



## **Work Plan for FY2013**

submitted to

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The Work Plan objectives outlined here are pulled from the Scope of Work from the Contract with the University of Montana. Specific deliverables currently being addressed by MTNHP are categorized by: Administrative Services (AS), Information Systems (IS), Botany (B), Zoology (Z), and Ecology (E).

### **Goal One: Content**

#### **AS:**

- Collaborate with Library staff to effectively represent the mandate, activities, and products of MTNHP through publications, reports, brochures, posters, maps, fact sheets, etc.

#### **IS:**

- Maintain and develop new ways for data contributors to submit animal, plant, and habitat information, including observations, plot data, and photographs
- Conduct exchanges of plant, animal, and community information with NatureServe outside of the Biotics environment
- Ensure that data from botany, zoology, and ecology are being stored in appropriately designed relational databases and are routinely backed up to prevent catastrophic loss
- Administer data servers that are used to store information internal to the firewall and disseminate information external to the firewall as well as roll up services to regularly transfer information between these servers across the firewall; coordinate with NRIS

#### **B:**

- Collect and manage observation data for plants and lichens that are Species of Concern ("SOC") and some that are not SOC
- Compile literature on plant and lichen species
- Compile photographic images of plants
- Develop a geodatabase of unique habitats such as fens that have a high concentration of plant or lichen Species of Concern
- Create predicted distribution maps for plant Species of Concern
- Maintain complete taxonomic list of vascular plant species for Montana
- Create associations between plant Species of Concern and the Ecological Systems in which they occur

- Create and maintain species accounts in the Montana Field Guide for all plant and lichen Species of Concern
- Work with other Heritage staff to regularly exchange information with NatureServe
- Review the status of plant and lichen taxa, assign state ranks and, where appropriate, assign global ranks, and document these status ranks
- Develop reports and peer-reviewed publications on the distribution, status, and biology of Montana's plant and lichen species
- Work with Info Services staff to maintain and improve content of botanical information on MTNHP websites
- Maintain a list of related web resources relevant to plants and lichens

#### **Z:**

- Compile literature on vertebrate and invertebrate animal species with an emphasis on SOC
- Compile photographic images of vertebrate and invertebrate animal species and locations where animal surveys have been conducted
- Create and maintain species accounts, including state and Western Hemisphere range maps and observational maps, in the Montana Field Guide for all animals in MT
- Create predicted distribution maps for animal SOC and some animals that are not SOC
- Maintain complete taxonomic lists of vertebrate invertebrate animal species for Montana
- Create associations between animal species that are not Species of Concern and the Ecological Systems in which they are known to occur
- Review the status of vertebrate and invertebrate animal taxa, assign state ranks, assist NatureServe with assigning global ranks when appropriate, and document these status ranks
- Create animal species occurrences from high value observations of animal SOC that can be used in Environmental Reviews
- Create associations between animal SOC and the Ecological Systems in which they are known to occur
- Maintain a complete taxonomic list of vertebrate animal species for Montana
- Develop reports and peer-reviewed publications on the distribution, status, and biology of Montana's animal species
- Maintain a list of related web resources relevant to vertebrates and invertebrates

#### **E:**

- Compile literature on terrestrial, wetland, and aquatic communities, with emphasis on those of conservation concern; use to update links on website
- Collect vegetation data to support current and future vegetation classification and mapping efforts
- Conduct field surveys for underrepresented or uncommon ecological communities and survey under-surveyed geographic areas

