DIGITISATION FOR PRESERVATION AND ACCESS
A technical perspective

Definition of a digitisation project

The conversion of analog material (hardcopy materials) e.g. written manuscripts, printed material, photos, video clips, film, sound recordings, tapes, microfiche, glass negatives, maps, paintings to an electronic and easily accessible format

Investment – is it worth it?

- Investing in digital conversion only makes sense if institutions are prepared to provide long-term access to digital collections and have a sound project plan to start with
- Scanning process 1/3 of actual digitisation cost

Criteria for a digitisation project

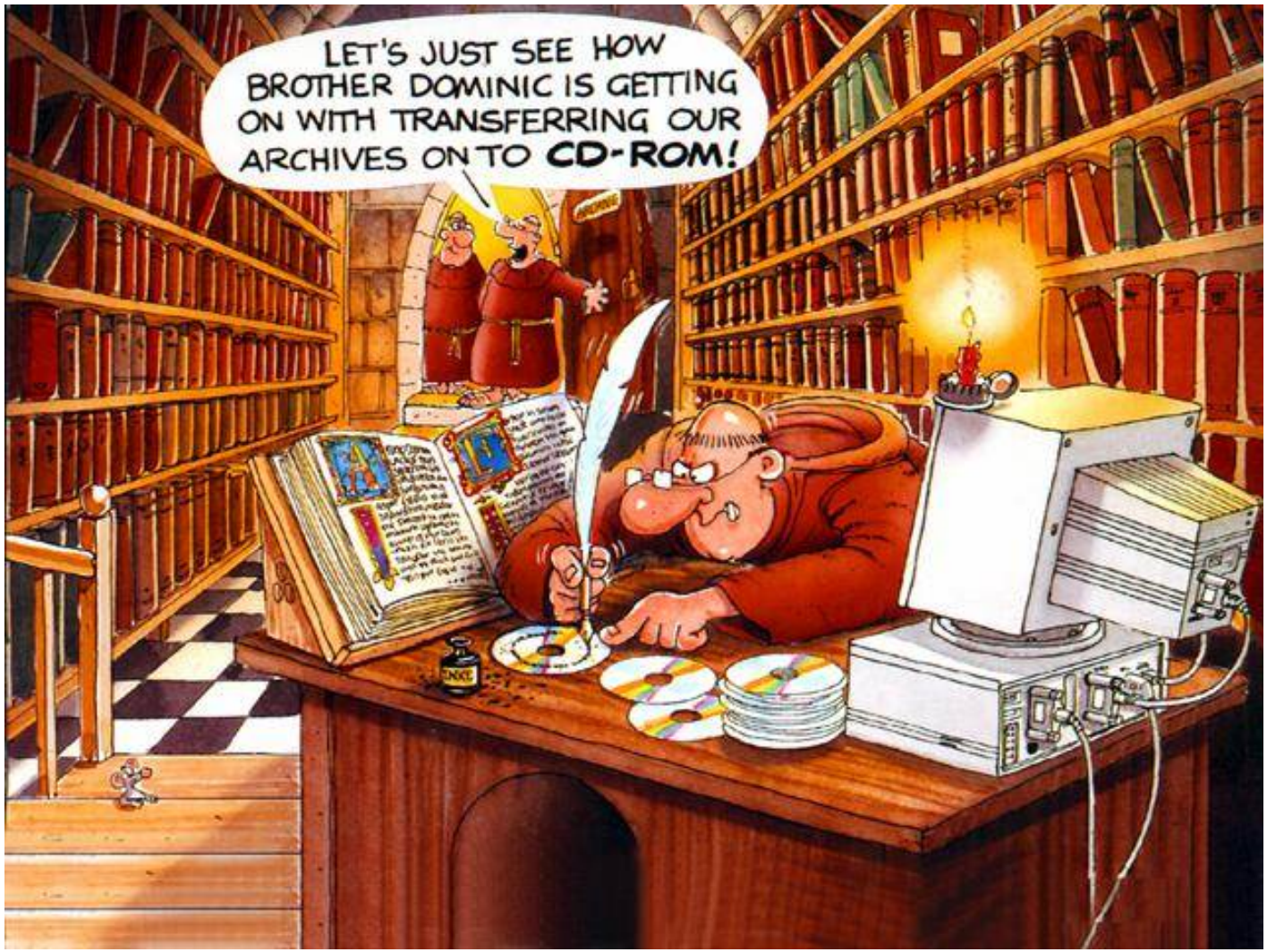
- Selection criteria
- Preservation
- Standards
- Equipment
- Sustainability
- SWOT analysis

