

ROYAL ONTARIO MUSEUM

MIGRATING CANADA'S LARGEST MUSEUM'S NATURAL HISTORY COLLECTION TO A COLLECTIONS MANAGEMENT SYSTEM



Image of the front of the Royal Ontario Museum building, in Toronto, Ontario. Courtesy of the ROM.
© Royal Ontario Museum (2009)

The Royal Ontario Museum (ROM) is coming to the end of an ambitious five-year project. In 2017, this acclaimed Toronto institution began transferring its 15 databases to a single collections management solution, The Museum System (TMS). The migration project's central goal was to better catalogue and manage its expansive natural history collections.

As Canada's largest museum, the Royal Ontario Museum oversees 13 million natural history specimens, cultural objects, and artworks that span the globe and time. Since its opening in 1914, the ROM has evolved its internal cataloguing practices throughout the decades. However, with 11 natural history disciplines under one roof, processes would sometimes vary between collections.

To harmonize cross-department workflows and communication, the Royal Ontario Museum opted to team up with Gallery Systems. Through this partnership, the ROM successfully achieved its core objective: creating a collections management database that fully supports the unique cataloguing needs of a natural history institution.

"TMS allows us to do things that we'd only dreamed about with our previous collections management systems"

BRAD HUBLEY, ENTOMOLOGY COLLECTION MANAGER,
ROYAL ONTARIO MUSEUM



OVERVIEW

- Canada's largest museum, containing 13 million natural history specimens originating from across the world and time



RETURN ON INVESTMENT

- Transfer and consolidate fifteen data sets onto a single collections management database
- Manage a multidisciplinary natural history collection with a customizable CMS that allows for cataloguing complexities
- Eliminate database inconsistency and enhance core functionality, including improved record linking, data querying, and report creation



PRODUCTS

- The Museum System (TMS)
- eMuseum

OBJECTIVES

Cataloguing the Royal Ontario Museum's natural history collections came with both practical and historical challenges. Brad Hubley, Entomology Collection Manager, explains: "Although we exist inside one large natural history department, Earth Sciences and Life Sciences have very different needs, in terms of not only collection practices but also database management."

Katherine Dunnell, Earth Sciences Technician, elaborates: "There is a diversity in how we collect and how we acquire for the collections, which does affect how we register, audit, and handle objects."

To best manage such a varied collection, the ROM needed a robust, multifaceted collections management system that could meet its departments' diverse requirements. There was, as well, the issue of the existing databases. As Brad put it: "The history of the ROM's collection databases is complicated."

The ROM implemented its first collections management software in the 1980s. However, to meet the specific needs of inorganic sciences, this department opted to create its own solution using Superbase. During the 1990s, those initial databases were repatriated and brought into Microsoft Access, while the collections without databases were developed into separate relational databases.

By 2014, when Gallery Systems came into the picture, the Royal Ontario Museum was using fifteen distinct databases to catalogue its collections.

Having separate databases was leading to museum-wide inefficiencies, with decreased communication between departments and staff needing to search through several databases to conduct reports. Additionally, faced with the possibility of obsolete software, as support for Microsoft Access 2003 and Superbase was ending, it was time for a change at the ROM.



Wallace's Golden Birdwing, *Ornithoptera croesus toeanti*, ROME112456, © Royal Ontario Museum (2009)



SOLUTION

To meet the unique challenges facing the Museum, the ROM team decided to implement TMS as its new collections management system.

“We chose TMS for several reasons,” Brad explains, “We were impressed by the long, stable history of development of TMS by Gallery Systems, and that the software is used worldwide by a large number and variety of cultural institutions. Most importantly: TMS allows us to do things that we’d only dreamed about with our previous collections management systems.”

