, A. Buckley, S., Rosas, A., Estalrich, A., de la Rasilla, M., **Hardy, K.*** 2016. Neanderthals and Trees: Non-edible conifer fibres found in Neanderthal dental calculus suggests extra-masticatory activity. *Antiquity* 90 (350) 290-301.

***Corresponding and senior author.**

Hardy K. A. Camara, R. Pique, E. Dioh, M. Guèye, H. Diaw Diadhiou, M. Faye, M. Carré 2016. Shellfishing and shell middens in the Saloum Delta, Senegal. *Journal of Anthropological Archaeology*. 41 (19-32). DOI 10.1016/j.jaa.2015.11.001

Hardy, K., Kubiak Martens, L. 2016. Introduction. In **Hardy, K.**, L. Kubiak Martens (eds.) 2015. Wild Harvest: Plants in the Hominin and Pre-Agrarian Human Worlds, 1-16. Oxbow Books, Oxford.

Hardy, K. 2016. Plants as raw materials. In **Hardy, K., L. Kubiak Martens** (eds.) 2016. *Wild Harvest: Plants in the Hominin and Pre-Agrarian Human Worlds*. Oxbow Books, Oxford. Chapter 4.

Hardy, K., Buckley, S. Stable isotopes and mass spectrometry. In **Hardy, K., L. Kubiak Martens** (eds.) 2016. *Wild Harvest: Plants in the Hominin and Pre-Agrarian Human Worlds*. Oxbow Books, Oxford. Chapter 12.

Piqué, R., Gueye, M., **Hardy, K.,** Camara, A., Dioh, E. 2016. Not just shellfish: Wild terrestrial resource use among the people of the Saloum Delta, Senegal in. S Biagetti and F Lugli (eds). *The Intangible Elements of Culture in Ethnoarchaeological Research*. Springer

2015

Hardy, K, Brand Miller, J, Brown, KJ, Thomas, MG, Copeland, L. 2015. The importance of dietary carbohydrate in human evolution. *The Quarterly Review of Biology*; 90(3)251-268 DOI: 10.1086/682587

Hardy, K., Radini, A., Buckley, S., Sarig, R., Copeland, L., Gopher, A., & Barkai, R. 2015. Dental calculus reveals potential respiratory irritants and ingestion of essential plant-based nutrients at Lower Palaeolithic Qesem Cave Israel. *Quaternary International. Special volume on Qesem Cave*. DOI 10.1016/j.quaint.2015.04.033.

Hardy, K. 2015. Variable Use of Coastal Resources in Prehistoric and Historic Periods in Western Scotland. *Journal of Island and Coastal Archaeology*, DOI: 10.1080/15564894.2015.1103336

2014

Buckley, S, Usai D, Jakob T, Radini A, **Hardy K***. 2014. Dental calculus reveals evidence for food, medicine, cooking and plant processing in prehistoric Central Sudan. PLOS ONE PLoS ONE 9(7): e100808. doi:10.1371/journal.pone.0100808

***Corresponding and senior author)**

Estevez J., Suarez-Villagran X., Balbo A., **Hardy K.** 2014. Microtaphonomy of archaeological sites. *Quaternary International*. 330 (2014): 3-9. 5

2013

Hardy K. 2013. The shell middens of Scotland's Inner Sound. In Bailey G. **K. Hardy**, A Camara. *Shell Energy: Mollusc shells as coastal resources*. Oxbow Books, Oxford

Hardy K., Buckley S. Huffman M. 2013. Neanderthal self-medication in context. *Antiquity* 87, 337, pp. 873-878

Hardy K., van de Locht R., Wilson J., Tugay O. 2013. Starch granules and complex carbohydrates at Çatalhöyük. In Hodder I (ed.) *Humans and landscapes of Çatalhöyük: reports from the 2000-2008 seasons*. McDonald Institute for Archaeological Research Monograph. Cambridge. Pages 191-211.

Verdún Castelló E. Colonese, A., **Hardy, K.**, Estévez, J. 2013. Distribution and abundance of intertidal rocky shore molluscs in Southern Skye (Scotland): implications for prehistoric coastal economy in North Atlantic. In, Daire, M.Y., Dupont, C., Baudry, A., Billard, C., Large, J.M., Lespez, L., Normand, E., Scarre, C. (Eds.). *Anciens peuplements littoraux et relations Homme/Milieu sur les côtes de l'Europe atlantique. Ancient Maritime Communities and the Relationship between People and Environment along the European Atlantic Coasts*. BAR International Series, 2570, 561-570.