Preservation aspects

- Fragility of digital representations
- Preservation strategy vital
- The key to digital preservation is the establishment of a managed environment
- Searchable metadata and well documented technical aspects

Preservation methods

- Basic archival preservation
- Digitisation best practices and standards
- Future migration
- Technical standards are maintained and developed by international organizations, i.e. (ISO); (IEC); (IEEE); (ITU); (W3C)


LET'S JUST SEE HOW BROTHER DOMINIC IS GETTING ON WITH TRANSFERRING OUR ARCHIVES ON TO CD-ROM!

Digitisation the project

1. Project identification
2. Selection criteria
3. Dismantling of material and copyright clearance
4. Basic preservation
5. Scanning
6. Archival server
7. Conversion process
8. Web-ready (eBooks, images, journals, sound, video clips)
9. Metadata
10. UPSpace
11. Technical data
12. Final documentation

Project identification

- Is there a known potential audience for the materials that are planned to be digitised?
- Will digitisation increase access, functionality or intellectual control?
- Will digitising these materials fill a need that is currently unmet?
- Are the materials in the public domain or can proper rights be secured?

Why collaborate

- Scarce funding
- Richer digitised collections can be created in a collaborative project
- Increase in the perceived values of collections
- Fulfilling research and educational goals and objectives at the institutional level
- Collaboration allows each partner to contribute its strengths
- Background linking to each others collections without user knowing

Selection criteria

- Break down to administrative and operational issues
- Type of material in collection i.e. photos, docs
- Will the complete collection be digitised?
- Copyright clearance
- OCR necessary?
- What is the current condition of the collection?
- Could the project be done in phases
- W3, restricted or in-house availability
- Outsource or in-house
- More than one copy of the same source?

Preservation basic

- Take off any damaging material i.e. elastic bands, staples, clips
- Mend tears in hardcopy source
- Tuck in loose leaves of books
- Dust and clean the source i.e. book, slide, photo
- Get rid of mould with a clean brush
- Document what you did and what still need to be done to preserve original source

Copyright clearance

- Never -- ASSUME --
- If clearance is necessary start immediately
- Write courtesy letters if possible to stakeholders even if out of Copyright
- Keep track – be persistent – follow-up
- Document everything on database, dates, names and addresses
- Life + 50 years standard copyright length in South Africa
- Publishers Rights run from the 1st edition + 50 years

Scanning

- If done correctly, the digital image will represent the visual information of the original source
- Resolution is not the only factor that will affect the quality of an image file:
  - -- scanning conditions
  - -- scanner type
  - -- quality of source
  - -- settings
  - -- skill of the scanning operator
  - -- quality of the final display image (derivative)

Scanning technical

- Archival scanning – resolution size
- Calibrate work station
- Scanning of books, slides, maps – different scenarios
- Saving in Tiff, Jpeg, Gif, WAV, MP3
- Sound – Audacity programme
- QUALITY CONTROL
- Document it

Digital Services and Development Unit

About

Use the IQC

Digital Services and Development Unit
Grainger Engineering Library
University of Illinois at Urbana-Champaign
1301 W. Springfield, Urbana, IL, 61801 (MC-274)

Digital Services and Development Unit

Image Quality Calculator

Image Dimensions

Width: 12.5

Height: 9.5

- inches
- centimeters

Limitations: The formulae for the Image Quality Calculator are intended for text and manuscript scanning. The IQC can be used for other types of materials, but we do not recommend this practice.

Next Step

Notes:
You must supply the dimensions of the original document or object in order to calculate file size, resolution, and quality. If you plan to use a flatbed scanner, it is also important to measure the document to be certain that it will fit on the scanning bed. Most commercial flatbed scanners range in dimensions from 8.5" x 14" to 12" x 17".

