

Montana State Digital Library August and September 2012

Prepared for the October 10, 2012 Commission meeting
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This report represents accomplishments of
Library Information Services (LIS),
Geographic Information Services
& 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.

To begin the FY2013 state publications digitization contract with the Internet Archive, LIS shipped in September 5 boxes containing 369 state publications to be digitized.

LIS staff, in accordance with the Montana State Library collection development policy and in consultation with staff from the Library Development Division and the Montana Natural Heritage Program, weeded the magazine/journal collection. These print magazines had very low or no circulation and the articles contained therein are readily available through interlibrary loan. LIS is also providing access to the information formerly found in print subscriptions through journal and article databases. LIS also used EBSCO aggregating services in September to renew several electronic journal subscriptions.

Montana Geographic Information staff continued integration and maintenance of the Cadastral, Transportation, Structures/Addresses, Administrative Boundaries, Hydrography, Geographic Names, Imagery and Geodetic Control Frameworks.

- Working in partnership with the Department of Revenue (DOR), staff replaced the county Microsoft Access Databases with SQL Server Databases. These files are now updated by DOR nightly; a significant improvement over the previous process that made updates available monthly or less. This change also allows GIS users to link to the entire DOR appraisal database.
- Working with GIS Analysts, Duane Lund and Gerry Daumiller, MSL intern Bret Lian added over three hundred points of diversion provided by the Department of Natural Resources and Conservation (DNRC) to the National Hydrography Database (NHD). Points of Diversion are those places where water is diverted from major waterways for use in agriculture, manufacturing, etc. Adding points of diversion makes the NHD more valuable to partner agencies like DNRC. Bret also corrected the locations of over two thousand points in the Geographic Names database.

MTNHP Information Services staff developed a new on-line photograph submission application. This new app allows users of the Field Guide to submit their species and habitat photos for consideration for inclusion into the Field Guides. This new tool will help us populate the photos for the species and habitats for which we currently do not have any pictures. View the photo submission app at: <http://fieldguide.mt.gov/UploadImage.aspx>.

MTNHP released an updated Conservation Easement GIS database. The new data are now available for download as a GIS dataset; were updated in MapViewer and Tracker; and were used to update the 1:100,000 Land Management maps (102 PDFs) on the MTNHP web.

MTNHP Information Services staff finished the data exchange import from NatureServe, the international network of natural heritage programs. The MTNHP database was updated with the most current species global status and taxonomic classifications from the NatureServe database. This exchange import is the second and final part of an exchange that started last summer when MTNHP exported local data to NatureServe. The data exchange with NatureServe is a requirement in the contract for services with the State Library.

MTNHP recently updated the statewide transportation database in its MapViewer. The update provides faster drawing times and more current road information.

MTNHP Information Services staff and Zoology staff updated Greater Sage-Grouse Species Occurrences (SO's) using data exchanged with FWP. 1,845 SO's were updated, and 153 new SO's were created. Staff also updated 6,360 SO's and created 704 new SO's twenty-one fish species.

MTNHP Botanist Scott Mincemoyer reviewed the status ranks of forty-five plant species in Montana, and working with Martin Miller added over two hundred observations of rare plants to the botany database for the Montana Field Guides.

MTNHP Zoology and Information Services staff added an additional 24,399 observations to the animal point observation databases. Animal point observation databases now have 1,265,460 point observation records (932,242 bird records and 333,218 records of other animal species). Similarly, information has been added for an additional 1,462 structured animal surveys (mostly for bat surveys and a variety of bird surveys); the central database now contains a total of 144,193 structured animal survey locations. Note that while a large number of observations have been added, 117,322 of the observation records still need to be reviewed for final acceptance into the database. These observation records and structured surveys are viewable on the Natural Heritage Tracker <http://mtnhp.org/Tracker/NHTMap.aspx> and Natural Heritage MapViewer <http://mtnhp.org/mapviewer/> web applications and generalized observations are viewable on the Montana Field Guide <http://fieldguide.mt.gov/>

The MTNHP Zoology Program added several hundred images of animals to the Montana Field Guide, including the first photographic representations (e.g., Cooper's Hawk http://fieldguide.mt.gov/detail_ABNKC12040.aspx), higher quality images (e.g., Rufous Hummingbird http://fieldguide.mt.gov/detail_ABNUC51020.aspx), and images representing the full complement of life stages (e.g., egg and nestling photos of Lark Sparrow http://fieldguide.mt.gov/detail_ABPBX96010.aspx). In addition to photos added by MTNHP staff, two Montana citizens, Ken Granby of Helena and Nathan DeBoer of Stevensville, each contributed over fifty photos.

