

**Montana State Digital Library**  
**October 2011 to November 2011**

Prepared for the December 7, 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 Base Map Service Center (BMSC)  
& the Montana Natural Heritage Program (MTNHP).

**Goal One, Content:** MSL acquires and manages relevant quality content that meets the needs of Montana library partners and patrons.

After four years of experience, LIS is assessing the impact of Archive Montana on the operations of the state depository program. Archive Montana is a collection of archived state agency websites that captures five to ten times the number of state publications deposited by traditional print methods. Additionally, Archive Montana automates metadata creation saving untold hours of cataloging. Based on research being conducted, LIS is preparing a draft state publications management plan that puts primary collection development emphasis on Archive Montana. To be considered in this plan are impacts on and services to state agencies, depository libraries, and users of state government information. Importantly, the automated tools of Archive Montana bring LIS resources in line with its obligations to meet the statutory mandate to provide permanent public access to state publications.

At a recent Archive-It partners meeting, LIS staff learned about "Constraint Analysis," an open source tool adopted by the North Carolina State Library used to conduct quality control on web crawls. This tool, which LIS staff is testing for possible adoption, uses third party software to efficiently review crawled sites to determine whether they are out-of-scope. Use of this tool should allow MSL to hone Archive Montana to improve the collection of relevant content.

LIS continues to review the non-fiction collection to ensure that items meet MSL's collection development policy. LIS is offering out of scope items in good physical condition and with current information to local libraries. The non-fiction collection is primarily dedicated to print natural resources information that is neither state nor federal publications.

NRIS Manager, Evan Hammer and State GIS Coordinator, Stu Kirkpatrick met with representatives of the Montana Army National Guard and Department of Military Affairs to discuss how the resources of MSL might benefit the ongoing unexploded ordinance project in the Helena Valley. Emphasis was placed on helpful data that the library has available and how the library could help make some of the products from this project available to the public.

Evan Hammer is working with the Yellowstone River Conservation District Council to develop a new contract to cover the hosting and maintenance costs associated with the Yellowstone River Corridor Resource Clearinghouse - <http://nr.is.mt.gov/yellowstone/>. The council has been supportive of this effort for many years and continues to provide Yellowstone River data to post on this site.

NRIS Programmer, Grant Austin worked with the Montana Department of Environmental Quality (DEQ) to implement a series of updates to the Today's Air (<http://todaysair.mt.gov>) application that was developed by NRIS and has been hosted on MSL servers for many years. The updates included a refresh to the page layout to make it more consistent with other DEQ websites, the addition of one new monitoring site and changes to another site to more accurately represent its location. This application gets heavy use during fire season and in the winter when air quality can impact the use of wood stoves for heating.

BMSC staff continued integration and maintenance of the Cadastral, Transportation, Structures/Addresses, Administrative Boundaries, Imagery and Geodetic Control Frameworks.

- GIS Analyst, Michael Fashoway completed a large address validation and correction in Lincoln County and started a similar effort in Missoula County. More general updates were conducted in Flathead, Jefferson, Lewis & Clark, Yellowstone and Roosevelt counties.
- Geographer, Keith Blount completed the annual public lands update within the Cadastral database. He also worked on improvements to the statewide base map that is the foundation of the cadastral web application, working on better cartographic representations of streams and roads.
- Working with OPI, GIS Analyst, Erin Fashoway crafted a letter to all the school superintendents requesting updated school district boundaries. Those boundaries are coming in and being reviewed for changes in the master database. She is working closely with Choteau County to correct their school district boundaries.
- GIS Analyst, Joshua Dorris updated Flathead, Jefferson, Madison, Teton, Lewis & Clark, Cascade, Lake, Yellowstone and Choteau counties in the transportation database as well as Gallatin National Forest roads and trails. These updates will be reflected in a newly published edition of the transportation framework in December. Joshua also assisted Jefferson County with improvements to road segments and address improvements.

