

Montana State Digital Library
August 2011 to September 2011

Prepared for the October 12, 2011 Commission meeting
by Jennie Stapp, Digital Library Division Administrator.

This report represents accomplishments of
Library Information Services (LIS),
Natural Resource Information System (NRIS)
& the Montana Natural Heritage Program (MTNHP).

Goal One, Content:

Allison Badger, Library Tech, continues to accession state publications received from the Montana Historical Society. These are often older state publications that for unknown reasons were never part of the MSL collection, but now are as the result of the two agencies working together to fill in the gaps of their respective state publications collections. These older publications will be digitized as part of the on-going digitization project.

LIS held its annual meeting to review its electronic journal subscriptions to determine what titles to renew and what titles to discontinue. Retention of journals is based on review of the cost for the electronic journals vs. the number of times a journal is used. LIS staff has been asked to give serious consideration to the journals MSL continues to license in light of budget cuts that were made to the LIS budget for the current biennium.

As part of the Geospatial Multistate Archives and Preservation Partnership (GeoMAPP) grant awarded to NRIS last winter, LIS Programmer Analyst Chris Stockwell and NRIS GIS Analyst Gerry Daumiller have been working intensively with Archive-It to test crawl large GIS data sets and maps in various formats and web directory locations. The crawls have been generally successful, but have identified some software development issues that have been shared with Archive-it. The results of these tests are currently being analyzed and documented. Staff anticipates that the tests will yield valuable information regarding the use of web archives for providing access to archived GIS data which will be shared with the GeoMAPP team and

Archive-it. Information includes the types of file formats that can most easily be preserved using a web archive and what web coding is required to facilitate successful capture and access to this archive collection. LIS remains very pleased with the attention and responsiveness of Archive-It engineers and tech staff that made coding changes to accommodate these tests. This work also created the opportunity for continued knowledge sharing among staff of the Digital Library.

Additionally, significant, recent GeoMAPP efforts have focused on inventorying NRIS data holdings and transferring them into a newly-developed archive folder structure. While the final archive environment is still in development, staff will be able to move these data sets to that location when it is ready to go into production later this fall. This effort has been a meticulously documented process and Diane Papineau, GIS Analyst, is drafting a white paper from staff findings that will be submitted to GeoMAPP as a primary project deliverable.

With the recent completion of the interagency agreement with the Department of Administration (DOA) (more below), not only does MSL welcome the staff of the Base Map Service Center (BMSC) to the library, but the library is now responsible for the stewardship of twelve of the fourteen Montana Spatial Data Infrastructure (MSDI) Framework Layers. The new organizational structure will help NRIS be more involved with the development of the MSDI and it will be a priority for staff to integrate these framework layers into NRIS tools and applications where possible and appropriate.

NRIS and the MT Department of Agriculture entered into an interagency agreement that will fund the development of datasets related to the food systems of Montana. The goal of the project is to get baseline mapping of food producers, processors, distributors and retailers to support better understanding of where food produced in Montana is consumed, and to help in the development of a more robust food systems infrastructure within the state. Staff is excited about the data and map products that will come out of this project and expect them to enhance current agricultural natural resource offerings.

Led by MTNHP's Information Specialist, Scott Blum, Heritage Zoologists and Data Specialists have added an additional 28,627 animal observations to the animal point observation databases and 20,580 structured animal survey locations (e.g., bird point count or small mammal trapping station) to the structured survey database. Animal point observation databases now have 1,092,640 point observation records (772,321 bird records and 320,319 records of other animal species) and a total of 130,534 structured animal survey locations have been documented. These observation records and structured surveys are viewable on the Tracker <http://mtnhp.org/Tracker/NHTMap.aspx> application and generalized observations are viewable on the Montana Field Guide <http://fieldguide.mt.gov/> and the MapViewer web application <http://mtnhp.org/mapviewer/>.