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.

GIS Analyst, Keith Blount, completed programming a new work flow for the cadastral database that cuts down monthly processing time in half for the individual county data we receive. The process was tested in September and will be rolled into production in October.

GIS Analysts, Erin Fashoway and Diane Papineau continue to work with MSL Administrative staff to provide data and maps for the Legislative Snapshot.

Erin Fashoway is leading a team that will reengineer the MSL GIS web presence prior to the legislative session. Using a new content management system called Wordpress existing web pages are being transformed to both meet new state web requirements. This process is affording staff the opportunity to evaluate our website for content and currentness. The former GIS data list is being re-engineered to utilize standardized database driven pages for more efficient delivery. This project is approximately 50 % complete.

MTNHP staff created downloadable PDFs files from the Montana Field Guide for use off-line. The ten different PDFs contain the primary information from the Field Guides for mammals, birds, reptiles, amphibians, fish, invertebrates, vascular plants, bryophytes, lichens, and ecological systems.

MTNHP zoologist Paul Hendricks had an article published in *Northwestern Naturalist* entitled *Winter Records of Bats in Montana*.

The MTNHP Ecology Program, led by Linda Vance, submitted and had approved the first batch of United States Geological Survey (USGS) 24K quads to the National Wetland Inventory, completing a 5-year Bureau of Land Management (BLM) wetland mapping project. A second five-year mapping agreement with BLM was funded recently. In addition, an agreement with the Custer National Forest to map all wetlands and riparian areas in Montana has been completed. Wetland Mapping Data is available through MapViewer.

MTNHP Senior Zoologist Bryce Maxell recently coauthored a scientific paper with USGS collaborators D.S. Pilliod and R.S. Arkle entitled "Persistence and extirpation in invaded landscapes: patch characteristics and connectivity determine effects of non-native predatory fish on native salamanders". The article appeared in *Biological Invasions*.

Since his arrival June 4th, the new cataloger, Sam Suber, has created 402 new MARC records with the positive effect of eliminating the backlog of items in the staff work area needing description.

LIS staff is conducting usability tests on the MT.Gov Connect search interface. Their responses were compiled and became the basis for recommending changes to the search portal to improve usability.

At the conclusion of the FY2012 digitization contract, Chris Stockwell, LIS Programmer/Analyst created permanent uniform resource locators (PURLs) for the 1284 state publications digitized last year. These persistent URLs will ensure that online access to digital publications would not be interrupted in the event that they were no longer served by the Internet Archive.

Goal Three, Training: MSL provides appropriate trainings and training resources so that the best use can be made of the resources offered.

Scott Mincemoyer offered six field-based training sessions to wetland managers and biologists around the state on wetland plant identification and related aspects of wetland ecology, with financial support from the Wetland's Program at the Montana Department of Environmental Quality (DEQ). Over 100 people attended these training opportunities.

State Publications Librarian, Beth Downs and MTNHP Systems and Services Manager Allan Cox At presented at the 2012 Fall Workshop in Billings, MT, September 17th as part of a group of presenters on "Montana Info." Beth's presentation was part of an ongoing soft introduction to MT.Gov Connect, the redesigned search interface for state publications, both digitized and those found in the state agency web archive. MT.Gov Connect is still in development, but is very much the emerging primary means for the acquisition and distribution of preserved state government information. Allan's presentation introduced those in attendance to the functionality and information available in the Montana Field Guides.

In conjunction with the rollout of the new DOR county SQL Server Database, three separate tutorials were developed so users could load the required software and use the data.

State GIS Coordinator, Stu Kirkpatrick met with the Montana Association of Legal Assistants in August to train them through the use of the Montana Cadastral Website.

