

Welcome to the 2014 meeting of the Society for the Preservation of Natural History Collections Annual Meeting in partnership with the Natural Sciences Collections Association (NatSCA) and the Geology Curators Group (GCG).

The SPNHC 2014 Local Organising Committee warmly welcome you to Wales and its capitol, the City of Cardiff. Amgueddfa Cymru – National Museum Wales is proud to be hosting the SPNHC 2014 and to have the opportunity to bring together the work and membership of the three groups partnering this meeting who all play a vital role in the mission to improve the preservation, conservation, management and access to our natural history collections.

As usual this meeting will be an important opportunity to meet and mix with our colleagues from across the world helping to establish and maintain professional networks, find out about new innovations and celebrate some of our accomplishments. This year's theme 'Historic Collections – Future Resource' was developed so we could highlight the increasing value of our Natural History collections to both science and to society as a whole. As the demands on our environment increase, and our institutions face the tough challenges of tightening finances and resources, so it becomes more important than ever for our community to act together to raise the profile and importance of our natural history collections to our numerous stakeholders.

The Local Organising Committee has worked hard to bring together the conference program which we hope provides the usual excellent mix of workshops, fieldtrips, technical sessions and socials. However, ultimately, it is you the participants that make this meeting and the LOC warmly thank you all for your support. It is your enthusiasm and attendance that make this meeting the superb event it is.

As ever, this meeting would also not be possible without the significant financial support of our sponsors and vendors to which we extend a big 'diolch yn fawr' (thankyou) and we encourage you to visit our sponsors and vendors at the conference. In particular we like to thank Delta Designs Ltd for their continued generous support of this meeting and their willingness to make the long journey to visit us here in Wales!

For the conference we are using two main venues, mixing the classic architecture of our National Museum Cardiff in the heart of Cardiff's beautiful civic centre with the contemporary buzz of the Wales Millennium Centre situated in the revitalised waterfront of Cardiff Bay. We encourage to enjoy the museum and the sights and sounds of a city with over 2000 years of history!

lechyd da!

Local Organising Committee

Julian Carter [Lead Co-ordinator]

Helen Kirby [Fieldtrips/local information]

Vicky Purewal [Sponsors/vendors]

Cindy Howells [Collection Tours/Fieldtrips]

Annette Townsend [Communications]

Christian Baars [Fieldtrips]

Caroline Buttler [Programme]

Jim Turner [Design]

Jen Gallichan [Registration]

Chris Owen [Web]

Andy Haycock [Social events]

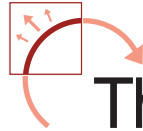
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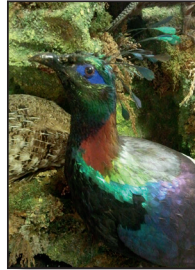


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We are proud to sponsor the SPNHC Conference 2014
and look forward to meeting you.

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Volume 53 (2014), 4 issues per year

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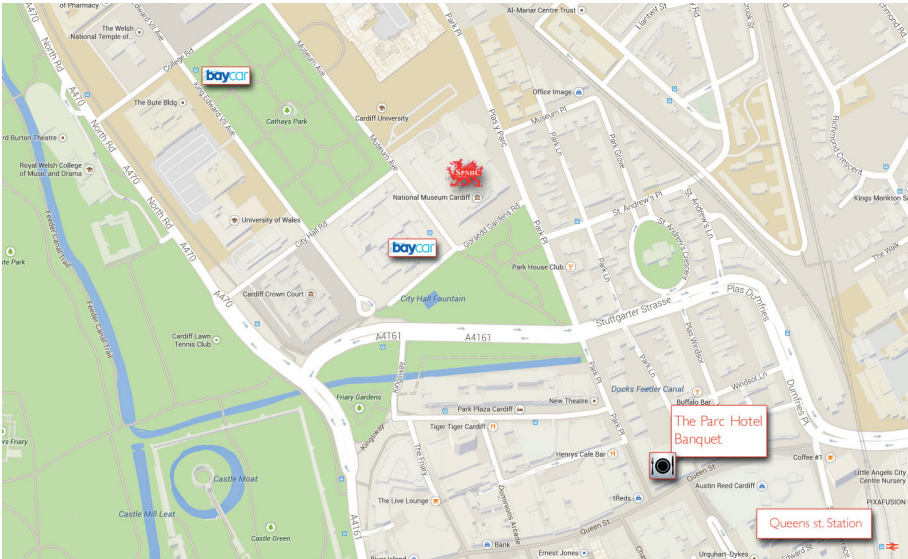
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Venues