Terradas, X., Ibañez, J.J., Braemer, F., **Hardy, K.**, Iriarte, E., Madella, M., Ortega, D., Radini, A., Teira, L.C., 2013. Natufian bedrock mortars at Qarassa 3: preliminary results from an interdisciplinary methodology. In Borrell, F., Ibañez, J.J., Molist, M. (Eds.) *Stone Tools in Transition: From Hunter-Gatherers to Farming Societies in the Near East*. Universitat Autònoma de Barcelona, Barcelona, pp. 441-456.

2012

Hardy, K., Buckley, S., Collins M.J., Estalrich, A., Brothwell, D., Copeland, L., García-Tabernero, A., García-Vargas, S., de la Rasilla, M., Lalueza-Fox, C., Huguet, R., Bastir, M., Santamaría, D., Madella, M., Fernández Cortés, A., Rosas, A.

2012. Neanderthal medics? Evidence for food, cooking and medicinal plants entrapped in dental calculus. *Naturwissenschaften* 99(8)617-626. DOI: 10.1007/s00114-012-0942-0

Saville, A., **Hardy, K.**, Miket, R., Bjarke Ballin, T. 2012. *An Corran, Staffin, Skye: a rockshelter with Mesolithic and later occupation*. SAIR 51.

<http://www.sair.org.uk/sair51/>

Clarke A, Vila A, Estevez J, **Hardy K.** 2012. The Tie That Binds? An incised Mesolithic bevelled pebble from Camas Daraich, Skye. *Mesolithic Miscellany* 22:1. 1

Hardy K. 2012. Not just meat: The role of plants in paleonutritional reassessment. *The European Archaeologist*. Issue 38: 89-91.

2011

Mansur M.E., **Hardy K.**, Pique R. 2011. Landscape and human settlement dynamics in insular environments. An archaeological approach. *Arctic and Antarctic. International Journal of circumpolar sociocultural issues*.

2010

Wilson, J., **Hardy, K.**, Allen, R., Copeland, L., Wrangham, R. Collins, M. 2010. Automated classification of starch granules using supervised pattern recognition of morphological properties. *Journal of Archaeological Science* 37, 594-604 18

Hardy K. 2010. Use of shells as raw material for tools and jewellery in Mesolithic Scotland. *Munibe* 31:128-137.

Chapman J., Gillings M., Biró K., **Hardy K.** 2010. Interpretation of prehistoric field survey data. In Chapman J., M.Gillings, R. Shiel, E. Magyari, B. Gaydarska and C. Bond. *The Upper Tisza Project. Studies in Hungarian Landscape Archaeology. Book 3: Settlement Patterns in the Zemplén Block*. Chapter 5. BAR International series S2088.

Hardy, K., L. Stowe, D. Telford, J. Chapman. 2010. Lithics. In Chapman J., M.Gillings, R. Shiel, E. Magyari, B. Gaydarska and C. Bond. *The Upper Tisza Project. Studies in Hungarian Landscape Archaeology. Book 4: Lowland Settlement in North East Hungary: Excavations at the Neolithic Settlement Site of Polgár-10*. Ch. 8. BAR International series S2089.

2009

Hardy K. Blakeney B., Copeland L, Kirkham J., Wrangham R., Collins M. 2009. Starch granules, dental calculus and new perspectives on ancient diet. *Journal of Archaeological Science* 36, 248–255 <http://dx.doi.org/10.1016/j.jas.2008.09.015>

Hardy K, C.R. Wickham-Jones (eds.) 2009. Mesolithic and later sites around the Inner Sound, Scotland: the Scotland's First Settlers project 1998 – 2004. SAIR. 31 (*Scottish Archaeological Internet Reports*) www.sair.org.uk

Hardy K. & R. Piqué 2009. Hunters and gatherers on the edge. Foraging for the past at continental limits. *Antiquity* 83:320.

Hardy K., S Birch, R. Shiel. 2009. Bevel-ended bone tools from Scottish Mesolithic sites. In, S. McCartan, R. Schulting, G. Warren and P. Woodman. (Eds.) *Mesolithic Horizons: Papers presented at the Seventh International Conference on the Mesolithic in Europe, Belfast 2005*. volume II, 766-771 Oxford, Oxbow Books.