Karen Walker, MTNHP Database Administrator, working with other Heritage staff and collaborators from various agencies, finished cleaning and aligning the Managed Area data to the Geodetic Control Database (GCDB), which is the basis for the state Cadastral database. The Montana Managed Areas layer contains information on special land designations that impact management decisions. Examples include Indian reservations, national wildlife refuges, state parks, and wilderness areas. Managed Area boundaries do not necessarily correspond to ownership boundaries; a Managed Area may be made up of fee lands, easements, leased lands, and/or other terms. The other Stewardship layers may be referred to for ownership and conservation easement information. This significant accomplishment completes a several-year project in partnership with the BMSC to align all the Land Management data (public lands, private conservation lands, conservation easements, and managed areas) to the GCDB. This data was also published in the Montana GIS Portal <http://gisportal.mt.gov>.

MTNHP revised 102 PDFs of its 1:100,000 Land Management maps and posted these updates on its website at: http://mtnhp.org/stew/stew_maps.asp.

Wetland and riparian mapping is continuing by MTNHP Photo Interpreters Robin Lium, Maya Daurio, Gary Carnefix, Kyla Zaret, Steve Fernandez, and supervisors Karen Newlon and Cat McIntyre. Current projects include work in the Musselshell drainage and in the Seeley-Swan area, among others. Mapping is being funded by the Montana Land Information Act (MLIA)

grant, the US Forest Service (USFS), the Bureau of Land Management (BLM), the Northern Cheyenne, and the US Fish and Wildlife Service (USFWS).

During FY11, patrons of the Montana Field Guide <http://fieldguide.mt.gov/> improved its content through contributions of a total of 355 photos and other images of a variety of Montana's animal species and the habitats on which they depend.

Goat Two, Access:

Grant Austin, NRIS Web Programmer, Evan Hammer, NRIS Manager, Dave Ratz, MTNHP Web Programmer, Allan Cox, MTNHP Web Projects Manager and Systems and Services Manager, and MSL Web Manager, Tom Marino collaborated to develop and implement a new password management system for MTNHP/NRIS applications including the Request Tracker and Heritage Tracker application. These applications were developed many years ago in a much less dangerous web environment. During a recent internal review of security protocols following the successful hacking of a local government website in the state, it was determined that MSL should upgrade the original authentication tool. This upgrade will minimize the possibility of someone secretly obtaining passwords from our users by masking users' passwords to prevent misuse of personal information. Although MSL collects minimal personal information users may be required to share contact information. While there was little direct threat from an improper login to MSL tools, this upgrade is a measure to protect that valuable piece of user information (the password) in the event that any of our users use the same password for other web sites (like an online banking site). The update was completed quickly and staff is planning to roll out a more advanced authentication tool in the coming months for use with upcoming software updates.

As part of MSL's on-going Geographic Literacy Campaign, the effort to educate librarians on natural resource and geography-related tools and resources available through MSL, staff re-released the Hunting Companion <http://msl.mt.gov/hunting>. The Hunting Companion is a tool designed in collaboration with Fish, Wildlife and Parks that highlights "need to know" information for planning a successful hunt. The updated website includes new harvest reports

and a helpful screen cast video created by Statewide Trainer, Jo Flick that educates users about the content of the site. Although designed to help librarians help their patrons, the Hunting Companion is a popular tool with the general public and has received considerable publicity in newspapers, on TV and on the radio.

MTNHP released a beta version of animal and plant point observation database (>1,000,000 observations) as a new toolset in the MapViewer. The MapViewer now includes toolsets for viewing and reporting for: 1) statewide land cover; 2) over 25,000 geo-referenced photos; 3) the MTNHP land management data set (public lands, private conservation lands, conservation easements, and managed areas); and 4) animal and plant observations. The new toolset also includes a simple entry form for users to submit animal observations.

MTNHP Information Services staff and science staff responded to multiple requests for information and data from a variety of state, federal and private entities to support the clean-up of the Yellowstone River pipeline oil spill clean-up.