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

GIS Analyst, Michael Fashoway and Stu Kirkpatrick met with the Department of Agriculture to provide consultation on the use of cadastral and other services within their revised apiary application. Michael will continue to follow up with them on system architecture issues.

Scott Mincemoyer conducted surveys and monitoring for Endangered Species Act-listed plant species in western Montana, and installed ten long-term monitoring plots for Spalding's catchfly on the Flathead Reservation with funding from the U.S. Fish and Wildlife Service. Scott also monitored several populations of *Shoshonea pulvinata*, a globally rare species in the Pryor and Beartooth Mountains with financial support from BLM.

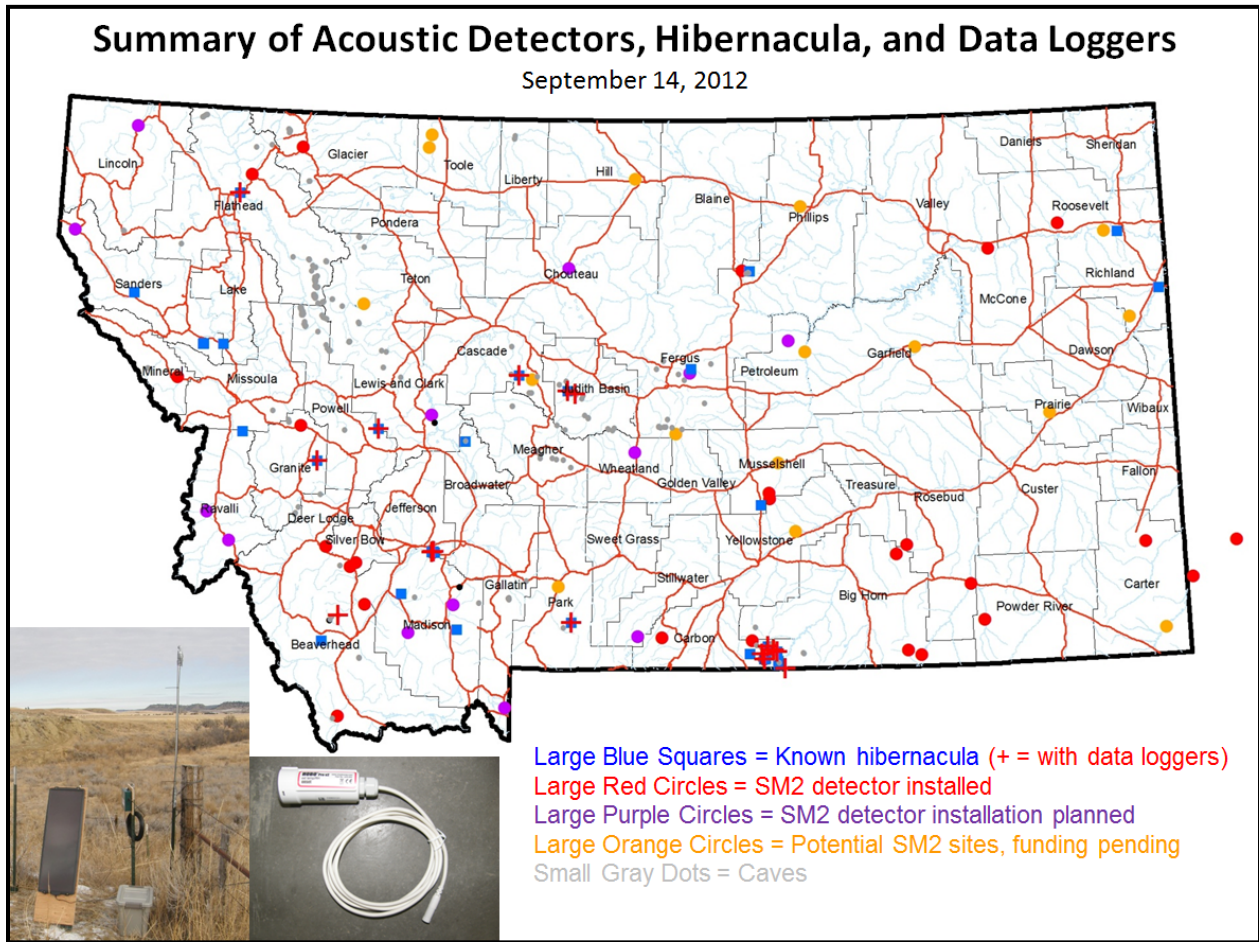
MTNHP Aquatic Ecologist Dave Stagliano completed field work for a feasibility analysis for Western Pearlshell mussel introduction Flying D Ranch (Turner Enterprises) on Cherry Creek in the Madison River basin. He also began field work, with funding from Montana Fish Wildlife and Parks (FWP), for a Western Pearlshell Mussel translocation project in the Blackfoot River Basin. In addition, Dave's team carried out fish and macroinvertebrate sampling for the Confederated Salish and Kootenai Tribes project on the invasive species Flowering Rush. Finally, Dave answered numerous requests for identifications of mussel, snail and clam species given renewed interest by the MT Department of Agriculture and FWP to intensively monitor invasive species.