Enter width and height information in inches using decimal values and/or fractions of halves, fourths, eighths and sixteenths only. For centimeters, use integers with up to four digits to the right of the decimal point.

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Image Quality Calculator

Smallest Significant Character or Visual Element
(measured in millimeters)

Height: 3 mm

Notes:
The goal in identifying the smallest significant character or visual element is to find the smallest feature of the picture that must be resolved clearly in the digital image. For example, in a text document the legibility of a character that is smaller than 6-point type may be critical. In a handwritten manuscript, it may be important to identify the width of a pen stroke. Use a 10x scale loupe to obtain this measurement in millimeters. There is an inverse relationship between the smallest significant feature and the resulting file size and resolution. If you choose a very small significant feature, the file size may be very large.

For millimeters, use integers with up to four digits to the right of the decimal point.

Next Step Start Over

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Image Quality Calculator

Quality Index

- ○ High (QI = 8)
- ◉ Medium (QI = 5)
- ○ Low (QI = 3.6)

Notes:

Quality Index is a standard developed by the micrographics industry that relates system resolution and text legibility (ANSI/AIIM MS23-1991). The values used here are rough predictors of image quality in the following manner: Low (QI = 3.6), Medium (QI = 5), and High (QI = 8). It is important to note that by choosing a high quality index value, the smallest significant character or visual feature will be easily discernible. Ultimately, there is a positive correlation between the quality index and both the resolution and file size. The higher the quality index, the higher the file size and resolution. *However, high resolution and large file size do not necessarily warrant a high quality image.* (See "About the IQC")

Next Step | Start Over

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Image Quality Calculator

Bit Depth

- ○ Black & White (1-bit)
- ○ Standard Grayscale (8-bit)
- ○ Enhanced Grayscale(12-bit)
- ◉ Standard True Color (24-bit)
- ○ Enhanced True Color(36-bit)

Notes:

Bit depth is the number of bits needed to represent one pixel in a digital image. In the case of a black and white image, a bit depth of one (2 bytes) is necessary to represent black and white. Grayscale (8 bit) and color (24 bit) images possess higher bit depths. A high bit depth allows more tones to be represented in an image. File size increases with bit depth in a linear fashion.

Next Step | Start Over

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Image Quality Calculator

Input:

Image Width = 12.5 cm
Image Height = 9.5 cm
Quality Index = 5
Smallest Significant Character = 3 mm
Bit Depth = 24-bit

Results:

Recommended Resolution = **64 dpi**
Approximate File Size = **0.211 Mb**
Horizontal Pixel Dimension = **237 Pixels**
Vertical Pixel Dimension = **312 Pixels**

Notes:

The recommend resolution (measured in dots per inch or dpi) is the minimum resolution necessary to capture all of the detail you desire to capture in the digital image. If, after scanning the image at the recommended resolution, you still desire to see greater detail, we recommend that you recalculate the using a smaller measurement for the smallest significant feature.

File size stated here is for an uncompressed image file.

The image size that has been calculated is an estimate that assumes you will be saving in an uncompressed TIFF format. Slight variations (+/- 5%) in file should be anticipated due to the unlikelihood of scanning at precise document dimensions.

