

## **Out of the Box outcomes:**

### **Day 1 – Brainstorming the importance of natural history collections**

**Are Natural History Collections as important as they were in the past? What would we tell a politician who wanted to scrap natural history collections?**

- Physical specimens are sources that contain information we don't expect and have not planned for. New research raises new questions, and new analytical techniques are being developed all the time – only if we have kept the original physical specimens can we go back and apply these questions and techniques to them.
- Physical collections are a resource for bioprospecting and are a window on the past and changes
- People respond emotionally and personally to real things, and profound interest and commitment is generally the result of personal encounters with the real thing. The size of large physical specimens has a WOW impact that is not replicated by digital versions
- Fashions change, needs change – what seems unnecessary now may be a key resource in the future.
- Physical and digital collections support and extend each other. Both are affected by the need for security to protect them from theft and damage, and for physical or digital preservation techniques to protect them from deterioration. The information available from a digitised specimen is tied to the resolution of the digitisation, most are 2D only, they can convey only limited information on texture, iridescence and pattern, and colour is strongly influenced by the digitisation lighting conditions. Most digitisation techniques do not convey the internal structures within specimens. Digitisation is also affected by technological obsolescence. The positives of virtual data include the ability to layer information, the derivation of new knowledge from big data approaches, and the ability of digital access to increase outreach and reduce handling of physical specimens. Digital access can also reduce the need for duplicate physical collections, and often serves as a taster that brings people to see the “real thing”.
- Some species are so rare we can no longer collect them – specimens from the past provide examples to study and display
- The high investment required to collect and preserve them has already been made – don't throw this away.
- Each biological specimen may have a raft of other specimens on and within it – gut flora, parasites, pollen etc
- Each physical specimen is a unique sample in time and space. They document and describe biodiversity for conservation management, health, biosecurity and restoration

**Why are we inspired by natural history collections?**

- Humans are not separate but part of the web of life. If there are no plants and animals left, we are dead too
- They allow us to explore the miracle of life

- They have cultural significance – they document, verify and illuminate past techniques and fashions in collecting and preservation, past connections between people, places and goals (eg personal goals and economic goals), past webs of power, patronage and learning, past failures and losses
- They allow us to see change in our natural world over time spans longer than our lifetime. Shows the impact of slow changes like temperature rise.
- People living in high rise buildings and with no back yards can become divorced from the natural world, eg never having seen a maggot before
- Natural history specimens are mostly beautiful, sometimes bizarre, even ugly – they intrigue and fascinate us
- They provide inspiring case studies that help students engage when learning art and science techniques

### **What makes it hard to do great stuff with Natural History collections?**

1. Physical/logistical issues
  - Size
  - Huge backlog of legacy material
  - Fast growth of collections
  - Paperwork requirements
  - Name curation
  - Fragility/hazards (eg pesticides, spores, radiation) that make specimens complex to handle
  - Physical working environment - no natural light or fresh air, lack of workspace, lack of space to display collection
  - Ageing and inadequate infrastructure, that does not necessarily fit new techniques or equipment well
  - Pests and infestations
  - Challenging field work
  - Loss of skills in reading handwriting
  - Scale of task given size of collections – competing demands
  - Hard to attract skilled students
2. Legal/ethical ownership – note that these are all important requirements, but all take time in an already crowded day
  - Nagoya protocol (access/benefit sharing)
  - Ensuring we have the correct permits
  - Biosecurity
  - CITES hazards materials regulations
  - Security from theft, especially for prized items (eg rhino horn)
  - Community consultation required for culturally sensitive material
  - Competition vs collaboration
3. Interpretive issues
  - Communicating science to the public successfully, especially the detailed careful work needed
  - Need for clear mission, vision and strategy
  - Public disconnect
  - Low status compared to other collection types (eg art)
4. Tech and knowledge issues

- Data migration as technology changes
  - Secure data storage
  - Unique skill sets at risk
  - Knowledge of Latin is dying [STOP PRESS: Latin is an option in the new secondary curriculum in Australia and is being taught in some Canberra schools]
5. Access issues
- Knowing about opportunities
  - Access vs preservation
  - Unreturned loans
  - Time taken to get specimens out, supervise access, and put them away
  - Managing loans
  - Locating specimens in other collections
6. Funding issues
- Government and institutional prioritisation
  - Limited and inconsistent funding
  - Level of funding does not match scale of collections
  - Lack of job security/career path

