How to Make an EMu Page View
(and When Is a Good Time to Do So)

Kate Webbink
Information Systems Specialist
FMNH Technology Department
Who & What is a Page View good for?

For new EMu users pining for their old databases.

For existing EMu users trying to review data more efficiently.

For [almost] anyone else struggling to see data more easily in EMu.
What is a Page View?

- Page views are HTML generated by “XSLT” reports & rendered in EMu.
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- **XSLT reports** = “eXtensible Stylesheet Language Transformation” scripts that EMu uses to transform data into HTML.
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What does an EMu record look like in XML?
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```xml
<!-- Data -->
<table name="ecatalogue">

  <!-- Row 1 -->
  <tuple>
    <atom name="SummaryData">Vochysia guatemalensis, Costa Rica, 12205</atom>
    <atom name="CatCatalog">Botany</atom>
    <atom name="GeoCatalogNo">1981882</atom>
    <table name="MulMultiMediaRef_tab">
      <tuple>
        <atom name="Multimedia">C:\...\Cache\183\868\V1981882.jpg</atom>
      </tuple>
    </table>

  </tuple>

<table name="IdetaxonRef_tab">
  <tuple>
    <atom name="SummaryData">Vochysia guatemalensis</atom>
  </tuple>
  <tuple>
    <atom name="SummaryData">Vochysia ferruginea Mart.</atom>
  </tuple>
</table>

</tuple>
</table>
```
What does an EMu record look like in XML?

```xml
<!-- Data -->
<table name="ecatalogue">

<!-- Row 1 -->
<table name="MuIMultiMediaRef_tab">
  <tuple>
    <atom name="MultiMedia">C:\...\Cache\183\868\V1981882.jpg</atom>
  </tuple>
</table>

<table name="IdeTaxonRef_tab">
  <tuple>
    <atom name="SummaryData">Vochysia guatemalensis</atom>
  </tuple>
  <tuple>
    <atom name="SummaryData">Vochysia ferruginea Mart.</atom>
  </tuple>
</table>

<!-- Row 2 -->
<table name="CatCatalog">
  <atom name="CatCatalog">Botany</atom>
</table>

<table name="GeoCatalogNo">
  <atom name="GeoCatalogNo">1981882</atom>
</table>

</table>
```

The type of record

Data fields and their values
What does an EMu record look like in XML?

```xml
<-- Data -->
<table name="ecatalogue">

<-- Row 1 -->
<table name="MulMultiMediaRef_tab">
  <atom name="SummaryData">Vochysia guatemalensis, Costa Rica, 12205</atom>
  <atom name="CatCatalog">Botany</atom>
  <atom name="GeoCatalogNo">1981882</atom>
</table>
</table>
</table>
</table>
</table>

|-- The type of record
   (Catalogue)

|-- 3 atomic fields
   (SummaryData, CatCatalog, GeoCatalogNo)
What does an EMu record look like in XML?

```xml
<!-- Data -->
<table name="ecatalogue">
  <!-- Row 1 -->
  <tupletype>
    <atom name="SummaryData">Vochysia guatemalensis, Costa Rica, 12205</atom>
    <atom name="CatCatalog">Botany</atom>
    <atom name="GeoCatalogNo">1981882</atom>
  </tupletype>
  <table name="MulMultiMediaRef_tab">
    <tupletype>
      <atom name="Multimedia">C:...\Cache\183\868\V1981882.jpg</atom>
    </tupletype>
  </table>

  <table name="IdeTaxonRef_tab">
    <tupletype>
      <atom name="SummaryData">Vochysia guatemalensis</atom>
    </tupletype>
  </table>
  <tupletype>
    <atom name="SummaryData">Vochysia ferruginea Mart.</atom>
  </tupletype>
</table>
```

1 table field with 1 row
(MulMultiMediaRef_tab)

1 table field with 2 rows
(IdeTaxonRef_tab)

3 atomic fields
(SummaryData, CatCatalog, GeoCatalogNo)