Hardy K. 2009. Recent stone tool use and material culture of the Wola, Papua New Guinea. In, S. McCartan, R. Schulting, G. Warren and P. Woodman. (Eds.) *Mesolithic Horizons: Papers presented at the Seventh International Conference on the Mesolithic in Europe, Belfast 2005*. volume II, 838-844. Oxford, Oxbow Books.

Hardy K and D. Caldwell. 2009. Cave dwelling; new evidence from the West *History Scotland* Vol. 9 No. 2

2008

Hardy K. 2008. Prehistoric String Theory. How twisted fibres helped to shape the world. *Antiquity* 82.271·280

2007

Hardy K, R. Shiel & D. Manning. 2007. Residues and use-wear analysis. In Waddington, C. (Ed.) *Mesolithic Settlement in the North Sea Basin. A Case Study from Howick*, Northumberland. Oxford, Oxbow.

Hardy K. Food for thought. Tubers, seeds and starch in hunter gatherer diet. 2007. *Mesolithic Miscellany*.18:2.

Hardy K. 2007. Survival, extraction and identification of starch granules at Kaman-Kalehöyük, Turkey. *Anatolian Archaeological Studies XVI*. Kaman Kalehöyük 16: 189-194. Japanese Institute of Anatolian Studies, The Middle Eastern Cultural Centre in Japan.

Hardy K. 2007. Where would we be without string? Evidence for the use, manufacture and role of string in the Upper Palaeolithic and Mesolithic of northern Europe. In Beugnier V., Crombé P. *Préhistoire et ethnographie du travail des plantes Actes de la Table ronde de l'Université de Gandt (Belgique)*. BAR International Series 1718, 9-22.

2006

Chapman J., Gaydarska B., **Hardy K.** 2006. Does enclosure make a difference? A view from the Balkans. A. Harding, S. Sievers and N. Venclova eds. *Enclosing the Past: inside and outside in prehistory*. Sheffield, J.R. Collis Publications, pp 5-19.

Hardy K. 2006. La litica tallada y la cultura material de los Wola, de Papua, Nueva Guinea. *Proceedings of the Etnoarqueologia de la prehistòria: més enllà de l'analogia conference*. Barcelona Sept 2004. Departament d'Arqueologia i Antropologia. Institutio Mila I Fontanels. CSIC. Barcelona

Hardy K. 2006. Plants for food plants as raw materials: plant use in the past and one way to detect it. *Past*. April 2006.

2004

Wickham-Jones, C.R., **K. Hardy** 2004. Camas Daraich: A Mesolithic site at Point of Sleat, Skye. SAIR. 12 (*Scottish Archaeological Internet Reports*) www.sair.org.uk

Hardy K., C. R. Wickham-Jones 2004. Scotland's First Settlers. The study of an archaeological seascape. *Proceedings of the Scottish Archaeological Forum* 2001: Modern Views - Ancient Lands: New Work and Thought on Cultural Landscape.

2003

Hardy K. & P Sillitoe. 2003. Material Perspectives: stone tool use and material culture among the Wola, PNG. *Internet Archaeology*:14.

Sillitoe P., **K. Hardy** 2003. Living Lithics. Ethnography and archaeology in Highland Papua New Guinea. *Antiquity*: 77(297):555-566.

Hardy K., C.R. Wickham-Jones 2003. Scotland's First Settlers: An Investigation into Settlement, territoriality and mobility during the Mesolithic in the Inner Sound, Scotland, in L. Larsson, H. Kindgren, A. Åkerlund, K. Kuntsson K. and D. Loeffler. *Mesolithic on the Move: Proceedings of the Meso 2000 conference*, Oxford: Oxbow Books.

2002

Hardy K., C.R. Wickham-Jones 2002. Scotland's First Settlers: the Mesolithic Seascape of the Inner Sound, Skye and its contribution to the early prehistory of Scotland. *Antiquity* 76(3) 825-833.

Hardy K. & Wickham-Jones CR 2001. Scotland's First Settlers, a project to investigate the earliest settlement of west coast Scotland, *History Scotland*, 1, 22-7.

Popular archaeology magazines

Hardy K. 2009. Poor oral hygiene, a key to understanding ancient diet. *British Archaeology* 105.

Hardy K. 2009. Tracking hunters and gatherers on the continental limits. *British Archaeology* 109.