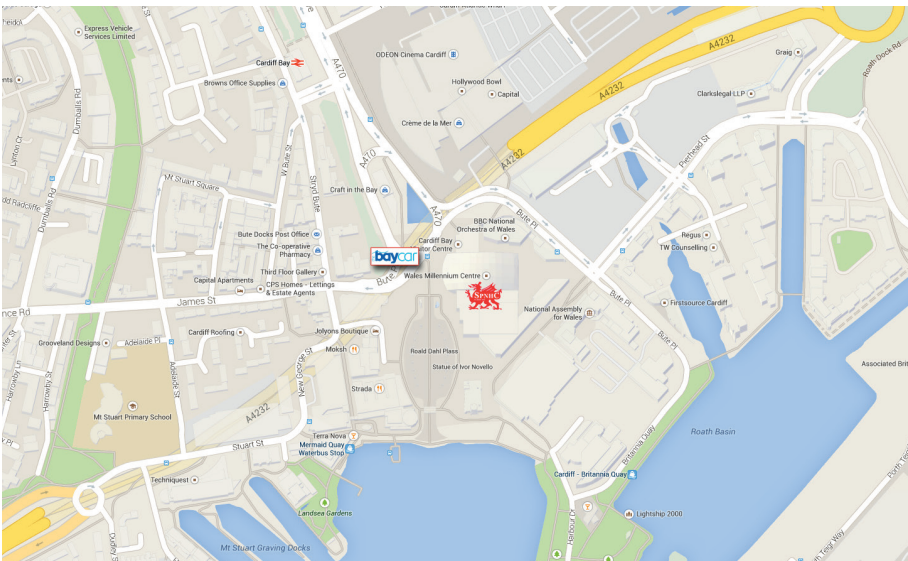
Amgueddfa Cymru - National Museum Wales
Cathays Park, Cardiff City Centre, CF10 3NP

Dates: Sunday 22nd, Monday 23rd (Fieldtrips depart and return), Tuesday 24th & Friday 27th



Wales Millennium Centre
Bute Place, Cardiff Bay, CF10 5AL

Dates: Wednesday 25th & Thursday 28th



Getting between venues

Train:  Cardiff Queen Street to Cardiff Bay - Mon-Sat: 6:30am–11:30pm · every 12 min

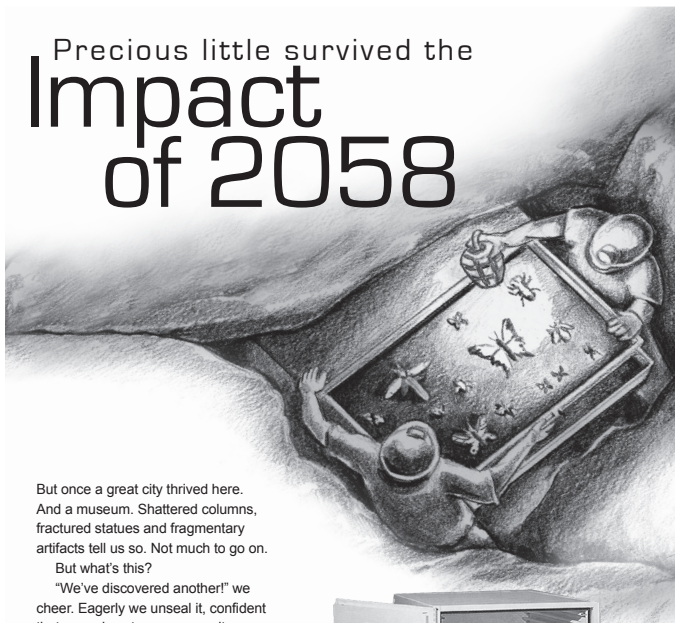
Bus:  Cardiff City Center to Cardiff Bay
Departs: Museum Ave. or King Edward VII Ave.