The type of record
(Catalogue)
What does an EMu record look like in XML?

```xml
<!-- Data -->
<table name="ecatalogue">

<!-- Row 1 -->
<tr>

<atom name="SummaryData">Vochysia guatemalensis, Costa Rica, 12205</atom>
<atom name="CatCatalog">Botany</atom>
<atom name="GeoCatalogNo">1981882</atom>
<table name="MulMultiMediaRef_tab">
<tr>

<atom name="Multimedia">C:\...\Cache\183\868\V1981882.jpg</atom>
</tr>
</table>
</tr>
</table>
```

To view XML that EMu generates for a record:

1) Run an XSLT report for a record, then
2) Find “xmlData.xml” in your temp folder
   ( e.g.: C:[username]/AppData/Local/Temp/ )
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- **XSLT reports** = “eXtensible Stylesheet Language Transformation” scripts that EMu uses to transform data into HTML.

![Diagram showing the process of transforming EMu records into HTML through XSLT scripts.](Diagram.png)
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- XSLT reports = “eXstensible Stylesheet Language Transformation” scripts that transform EMu data into HTML.

- For further help with XSLT, check:
  - w3c.org/tr/xslt & w3schools.com/xsl
    - (also, stackoverflow.com & stackexchange.com)
  - Keith Maguire - github.com/keithmaguire/XSLT-for-EMu
  - EMu help - “How to Add a Page View”
What is an EMu Page View?

- Page views are HTML generated by “XSLT” reports & rendered in EMu.
- XSLT reports = scripts that transform EMu data into HTML.
- For further help with XSLT, check w3schools, Keith Maguire, EMu help...

What isn’t an EMu Page View?

- A page view is not a data-entry interface. :(
How to Style a basic Page View in XSLT:

1) Sketch a layout of the page view you want.

2) Make your XSLT script.

3) In EMu, make a new XSLT Report
   - Add the fields you need
   - Upload the XSLT script.

4) Test/Run the new report.
How to Style a basic Page View in XSLT:

1) Sketch a layout of the page view:

- Which fields should appear?
- Where on screen?
- How should they look?
How to Style a basic Page View in XSLT:

1) Sketch a layout of the page view -- Or request one from users:
How to Style a basic Page View in XSLT:

1) Sketch a layout of the page view:

- simplify layout when possible.

<table>
<thead>
<tr>
<th>Department</th>
<th>Event Type</th>
<th>Date</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>EveEventTitle</td>
<td>MulMultiMediaRef_tab</td>
<td>DatCommencementDate</td>
<td>EveEventDescription</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>StaEventCatalogueNumber</th>
<th>StaObjectRef</th>
<th>StaStatus</th>
<th>TasCompleted_tab</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>DevDisplayNotes</th>
<th>StaSectionTitle</th>
<th>DevGroup</th>
<th>StaCaseWall</th>
</tr>
</thead>
</table>

[Table of Measurement fields]

<table>
<thead>
<tr>
<th>EnvTargetRelativeHumidity</th>
<th>EnvMaxIlluminationLevel</th>
<th>EnvCaseRequirement_tab</th>
</tr>
</thead>
</table>

[Table of Mount fields]

<table>
<thead>
<tr>
<th>Inv. No.</th>
<th>Key View Image</th>
<th>Front View Image</th>
<th>Left View Image</th>
<th>Right View Image</th>
<th>Top View Image</th>
</tr>
</thead>
<tbody>
<tr>
<td>Object Name</td>
<td>Status</td>
<td>Day One</td>
<td>Dev. Display Notes</td>
<td>Section</td>
<td>Group</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Msmnt Taken; Msmnt Kind; Msmnt Values; Remarks; Confirmed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mnt: Display</td>
</tr>
<tr>
<td>Mnt: Case Notes</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Target RH % - Target</th>
<th>Target RH % + Target +/-</th>
<th>Max Foot Candle</th>
</tr>
</thead>
<tbody>
<tr>
<td>Case Requirements (Silica Gel; Arten Meter; MCG; Pest Port; Alarm; No humidity</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
How to Style a basic Page View in XSLT:

1) Sketch a layout of the page view:

- simplify layout when possible.
- resist temptation to overdo it.