- Stu Kirkpatrick and GIS Analyst, Bob Holliday worked with geodetic control groups in Montana and Idaho and the contractor GCS Research on the Federal Geographic Data Committee multistate control point grant that upgrades the control point web application. The updates have been completed and the new application is ready move to production.
- Stu Kirkpatrick worked with DEQ, the Montana Department of Natural Resources and Conservation (DNRC), Montana Department of Transportation and Montana Department of Revenue to finalize their commitments to fund the 2011 National Agriculture Imagery Program acquisition and with Surdex (the Montana NAIP contractor) to arrange for the agency invoicing. A late November delivery of 2011 NAIP is expected.

BMSC, working with the Montana Department of Administration and their contractor Tetrattech, updated the state's broadband data for the October submission to the National Telecommunications and Information Agency.

MTNHP Botanist Scott Mincemoyer added approximately 200 new observational records for plants to the plant database, half of which were collected by MTNHP during 2011. The observations included many for two federally threatened species, Water howellia and Spalding's catchfly. Several dozen plant records in the data base were also updated.

The MTNHP Zoology and Information Services Programs have recently acquired large bird observation datasets from the Cornell Laboratory of Ornithology's Ebird program, the U.S. Fish and Wildlife Services (USFWS) Breeding Bird Survey program, and the Integrated Monitoring in Bird Conservation Regions program. Together these datasets will add more than 100,000 bird observations to the Montana Bird Distribution database in preparation for the 7<sup>th</sup> Edition of P.D. Skaar's Montana Bird Distribution book series. Together with the Information Services unit of Montana Fish, Wildlife, and Parks (FWP), Heritage Zoologists also are working on appending several thousand observations from the statewide Diversity Monitoring projects that conducted small mammal trapping surveys, bat acoustic surveys, pond surveys for amphibians, and rock outcrop surveys for reptiles. These observation records and structured surveys will be viewable on the Tracker <http://mtnhp.org/Tracker/NHTMap.aspx> application, whereas generalized observations will be viewable on the Montana Field Guide <http://fieldguide.mt.gov/> and the MapViewer web application <http://mtnhp.org/mapviewer/>.

**Goal Two, Access:** MSL provides libraries, agencies, and its partners and patrons with convenient, high quality, and cost-effective access to library content and services.

Grant Austin has been working on updates to the water rights query system. The updated tool is currently being tested at DNRC and staff hopes that it will go live by the end of the year. In addition to streamlining the data exchange process, early reports

indicate that the new tool performs much faster on large queries than the previous version.

BMSC launched the revised Montana Cadastral website in September (<http://gis.mt.gov>). This application makes use of Arc Server technology rather than the old Arc IMS software that is becoming obsolete and somewhat unreliable. The new interface is designed to accommodate smaller mobile devices. As part of the upgrade a new base map was developed, built entirely from Montana Spatial Data Infrastructure (MSDI) framework data and displays public lands, streams and roads coming from Montana sources rather than the previous U.S. Census Bureau Tiger files. During the rollout there was a noticeably higher volume of requests for assistance however those requests have diminished as patrons have become accustomed to the new applications.

MTNHP Information Systems and Services staff developed a new literature and publications reference management system that consolidated four separate internal databases. The new reference system is built around a much simpler database that uses a web client for easy data entry and maintenance. The system automatically harvests information from WorldCat.org to populate citations and links to library records and on-line content. The new reference citations are now available in the Montana Field Guide. These links enable our users to not only see a reference list with links to catalog records, but access to many full-text articles or to interlibrary loan information.

LIS updated online access to the new suite of Ebsco statewide library databases through the MSL website. Online access includes remote access for MSL patrons made available via the EZproxy authentication application.

**Goal Three, Consultation and Leadership:** MSL provides consultation and leadership to enable its patrons and partners to reach their goals.

