

2nd International Conference on Environmental and Criminal Soil Forensics

Date: 30 October – 1 November 2007

Venue: James Watt Conference Centre 1, Heriot Watt University, Scotland

(Note: The organisation listed is for the first author only)

Programme Final Draft

Evening 17.30 - 19.00 Registration Reception with wine/savouries. Music by The Castle String Quartet.
19.00 Evening free for delegates to choose own dinner arrangements

DAY 1

Tuesday 30 October James Watt Conference Centre 1

08.30 - 09.00 Registration

09.00 - 09.10 Welcome and Introduction to conference **Dr Lorna Dawson and
Professor David Miller**

09.10 - 09.25 Welcome to Edinburgh by Tom Nelson, Director of Forensics Services for the Scottish Police Services Authority, (SPSA)

Session 1 Environmental Soil Forensics Chair Professor Karl Ritz (Session organisers: Professor Karl Ritz, Professor David Miller and Dr Lorna Dawson)

09.30-10.05 *Keynote Speaker* **Dr Stephen Mudge, The University of Wales, Bangor**
“Soil and Sediment Environmental forensics – what do we know?”

10.05 - 10.45 *Case Studies*

10.05 - 10.25 *Jurian Hoogewerff and the TRACE Consortium, University of East Anglia*, “Spatial provenance modelling for food and other natural products”

10.25 - 10.45 *Steve Hillier, Lorna Dawson, Jean Robertson, Evelyne Delbos, Jenny Shiels, Stuart Campbell, Bob Mayes and Jasmine Ross, The Macaulay Institute*, “Provenancing archaeological objects using traces of soil”

10.45 – 11.05 *Refreshments*

11.05 - 11.25 *Pat Pollard, The Robert Gordon University*, “The potential use of a novel heavy metal sensor and novel taggants in environmental forensic investigations”

11.25 - 11.45 *Bob Kalin, David Livingstone Centre for Sustainability, Strathclyde University* “Molecular Chemistry and Isotopes: What are the limits of their Forensic Application?”

11.45 - 12.05 *Isabel Fernandes, University of Porto*, “The causes of deterioration of concrete from a forensic point of view”

- 12.05 - 13.45 *LUNCH and PRESS CONFERENCE*
 Poster session
- Session 2 Criminal Soil Forensics** Chair Ms Marianne Stam (Session organisers: Professor David Miller, Dr Lorna Dawson and Professor Karl Ritz)
- 13.45 - 14.25 *Keynote Speaker* **Professor Rob Fitzpatrick, Centre for Australian Forensic Soil Science**
 “Forensic soil science: current research and case work activities in Australia”
- 14.25 – 15.25 *Case Studies*
 14.25 - 14.45 *Mark Raven, CSIRO Land and Water, “Overview of X-ray diffraction techniques with application to criminal and environmental forensic cases”*
 14.45 - 15.05 *Duncan Pirrie, Matthew R Power, Patricia EJ Wiltshire, Gavyn K Rollinson, Julia Newberry and Holly E Campbell, University of Exeter, "Critical evaluation of the application of automated SEM-EDS (QEMSCAN) mineral analysis in criminal and environmental soil forensics"*
 15.05 – 15.25 *Brad Lee, Tanja Williamson, and Robert Graham, Purdue University, “Identification of stolen rare palm trees by soil morphological and mineralogical properties”*
- 15.25 - 15.45 *Refreshments and posters*
- 15.45 – 17.25 15.45 - 16.05 *Dave Barclay, The Robert Gordon University, “Meeting the user requirement-a case history”*
 16.05 - 16.25 *Olga Gradusova and Ekaterina Michalovana, Russian Federal Center of Forensic Science, “Technogenetics minerals as indicators of the scene of a crime”*
 16.25 - 16.45 *Andrew Moncrieff, Hawkins and Associates, “The Soham Murder Enquiry – The Nature of Evidence and its Context”*
 16.45 - 17.05 *Stewart Black, University of Reading, “Sourcing geological materials left at crime scenes: An isotope approach”*
 17.05 – 17.25 *Ruth Morgan, Peter Bull, Jeanne Freudiger-Bonzon, Jayne Parmee, Sarah Dunkerley, Thomas Jellis and Katharine Nichols, UCL Jill Dando Institute of Crime Science, “The geoforensic analysis of soils from footwear”*
- 18.15 coach *Mercat Walking Tour, Edinburgh city.*
- 19.00 - 20.30
- 20.30 *Delegates free to choose own dinner arrangements*