LIS has begun to review the non-fiction collection to ensure that resources in the collection comply with the collection development policy that limits acquisition to state publications, natural resource information, and professional library development material. Those out of scope items, for example titles like *Single Parenting*, *Adolescent Psychology*, *The Encyclopedia of Graffiti*, that are in good physical condition and with current information will be offered to local libraries. The majority of the non-fiction collection is primarily dedicated to providing access to print natural resource information that is not a state or federal publication.

LIS is actively working with several state agency web managers to change the web code for portions of those agencies' websites to allow their archived web pages to be rendered similar to their live web pages. These conversations have clarified for them and LIS how Archive-It may be used to provide permanent public access to born digital publications formerly submitted in print to the MSL.

LIS updated the Find Resources Online web page to swap out the Gale InfoTrac databases for the new EBSCO suite of databases. This transition also required staff to update the EZproxy control points to allow for remote access. LIS staff also communicated with Taylor & Francis, the distributors of American Fisheries Society (AFS) journals, to learn their technical requirements for providing remote access using Ezproxy. LIS then updated its MSC catalog records for these AFS journals with new prepended links.

Goal Three, Consultation and Leadership:

MTNHP Senior Ecologist Linda Vance received a new grant from the Environmental Protection Agency (EPA) to identify and survey important headwater wetlands in the Upper Missouri River Basin.

MTNHP ecology staff members have busy on several projects, including: The National Wetlands Condition Assessment (Vance, McIntyre, Sam Isham); The Southeast Montana Rotating Basin Wetland Assessment (Newlon, McIntyre); The Large Rivers Riparian Area assessment (Vance); Surveys of Springs and Seeps for the BLM (Tara Luna, Dave Stagliano, Vance); Identification of potential Resource Natural Areas for the BLM (Luna); Identification and assessment of fens and other groundwater dependent ecosystems (Vance, Zaret, Neil Snow, Luna); and Macroinvertebrate assessments across Montana (Stagliano and Hernandez).

MTNHP zoologists Paul Hendricks and Susan Lenard conducted bat acoustic surveys along the Yellowstone and Powder Rivers in conjunction with the Ecology Program's EPA Rivers project in order to investigate the potential impacts of non-native Russian olive and tamarisk invasions along these systems.

In coordination with Joel Tigner of Batworks, Senior Zoologist, Bryce Maxell assisted with a bat acoustic detection and monitoring training to the Butte and Dillon Field Offices of the BLM in Butte on September 15th and 16th, 2011.

In response to a request for information on bat hibernacula (overwintering area) use in Montana, Zoologist Paul Hendricks developed a manuscript summarizing bat overwintering records across the state. This information summary will be invaluable in the potential mitigation of Whitenose Syndrome, a fungal infection that has proved deadly to bats in the eastern United States and appears to be spreading westward.

Staff members of MTNHP in the Spatial Analysis Lab are also busy on several projects. Melissa Hart and Ute Langner at the Spatial Analysis Lab are completing GIS and web work for the USFS's Region 1 Integrated Restoration and Protection Strategy. Ute Langner has also been working on a pilot project to use remote sensing data to detect algal blooms on Hebgen Lake. Staff recently completed a GIS-based stream reach classification for watersheds on the Montana-Idaho border as part of a project that Dave Stagliano, MTNHP Aquatic Ecologist, is doing for the USFS. And staff worked with Cathy Maynard of the Natural Resources Conservation Service (NRCS) to complete a habitat suitability analysis for sage grouse on the Crow Reservation.

With funding from the USFWS, and in cooperation with the USFWS and The Confederated Salish and Kootenai Tribes, MTNHP Botanist Scott Mincemoyer continued to lead survey and inventory work for the federally threatened Spalding's catchfly. This work filled documented needs listed in the Recovery Strategy for the species, specifically regarding the location and creation of a new Key Conservation Area for the species in Montana. The work documented at least one new occurrence that fits the criteria of a Key Conservation Area as defined in the recovery strategy, and also documented several additional relatively large populations. One of these represents the third largest population known across the range of the species.