But where to begin? Together with Gallery Systems, the Royal Ontario Museum developed a five-year action plan for moving and consolidating its fifteen databases. First, the ROM determined which datasets needed to be migrated, creating a list of tables and fields for review. Gallery Systems then took this information and made a project timeline, which split the transition into four phases:

- Phase 1 - Art & Culture Department (Year 1): Using the same database across all their disciplines, this department was chosen to begin the migration process.
- Phase 2 - Natural History Flat-File Databases (Years 2-3): This stage began the transition of the Microsoft Access 2003 databases, with 10 databases moved into TMS.
- Phase 3 - Natural History Relational Databases (Years 3-4): With four Microsoft Access 2003 databases and one Superbase 2.0 database, this stage involved the most legwork.
- Phase 4 - Spreadsheets and ROM Library (Year 4): The migration of four Excel spreadsheets of natural history data finished the move to TMS.

Data Migration

To orchestrate the data transfer, the ROM and Gallery Systems mapped fields from the previous databases to correspond to the appropriate modules and fields in TMS, ensuring data was being catalogued consistently throughout. This process could prove complicated. For example, within Phase 2’s flat-file databases, cataloguing fields hadn’t always been used the same way.

Successfully completing the data mapping meant that ROM data—when it served a singular purpose—had to be mapped into the same TMS target fields, every time. So, the ROM and Gallery Systems worked in tandem to economize on time and standardize core fields at the departmental and institutional levels.

“During the database review stage,” Brad relays, “Gallery Systems’ Data Conversion Specialist, Stephanie Leverock, discovered that several of the ROM databases were very similar, allowing her to map the data extremely efficiently. For instance, she was able to code the Mineralogy and Herpetology databases at the same time, which saved on hours of work.”

Once data mapping was complete, things began to fall into place. “Stephanie’s coding made it possible to convert data without time-consuming field re-mappings,” says Brad.



OUTCOMES

Now winding to a close, the transition to TMS has been a resounding success at the Royal Ontario Museum. “This is the first time in ROM’s over 100-year history that all our collections information is residing in the same place,” Katherine says.

To fully support the cataloguing of ROM’s immense natural history collection, a few modifications to the software were necessary. “Early on, we realized a few things we needed didn’t exist in TMS, including fields for Scientific Name Author and Certainty Level for specimen identification,” Brad explains, “Gallery Systems modified the TMS Thesaurus Manager to include all the scientific taxonomy enhancements for us. The solutions Gallery Systems designed work wonderfully for us.”

“Mission critical for natural history museums is a scientific taxonomy list,” he continues, “The ROM didn’t have the skillset necessary to create one, so Danielle Uchitelle at Gallery Systems designed one for us. We can’t thank her enough for this customized feature.”

Brad also shared which standard TMS features were most benefitting the ROM, including the ability to create detailed specimen records through added media and linking. “For departments that previously used relational databases: a critical aspect of TMS is being able to create parent-child relationships between records,” he says.

With Microsoft Access, staff had struggled to link records between and within modules. One fossil slab, for example, can contain multiple, inseparable individual fossils. Using TMS, ROM staff can fully document these components within one record. Furthermore, through the Events module, multiple objects can be linked to a single event, eliminating the need for duplicate data entry of geography.

To better share its collections with the public, the ROM also implemented eMuseum, online collections software. “The ROM is very excited about being able to publish our collection data online with eMuseum,” Brad shares, “When we modify records in TMS, we can choose for those records to be updated in eMuseum, making them available for our online audience.”



Anorthite variety labradorite, ROMESM399214, and Menelaus Blue Morpho, Morpho menelaus, ROME168769. © Royal Ontario Museum (2018)



FUTURE

Nearing the end of this ambitious five-year project, the Royal Ontario Museum is reflecting on the successful transition process and the future of TMS within the institution.

“Are we satisfied with TMS?” asks Brad, “Yes, we are. The more we learn, the more we look forward and stop looking back. We’re going to continue on expanding our TMS database, and it’s working wonderfully for us.”

Katherine adds: “Right now, the dust has settled on the migration stage and we’re looking at the exciting possibilities for what’s next with TMS.”