Start Over

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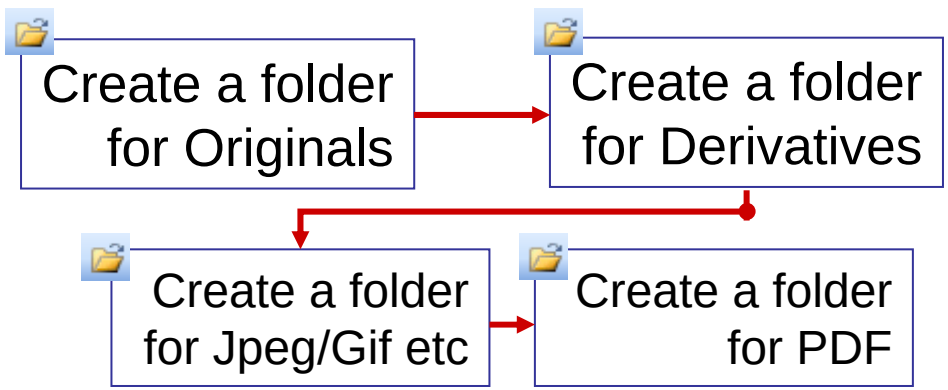
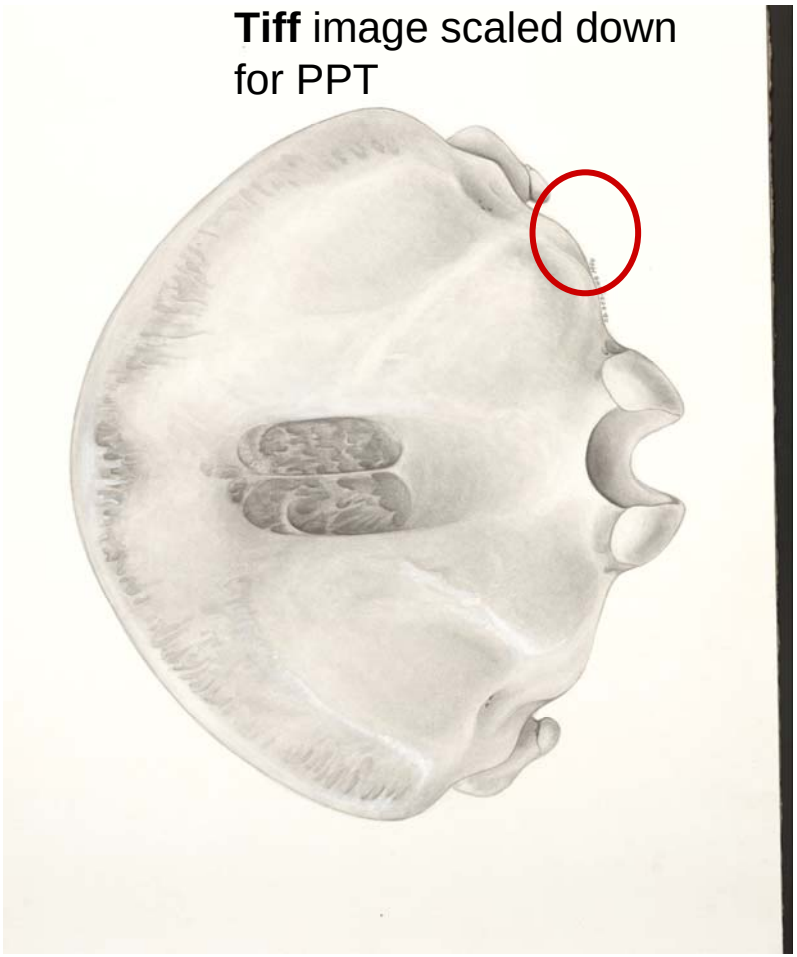
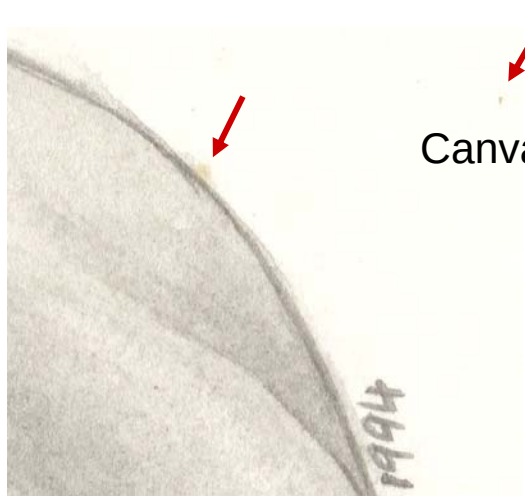
Conversion why and how

- Keep archival copy untouched – separate
- Crop, de-scew, cleaning, colour management
- Size of archival image ±50 – 60 MB
- Size of normal photo on web 50 KB
- 24 sec average download time per image