Eogan, J., Hardy, K. 2008 Back to the old grindstone. *Seanda*. NRA archaeology magazine, 8, 60-61.

FIELD REPORTS.

2021. Hardy, K. (Ed.). South Cuidrach, Isle of Skye. Data Structure Report (50 pages). Interim field report. Unpublished.

2020. Hardy, Wildgoose, M., Ballin, T. South Cuidrach, Isle of Skye. Data Structure Report (42 pages). Interim field report. Unpublished.

2019. Hardy, Wildgoose, M., Ballin, T. South Cuidrach, Isle of Skye. Data Structure Report (58 pages). Interim field report. Unpublished.

2018. Hardy, Wildgoose, M., South Cuidrach, Isle of Skye. Data Structure Report (22 pages). Interim field report. Unpublished.

2018. Hardy, Wildgoose, M., Ballin, T. South Cuidrach, Isle of Skye. *Discovery and Excavation, New Series* 18:128.

2016. Hardy K. Early prehistory of Isle of Skye and adjacent areas 2. Data Structure Report. Interim field report. Unpublished.

2014. Hardy, K. A new early Mesolithic site at Shildaig, Wester Ross. *Discovery and Excavation, New Series*, 15:92-93.

2014. Hardy K. Estevez J. (eds.) Early prehistory of Isle of Skye and adjacent areas 2. Data Structure Report. (Submitted to Historic Scotland, Royal Commission of Ancient and Historic Monuments, National Monuments Records).

2012. Hardy K., Benjamin, J., Bicket, A., McCarthy, J., Ballin T. Lub Dubh Aird: a prehistoric landscape. *Discovery and Excavation in Scotland* , New Series 13:93-94.

2011 Hardy K. Estevez J. (eds.) Early prehistory of Isle of Skye and adjacent areas 1. Data Structure Report. (Submitted to Historic Scotland, Royal Commission of Ancient and Historic Monuments, National Monuments Records) 128p.

2010 Hardy, K., J. Estevez, A. Vila. Early prehistory of Isle of Skye and adjacent areas. *Discovery and Excavation in Scotland* New Series 11:102

2010 James Eogan, Karen Hardy, Meriel McClatchie and Dominic Berridge. Food plants in the Past. A Reference Collection of Starch from Tuberous Food Plants. Stage 2.

2009. Eogan J. , Hardy K. and M McClatchie. Food plants in the past. Building a reference collection of microscopic food plant remains. Stage 1.

2009 Hardy, K and Pique, R, Early Prehistory of Isle of Skye and Adjacent Areas - Isle of Skye, Raasay and Glenelg (Glenelg, Portree, Sleat parishes) coastal survey', *Discovery and Excavation in Scotland*, Volume 10 (2009):99.

2009 van der Locht R. & Hardy K. Starch Catalhoyuk Archive report 2009 <http://www.catalhoyuk.com/>

2008 van der Locht R. & Hardy K. Starch Catalhoyuk Archive report 2008 <http://www.catalhoyuk.com/>

2007 Hardy K. Starch Catalhoyuk Archive report 2008 <http://www.catalhoyuk.com/>

2004. Hardy K. Islay and Jura Caves. *Discovery and Excavation in Scotland*. The Journal of the Council for Scottish Archaeology, Edinburgh.

2003, Hardy K, Islay, coastal caves: *Data Structure Report*. University of Edinburgh.

2003. Hardy K. Islay, coastal caves. *Discovery and Excavation in Scotland*. The Journal of the Council for Scottish Archaeology, Edinburgh.

2002. Hardy K, & Wickham-Jones CR, Inner Sound: Survey and Excavation. *Discovery and Excavation in Scotland 2001*. New Series volume 2. The Journal of the Council for Scottish Archaeology, Edinburgh. 61 – 2.

2002. Hardy K, & Wickham-Jones CR Inner Sound: Rona, Loch Torridon & Loch Carron: survey and test pitting. *Discovery and Excavation in Scotland 2002*. New Series volume 3. The Journal of the Council for Scottish Archaeology, Edinburgh. 60-1.

2002. Hardy K, & Wickham-Jones CR *Scotland's First Settlers: Data Structure Report 2002*, University of Edinburgh.

2002. Hardy K. Islay, coastal caves. *Discovery and Excavation in Scotland*. The Journal of the Council for Scottish Archaeology, Edinburgh.