Stu Kirkpatrick worked with the Governor's Office to finalize appointments the Montana Land Information Advisory Council. A newly appointed Council is in place for the December meeting. He also worked with hold-over members of the Council on the FY12/13 Land Information Plan. A final draft of the plan was completed and sent to the new Council. The plan contains a new funding model using Montana Land Information Act funds for MSDI work. The draft model would replace the individual MSDI grants with a lump sum coming to MSL for prioritized MSDI tasks. Additionally, a significant amount of funding would remain for grants to local and tribal governments to fund GIS projects. MSL is seeking approval of the plan at the December 6<sup>th</sup> Council meeting. If approved, the plan will be presented to the MSL Commission for final adoption.

NRIS, BMSC, and MTNHP sponsored a day-long GIS Day celebration in the Montana State Capitol Rotunda on November 16th. The event was organized by GIS Analysts Diane Papineau and Erin Fashoway. In addition to providing an opportunity to showcase MSL Geographic Information resources, the event featured exhibits from fifteen state,

federal and local agencies, and private sector GIS users. Featured speakers included Digital Library Director, Jennie Stapp, Lieutenant Governor John Bohlinger and DEQ Directory Richard Oppen who spoke about the use of GIS in the efforts to clean up the Yellowstone River oil spill. The event, the first of its kind in more than a decade, was well attended by approximately 150 people including staff from Legislative Services and the Governor's Budget Office.

Ecologist/Program Manager Cat McIntyre of MTNHP received a personal letter from David Evans, Director of the Wetlands Division at Environmental Protection Agency, giving thanks for her leadership in the completion of the 24 wetland surveys by her field crew in 2011, a year of weather extremes in Montana and elsewhere.

Dr. Linda Vance of MTNHP was appointed to a 2-year term on the Montana Land Information Advisory Council.

MTNHP Ecologists Karen Newlon and Dr. Linda Vance presented posters on their research at the MT Chapter of the American Water Resources Association meeting in Great Falls October 6 and 7.

Scott Mincemoyer led a meeting of board members of the Herbarium at the University of Montana on October 22<sup>nd</sup> to discuss issues related to its operations. Also in attendance was MTNHP Director Dr. Neil Snow.

MTNHP staff members Cat McIntyre, Dave Stagliano, Susan Lenard, Dr. Paul Hendricks and Dr. Linda Vance gave presentations at the Montana Chapter of the Society for Conservation Biology in Missoula on November 17<sup>th</sup>.

The MTNHP, in collaboration with DEQ Quality Nonpoint Source Program, and the MT Watershed Coordination Council, offered introductory GIS Training on November 15<sup>th</sup> and 18<sup>th</sup> for watershed and wetland managers to coincide with the Montana Association of Conservation District's 2011 Convention in Helena. MTNHP Ecologist Maya Daurio helped lead the workshop.

On October 28<sup>th</sup> and 29<sup>th</sup> Lauri Hanauska-Brown of FWP and MTNHP Senior Zoologist Dr. Bryce Maxell led a meeting at Lewis and Clark Caverns on the potential arrival of *Geomyces destructans*, the fungus that causes white-nose syndrome which has killed over a million bats in eastern North America. Bryce is coordinating deployment and trainings for checking and downloading data from bat acoustic detectors/recorders for the several agencies that are collaborating on this statewide effort.

In October, MTNHP's Systems & Services Manager, Allan Cox and Biological System Coordinator, Karen Walker Coleman conducted a full day, hands-on training in Billings for US Bureau of Land Management (BLM) biologists from across the state. The

training focused on MTNHP data resources – the information MTNHP provides, how it is created, and how it can be used.

During October and early November, Zoology staff at MTNHP answered more than 50 requests regarding zoological information for Montana, which entailed more than 40 hours of phone and email responses. These responses included lengthy consultation with the BLM on the Montana/Dakotas BLM Sensitive Species list, consultation with the Custer National Forest on mollusk sampling and consultation with Stolze Lumber and Plum Creek Timber companies on a Sustainable Forestry Initiative brochure, and consultation with the USACE on providing alternative roosting sites for bats that have been using a visitor center building for a roost at Libby Dam.