Cardiff bay to Cardiff Center
Departs: Wales Millenium Centre

	day	eve
Mon - Fri	every 10 mins	every 20 mins
Sat & Sun	15 mins	20 mins

Walk: 1.8 miles, 34 min

Precious little survived the Impact of 2058



But once a great city thrived here.
And a museum. Shattered columns,
fractured statues and fragmentary
artifacts tell us so. Not much to go on.

But what's this?
"We've discovered another!" we
cheer. Eagerly we unseal it, confident
that marvelous treasures await.
Securely nestled inside. Butterflies.
Brilliantly beautiful. Fearfully fragile.
And wholly intact. Imagine!

We know little of the culture that
produced this safe-guarding wonder.
But we know the maker's name:
Delta Designs. If only everyone had
used these ...



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Programme outline

Sunday 22nd June 2014

Venue: National Museum Wales

Workshops			
Workshop 1	09.00 - 18.00	Workshop 2	10.00 - 16.00
Committee rooms timings		Clore Learning Space	
Dirk Neumann <i>Legal aspects of shipping preserved animals and tissues</i>		Bruker UK Ltd. <i>Analytical techniques (XRD, XRF and IR/Raman)</i>	
40 persons @ £25.00 pp Lunch provided		Free (max. 30 persons) Lunch provided	


Monday 23rd June 2014

Fieldtrips		Travel time
09.00 - 17.00	Heritage Coast with the Geology Curators Group	30 mins
	Exploring the geology and associated natural history of the Glamorgan Heritage Coast.	
	Diamonds, Diggers and Distilleries	45 mins
	An innovative geo-conservation initiative in the South Wales coalfield. Geo heritage trail, working coal open cast site and a whiskey distillery.	
	National Botanic Gardens	1 hr
	Grassland Conservation and DNA bar-coding on Waun las NNR	
	Llandovery	1 hr 30mins
	Caught between a Celtic tribe and a hard place - Ordovician-Silurian fossils in beautiful Mid Wales and the Sedgwick-Murchison controversy	
	Parc Slip Nature Reserve	30 mins
Orchids, adders, and crested newts - exploring the natural history of this former open cast site.		
Big Pit	1 hr	
A tourist visit to the museum's very own coal mine and associated nature trail around the former industrial tips.		
Walking/Bus tours	-	
Tours of Cardiff and the Cardiff Bay area.		



All fieldtrips will be departing promptly from 09.00 onwards from the steps at the front of the National Museum Wales.

Participants will be emailed individual trip itineraries.

Registration & Inaugural Sessions - Reardon Smith Lecture Theatre


08.00	Registration			
09.00 - 13.00	Official welcome & opening lectures			
Open committee meetings (Part I) - Meeting rooms allocated on the day.				Workshop 3 Clare Learning Space
14.00	Web	Conservation	Mentorship	Bruker UK Ltd. Analytical techniques (XRD, XRF and IR/Raman) Free (max. 30 persons)
15.00	Best Practice	Professional Development	Legislation & Regulations	
16.00	Long Range Planning	Documentation	Emerging Professionals group	
17.00	Membership	Conference	Publications	
Icebreaker - Main Hall				
18.00	Icebreaker - 'Newbies' welcome and introduction to the committee and conference team.			
18.30 - 21.00	Icebreaker - All delegates			

Registration & Technical Sessions

08.00	Registration			
08.50	Weston Studio (WS)	Victor Salvi Suite (VSS)	Rehearsal Room I (RRI)	Anwen Suite
	Access and outreach AO1 - AO5	Conservation C1 - C5	Small Collections SCN1 - SCN5	Posters Trade fair Wed & Thurs
11.10	Break			
	Historical Collections HI - H5	C6 Assessing Collections AC1 - AC4	Small Collections SCN6 - SCN11	
13.00	Vendors Lunch 			
14.00	Historical Collections H6 - H10	Archives, Special collections and Original source ASO1 - ASO5	Small Collections SCN12 - SCN16	
16.10	Break			
	Exhibition Ex1 - Ex2 ----- Protocols Pr1 - Pr3	Hazardous collections Ha1 - Ha5 	Scientific collections into environmental change EC1 - EC6	
SPNHC Council Meeting - Meeting room to be allocated				
18.00	SPNHC Council meeting			
Pub Quiz - Urban Tap House				
19.30	Natural History Pub Quiz Urban Tap House, 25 Westgate Street, Cardiff CF10 1DD			