2002 Hardy K., C.R. Wickham-Jones Inner Sound: Survey and Excavation *Discovery and Excavation in Scotland*. The Journal of the Council for Scottish Archaeology, Edinburgh.

2001. Hardy K & Wickham-Jones CR Inner Sound: Survey and Excavation. *Discovery and Excavation in Scotland 2000*, New Series, Volume 1. Edinburgh. 44 - 5.

2001. Hardy K, & Wickham-Jones CR *Scotland's First Settlers: Data Structure Report*. University of Edinburgh.

2000. Finlayson B, Hardy K, & Wickham-Jones CR Inner Sound, Survey and trial excavation, *Discovery and Excavation in Scotland 1999*, Edinburgh. 49 - 50.

2000. Hardy K, & Wickham-Jones CR *Scotland's First Settlers: Data Structure Report*. Edinburgh.

1999. Finlayson B, Hardy K, & Birch S, Wickham-Jones CR & Wildgoose M Crowlin Islands, Eilean Mor, *Discovery and Excavation in Scotland 1998*, Edinburgh. 46.

1999. Finlayson B, Hardy K, & Wickham-Jones CR *Scotland's First Settlers: Data Structure Report*. Edinburgh.

CONFERENCE ATTENDANCE 2005 -2017

2018. UISPP, Paris. Session organiser and speaker.

2017. Recent developments in the early prehistory of the Scottish North West Coast.

Scotland's earliest people, their landscape and houses, Society of Antiquaries of Scotland. (Invited speaker)

2017 Coping with Climate change. AHRC network conference, University of Bristol, UK (Invited speaker).

2016 Coastal resource use in North West Scotland in the Mesolithic and later periods.

DAI (German Archaeological Institute) funded workshop and fieldtrip, Senegal. (invited speaker)

2015 Unravelling the Palaeolithic conference, Oxford University, 21-23 April. Oral presentation. Dental calculus reveals inhaled respiratory irritants and ingestion of essential plant-based nutrients at Lower Palaeolithic Qesem Cave Israel (invited speaker)

2015 EAA Annual conference. Glasgow. 2-5 September. Oral presentation. Dietary, environmental, medicinal and raw material evidence for plants from pre-agricultural contexts identified through chemical compounds and microfossils extracted from dental calculus. Karen Hardy, Stephen Buckley, Anita Radini.

2015 EAA Annual conference. Glasgow. 2-5 September. Oral presentation. Differential deposition patterns and raw material variation as evidence for mobility patterns across space and through time in north west Scotland.

2015 ESHE (European Society of Human Evolution) 10-12 September. London. Diet, medicines, raw materials or palaeoenvironment? A broad approach to materials extracted from palaeolithic dental calculus. K Hardy, A Radini, S Buckley.

2015. MESO 2015. Belgrade. The Mesolithic hut circle at Camas Daraich, Isle of Skye, Scotland. (with Laura Juanola, Ana Franch, Eva Ros, Jordi Estevez).

- 2015 International Radiocarbon Conference, November 2015. Poster presentation (in absentia). Karen Hardy, Abdoulaye Camara,. 5000 years of Shell Middens in the Saloum Delta, Senegal.
2014. Where the Wild Things Are 2.0. University of Durham 8 – 10 January. Oral Presentation; poster presentation
- 2014 UISPP, Burgos, September 2014. Poster presentation. Sieving and sorting: How post-excavation strategies can influence results. Laura Juanola, Anna Franch, Karen Hardy
- 2014 UISPP, Burgos, September 2014. Oral presentation *The Mesolithic hut site of Camas Daraich, Isle of Skye, Scotland. Spatial analysis, raw materials and lithics: first results*. Laura Juanola, Eva Ros, Jordi Estévez Escalera, Manuela Pérez Rodríguez , Karen Hardy
- 2013 Unravelling Human Origins Conference. McDonald Institute for Archaeological Research, Cambridge. UK . Oral communication. Diet and self-medication among Neanderthals. 17th – 18th January. (invited speaker)
- 2013 Muge 150th. Salvaterra de Magos, 1) Participant in oral presentation. Plant foods from Mesolithic Atlantic Europe ; 2) oral presentation, The Saloum Delta Senegal, 3) poster presentation, dental calculus from KanalJordan, Sweden. Portugal. 21st – 23rd March.
2013. II Reunió Oikos de Bioarqueologia, IPHES, Tarragona 26-27 abril. Biographies Antigues atrapedes en càlculs dentals: una nova via per a la comprensió del passat?
- 2013 Camas Daraich and its First Settlers. Sleat Historical Society, Sabhal Mòr Ostaig, UHI (University of the Highlands and Islands), Isle of Skye, Scotland, UK. 25th July. (invited speaker)
- 2013 19th European Association of Archaeologists (EAA) Annual conference, Pilsen, Czech Republic. Session organiser: Mesolithic Survivals: Origins and Perpetuation of wild resource use. Oral presentations: 1) The Changing Nature of Coastal Resource Use. 2) Dental Calculus and Diet at Al Khiday, Sudan. 5th – 7th September.