MTNHP Project Specialist Coburn Currier gave a presentation on bats to two classes of first graders at Smith Elementary School in Helena in October. Dr. Bryce Maxell gave a lecture on Montana's amphibians and reptiles and the conservation status of these species in Montana and at a global scale to Joel Berger's Montana Wildlife class at the University of Montana on November 7<sup>th</sup>. MTNHP Director Dr. Neil Snow presented a talk to the Clark Fork Chapter of the Montana Native Plant Society on November 9<sup>th</sup> in Missoula.

Coburn Currier continued to coordinate with the Rocky Mountain Bird Observatory, UM graduate student Marissa Lipsey, and the Montana Bird Records Committee on management of a variety of bird data. Susan Lenard and Dr. Paul Hendricks continued their collaboration with the USACE and US Forest Service to assess the status of bats at Libby Dam and provide consultation on management of roost habitats at the dam. Zoology staff members at MTNHP continue to coordinate with FWP, Montana Audubon, and the Montana Bird Records Committee on the 7<sup>th</sup> Edition of P.D. Skaar's Montana Bird Distribution book series.

MTNHP staff members Dr. Bryce Maxell, Dr. Paul Hendricks, Susan Lenard, Coburn Currier, and temporary staff worked on data analysis for the amphibian, reptile, bat, and terrestrial mollusk data gathered on BLM lands within the boundaries of the Missoula and Dillon Field Offices of the BLM. Survey data will be added to central databases and be available to patrons on the Montana Field Guide and Natural Heritage Tracker and MapViewer web applications later this winter.

LIS Programmer Analyst Chris Stockwell gave a presentation to Montana state agency web developers on Archive Montana. Agency web masters were polled to determine whether they had any caches of state publications on their websites that they wanted preserved for public access.

BMSC, NRIS, and MTNHP staff attended the Montana Association of Geographic Information Professionals fall technical session in Missoula October 3<sup>rd</sup> and 4<sup>th</sup> and presented updates on their various MSDI themes. Additionally, GIS Analysts Gerry

Daumiller and Diane Papineau presented a metadata talk. The purpose of this talk was to inform users of the changes to the ArcGIS metadata tools that Esri introduced in version 10. This was a very important presentation both to inform users that the changes to the metadata tools could alter their existing metadata files, and also to make users aware of issues that have come up related to trying to publish version 10 metadata to the Montana GIS Portal. Several work-around options were provided for the users. John Sharrard of Esri was also available by phone to help clarify some of the issues and to provide guidance about changes users could expect to see from Esri in future service packs and version releases.

**Goal Four, Collaboration:** MSL promotes partnerships and encourages collaboration among its partners and patrons so that their information needs can be met.

As the GeoSpatial MultiState Archive and Preservation Project (GeoMAPP) winds down, NRIS staff is working with other GeoMAPP participants on a number of reports. Diane Papineau is working with the Data Transfer work group to finalize the Data Transfer Best Practices document while Jennie Stapp has been the lead author on the Montana section of the project final report. NRIS continues to work on developing a stable spatial data archive, and Network Administrator, Cindy Phillips led a major machine room upgrade over Columbus Day weekend which was necessary to prepare the archival data storage hardware for its eventual move to the State of Montana Data Center.

Gerry Daumiller attended the Groundwater Steering Committee meeting in Great Falls on October 7<sup>th</sup>. This meeting followed the Montana American Water Resources Association meeting and there was a significant discussion of how future groundwater investigation studies might be leveraged to determine baseline groundwater data in areas which are likely to see the development of Hydraulic Fracturing (fracking) mining techniques. A concern was expressed that water from Montana was already being used to support fracking projects in North Dakota and the potential impacts of the displacement of this water are unclear. The committee felt this should be considered in the next round of site evaluations.