Tara Luna, MTNHP Vegetation Ecologist, studied vegetation plots for REMAP funded by the EPA, and located a new population of the rare species (S2) *Gentianopsis macounii*; she also evaluated the condition of plant communities on BLM lands in Teton, Golden Valley and Fergus counties as part of a collaborative BLM project for potential Research Natural Areas.

MTNHP staff have published peer-reviewed journal articles in their general areas, including one by Arne Buechling and MTNHP staff member Claudine Tobalske entitled "Predictive habitat modeling of rare plant species in Pacific Northwest forests" (*Western Journal of Applied Forestry* 26(2): 71-81 [2011]), and one completed prior to arrival at MTNHP by Neil Snow entitled "Studies of Malagasy *Eugenia* (Myrtaceae) – II: Four new species, including one eaten by black lemurs on Nosy Be" (*Systematic Botany* 36(3): 677-689 [2011]).

Allan Cox and Meghan Burns (former MTNHP Ecologist) presented a workshop and webinar in Bozeman for US Geological Survey staff about MTNHP web services, focusing on the new MapViewer application.

LIS staff met with State Records and Information Management Division staff of the Secretary of State's (SOS) office to discuss the new State Information Services Technology Division social media policy. Social media, including the use of Facebook and Twitter, is increasingly used by state agencies. This brings into question the contents of social media sites and its status as a state record or publication, and who and how will that content may be managed. LIS demonstrated current use of Archive-It relative to social media. SOS and LIS agreed additional meetings and a legal review are necessary to ensure they meet their respective agency responsibilities relative to management of social media.

Darlene Staffeldt chaired a meeting of the Montana Land Information Advisory Council on September 1, 2011. This meeting was the first meeting of the council since the administration of the MLIA was transferred to MSL. Funding issues related to the organizational changes, proposed changes to the Montana Land Plan, and the MSDI Work Plan were all discussed at this meeting.

Evan Hammer presented a report on the state of the Water Information System to the Montana Water Policy Interim Committee of the Legislature at their September 13, 2011 meeting. A copy of the report is available on the NRIS News and Publications page:

http://msl.mt.gov/About_MSL/NRIS_Advisory_Committee/publications/2011_WPIC_WIS.ppt

The NRIS Advisory Committee met on September 20. The primary focus of the agenda was to review and offer feedback on the integration of NRIS and the BMSC. This merger was well received and members of the committee are optimistic about the opportunities it presents.

Diane Papineau hosted a meeting of the Montana Metadata Workgroup. The group continues to work on issues related to metadata development such as working with metadata for series and data collections as well as web mapping services. This meeting was focused on the recent release of the ESRI ArcGIS 10 desktop software and the problems that have been identified with the metadata editing environment for that tool. Diane and Gerry Daumiller will host a follow-up meeting at the Montana Association of Geographic Information Professionals fall technical session to present alternative editing approaches that can be used while ESRI works to fix their editing tools.

Evan Hammer held a pair of Hydrography meetings. One was a smaller planning session involving representatives from MT Department of Natural Resources and Conservation (DNRC), MT Department of Environmental Quality, and FWP to lay out a timeline for addressing several hydrography dataset needs. The other was a larger group discussion of planned edits to the Hydrography dataset along the Bitterroot. There is a section of river that has clearly shifted to the western portion of the floodplain. All agree that the data should be updated to reflect the primary channel of the river, but there is some concern on the legal implications of such a change, especially for holders of water rights along that part of the river.

Goal Four, Collaboration:

LIS continues to edit a draft state publications management plan and a separate document on how to implement the draft plan. This draft state publications management plan advocates for increased use of Archive-It to provide timely, comprehensive, and permanent full-text access to born digital state publications. This plan is a living document. LIS staff will seek and incorporate the input of creators and users of state publications, and specifically those state agencies and depository libraries that have shared responsibilities for permanent public access

to state publications. This plan comes in direct response to how agencies are publishing and patrons are using state publications.