<table>
<thead>
<tr>
<th>StaEventCatalogueNumber</th>
<th>MultiMultiMediaRef_tab</th>
</tr>
</thead>
<tbody>
<tr>
<td>StaObjectRef</td>
<td></td>
</tr>
<tr>
<td>StaStatus</td>
<td></td>
</tr>
<tr>
<td>TasCompleted_tab</td>
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<th>DevGroup</th>
<th>StaCaseWall</th>
</tr>
</thead>
<tbody>
<tr>
<td>[Table of Mount fields]</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EnvTargetRelativeHumidity</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EnvMaxIlluminationLevel</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EnvCaseRequirement_tab</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>[Table of Measurement fields]</th>
</tr>
</thead>
<tbody>
<tr>
<td>+ filters/conditions/logic = weeks of development time...</td>
</tr>
</tbody>
</table>

- Inv. No. |
- Object Name |
- Status |
- Day One |

- Key View Image |
- Front View Image |
- Left View Image |
- Right View Image |
- Top View Image |

- Dev. Display Notes |
- Section |
- Group |
- Sub-Group |
- Case |
- Button No. |

- Msmnt Taken; Msmnt Kind; Msmnt Values; Remarks; Confirmed |
- Mnt: Display |
- Mnt: Angle |
- Mnt: Surface |
- Mount Notes |
- Mnt: Case Notes |
- Mount Details |

- Target RH % - Target |
- Target RH % + Target +/- |
- Max Foot Candle |

- Case Requirements (Silica Gel; Arten Meter; MCG; Pest Port; Alarm; No humidity)
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<th>StaSectionTitle</th>
<th>DevGroup</th>
<th>StaCaseWall</th>
</tr>
</thead>
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[Table of Mount fields]

[Table of Measurement fields]

+ filters/conditions/logic = weeks of development time...

http://xkcd.com/1739/
How to Style a basic Page View in XSLT:

1) Sketch a layout of the page view.

2. Make your XSLT stylesheet.

   - EMu Help provides template XSLT code
     - Keith Maguire’s examples are good to work from, too
   - XSLT-editors:
     - Notepad++ (free)
     - oXygen
How to Style a basic Page View in XSLT:

2. Make your XSLT stylesheet:

```xml
<?xml version="1.0" encoding="iso-8859-1"?>
<xsl:stylesheet version="1.0" xmlns:xsl="http://www.w3.org...">
  <xsl:output method="html" encoding="ISO-8859-1" />

  <xsl:template match="/">
    <html>
      <head>
        <xsl:call-template name="styles" />
        <xsl:call-template name="scripts" />
      </head>
      <body class="sheet" onLoad="loaded()">
        <xsl:call-template name="body" />
      </body>
    </html>
  </xsl:template>
</xsl:stylesheet>
```
How to Style a basic Page View in XSLT:

2. Make your XSLT stylesheet:

```xml
<?xml version="1.0" encoding="iso-8859-1"?>
<xsl:stylesheet version="1.0" xmlns:xsl="http://www.w3.org/..."
<xsl:output method="html" encoding="ISO-8859-1" />

[add EMu fields here]
<xsl:template match="/">
  <html>
    <head>
      <xsl:call-template name="styles" />
      <xsl:call-template name="scripts" />
    </head>
    <body class="sheet" onLoad="loaded()">
      <xsl:call-template name="body" />
    </body>
  </html>
</xsl:template>
```

These three header lines define the output as HTML. 
*Do NOT edit.*

This section defines formatting for a single EMu record.

*DO edit by adding EMu fields.*
How to XSLT...

...with EMu Help’s XSLT template, which includes sections for:

- “Body”
- “CSS” (fancy styling)
- “Scripts” (fancier styling)
- “Record”
  - “Heading” (Summary Data)
  - “Image” (First Multimedia)
- “Data”
  - Atom
  - Table
  - Nested Table
  - Prompt
How to XSLT...

...with EMu Help’s XSLT template:

1. Copy template code into XSLT editor (e.g., Notepad++)

2. Insert the necessary EMu fields
   - inside <emu:column> tags
   - below the 3 header lines, and
   - above the <xsl:template> tag.