MTNHP staff members David Stagliano, Cary Carnefix, and summer technician Phil Sawatzki completed field work on the DEQ Total Maximum Daily Load Sediment-Macroinvertebrate Project. Dave's team also completed fish, water chemistry and macroinvertebrate sampling for BLM-sponsored coal bed natural gas monitoring in the Tongue and Powder River Basins

MTNHP Ecology staff members Claudine Tobalske and Linda Vance completed revisions to the Montana Spatial Data Infrastructure (MSDI) Land Cover Layer, and Land Cover 2012 is ready for release. This version includes updated mapping of valley bottoms along the large rivers of Montana and a reclassification of all areas within 1998-2011 fire perimeters. Updates incorporate other MSDI data layers, including structures and transportation. Claudine has also been providing GIS land cover mapping support to the Crown of the Continent initiative. This partnership between the University of Montana, Glacier National Park and a growing number of additional organizations, makes research and education on Glacier Park available to the public.

MTNHP zoology staff members answered over one hundred external requests for zoological information that entailed over one hundred hours of staff time to create queries, run models, and otherwise provide phone and email responses.

Bryce Maxell, with members from the Northern Rocky Mountain Grotto caving group and state and federal biologists, continue to establish acoustic detectors for bats across Montana and deploy temperature and relative humidity data loggers in caves and mines known to be used as overwintering areas for bats across Montana (see figure below). Both efforts are designed to help understand the potential impacts of White-Nose Syndrome, a deadly fungal disease that is spreading westward from eastern North America, where it has killed millions of bats.



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

GIS Analyst, Bob Holliday, and Stu Kirkpatrick met with the Montana Department of Transportation (MDT) to discuss a workflow to move survey control the Department has collected over the last several years into the Montana control point database. MDT was given a standardized project/point spreads sheet to enter survey projects and points and Bob will work with them to develop automated methods of moving the data into the database.

MTNHP Zoologists Paul Hendricks, Susan Lenard, and Coburn Currier conducted bird point count surveys across Montana in collaboration with the BLM, FWP, and the Rocky Mountain Bird Observatory. This work included call playback surveys for Northern Goshawks on the Sioux District of the Custer National Forest and for Black-billed and Yellow-billed Cuckoos along the Musselshell, Milk, and Missouri Rivers. Bryce Maxell conducted surveys for amphibians, reptiles, and bats on U.S. Forest Service lands on the Sioux District of the Custer National Forest. The newer data will be added to central databases and made available to patrons on the Montana Field Guide, Natural Heritage Tracker, and Natural Heritage Map Viewer.

MTNHP ecologists Linda Vance, Ute Langner, and Claudine Tobalske were awarded \$45,000 from the USGS to enhance sage-steppe mapping in the Charles M. Russell Wildlife Refuge.

Bryce Maxell and Paul Hendricks, in collaboration with the U.S. Forest Service, FWP's Nongame Check off Fund and Living with Wildlife Programs, and Bat Conservation International, led the development of a new poster on the Bats of Montana that was collaboratively funded by the U.S. Forest Service and the Montana Department of Fish, Wildlife, and Parks. The poster covers all 15 of Montana's bat species and includes interesting bat facts and conservation issues faced by bats. 10,000 copies of this poster were printed.