Stu Kirkpatrick represented Montana's interests as the official state delegate at the annual National States Geographic Information Council meeting in Boise Idaho September 25<sup>th</sup> through 29<sup>th</sup>. NRIS Manager Evan Hammer, who attended as well, co-presented a talk on the GeoMAPP project as part of this meeting. This national conference brings together GIS coordinators from across the country as well as strong representation from several federal agencies such as the U. S. Census Bureau and the U.S. Geological Survey to talk about common GIS problems that are best addressed through cooperative multi-state solutions.

Erin Fashoway represented MSL at the Montana Association of Counties conference in September and the League of Cities and Towns in October, promoting the partnership opportunities between MSL and local governments that are available.

MTNHP hosted its annual Partners Meeting at Montana Wild (Spring Meadow Lake State Park) in Helena on November 8th. The approximately 45 people in attendance included representatives from nearly all state and federal partner organizations, private consulting firms and businesses, faculty members from the University of Montana and Carroll College, and members of MTNHP staff. In addition to presentations given by each of the MTNHP program managers, ten oral presentations were given by representatives of Partner organizations that summarized their use of MTNHP data and web services, including suggestions for areas that MTNHP might pursue further to help them meet their needs. Representatives from several partner organizations strongly praised the services provided by MTNHP.

MTNHP staff members Allan Cox and Karen Walker Coleman attended the "A Landowner's Introduction to Conservation Easements" on October 11<sup>th</sup>. Conservation easements are a major component of the MTNHP's Land Management database and the workshop helped MTNHP staff gain a better understanding of how easements work and what information would be useful to include in the MTNHP database.

MTNHP staff members Karen Newlon and Ute Langner completed a project with Pacific Power and Light-Montana to evaluate the use of remote sensing to track algal blooms in lakes.

Coburn Currier attended the Montana Bird Records Committee meeting in Great Falls on October 14<sup>th</sup>. Dr. Bryce Maxell attended the Integrated Monitoring and Bird Conservation Regions meeting via conference phone and webinar November 15<sup>th</sup>-17<sup>th</sup> and the Great Northern Landscape Conservation Cooperative webinar on a Climate Change Vulnerability Assessment for the Pacific Northwest on November 16<sup>th</sup>.

**Goal Five, Sustainable Success:** MSL is a well-run organization and a sought-after employer; it is efficient and effective (measured against partner and patron outcomes), and successfully engaged in its ongoing mission.

LIS has again re-posted the vacant metadata/cataloger position. Deadline for applications is November 30<sup>th</sup>. Screening ends December 8<sup>th</sup> and interviews will be December 12-13<sup>th</sup>. The digital service technician position is also vacant. LIS is currently updating the hiring documents so that the position may be posted and filled as soon as possible.

Continuing work started in August with a facilitated all-staff meeting, Stewart Kirkpatrick, Jennie Stapp and Evan Hammer continue to develop a common vision for the organization of GIS services within MSL. Integration of the Base Map Service



Center and the NRIS program will provide additional opportunities for professional development as well as a more well-rounded organization better prepared to meet patron needs in the future. Many of the August action items were completed and new marketing materials were created including brochures describing MSL's geographic information services and MSDI framework. The marketing materials include a new MSL – geographic information logo. Currently they are working on streamlining the tools available for customers to use to make support requests and ensuring that staff have the proper cross training to allow for seamless response for applications developed and hosted by both groups. They are working on developing common phone numbers, email addresses, and a duty calendar to ensure that staff understand their responsibilities and customers continue to receive high quality support for their library requests. Sharing responsibility for reference services will also facilitate exchange of institutional knowledge between program staff. The three also met again with meeting facilitator Marc Scow to plan next steps for moving toward a common geographic information vision.

Base Map staff worked to consolidate servers and databases and to reduce their dependence on State Information Technology Services Division infrastructure in order to reduce budgetary pressures caused by the loss of SITSD subsidies. Several servers, databases and services were decommissioned with an approximate savings of \$38,000 annually.