DAY 2
Wednesday 31
October

James Watt Conference Centre

Session 3 Geoforensics Chair Dr Laurance Donnelly and Dr Jamie Pringle (Session organisers: Dr Laurance Donnelly and Dr Alastair Ruffell)

08.45 - 10.20 *08.45 – 09.05 Ian Hanson, University of Bournemouth, “New Observations on the Interactions between evidence and the upper horizons of the soil”*

09.05 - 09.25 Richard Munroe, Munroe Geological Services Ltd., “Forensic Geology”

09.25 - 09.45 Antoinette Keaney, Queen's University Belfast, “Rapid, non-destructive screening of adhered rock and crystalline material for criminal investigations”

09.45 – 10.20 *Keynote Speaker* **Ms Patricia Wiltshire, University of Aberdeen, “The answer lies (but not always) in the soil”**

10.20 - 10.40 *Refreshments*

10.40 - 11.15 *Keynote Speaker*

Professor Mark Harrison MBE, National Police Improvement Agency
“The coordinated approach of multidisciplinary teams to locate concealed victims of homicide, developing the role of forensic landscape investigation”

Introduction by Dr Laurance Donnelly

11.15 - 12.35 *11.15 – 11.35 Wayne Isphording, University of South Alabama, “The heavy metal component of soils: it’s use in civil and criminal investigations”*

11.35 – 11.55 Ghasem Rahimi, J.S. Robinson and S. Nortcliff, University of Reading, “Assessment of aggregate sizes and phosphorus distribution in terms of landscape positions along Northing tramline”

11.55 - 12.15 Sabine Fiedler, Institute of Soil Science, University Hohenheim, “Localisation of a mass grave from the Nazi Era”

12.15 - 12.35 John Jervis, Keele University, “Towards an understanding of the geophysical response of shallow graves”

12.35 - 13.30 *LUNCH and poster session*

Session 4 Geostatistics, Databases and Geographical Information Systems Chair Ms Pat Bellamy (Session organisers: Ms Pat Bellamy and Dr Mark Brewer)

13.30 - 14.05 *Keynote Speaker* **Dr Murray Lark, Rothamsted Research Institute**
“Geostatistics and uncertainty in spatial variables in relation to forensic investigations”

14.05 - 14.40 *Keynote Speaker* **Professor Colin Aitken, University of Edinburgh**
“Some thoughts on the role of statistics and probabilistic reasoning in the evaluation of evidence”

14.40 - 15.00 *Refreshments and poster session*

15.00 - 16.20 15.00 - 15.20 *Patricia Menchaca, Robert Graham and Marianne Stam, University, of California*, “Update on the Development of a Searchable Forensic Soil Database (SQUID) in California, USA”

15.20 - 15.40 *Heather Kerrigan and Jennifer McKinley, Queens University Belfast* “Case studies in high resolution spatial variability of materials in forensic investigations”

15.40 - 16.00 *Andrew Morrisson, Sue McColl, Lorna Dawson, Sue Cocks, Lynne Macdonald and Bob Mayes.*

Robert Gordon University, Aberdeen/Liverpool John Moores University, “The soil forensic university network - SoilFUN: results from North West England”

16.00 – 16.20 *George Sensabaugh, University of California – Berkeley*, “Microbial Community DNA Profiling: Sample Similarity and Geographic Proximity in a Large Database”

16.20 - 16.30 *Comfort Break*

What, How, Where, Who? Chair: Professor Richard Aspinall

16.30 - 17.50 16.30 - 16.50 *Bob Mayes, Lorna Dawson, Carol Smith, Andrew Morrisson, Jasmine Ross and Sarah Milton, The Macaulay Institute*, “Using gas chromatographic information from plant wax compounds and similar substances for forensic matching of urban garden soils”

16.50 - 17.10 *Stuart Walker, Flinders University*, “A Critical Comparison of Conventional, Classic, Spectroscopic and Elemental Analytical Methods for Forensic and Environmental Soil Investigations”

17.10 - 17.30 *Anna Williams and Tracey Temple, Cranfield University*, “Forensic and environmental responses to pandemics through an applied taphonomic approach”

17.30 – 17.50 *Wolfram Meier-Augenstein, Queen’s University Belfast*, “Stable Isotope Composition of Human Tissue can aid Victim Identification”

19.00 Coach

19.30/20:00 - 00.00

Conference Dinner: “Murder, Mystery and Microscopes” Dinner and Ceilidh, Our Dynamic Earth, Edinburgh