## Day 2 - Working groups

### Working Group 1: Options for public Natural History facility in Canberra

#### Questions

- What is the mission and who are the audiences?
  - There is likely to be strong interest from local families and schools in the ACT and the surrounding inland regions (eg Braidwood, Cooma, Young). It was noted that most of the other Australian states already have museums with major natural history collections and displays, so national and international visitors might take the opportunity to visit a facility while in Canberra, but may be unlikely to come to Canberra specifically for a natural history facility. It would be useful to talk to organisers of schools tours in the region about how such a facility might fit in with other schools attractions in the region.
- What type of facility would it be in style and approach? Would it be focused on collection displays, experientially focused (like Questacon), or like a public research centre or library reading room? Or a mix of all three?
  - A number of organisations in Canberra are already planning or interested in constructing collections storage and exhibition spaces, including CSIRO, ANU and ?? How would a new facility link with and complement these? It was also noted that it might be useful to explore links with the Arboretum, which is essentially a large, long-term botanical experiment and has good public facilities and parking.
- Would it be a centralised facility for storing and caring for collections? There are several natural history collecting organisations in Canberra, including legacy collections, eg at UC, CSIRO, ANU. Combining these collections is unlikely to be feasible or desirable given their different missions, funding sources and

stakeholders. However the facility might draw on all these collections for displays, schools programs, and supported research and volunteering opportunities.

- Would physical and digital collections be brought together as intertwined and equally important aspects of the experience?
- Where would funding be sought?
- Where would the facility be located?

#### Suggested directions

- SuperMuseum!
  - Front face that leverages other collections
  - Innovative and adaptable body/organisation providing overarching face for everyone's benefit
  - ALA does this in the digital space – overarching portal for relevant collections held by different organisations
- Education, including informal education, schools programs (related to national curriculum in both arts and sciences - STEAM), university teaching and citizen scientist facilities
- There is a need for outreach departments in collecting organisations maybe this Canberra facility should act as a central outreach facility for all the organisations in Canberra with natural history collections? Eg Outreach activities could include:
  - open day once a month where artists could come and draw specimens from the collections. (Though Erica notes that art is not just about drawing!)
  - Central access point for examination of requested specimens, with outreach officers to support
    - delivery and retrieval of specimens
    - use of equipment and software
    - understanding of labels and other documentation, including abbreviations and conventions not familiar to non-scientists
    - understanding of handling restrictions related to both fragility and hazards
  - Central volunteering point for people working with material from different collections and organisations, providing supervised weekend volunteering opportunities
  - Recruiting for and organising rotating “meet the scientist” programs and programmed experimental opportunities
  - Running schools programs incorporating all these outreach activities.

#### Working Group 2: Access

- Rural and regional areas need assistance for better access to collections – eg funding for travelling exhibitions
- We need to promote discovery – the public need ways to find out what is in collections and have clear, easy to find information on how you can get access to it (eg who to contact). Have groups of non-scientists trial your search software and access instructions and use their feedback to make it work for them (not just for you!)