- 2013 ESHE (European Society for the study of Human Evolution) 3rd annual meeting. Vienna. Oral presentation. ‘Omnivorous Neanderthals. New Perspectives on Diet and Environmental Knowledge in the Middle Palaeolithic.’ 20th – 22nd October.
- 2012 “I Know Where I’m Going” - Remote Access to World Heritage Sites from St Kilda to Uluru, a Conference. UNESCO. Edinburgh 23 – 24th November. 2011. Poster Presentation. *The Saloum Delta*.
- 2012 Third International Conference on Experimental Archaeology. Banyoles, Spain. Poster presentation (with David Tao).
- 2012 Institute of Archaeologists of Ireland conference. Oral presentation . Meriel McClatchie, James Eogan, Karen Hardy, Dominic Berridge: Detecting the use of tuberous food plants through starch granule analyses.
2012. 7th International Conference on the Chipped and Ground Stone Industries of the Pre-Pottery Neolithic Barcelona, 14-17 February. Oral presentation
2012. Where the Wild Things Are: Recent Advances in Palaeolithic and Mesolithic Research. University of Durham, UK. 24-25 March.
- 2012 Taphonomy and archaeozoological research: recent approaches 2nd meeting September 12th–14th, 2012, at the University of Cantabria, Santander (Spain). Estevez J, Balbo A, Hardy K, Microtaphonomy of archaeological sites
- 2012 The Intangible Elements of Culture in Ethnoarchaeological Research, Rome. 21-23 Nov. Hardy K, Pique R, Camara A, Dioh E, Procurement strategies of the Sereer-Niomink, fisher gatherers of the Saloum Delta, Senegal. Pique R, Hardy K, Gueye M. Not just fuel: Food and technology from trees and shrubs, Saloum Delta (Senegal).
- 2011 HOMER, Anciens peuplement littoraux et relations hommes/milieu sur les cotes de l’Europe Atlantique. Vannes, France. 27 September – 1st October 2011. *Distribution and abundance of intertidal rocky shore molluscs in Southern Skye (Scotland)*
- 2011 HOMER, Anciens peuplement littoraux et relations hommes/milieu sur les cotes de l’Europe Atlantique. Vannes, France. 27 September – 1st October 2011. *A question of Scale, new perspective on the Mesolithic of Europe’s north west coastline.*

- 2010 Association of Environmental Archaeology. Environmental Archaeology of the North University of Aberdeen 30th March-1st April 2010. Oral presentation
- 2010 Meso 2010, 8th international conference on the Mesolithic in Europe. 13 – 17 September University of Cantabria. Paper presentation A question of Scale: New perspectives on the Mesolithic of Britain. K Hardy, J Estevez, M E Mansur , R Pique, A Vila
- 2010 Meso 2010, 8th international conference on the Mesolithic in Europe. 13 – 17 September Santander, University of Cantabria. Poster presentation. Potential and limitations for the interpretation of botanical macroremains from Mesolithic shell middens. The case of Sand (Applecross, Island of Skye, Scotland) F. Antolín Tutusaus, M. Berihuete Azorín, K. Hardy
- 2010 All at Sea? Synergies between past & present coastal processes & ecology. Oral presentation. K Selby, K Hardy. Loughborough University, 9 – 10th September
- 2010 I Jornadas internacionales sobre circumpolaridad norte y sur (aspectos socioeconomicos y socioculturales) .Landscape and human settlement dynamics in insular environments. An archaeological approach. M E Mansur , K Hardy and R Pique.
- 2010 59th Annual Conference on Applications of X-ray Analysis. Poster presentation (winner of spotter prize) XRD Winning smiles: analysis of dental calculus in bioarchaeology. S Beckett, C Greenwood, S Ralph, K D. Rogers, K Hardy, J G. Clement.
- 2009 Paper presentation UKAS, Nottingham, UK (September 8 – 10th)
- 2009 Visual presentation. EU Africa Day, Brussels. 18th September (Participation funded by University of York).
- 2009 Paper presentation *XXX^e Rencontres internationales d'archeologie et d'histoire d'Antibes*. Des hommes et des plantes : Exploitation du milieu et gestion des ressources végétales de la Préhistoire à nos jours 22-24 octobre 2009
- 2008 Poster presentation. ISBA 3, (International Society for Biomolecular Archaeology), York.
- 2007 Paper presentations UKAS, Cambridge, TAG, York , BABAO Oxford, UK