Day 3
Thursday 1
November

James Watt Conference Centre 1

Session 5 Biological and Chemical Analytical Diagnostics Chair: Dr Lorna Dawson (Session organisers: Dr Jacqui Horswell and Professor Mike McLaughlin)

08.45 - 09.20 *Keynote Speaker*

Professor Ken Killham, University of Aberdeen, Remedios

“Toxicological fingerprinting of pollution incidents in soils and waters

09.20 - 10.35 *09.20 – 09.35 Leigh Burgoyne, James Waters, Graham Eariss and David Catcheside, Flinders University, “The advantages and limitations of DNA-typing soils and trace detritus from drug seizures using DNA arrays to assess the products from high-gain amplifications; an update”*

09.35 - 09.50 Catriona Macdonald, Lynne Macdonald, Lorna Dawson and Jacqui Horswell, Institute of Environmental Science and Research, “Utilizing the soil organic component for forensic application”

09.50 - 10.05 Jean Robertson, Evelyne Delbos, Lorna Dawson, Kirsteen Angus and Andrew Morrisson, The Macaulay Institute, “In-situ FTIR Analysis of Soil Evidence on Clothing”

10.05 - 10.20 Alvin Smucker, Michigan State University, “Trace Evidence Extraction from Soils and their Concentration by Hydropneumatic Elutriation”

10.20 - 10.35 Brooke Anne Weinger, John Reffner and Peter De Forest, John Jay College of Criminal Justice, New York, “Rapid, Reliable and Reviewable Mineral Identification with Infrared Microprobe Analysis”

10.35 – 10.55 *Refreshments and poster session*

Session 6 Forensic Taphonomy Chair: Professor David Miller (Session organisers: Dr Mark Tibbett and Dr Shari Forbes)

10.55 - 11.30 *Keynote Speaker*

Dr Mark Tibbett University of Western Australia,

“A contrived experimental approach to forensic taphonomy”

11.30 - 12.45 *11.30 - 11.45 Kathryn L. Stokes, Natascha Heuer, Shari L. Forbes and Mark Tibbett, University of Western Australia, “Does soil type and its native microbiota have an effect on the decomposition of animal cadavers in a model system?”*

11.45 - 12.00 Rachel Parkinson, Kerith-Rae Dias, Arpad Vass, Jacqui Horswell and Mark Tibbett, Institute of Environmental Science and Research Ltd., “Post-mortem Interval Estimation using Microbial Biomarkers”

12.00 - 12.15 David Carter, David Yellowlees and Mark Tibbet, University of Nebraska-Lincoln, “Using ninhydrin to presumptively test for gravesoil”

12.15 - 12.30 Shari L. Forbes, Laura Benninger and David Carter, University of Ontario Institute of Technology, “The Biochemical Alteration of Soil by Decomposition Products”

12.30 – 12.45 Andrew Wilson and Rob Janaway, University of Bradford “Taphonomic changes to the buried body in arid environments: evidence from field experiments in southern Peru”

12.45 - 13.45 *LUNCH and poster session*

- Session 7 Communications and Advocacy** Chair: Professor Rob Fitzpatrick (Session organisers: Ms Joanne Ashworth and Dr Derek Auchie)
- 13.45 - 14.20 *Keynote Speaker* **Ms Jo Ashworth, Head of Physical Evidence, National Police Improvement Agency**
 “A multi-disciplinary approach to soil forensics and crime investigation - the road to the courtroom”
- 14.20 - 15.20 *14.20 - 14.40 Clive Alcock, Chief Executive Cumbria Police Authority, “March of the gladiators – scientists entering the arena of lawyers”*
14.40 - 15.00 Derek Auchie, The Robert Gordon University, “Expert scientific evidence and the law: some important pitfalls”
15.00 - 15.20 Julie Bond and Stuart Bell, Forensic Science Service, “Mud sticks”
- 15.20 – 16.00 *Refreshments and poster session*
- Session 8 Public Lecture: The Global Way Forward** Chair: TBC (provisional)
- 16.00 - 16.45 *Public Lecture* **Dr James Robertson, Forensic Laboratories of the Australian Federal Police**
 “Soils ain't soils - context and issues facing soil scientists in a forensic world”
- 16.45 - 17.00 Questions
- 17.00 – 17.15 Closing Remarks: Dr Lorna Dawson, Professor David Miller, Professor Karl Ritz

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