LIS joined other Montana librarians to collect statistics and stories for the September 14, 2011 Montana Library Day. LIS submitted to the MSL Communications and Marketing Coordinator numerous data and narratives from LIS, NRIS, BMSC, and MTNHP that describe how our library was used on Montana Library Day which in turn summarizes our value to our users. This data is available at the end of this report.

NRIS signed an agreement with DNRC to finish development work on the Water Rights Query System. Originally built by NRIS several years ago to provide access to information in the Water Rights Database, Grant Austin is currently updating this tool to operate using web services. When complete, the query system will be able to provide access to a much more current snapshot of the database. Additionally, it will greatly reduce, if not eliminate, the weekly data transfer process currently associated with maintaining the query system tool. This project should be completed by the end of October.

Evan Hammer and Gerry Daumiller attended the August MSDI Stewards meeting. The primary discussion topic for that meeting was the proposed MSDI work plan and how that would impact the stewardship responsibilities for involved parties. The work plan sets forward objectives for the continued consistent collection and maintenance of MSDI data, dissemination of data, outreach and training relative to ongoing data development and use as well as objectives that begin to address funding concerns. This work plan was presented to the MLIAC at their September 1 meeting and is available online at:

http://itsd.mt.gov/content/policy/councils/mliac/September_2011/MSDI_current_workplan.

MTNHP Ecologist Karen Newlon attended a grant-writing workshop sponsored by the National Science Foundation in Bozeman in August.

Coburn Currier, MTNHP Zoologist, continued to coordinate with the Rocky Mountain Bird Observatory on management of bird point count survey data gathered during the 2011 field

season. Susan Lenard and Paul Hendricks also continued their collaboration with the U.S. Army Corps of Engineers and USFS to inventory bats at Libby Dam.

Bryce Maxell and temporary field staff continued their field surveys for amphibians, reptiles, bats, and terrestrial mollusks on BLM land within the boundaries of the Missoula and Dillon Field Offices. Data from these surveys will be added to central databases and made available to patrons on the Montana Field Guide and Natural Heritage Tracker and Natural Heritage MapViewer web applications this fall.

Bryce Maxell attended the Montana Bird Conservation Partnership Meetings in Lewistown on September 14th and 15th.

Goal Five, Sustainable Success:

On September 2nd Darlene Staffeldt signed the interagency agreement between DOA and MSL to officially transfer staff and duties of the BMSC and the MLIA to MSL. Kris Schmitz is working through the administrative paperwork with DOA staff and the Governor's office that will give MSL access to MLIA funds, allow us to process payroll for staff, etc.

NRIS and BMSC staff had an offsite meeting to discuss the new organizational structure and how it would impact their work groups. A well-known, local, human resources facilitator was brought in to help direct the discussion and it was a very positive experience. The full day meeting took place at the Montana Learning Center on Canyon Ferry Lake. The facilitator directed a series of exercises designed to get staff to discuss their hopes and fears associated with the impending changes and then used that information to help begin the process of planning for the new working environment. Staff believes that the greatest opportunity for success will be through full integration of these two programs. Although somewhat limited by the current MLIA funding approach, managers are planning for a team approach that considers all aspects of data management, dissemination and organizational outreach. A diagram representing the preferred vision and organizational approach follows this report. This team approach is intended to create diversity in job tasks, to facilitate knowledge sharing

among staff from the two different programs and among staff with varying levels of longevity, and to allow staff to focus more on areas of interest and expertise be they more technical or interpersonal. Jennie Stapp, Evan Hammer, and State GIS Coordinator, Stu Kirkpatrick will have a follow-up meeting with the facilitator scheduled on October 13 to continue to seek input and feedback on how to continue a successful integration process.

MTNHP staff members are involved actively in professional activities: Maya Daurio was appointed as Chair of the Education Committee for the MAGIP. Linda Vance was an invited participant in a US Geological Survey (USGS) working group on sage steppe habitat in Montana. Neil Snow was an invited participant in a three-day workshop in Virginia hosted by the Biological Informatics Program of the USGS on development of a new generation of biological databases.