2006 Paper presentation UISPP Lisbon. Paper presentation Meso 2005 (2 papers)
Belfast.

OUTREACH AND PRESS COVERAGE (SUMMARY)

- 2019. BYU radio, USA. 'Constant Wonder'. 30 minute radio interview.
<http://www.byuradio.org/constant-wonder>
- 2019. NHK (Japan) The Origin of Food. Episode 1. Carbohydrates (Main specialist contributor). Full participation on location for 3 weeks (Israel, Cantabria, Barcelona).
- 2019. 3.4.19. 'Two million year old toothache may have killed an early human'. New Scientist. Invited Expert Comment.
<https://www.newscientist.com/article/2198666-two-million-year-old-toothache-may-have-killed-an-early-human/>
- 2018. 'Expert commentator' The Atlantic.
<https://www.theatlantic.com/health/archive/2018/10/neanderthal-medicine/573028/>
- 2016. Extensive international press coverage 2017 'Diet and Environment' article and 'Nature' article
- 2016 Extensive Spanish press coverage of 2016 Antiquity article.
- 2015, Reports based on QRB article (Hardy et al., 2015b) included in the BBC '100 things we didn't know last year' <http://www.bbc.co.uk/news/magazine-35132976>
- 2015. Worldwide coverage of QRB article. Summarised in:
<https://www.ucl.ac.uk/mace-lab/media/our-research/real-paleo-diet>.
- Many radio and magazine interviews; e.g. 15 radio interviews on Breakfast show across Canada on QRB article.
- 2015. Worldwide coverage of QI Qesem Cave article: e.g.
<http://www.forbes.com/sites/kristinakillgrove/2015/06/17/oldest-evidence-of-manmade-air-pollution-found-in-dental-plaque-from-palaeolithic-israel/>
- 2014. Hardy, K., La placa dental aporta una perspectiva nova sobre la dieta dels

nostres ancestres prehistòrics *UAB Divulga* October.

- 2014 Numerous interviews and articles related to PLOS ONE article (2014) including *National Geographic*, *El Mundo*, *Voice of America*, *New York Times*, *BBC East*, *BBC 5 Live*, *Dental Tribune International*, *Haaretz*, *Israel*, *Voice of America*, *National Public Radio Washington DC*.
- 2013 Neanderthal self-medication in context article was the subject of a *Der Spiegel* article
- 2012. Numerous interviews and articles related to *Naturwissenschaften* article (Hardy et al, 2012), in newspapers, journals, magazines including *Nature*, *National Geographic*, *New Scientist*, *Scientific American* and across the world (e.g. Russia, Australia, Mexico, Argentina and throughout Europe) in many languages, Spanish TV coverage (various), Spanish radio live interviews, interviewed on BBC Radio 4 ‘Material World’.
- Hardy et al., 2012. The Academic Minute 2ND October. USA Radio show: <http://wamc.org/post/dr-karen-hardy-autonomous-university-barcelona-neanderthals-and-medicinal-plants>
- Hardy et al., 2012 selected as one of the 10 most important archaeological discoveries of 2012, Archaeological Institute of America.
2012 ‘Expert’ commentator, in Barras C., *Farming has deep roots in Chinese Ice Age*. *New Scientist*, 18th March 2013
2016 *Tolerance of smoke may have given us an edge over Neanderthals*. *New Scientist*, 2nd August 2016 <https://www.newscientist.com/article/2099655-tolerance-of-smoke-may-have-given-us-an-edge-over-neanderthals/>
- 2005 – 2011 Participated in several BBC Radio 4 programmes including *Open Country* (interviewed in Skye), and several BBC food programmes.
- BBC Scotland. *The Skye Trail* (Triple Echo Productions).
Numerous lectures to local history societies.