Tiff image scaled down for PPT





Canvas cleaning

Jpeg

Storage archival and other

- One “sacred” archival copy – not to be touched
- Preferable: Server with search engine (Lucerne)
- 1 x derivated copy in PDF or Jpeg to collection
- 1 x derivated copy PDF and Jpeg in digitisation office
- Gold dye CD-R best
- Test CDs/DVDs once a year for data loss
- Should be able to migrate if necessary

Web-ready

- Lower resolution images derived from master file for web-ready copies
- Resolution of Jpeg derivatives between 72 ppi and 150 ppi
- PDF documents for web display - truly portable across different platforms
- PDF retains all of the formatting and detail present in the original
- PDF can be compressed into smaller file sizes for the Web

Metadata the finding aid

- METADATA is the information needed for researchers to evaluate whether or not a visit to the repository will be necessary

- Librarians are now challenged to create eye appealing informational products, preferably with a Google-like box to provide searching capabilities across many formats of data

- Along with the plethora of digital assets comes the need to attach meaningful metadata to provide access to items in their collections

Technical metadata

- A most necessary and well thought through technical database has to be compiled and uploaded onto the web platform

- Use descriptive field in DSpace for the technical metadata

Microsoft Excel - Digitization [Read-Only]

File Edit View Insert Format Tools Data Window Help Adobe PDF

Type a question for help

A26

VETERINARY SCIENCE: DEPARTMENT ANATOMY AND PHYSIOLOGY

Christene Seegers: Drawings

Eliphant	Date scan	Size of original canvas (cm)(w x h)	Digibook Scanner	dpi	scanned sized (w x h) + KB	colour	%	Date Conv	Software	format	width x height pixels	ppi	image	"save for web" option	format	size in pixels (w x h)	General info (Dimensions w x h)	ppi
oli_001	16-Mar-07	35.5 x 25.5	Model Suprascan A0 10000 RGB - Software: Digibook 5,5,1,2	610	8520 x 6400 pixels 156M	10000RGB	100	24-03-07	Adobe Photoshop 8	jpeg 1.26M	840 x 525	300	Mode: RGB 8-bits channels Gray Scale Clean canvas: white area Crop Rotate canvas: 0.4 mm - cw	Note: The Save for Web option was chosen to derivate the file to a still smaller size. Gif-format was chosen because of its lossless format. We deliberately did not choose the Save As - PDF format directly from the Adobe Photoshop Software, because we want to embed the watermark in the Adobe Acrobat Software. To use a digimarc would not serve our intensions fully as it is generally imperceptible to the human eye. All the necessary information embedded in the latter watermark will at all times be available from the document title page. For uniformity we chose the watermark method used in all our digital documentation in pdf-format. While working with the Acrobat Software we also did the security settings. However, we do realise that this function could also be forced from the Photoshop	gif	550 x 344	9.31 cm x 5.83 cm 100% dither; selective pallett, 256 colours	150
oli_002	16-03-07	35.5 x 25.5		610	8424 x 6352 pixels 153.1M	256 colours	100	24-03-07	Adobe Photoshop 8	jpeg 1.32 M	840 x 548	300	Mode: RGB 8-bits channels Rotate canvas: 0.4 mm - cw Crop Clean canvas: white area		gif	550 x 359	9.31 cm x 6.08 cm 100% dither; selective pallett, 256 colours	150
oli_003	16-03-07	35.5 x 26.0		610	8640 x 6048 pixels 149.5M	256 colours	100	24-03-07	Adobe Photoshop 8	jpeg 1.55 M	840 x 638	300	Mode: RGB 8-bits channels Crop Clean canvas: white area		gif	550 x 421	9.31 cm x 6.08 cm 100% dither; selective pallett, 256 colours	150
oli_004	16-03-07	41.0 x 28.0		610	8640 x 6656 pixels 164.6 M	256 colours	100	24-03-07	Adobe Photoshop 8	jpeg 1.55 M	840 x 643	300	Mode: RGB 8-bits channels Crop Clean canvas: white area		gif	550 x 421	9.31 cm x 6.08 cm 100% dither; selective pallett, 256 colours	150
oli_005	16-03-07	35.5 x 26.0		610	6224 x 7728 pixels	256 colours	100	06-04-07	Adobe Photoshop 8	jpeg	840 x 916	300	Crop Mode: RGB 8-bits channels Clean canvas: white area Rotate 90° CW Mode: RGB 8-bits channels		gif	550 x 420	9.31 cm x 7.12 cm 100% dither; selective pallett, 256 colours	150
oli_006	16-03-07	51.0 x 36.0		610	8360 x 10040	256 colours	100	24-03-07	Adobe Photoshop 8	jpeg	840 x 734	300	Crop Mode: RGB 8-bits channels Clean canvas: white area Rotate: 90° CW		gif	550 x 481	9.31 cm x 8.14 cm 100% dither; selective pallett, 256 colours	150
oli_007	16-03-07	51.0 x 41.0		610	8672 x 10040	256 colours	100	06-04-07	Adobe Photoshop 8	jpeg	840 x 973	300	Crop Mode: RGB 8-bits channels Clean canvas: white area Rotate: 90° CW		gif	475 x 550	8.04 cm x 9.31cm 100% dither; selective pallett, 256 colours	150
oli_008	16-03-07	51.0 x 34.0		610	7792 x 10104	256 colours	100	06-04-07	Adobe Photoshop 8	jpeg	840 x 1075	300	Crop Mode: RGB 8-bits		gif	550 X 420	7.25 cm x 9.31 cm	150