3. Save as “template-name.xsl”
How to XSLT...

...with EMu Help’s XSLT template:

1. Copy template code
2. Insert the necessary EMu fields
3. Save as “template-name.xsl”

For quick, simple page views that don’t need much formatting.

```xml
<?xml version="1.0" encoding="iso-8859-1"?>
<xsl:stylesheet version="1.0" xmlns:xsl="http://www.w3.org...">
<xsl:output method="html" encoding="ISO-8859-1" />

<emu:column name="SummaryData" show="no" />
<emu:column name="MulMultiMediaRef_tab" show="no" />
<emu:column name="AdmDateModified">Edited on</emu:column>

<xsl:template match="/">
  <html>
    <head>
      <xsl:call-template name="styles" />
      <xsl:call-template name="scripts" />
    </head>
    <body class="sheet" onLoad="loaded()">
      <xsl:call-template name="body" />
    </body>
  </html>
</xsl:template>
...
How to XSLT...

...with EMu Help’s XSLT template:

1. Copy template code
2. Insert the necessary EMu fields
3. Save as “template-name.xsl”

For quick, simple page views that don’t need much formatting...in theory:
How to XSLT...

...For formatted page views, or simpler trouble-shooting:

Keith Maguire’s examples modify the EMu Help template with:

1. EMu fields defined as variables with `<xsl:variable>`

2. Simple, single “body” section

```xml
<?xml version="1.0" encoding="iso-8859-1"?>
<xsl:stylesheet version="1.0" xmlns:xsl="http://www.w3.org..."
<xsl:output method="html" encoding="ISO-8859-1"/>
<emu:column name="SummaryData" show="no"/>
<emu:column name="MultiMediaRef_tab" show="no"/>
<emu:column name="AdmDateModified">Edited on</emu:column>

<xsl:template match="/">
  <html>
    <head>
      <xsl:call-template name="styles"/>
      <xsl:call-template name="scripts"/>
    </head>
    <body class="sheet" onLoad="loaded()">
      <xsl:call-template name="body"/>
    </body>
  </html>
</xsl:template>
...
How to XSLT...

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In EMu, in the relevant module:

3) Make a new XSLT report.
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1) Sketch a layout of the page view.
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   - Add the fields you need.
How to Style a basic Page View in XSLT:

1) Sketch a layout of the page view.
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In EMu, in the relevant module:

3) Make a new XSLT report.
   - Add the fields you need.
   - Upload your XSL file
How to Style a basic Page View in XSLT:

1) Sketch a layout of the page view.
2) Make your XSLT stylesheet.
3) In EMu, make a new XSLT Report

4) Test/run the report by going to:

   View → Page Settings → View Page & choosing your new report.

   ...Ideally, test with records that have data in all the necessary fields.
How to Style a basic Page View in XSLT:

1) Sketch a layout of the page view.
2) Make your XSLT stylesheet.
3) In EMu, make a new XSLT Report

4) Test/run the report

If this shows up:
1. Hit “Cancel”
2. Find EMu’s XML output. (“xmldata.xml” in your temp folder)
3. Add this line of code to xmldata.xml -- above the <!--Data--> section

```xml
<?xml-stylesheet type="text/xsl" href="C:\path\to\your\xsltstylesheet.xsl"?>
```

4. Re-save xmldata.xml, and open it in a web browser.
   This provides a more detailed error report. [Usually…]
How to Style a basic Page View in XSLT:

1) Sketch a layout of the page view.
2) Make your XSLT stylesheet.
3) In EMu, make a new XSLT Report

4) Test/run the report

...and hopefully, eventually, success:
How to Style a basic Page View in XSLT:

1) Sketch a layout of the page view you want.
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3) In EMu, make a new XSLT Report
   - Add the fields you need
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1) Sketch a layout of the page view you want.
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3) In EMu, make a new XSLT Report
   - Add the fields you need
   - Upload the XSLT script.
4) Test/Run the new report.

...When to style a Page View?
When new users pine for old database...

Transitions are hard.

Page views can give new users a familiar visual context for data while they learn their way around EMu.
When new users pine for old database...

- Make peace by paralleling EMu-environment to non-EMu-environment:

  EMu Resource Space
When new users pine for old database...