- Potential users do not necessarily know what they want – they need opportunities to dabble and explore. Creative non-scientists may be able to provide unusual interpretive outcomes that will increase public engagement. We have thought about visual, textile and ceramic artists – what about audio soundscapes, music, writers, performance art – even “cooking up the collection”?
- 200 years ago natural history was the space exploration of its day – venturing into unknown environments, racing to be the first to get data and specimens. Can we play on these similarities?? Current collecting activities are still often difficult, dangerous and exciting – we need to make the connections between collecting in live environments, and maintaining the resulting collections for the future.
- There is a lack of sampling of mundane species, or sampling at different sites or time periods. Could a portal like ALA have a map of areas/species where collecting is needed? Then for example schools could look up what was needed in their area and who to contact to get information on how to do it.
- Accessing digital collections tends to drive a desire to see the real thing (have a unique personal and physical experience), and visitation is a driver for funding. Explore options to make images and other data freely available, aka the Rijksmuseum (which now has a yearly, high profile competition to see who has made the most creative use – including commercial products – of their collection data). Get to grips with the legal, intellectual property, and licensing requirements to make accessing and re-using collection data easy and therefore something schools, hobbyist etc will find easy and fun to do. This will develop audiences.
- Good collection management and conservation procedures mean specimens will be there for future research and display, and the impact of hazards in collections can be minimised.
- Work with key stakeholders (eg customs, out-of-area researchers, schools) to develop policy and procedures that will facilitate what they need but minimise damage to collections and optimise the time and money spent to provide the required access. Eg digitise requested specimens as a priority - only post them if the question cannot be answered with the digital information.
- Make collections easy to access – hire a person whose mission, passion and skill set is based around communicating and catering to users rather than doing their own in-depth science research (again – this might be funded through non-science bucket). Trial weekend access, access to storage areas, “Open Store” days (these are very popular at the AWM and used to be held in the old Museum Victoria “catacombs”). Give the event a sense of exploration and festivity.
- Need to work out security and care systems to protect collections (eg prevent theft, deterioration or dissociation from metadata) when greater access is granted. This might be the focus of a grant application, perhaps to a non-science source, eg National Trust or other cultural funding body
- Limitations – limited staff time, time required for staff to work with artists and other people who want to use the collections to help them work out ways to use the collections safely for themselves and the objects. Many natural history specimens have hazards in them – eg old pesticides.
- Regional areas borrow from institutions

- Artist and non-scientist residencies must have benefits for the institution as well, not just the artist. Two way benefits. Eg publications, social media impact. Eg Open day in collections, increasing awareness for one collection
- Change the idea of a modern scientist and what they do. Increase understanding of modern collections, eg DNA collections
- Change terminology from natural history to natural science – emphasizes currency,
- Talk more to politicians
- Sharing collections, eg through cruise ship presentations
- Webpage for projects and collections
- Visualising demands
- Connections to industrial designers, architects
- Natural history related art does not have the same superstar status as “fine art”. Can this be changed to move natural history/science based art more into the mainstream?

### **Working Group 3: Funding**

- Greater national recognition is needed for natural history collections as a national asset. Scientists need to get really involved in generating interest in their collections. Use ALA as a co-ordinating hub for a national, centrally funded digitisation effort
- Funding stability is needed (not just year to year) to provide the physical and human infrastructure for collection care and initiatives
- The natural history/sciences sector needs to speak with one voice in applying for funding and other initiatives. We need to have a branch of SPNHC (US based) or NatSCA (UK based) in Australia. Perhaps one for Australia and NZ?
- Advocacy – we need to use heads of collections, science communicators, professional organisations (eg SPNHC), get more scientists interested in politics (so they become politicians!), hold events like US “Congressional Visits Days”. Work with social scientists to analyse target audiences.
- Funding creativity: work with social sciences/humanities/art, be more commercial in marketing collections and their benefits (eg adopt a specimen, name a species, charging for services, lobby for a lotto based collections tax like in the UK – Cultural Fund. Identify stakeholders (eg Friends and Foundation type support groups – the Art Gallery of NSW has an excellent model which provides donations for equipment and projects that are not funded through the organisation’s normal activities – in return holds functions in museum spaces and back of house tours with nice catering so it is a fun night out for rich and influential friends)
- Philanthropy – not a norm like in the US, but there are people looking for causes to support. In Australia philanthropy mostly goes to art and health so can we link the beauty and information in collections to artistic outputs and using the data to improve human, animal or ecosystem health? People are currently more likely to donate to live animals than dead ones, so we need to make clearer the connections between the wealth of info in collections and our ability to understand and preserve living ecosystems
- Mining companies etc can be big funders, but usually come with a strong agenda. Have to manage this – find a project that reflects the values and needs of both parties.

- Crowdfunding

#### **Working Group 4: Volunteers and volunteering**

- Benefits
  - Access to collections
  - Socialising, community
  - Sense of purpose
  - Mentoring
  - Experience for students
  - Bringing skills of retired people back into the collection
  - Repetitive tasks get done
- Requirements for success
  - Make sure volunteers are not taking jobs that institution would otherwise fund as paid work
  - Need for volunteer manager
  - effective OHS provisions
  - Funding and expectations organised to cover out of hours volunteering sessions
  - Need training, inductions, police check, insurance
- Ideas
  - Collaborate using existing schemes, eg ACT volunteer list
  - New tools, online volunteering
  - Weekend volunteering opportunities