Sheet1 Sheet2 Sheet3

Ready

NUM SCRL

start

Type to search

12:09 PM

Microsoft Excel - Digitization [Read-Only]

File Edit View Insert Format Tools Data Window Help Adobe PDF

Type a question for help

X7

	A	O	P	Q	R	S	T	U	V	W	X	Y	Z
3	VETERINA												
4	Christene S												
5													
6	**Eliphant**	**"save for web" option**	**format**	**size in pixels (w x h)**	**General info (Dimensions w x h)**	**ppi**	**Save for web**	**Download information**	**Adobe Acrobat Distiller 6**	**watermark (Arial 12 - Shadow, Blue)**	**Password**	**Adobe**	**Description**
7	oli_001	Note: The Save for Web option was chosen to derivate the file to a still smaller size. Gif-format was chosen because of its lossless format. We delibaretely did not choose the Save As - PDF format directly from the Adobe Photoshop Software, because we want to embed the watermark in the Adobe Acrobat Software. To use a digimarc would not serve our intensions fully as it is generally imperceptible to the human eye. All the necessary information embedded in the latter watermark will at all times be available from the document title page. For uniformity we chose the watermark method used in all our digital documentation in pdf-format. While working with the Acrobat Software we also did the security settings. However, we do realise that this function could also be forced from the Photoshop	gif	550 x 344	9.31 cm x 5.83 cm	150	✓	87.93 k	**Watermark** created in MSWord + converted to pdf Font: Arial 12 pt Regular Shadow ✓ **Colour RGB:** R: 51 B: 153 **Security Settings:** Print: Low Res Changing doc: No Commenting: No Signing: No	© University of Pretoria - Veterinary Science: Anatomy and Physiology		6.0 Standard Size 86 kb	Medial view of elephant skull, juvenile
8					100% dither; selective pallett, 256 colours			32 sec @ 28.8 kbps					
9													
10													
11													
12	oli_002		gif	550 x 359	9.31 cm x 6.08 cm	150	✓	83.28 k		© University of Pretoria - Veterinary Science: Anatomy and Physiology		6.0 Standard Size 85 kb	Lateral view of elephant skull, juvenile
13					100% dither; selective pallett, 256 colours			31 sec @ 28.8 kbps					
14													
15													
16	oli_003		gif	550 x 421	9.31 cm x 6.08 cm	150	✓	111.8 k		© University of Pretoria - Veterinary Science: Anatomy and Physiology		6.0 Standard Size 107 kb	Caudal view of elephant skull, juvenile
17					100% dither; selective pallett, 256 colours			41 sec @ 28.8 kbps					
18													
19													
20	oli_004		gif	550 x 421	9.31 cm x 6.08 cm	150	✓	107.5 k		© University of Pretoria - Veterinary Science: Anatomy and Physiology		6.0 Standard Size 107 kb	Ventral view of elephant skull, juvenile
21					100% dither; selective pallett, 256 colours			39 sec @ 28.8 kbps					
22													
23	oli_005		gif	550 x 420	9.31 cm x 7.12 cm	150	✓	101.2 k		©University of Pretoria - Veterinary Science: Anatomy and Physiology		6.0 Standard Size 103 kb	Dorsal view of elephant skull, juvenile
24													
25					100% dither; selective pallett, 256 colours			37 sec @ 28.8 kbps					
26													
28	oli_006		gif	550 x 481	9.31 cm x 8.14 cm	150	✓	141.3 kb		©University of Pretoria - Veterinary Science: Anatomy and Physiology		6.0 Standard Size 136 kb	Caudal view of elephant skull, juvenile
29													
30					100% dither; selective pallett, 256 colours			51 sec @ 28.8 kbps					
31													
32	oli_007		gif	475 x 550	8.04 cm x 9.31cm	150	✓	126.9 k		© University of Pretoria - Veterinary Science: Anatomy and Physiology		6.0 Standard Size 125 kb	Ventral view of elephant skull, juvenile
33													
34					100% dither; selective pallett, 256 colours			46 sec @ 28.8 kbps					
35													
36	oli_008		gif	550 X 420	7.25 cm x 9.31 cm	150	✓	108.4 k		© University of Pretoria - Veterinary Science: Anatomy and Physiology		6.0 Standard Size 110	Dorsal view of elephant skull, juvenile
37													