Thursday 26th June 2014

Venue: Wales Millennium Centre, Cardiff Bay

Technical Sessions				
08.00	Registration			
09.00	Weston Studio (WS)	Victor Salvi Suite (VSS)	Rehearsal room 1 (RR1)	Room 6 (R6)
	Collections Coll 1 - Coll 5	Advocacy NatSCA	Progress in Digitisation P1 - P5	Bruker UK Ltd. Analytical techniques
11.00	Break		Posters	
	Conservation C7 - C11	Panel Sessions NatScA		Progress in Digitisation P6 - P10
13.00	Buffet Lunch	NatSCA AGM Lunch (Victor Slavi suite)	Buffet Lunch	
14.00	Democamp Demo1 - Demo3	University Collections U1 - U3	Poster Session	Progress in Digitisation P11 - P4
16.00	Posters & Pastries			
	Democamp Demo4 - Demo8	Collections Coll 6 - Coll 10	Poster Session (inc. take down)	Progress in Digitisation P15 - P16
Conference Banquet - The Parc Hotel				
19.30	SPNHC Conference Banquet The Parc Hotel, Park Place, Cardiff CF10 3UD			

Friday 27th June 2014

Venue: National Museum Wales

SPNCH ABM- Reardon Smith Lecture Theatre			
09.00	SPNHC Annual Board Meeting		
Special Interest groups - Meeting rooms allocated on the day.			
11.00	IDigBio / SPNHC Digitisation - Small Collections Network	Sustainability Session	Standards
13.00	Lunch (not provided)		
Collection Tours			
14.15	Evolution of Wales Historic Books Library Tour Tour of Art Galleries Geology/Zoology	Geology/Botany Collection Centre - Nantgarew Zoology/Botany Glamorgan Archives	

Inaugural & Technical Session timetables

Tuesday 24th June 2014
National Museum Wales

Main Hall / Reardon Smith Lecture Theatre

08.00	Registration
09.00	Introduction, Official welcome & Ministerial Welcome
09.45	University museums of natural history: whence and whither? Prof. Paul Smith
10.15	Mammoth Secrets Prof. Alice Roberts
	Break
11.30	Ben Garrod
12.00	Dr. Rhys Jones
12.30	When Popularity Isn't Enough: Advocacy for Natural History Collections in the 21st Century Dr. Chris Norris

Buffet Lunch

Open committee meetings (Part 1) - Meeting rooms allocated on the day.

Workshop 3
Clore Learning Space

14.00	Web	Conservation	Mentorship	Bruker UK Ltd. Analytical techniques (XRD, XRF and IR/Raman) Free (max. 30 persons)
15.00	Best Practice	Professional Development	Legislation & Regulations	
16.00	Long Range Planning	Documentation	Emerging Professionals group	
17.00	Membership	Conference	Publications	

Icebreaker - Main Hall

18.00	Icebreaker - 'Newbies' welcome and introduction to the committee and conference team.
18.30 - 21.00	Icebreaker - All delegates

Wednesday 25th June 2014
Wales Millenium Centre, Cardiff Bay

Weston Studio (WS)

Access & Outreach to Natural History Collections

09.00	Making Meaning with Museum Collections Rich Busch	AO1
09.20	Q?rius: New Methods for Housing Hands-On Education Collections Leslie Schuhmann , Christine Geer Chagnon, Kerry Button	AO2
09.40	Coding Q?rius: Ranking Education Collections using Safety, Preservation, and Legal Documentation Lisa Palmer , Kathryn Makos, Deborah Hull-Walski, and Catharine Hawks	AO3
10.00	Teaching Evolution Using Natural History Collections: How can we do it better? Jane Pickering & Janet Stott	AO4
10.20	This is how we do things around here –Broadening skills and competencies through staff exchange and training-on-the-job Christiane Quaisser , C., Anja Friederichs	AO5

Historical Collections

11.10	Pitiable pins & lost labels: Issues in identifying historic type specimens Darren J. Mann	H1
11.30	The value of examining pins as part of assessing old insect collections Geoff Hancock	H2
11.50	Shedding new light on Alfred Russel Wallace's insect specimens George W. Beccaloni	H3
12.10	Historical tomato collections in the herbarium of Naturalis Biodiversity Center: an important resource for genomics research Roxali Bijmoer & Barbara Gravendeel	H4
12.30	When Common Taxa Become Endangered: Changes in the Collection Care Strategy of Dry Corals Wachs , K., Johnson, C.A., Nunan, E., Stenzel, J., Surovy, M., Elkin, L., & Rodriguez, E	H5