Beth Downs began September 26, 2011 as the new State Publications Librarian. Beth comes to MSL with over 10 years of professional library experience with a strong public service background. Most recently she worked as an Adjunct Reference Librarian at Montana State University and a Library Assistant Substitute at the Bozeman Public Library. LIS re-posted the metadata/cataloger position and is currently screening candidates and hopes to fill that position by November 1st.

Staff was surprised and pleased to see an article entitled "Digitization Project" published in *Western Ag Reporter* (WAR), September 1, 2011, Volume 3, No. 49. p. 24. (a publication that covers mostly farm and livestock issues). The article was a press release issued by MSL in March to announce the achievement of the million page milestone in the effort to digitize the MSL print state publications collection.

Montana Library Day statistics for MSL

Actual Date of Your Event	9/14/2011	
Library Visits	76	(daily average for month includes MSL staff)
Circulation – Non-juvenile(adult,teen)	7	
Circulation – Juvenile	0	
Reference Questions	33	
New Library Cards Issued	0	
Programs (Including Computer Classes)	0	
Program Attendance – Adult	34	
Program Attendance – Young Adult	0	
Program Attendance – Children	0	
Computer Classes Taught	0	
Internet Users	13	
Hours Volunteers Helped Out at the Library	0	
Got a library card	1	
Job search	0	
Research – health issues	2	
Research – miscellaneous	9	
Homework	2	
Program or meeting	2	
Volunteered	0	
Checked out materials	3	
Internet/computer use	13	
Other	12	includes newspaper readers

Msl.mt.gov page views: 425

Nris.mt.gov page views: 313

FieldGuide.mt.gov page views: 3725

MTNHP.org page views: 405

Tracker page views: 32

MapView page views: 53

- 34 page views for Landcover
- 2 page views for Georeferenced Photos
- 12 page views for Land Management
- 5 page views for Generalized Observations

Species of Concern Report page views: 59

Paper surveys completed: 40

Phone assistance: 4

Email assistance: 2

Walk-in assistance: 12

Diane Papineau: I assisted with a patron request for aerial photographs of Sunburst Montana by referring her to several state and federal agencies who may have collected that imagery in the course of their business needs.

Gerry:

- I showed a GIS professional from a state agency how to view metadata he had edited by hand with the ArcGIS metadata viewer.
- I provided slides describing the Montana Geographic Names Framework layer for a presentation on the Montana Spatial Data Infrastructure that will be given at the annual conference of a Montana professional organization.
- I explained to a county government GIS worker why the State's school district boundary map does not line up with data from the Census Bureau that is supposed to show school district lines (the Census data is not accurate) and showed her where to find the K-12 school districts in the state map data.
- I sent aerial photos of three Montana counties to the GIS analyst from a tribal government.

Stu: The presentation I gave at the Montana Association of Planners was attended by 26 people.

Michael Fashoway: On Wednesday, Jeff Dobb and I drove to Missoula and attended a meeting with 8 staff from the City and County to discuss the BMSC assisting them with some structures/addressing GIS data cleanup. I don't have any quotes from specific people but there were many enthusiastic comments about our assistance.

Draft Montana State Library Preferred Vision

August 31, 2011



The Montana State Library (MSL) is Montana's leader for GIS data management, supporting the natural and cultural geographic data needs of all Montanans.

Preferred vision:

Data Management

MSL is the statewide leader for **GIS data management** in Montana:

- Data are efficiently **collected, integrated, and maintained**;
- Data are easily **discoverable** via the Montana GIS Portal and other discovery systems;
- Data are readily **accessible** to both **GIS professionals** and the **public** through web map services, web mapping applications and downloadable data as appropriate;
- Data are **preserved** for future use;
- MSL develops **best practices** for data management for Montana GIS Professionals.

GIS Leadership

MSL ensures that the GIS community and the public fully benefit from the information resources we provide through:

- **Data coordination** both to enhance Montana Spatial Data Infrastructure (MSDI) and the broader MSL data collection;
- **Education, outreach and advocacy** for **geographic literacy**;
- **Business planning** that integrates GIS into **public and private sector industries**;
- **GIS training** and **technical support** to GIS professionals;
- Geographic **reference services** offered by professional staff members that respond to all matters of inquiry, including GIS data and map requests.