100% dither; selective

Sheet1 Sheet2 Sheet3

Ready

NUM SCRL

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UPSpace

Please use this identifier to cite or link to this item: http://hdl.handle.net/2263/2213

Title: Adult elephant skull, caudal view
Author/s: Seegers, Christine D.
LC Subjects: Veterinary anatomy
African elephant
Loxodonta africana
Keywords: Elephant skull, Caudal view
Elephant skull, Adult
Issue Date: 11-Apr-2007
Creation Date: 1994
Abstract: Anatomical representation of a caudal view of the adult elephant skull.
Description: Black and white pencil sketch. Original canvas size: (w)51.0 x (h)36.0 cm. Original scanned size in pixels: 8360 x 10040 (600 dpi). Final size in pixels: 550 x 481 (150 dpi). Estimate download time: 51 sec @ 28.8 kbps.
URI: http://hdl.handle.net/2263/2213
Rights:
Type: Image
Language:
Appears in Collections: The Elephant

Files in This Item:

File	Description	Size	Format	
oli_006.pdf		135Kb	Adobe PDF	View/Open

Note:

No thumbnail available if PDF document

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UPSpace at the University of Pretoria: Item 2263/2213 - Microsoft Internet Exp

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https://www.up.ac.za/dspace/bitstream/2263/2213/1/oli_006.pdf - Microsoft Internet Explorer

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Address https://www.up.ac.za/dspace/bitstream/2263/2213/1/oli_006.pdf

Google Go Bookmarks 2 blocked Check Settings

1 / 1 38.5% Sign

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Done Unknown Zone

et/2263/2213

ed size in pixels: 8360 x 10040 (600 dpi). Final size

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Type: Image

Language:

Appears in Collections: The Elephant

Files in This Item:

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oli_006.pdf		135Kb	Adobe PDF	View/Open

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Local intranet

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In Conclusion …

High quality/ proper metadata can …

- Facilitate & improve retrieval of info
- Increase precision
- Increase search recall
- Increase trustedness of digital collection & items
- Also important for:
  - Administrative control
  - Security
  - Personal information
  - Management information
  - Content rating
  - Rights management
  - Preservation

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- Northeast Document Conservation Center http://nedcc.org/ gelees 30 Maart 2007
- DigitFutures, Kings College, UK. Notes taken at workshop. October, 2006

Project selection criteria

The most common types of materials reported to be digitized:

- Photographs (50.4%)
- Bound materials such as books and journals (37.6%)
- Unbound sheets of paper smaller than 8.5” by 11” (33.9%)
- Oversized unbound sheets of paper larger than 8.5” by 11” (32.1%)
- photograph slides or negatives (32.1%)