Historical Collections

14.00	New focus on old Indonesian fossil mollusc collections Ronald Pouwer	H6
14.20	Charles de Geer's collection of vertebrates: a lost and found story of type specimens described by Linnaeus and Pallas. Erik Åhlander	H7
14.40	Countess of Powis mineral collection Tom Cotterell	H8
15.00	The historical collections of Alfred Gabriel Nathorst (1850-1921) Ove Johansson	H9
15.20	Bringing ice age collections to life Nigel T. Monaghan	H10

Exhibitions / Protocols

16.20	The "Images of Nature" gallery at the Natural History Museum. From Solander boxes to public display Mendez , A	Ex1
16.40	Out of the dark: lighting scientific specimens for exhibit Ronald de Ruiter	Ex2
17.00	The European ABS legislation and its national implementation across the EU – implications for Natural History Collections in Europe and beyond. Peter Giere , Ana Casino, Johan Bodegård, Cornelia Löhne, Christopher H. C. Lyal, Anne Nivart, China Williams & Dirk Neumann	Pr1
17.20	The Nagoya Protocol on Access and Benefit-Sharing: The concept, its implementation and its relevance for Natural History Collections and researchers Cornelia Löhne , Ana Casino, Johan Bodegård, Christopher H. C. Lyal, Anne Nivart, China Williams, Peter Giere & Dirk Neumann	Pr2
17.40	Access and Benefit Sharing – global implications for biodiversity research, collections and collection management arising from the Nagoya Protocol. Dirk Neumann , Christopher H. C. Lyal, Johan Bodegård Cornelia Löhne, Ana Casino, Anne Nivart, China Williams & Peter Giere	Pr3

Wednesday 25th June 2014
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Victor Salvi Suite (VSS)

Conservation

09.00	Specimen preparation in fast-forward: Time-lapse as a training tool Gregory J. Watkins-Colwell & Geoffrey Giller	C1
09.20	Oddy Tests – adding the analytical dimension Gali Beiner	C2
09.40	The use of 3D scanning and printing in the production of replicas for the Stonehenge Visitor Centre Annette Townsend & Caroline Buttler	C3
10.00	Preserving highly reactive lignitized woods : issues related to sulphur oxidation Giliane Odin et al	C4
10.20	Once in a whale: the conservation treatment of historic cetacea at the Oxford University Museum of Natural History Crompton, N. Palumbo, B	C5

Conservation / Assessing Collections

11.10	Natural history conservation: Conserving an endangered profession Lucie Graham	C6
11.30	Using ESP to understand collection needs: Environmental Sensitivity Profiling (ESP) Robert Waller	AC1
11.50	US National Herbarium: A Plan for APG Conservation on a Large Scale Meghann Toner & Rusty Russell	AC2
12.10	A Simple Self- Assessment Tool for Collections Management and Care Robert Huxley , Rene Dekker, Lucy Reeve and Irene Bisang EuColComp Testing a European Competency Framework for Vocational Education and Training in Collections Management Robert Huxley and Lucy Reeve	AC3
12.30	Eliciting judgments of future value losses in object and collection values Waller , R., Mendez, A., Portela, R., Sherlock, E. & Tomsett, L	AC4

Archives, Special Collections and Original Source

14.00	Enhancing the Value of Natural History Collections through Original Source Documentation: Tim White	ASO1
14.20	What Species is That?: Museum Victoria's Scientific Art, Rare Books, Field Notes and Manuscripts, and Archives Collections. Maryanne McCubbin	ASO2
14.40	History of Plant Collecting in southern Alaska (1868-1908), with tangential mentions of extinct sea cows, a mysterious death, political wheeling and dealing, the power of social media, and the Great Conflagration. Rusty Russell	ASO3
15.00	Uncovering and integrating archives for multidisciplinary research at the MVZ Ove Johansson Carla Cicero , Christina V. Fidler, Michelle S. Koo, & Kira L. Dodd	ASO4
15.20	Dredging the Memories: Oral Histories at the Peabody Samantha Murphy & Maureen White	ASO5