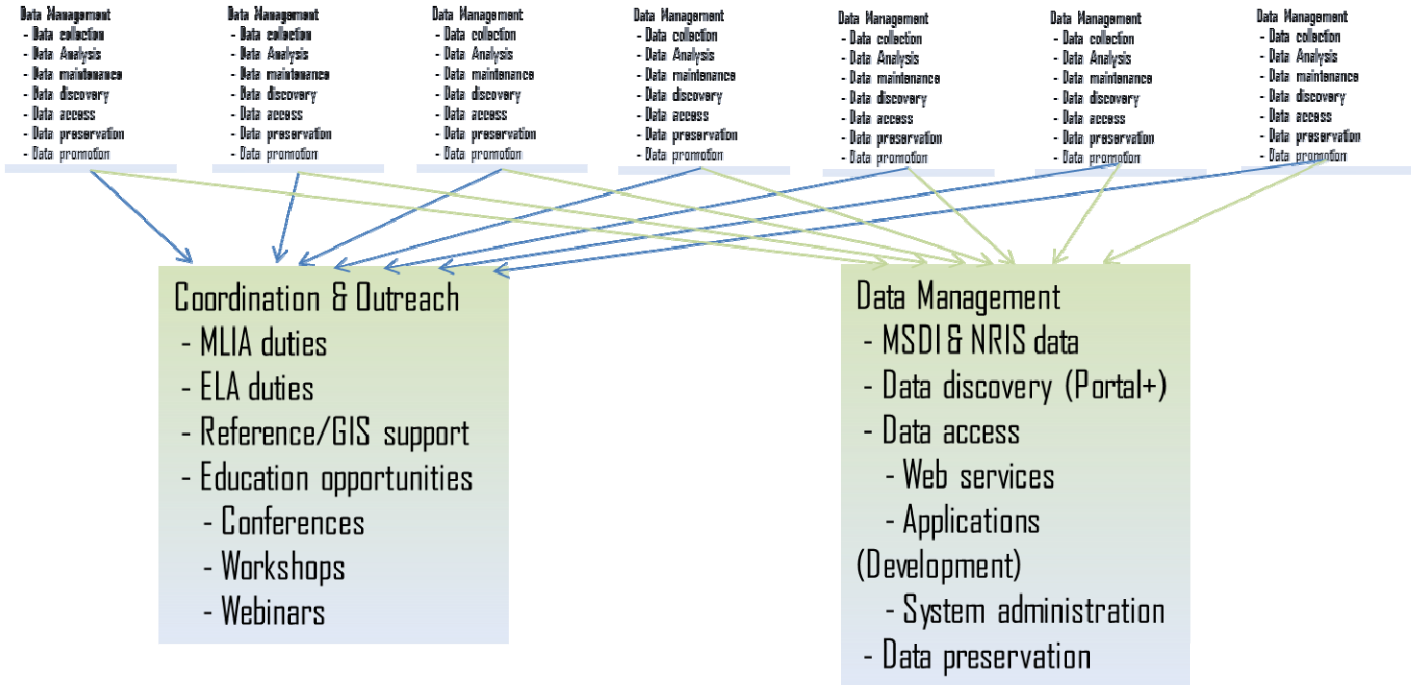
Organization

MSL is an efficient and well run organization:

- Staff are encouraged to **collaborate** in **areas of interest** to leverage **expertise**;
- **Talent, infrastructure, and monetary resources** are leveraged through a **coordinated team approach** to efficiently deliver information and necessary GIS services.

NRIS/BMSC Merger Planning

August 26, 2011



%	Duties	Generic job profile
5%	Admin	(Reports,
20%	Overhead	(Outreach, training, reference, etc.)
75%	Data	(Collection, maintenance, discovery/access, archiving)