Two other updated posters also made the news. In collaboration with the Kurt Cunningham of FWP and a number of North American herpetologists, MTNHP Senior Zoologist Bryce Maxell updated species accounts and photos to produce updated posters on the Frogs/Toads and Salamanders of Montana. FWP generously paid for printing 10,000 copies of each poster.

MTNHP Director Neil Snow and other staff negotiated a contract with BLM to have MTNHP assist them in reviewing the contents of an external report on ecoregional planning. Funding for FY2013 is \$62,000, with potential funding through 2017.

MTNHP Ecologist Karen Newlon was awarded a \$19,000 contract by the Northern Cheyenne Tribe to assist with field surveys for sensitive plants, wetland assessment, and to write a Wetland Protection Plan. Ecology staff arrived in Lame Deer to provide training just as the Ash Creek fire broke out, and was able to support evacuation and assistance efforts by cooking for 300 people until the American Red Cross arrived.

Linda Vance is part of a recently awarded grant to NASA to improve mapping and monitoring of whitebark pine, a high-altitude tree species that produces seeds of high nutritive value to grizzly bears, squirrels, and some species of birds. The Wetlands Program also received a five-year, \$250,000 grant from BLM to map and profile wetlands; when completed, MTNHP will have mapped all USGS quads in MT in areas where BLM has mineral rights.

Linda Vance and Cary Carnefix were awarded \$27,000 by the BLM to identify appropriate reference standard for wetlands and riparian areas under BLM management. This is the first year of a five-year contract.

As part of a collaborative project to conduct baseline surveys for fish and wildlife species across the Fort Peck Indian Reservation, Susan Lenard and Paul Hendricks gave a presentation on bats to 20-30 community members of the Assiniboine and Sioux Tribes in Poplar, Montana on September 10, 2012.

Karen Newlon and Linda Vance were awarded \$13,950 by the USGS to assist with a project examining possible brine contamination of Prairie Pothole Wetlands. Karen also secured funds from the NRCS to assist with Ecological Sites descriptions in the Hi-Line, in which a number of MTNHP staff assisted this summer.

LIS staff met with Montana Historical Society (MHS) staff to review the currency of the Memorandum of Understanding signed March 2008 for the management of digital and print state publications. At the same meeting LIS staff also sought feedback from MHS about the draft state publications management plan. MHS staff input is being incorporated into the final draft.

Goal Six, 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.

Photo interpreter, John Davenport, left MTNHP to take a position at Oklahoma State University in the Geography Department, and

Tara Luna, a frequent seasonal employee, also left the program this summer.

Clea Klagstad, who recently completed a Master's of Science in Botany from Austin Peay State University in Tennessee, is now working for MTNHP as an Ecologist/Photo interpreter.

MTNHP and the MDT renewed their annual service agreement (\$10,000) for use of an ArcGIS Feature Map service of Species of Concern data.

MTNHP renewed an annual task order (\$10,000) to provide species data to NatureServe which in turns provides national species information to a pesticide industry task force as part of its requirements in conducting risk assessments.

Working with the Internet Archive and MSL IT staff, LIS is working to develop hardware, software, workflow and procedures to support an alternative repository to further ensure long term preservation of and access to state publications.

MSL Geographic Information implemented a new request management system that assigns a primary and secondary staff member each week to manage all information requests. The intent is to provide efficient and effective and consistent service to our patrons while focusing the direction of staff not on call that week priority work plan tasks.

Evan Hammer, Stu Kirkpatrick and Jennie Stapp all attended the National States Geographic Information Council (NSGIC) annual conference in Orlando Florida. This is the first time a State Librarian has attended a NSGIC conference and many good contacts were made that could result in a closer relationship between State Librarians and State GIS offices. Stu participated on a broadband mapping panel. Jennie and Evan participated on a panel that discussed the changing role of state GIS clearinghouses. There were many positive takeaways regarding national efforts surrounding road centerlines, addresses and public safety that we will continue to work on in Montana in the next few months.