Hazardous Collections

16.20	Preserving botanical specimens treated with mercuric chloride Melinda Peters , Deborah Bell, Catharine Hawks, Linda Hollenberg, Kathryn Makos & Michelle Powell	Ha1
16.40	Arsenic and Old Specimens: using a handheld XRF analyzer to determine arsenic prevalence at Naturalis Center for Biodiversity Becky Desjardins	Ha2
17.00	Reduction of mercury emission from historically treated mercuric chloride herbarium collections John Haverman , Ron Sportel, René Dekker & Marc Tilstra	Ha3
17.20	Creating a healthy work environment for contaminated moth-ball containing entomology collections John Havermans , René Dekker, Alex van Renesse van Duivenbode, Sasja Walraven & Richard Correl	Ha4
17.40	What's your poison? Risk assessment and management of hazardous substances in the Economic Botany Collection, Kew. Sheila B. Banks & Mark Nesbitt	Ha5

Wednesday 25th June 2014
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Rehearsal Room 1 (RRI)

Small Collections Network

09.00	Introduction	SCN1
09.20	Digitizing Specimens in a small herbarium: A viable workflow for collections working with limited resources Kari Harris	SCN2
09.40	Developing iCollections digitisation workflow Vladimir Blagoderov	SCN3
10.00	The iCollection model for digitising small collections of natural history Peter Wing , Elisa Cane, Lyndsey Douglas, Joanna Durant, Gerardo Mazzetta, Flavia Toloni	SCN4
10.20	The Role of small herbaria in large digitization projects Chris Neefus	SCN5

Small Collections Network

11.10	Digitization workflow for a small herbarium Chris Neefus	SCN6
11.30	Teachable Moments: the good, the bad, and the undergrads Kirsten E. Nicholson , Angela Riedel	SCN7
11.50	Achieving the digitization of biological collections from the Pacific Shelley A. James	SCN8
12.10	Arctos: A Collaborative, cost-efficient solution for managing and publishing biodiversity data in collections of all sizes Carla Cicero	SCN9
12.30	Undergraduates in natural history collections: What are the educational gains and how can we make the experience more impactful? Anna Monfils	SCN10
12.50	The place for biological research and field stations in biodiversity digitization Gil Nelson	SCN11

Small Collections Network

14.00	Entomology Collections Network: A model for reaching out to small collections Christy Bills	SCN12
14.20	Michigan Small Herbarium Initiative: the trail from an idea to specimen digitization Richard Rabaler	SCN13
14.40	Exposing data from small collections: common questions and solutions Deb Paul	SCN14
15.00	Mobilizing New England vascular plants to track environmental change Dorothy Allard	SCN15
15.20	Resurrecting orphaned collections Gabriela Hogue	SCN16

Scientific collections into environmental change

16.10	Unlocking Evidence: Scientific Collections and Environmental Change Ellinor Michel & Eileen Graham	EC1
16.25	A Vast Machine: Biodiversity collections and cyberinfrastructure in the service of monitoring biospheric change Robert Guralnick	EC2
16.40	DOAD, NODE and NANODE: integrating ostracod collections and databases for environmental change research applications David J. Horne & Judith Price	EC3
16.55	Investigating the impact of late Quaternary environmental changes using ancient DNA from collared lemming Selina Brace , Eleftheria Palkopoulou, Love Dalén, John Stewart & Ian Barnes	EC4
17.10	Title to be confirmed Matthew Collins	EC5
17.30	Discussing Evidence: Scientific Collections and Environmental Change - Panel Discussion and Audience Participation Eileen Graham & Ellinor Michel	EC6

Thursday 26th June 2014
Wales Millenium Centre, Cardiff Bay

Weston Studio (WS)

Collections

09.00	Rockband – linking Fossils, Fabrics and Folklore Christine Taylor	Coll 1
09.20	A sustainable data connection between culture and natural history – OpenUp! Okka Tschöpe & Walter G. Berendsohn	Coll 2
09.40	“Experience will soon teach you how much arsenic you require...” Old natural history conservation techniques Sophie Stevens & Robert Entwistle	Coll 3
10.00	Management and accessibility of larger specimens in alcohol collections E.M. Dondorp	Coll 4
10.20	Practical solutions for managing asbestos specimens in natural history collections Jana Horák , Jon James, Tom Cotterell & Andrew Haycock	Coll 5