- Make peace by paralleling EMu-environment to non-EMu-environment:

EMu

Resource Space
When new users pine for old database...

- Make peace by paralleling EMu-environment to non-EMu-environment:

  EMu

  Resource Space
When new users pine for old database...

- Make peace by paralleling EMu-environment to non-EMu-environment:

EMu

Resource Space
When new users pine for old database...

Try to
- Make peace by paralleling EMu-environment to non-EMu-environment:
When existing users want to see forever...

Every pixel counts?

Page View layouts that gather data from different tabs, or highlight changes across records can speed up EMu workflows.
When existing users want to see forever...

Based on a prior Filemaker interface: \[\ldots\] we ended up with this page view:
When existing users want to see forever...

Based on a prior Filemaker interface: 

... we ended up with this page view:
When existing users want to see forever...

Based on a prior Filemaker interface: … we ended up with this page view:
When existing users want to see forever...

Based on a prior filemaker interface: ... we ended up with this page view:
When existing users want to see forever...

... we ended up with this page view:
When existing users want to see forever...

* Grouping table fields in the EMu report properties can make the XML easier to handle:

```xml
<table name="MeaMeasurementKind_tab">
  <tuple>
    <atom name="MeaMeasurementKind">height</atom>
  </tuple>
  <tuple>
  </tuple>
  <tuple>
    <atom name="MeaMeasurementKind">width</atom>
  </tuple>
  <tuple>
  </tuple>
  <tuple>
    <atom name="MeaMeasurementKind">depth</atom>
  </tuple>
</table>

<table name="MeaMeasurementFraction_tab">
  <tuple>
    <atom name="MeaMeasurementFraction">1</atom>
  </tuple>
  <tuple>
    <atom name="MeaMeasurementFraction">10-7/8</atom>
  </tuple>
  <tuple>
    <atom name="MeaMeasurementFraction">3</atom>
  </tuple>
</table>

<table name="Group1">
  <tuple1>
    <atom name="MeaMeasurementTaken"></atom>
    <atom name="MeaMeasurementKind">height</atom>
    <atom name="MeaMeasurementFraction">11</atom>
    <atom name="NamBriefName">P. Gaible</atom>
    <atom name="MeaStartDate"></atom>
  </tuple1>
  <tuple1>
    <atom name="MeaMeasurementTaken"></atom>
    <atom name="MeaMeasurementKind">width</atom>
    <atom name="MeaMeasurementFraction">10-7/8</atom>
    <atom name="NamBriefName">P. Gaible</atom>
    <atom name="MeaStartDate"></atom>
  </tuple1>
</table>
```
Other things a page view can do:

**SynView** (Janeen Jones, FMNH)
- Shows synononies in Taxonomy records

**Page View with a Map** (Keith Maguire, SAM)
- Shows localities on a map in Catalog records

**3D Viewer** (in progress)
- Uses three.js to render PLY (3d) files. - Supplement to ImageMagick
“SynView”

- gathers fields from multiple tabs
- to check synonomies more easily
“SynView”
- gathers fields from multiple tabs
- to check synonomies more easily
- has a wicked name

Red Meat by Max Cannon
“Page View with a Map”

- Check georeferenced localities on a map
- Uses google maps API
“3D Viewer” (in progress)

- Using three.js to render PLY files.
- Allow EMu to preview a 3D file-type.
Recap

[Try to] Keep it simple.

For further help, check:
- Keith Maguire - on Github
- EMu Help - How to Add a Page View
Recap

[Try to] Keep it simple.

For further help, check:
- Keith Maguire - on Github
- EMu Help - How to Add a Page View

Remember your users

- What do you/users need to see?
- Would a page view bring peace?
Many Thanks to

FMNH IT Department
Sharon Grant
Pete Herbst
Rob Zschernitz
Janeen Jones
[S&E + honorary IT]

Keith Maguire,
South Australian Museum
github.com/keithmaguire

Beth Gamble & Dan Kennedy
(for “group your table fields!” wisdom)

Max Cannon - Red Meat
Randall Munroe - XKCD
Edwin Starr - War! & Peace

EMu & Axiell