Conservation

11.00	Processing large cetaceans stranded on the Dutch coast: Whale we do this forever? Karen van Dorp	C7
11.20	Converting pharmaceutical manufacturing space into premier fluid preserved collections facilities Lynn A. Jones	C8
11.40	Orca O319, the journey from beach to exhibit hall Moe Flannery , Sue Pemberton, Laura Wilkinson & Rebecca Peters	C9
12.00	Bone maceration & bone degreasing: a necessary tool for preserving Natural history collections Gunther Weber	C10
12.20	Fix for Life: The Development of a New Embalming and Fixation Method to Preserve Life-like Morphology Andries J. van Dam , J. Conny van Munsteren & Marco C. DeRuiter	C11

Democamp

14.00	Setup & Introduction	
14.10	Specify: Specify 7 for the Web, Specify Insight for the iPad, and other Novelties Bentley , Andy	Demo1
14.30	The Field Book Project: The Starting Point of Natural History Collection Rusty Russell , Lesley Parilla & Carolyn Sheffield	Demo2
14.50	Historical Expeditions Website (Botany) at the Smithsonian Rusty Russell & Sylvia Orli	Demo3

Democamp

16.00	GB/3D fossil types online – not only the largest collection of 3D digital fossils, but also major format, schema and vocabulary conundrums. Howe , Mike	Demo4
16.20	Infrared thermal imaging as a collections management tool Larkin , Nigel	Demo5
16.40	FP-DataEntry, a tool for bringing community knowledge into data transcription applications. Chuck McCallum, Paul J. Morris, James Hanken, Maureen Kelly, David B. Lowery, Bertram Ludaescher, James A. Macklin, Robert A. Morris & Tianhong Song	Demo6
17.00	Symbiota crowdsourcing module for the Lichens & Bryophytes TCN Barbara Thiers , Edward Gilbert, Corinna Gries, Benjamin Brandt	Demo7
17.20	AnnoSys – an online Tool to annotate Biodiversity Data Okka Tschöpe , Lutz Suhrbier, Anton Güntsch & Walter G. Berendsohn	Demo8

Thursday 26th June 2014
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Victor Salvi Suite (VSS)

Advocacy - NatSCA

09.00	Introduction	NatSCA1
09.10	Keynote address to session Ben Garrod	NatSCA2
09.30	Old rockswho needs them Dermot Henry	NatSCA3
09.50	Major study into the popularity of different disciplines in mixed museums finds natural history comes out on top Jack Ashby	NatSCA4
10.10	Rising to the Challenge Paolo Viscardi , Justine Aw & Russell Dorman	NatSCA5

Panel Sessions - NatSCA

11.00	NatSCA Advocacy Panel sessions - 5 min presentation per speaker	NatSCA6
	Panel Speakers: Henry McGhie C. Giles Miller Luanne Meehitiya Chris Norris Rob Huxley Leonard Krishtalka Clare Brown	

11.30	Panel Discussion: Open to floor	
12.00	NatSCA AGM Lunch	

University Collections

14.00	The Anatomy of a University Natural History Museum: The Yale Peabody Museum of Natural History Tim White	UC1
14.20	A quantitative evaluation of natural history collection use in one university museum Bethany L. Abrahamson	UC2
14.40	Rediscovering collection significance through historical research at the University of Iowa Paleontology Repository Tiffany S. Adrain	UC3

Collections

16.00	Natural Science collections in Wales - a Distributed National Collection Christian Baars	Coll 6
16.20	Application of GIS analysis to historical fish collections for research and collection planning Laura Tancredi & Diane Pitassy	Coll 7
16.40	The Timor Collection: from the ground to the cloud N. den Ouden	Coll 8
17.00	A novel and effective way for housing cryptogamic collections Rebecca Peters	Coll 9
17.20	Collections as a source of data for education, conservation and monitoring change in a time of extinction: an amphibian example J. Tomasz Giermakowski , Mason J. Ryan, Joseph A. Cook	Coll 10

Thursday 26th June 2014
Wales Millenium Centre, Cardiff Bay

Rehearsal Room I (RR1)

Progress in Digitisation of Natural History Collections

08.50	Intorduction	
09.00	Developing and Testing Tools and Processes for Creating a Swedish Digital Natural History Collection, e-BioColl.se Per Ericson , Fredrik Ronquist, Anders Telenius, Stefan Daume, Kevin Holston & Karin Karlsson	P1
09.20	From massive digitisation of Paris Herbarium to a nation-wide program Simon Chagnoux & Marc Pignal	P2
09.40	Barcodes, conveyor belts and laser scanners: putting the contents of the Geological Museum (South Kensington, 1935 - 1985) on the web Mike Howe , Bob McIntosh, Simon Harris, Michela Contessi & Graham Tulloch	P3
10.00	Automated mass-digitization line for individual insect specimens Ritta Tegelberg , Janne Karppinen, Tero Mononen, Mira Sääskilähti, Hannu Saarenmaa	P4
10.20	Image segmentation in high throughput digitisation workflows Vladimir Blagoderov , Laurence Livermore, Ben Price, Stéfan van der Walt, Pieter Holtzhausen and Vince Smith	P5

Progress in Digitisation

11.00	Workflows in the cooperative IMLS Silurian Digitization project between Milwaukee Public Museum and The Field Museum. Patricia Coorough Burke , A. Caywood, M. James, E. Malueg & D. Miller	P6
11.20	Designing a Workflow to Help with Error Detection in a Paleontology (IMLS Silurian Reef) Digitization Project Paul S. Mayer , L. Connolly, N. Karpus & A. P. Layng	P7
11.40	Making molehills out of mountains: crowdsourcing digital access to natural history collections Laurence Livermore , Vince Smith & John Tweddle	P8
12.00	Exploitation of digital collection data at the Museum für Naturkunde Berlin Saskia Jancke , Dirk Striebing & Frieder Mayer	P9
12.20	ZooSphere - A tool for automated spheric image capturing and interactive 3D visualization of biological collection objects Alexander S. Kroupa , Martin Pluta, Bernhard Schurian & Falko Glöckler	P10

Poster Session

14.00	Official Poster session	
15.00	Posters & Pastries	
16.00	Official Poster session (Continued)	
16.30	Poster take down	

Thursday 26th June 2014
Wales Millenium Centre, Cardiff Bay

Room 6 (R6)

Bruker UK Ltd. Workshop 4

09.00 - 13.00 Bruker UK Ltd. Analytical techniques (XRD, XRF and IR/Raman)

Progress in Digitisation

14.00	Using optical character recognition (OCR) output in digitization: see your data before it's in the database and after Deborah L. Paul , Andrea Matsunaga, Miao Chen, Jason Best, Sylvia Orli & Elspeth M Haston	P11
14.20	Incorporating OCR into a digitisation and curation workflow Elspeth Haston , Robyn Drinkwater & Robert Cubey	P12
14.40	The virtually browseable collection: connecting GIS to whole drawer imaging Ann Molineux , Robert W. Burroughs, & Faye Geigerman	P13
15.00	Georeferencing Fish Collections from the FishNet Network: An Update of Progress and Evaluation of Collaborative Georeferencing Techniques Nelson E. Rios , Henry L. Bart & Michael H. Doosey	P14

Progress in Digitisation

16.00	iDigBio's Biospex System for Engaging the Public in Biodiversity Research Specimen Digitization Elizabeth Ellwood, Austin Mast, Greg Riccardi, Robert Bruhn, Jeremy Spinks	P15
16.20	Integrating High Throughput Digitization with Distributed Software: Supporting Data Flows in the New England Vascular Plant Network with FilteredPush Technologies Paul J. Morris , James Hanken, Maureen Kelly, David B. Lowery, Bertram Ludäscher James A. Macklin, Chuck McCallum, Robert A. Morris, Tianhong Song & Patrick Sweeney	P16
16.40	Using Complementarity to Improve Plant Specimen Digitization Rusty Russell , Elspeth Haston & Nicola Nicolson	P17
17.00	Seaweed Collections Online: Mobilising data from national and regional museums Jo Wilbraham & Juliet Brodie	P18
17.20	From Museum Specimen Database to Ecological Statement Christine A. Johnson , Richard K. Rabeler, & Charles Bartlett	P19