- Collect macroinvertebrate and fish data to support aquatic community classification and mapping efforts
- Compile photographic images of wetland, aquatic, and terrestrial habitats representative of those found in Montana
- Evaluate the status of wetland, aquatic, and terrestrial communities with field surveys
- Compile information on management and restoration of terrestrial, aquatic, and wetland ecological systems, and incorporate into Field Guide as appropriate
- Develop and improve a statewide map of aquatic ecological communities
- Assess the status of terrestrial and aquatic communities, assign state ranks, and document the justification behind status ranks
- Identify ecological sites of particular conservation concern that should be included in MTNHP information provided for environmental assessments
- Develop crosswalks between different vegetation classification schemes to facilitate use of MTNHP products and products created by others
- Develop a statewide data layer of wetland and riparian mapping information from NAIP imagery
- Update and improve the statewide map of land cover
- Create and maintain accounts for terrestrial and aquatic land cover classes and/or ecological systems in the Montana Field Guide that describe the composition, distribution, status, successional dynamics, and management/restoration needs of each
- Develop reports and peer-reviewed publications on the composition, distribution, and status of Montana's aquatic and terrestrial communities
- Work with Information Services staff to maintain and improve content of ecological information on Heritage websites, including wetland mapping and assessments, land cover mapping, and ecological community accounts
- Maintain a list of related web resources relevant to terrestrial, aquatic, and wetland communities

## **Goal Two: Access**

### **IS:**

- Maintain and develop new ways for data contributors to submit animal, plant, and habitat information, including observations, plot data, and photographs
- Develop SQL databases to replace Biotics database components, including species and community occurrences, references, stewardship, and element information
- Within the Natural Heritage MapViewer application, develop web tools for overlaying and intersecting MTNHP and related data layers to better enable users to characterize and visually analyze geographic areas of interest

- Work with the MSL Digital Library staff to effectively cross reference and integrate MTNHP information and data with the MSL catalogue, search methods, and reference services
- Create map services for MTNHP data that Partners can consume in their GIS or web applications, including land management, land cover, species occurrences, wetland and riparian mapping, and animal and plant point observation data
- Design, develop, and deploy a “Mid-level” functional access to MTNHP Species of Concern (SOC), habitat, and species list information in the Natural Heritage MapViewer to support planning and resource management activities of local government, private consultants, and conservation organizations
- Maintain and improve web-based access to wetland and land cover mapping information
- Provide regular updates on the website and through emails as new resources become available (including reports, web tools, Montana Field Guide enhancements, etc.)
- Develop better methods of accessing the Natural Heritage Program's bibliography of literature on the plants, animals, and habitats of Montana
- Maintain and improve the functionality and ease of use of the Montana Field Guide, the online Plant and Animal SOC Reports, and MapViewer's online mapping application.
- Merge features of Natural Heritage Tracker into the Natural Heritage MapViewer Make a single web-based Map Viewer a central component of web resources provided by the program
- Maintain and improve the functionality and ease of use of general MTNHP web pages
- Continue to work with Digital Library staff to enhance discovery of biological information in the GIS Portal

**B:**

- Maintain species accounts for plants and lichens that are not Species of Concern (“SOC”)
- Develop a geodatabase of unique habitats such as fens that have a high concentration of plant or lichen Species of Concern
- Work with Info Services staff to maintain and improve content of botanical information on MTNHP websites

**Z:**

- Present results of surveys or status of animals at professional and public meetings
- Develop reports and peer-reviewed publications on the distribution, status, and biology of Montana's animal species
- Work with Information Services staff to maintain and improve content of zoological information on Heritage websites
- Maintain a list of related web resources relevant to vertebrates and invertebrates

**E:**

- Make data from wetland surveys available through webpage
- Add photographic images of wetland, aquatic, and terrestrial habitats representative of those found in Montana to Field Guide and make available as georeferenced photos
- Make information on management and restoration of terrestrial, aquatic, and wetland ecological systems available through website
- Develop and maintain an interactive aquatic ecological systems map that provides rapid visual characterization of systems and expected biological communities
- Include ecological sites of particular conservation concern in MTNHP information provided for environmental assessments
- Maintain website information on classification schemes to facilitate use of MTNHP products and products created by others
- Update and improve the statewide map of land cover; work with NRIS to provide map service
- Make reports and peer-reviewed publications on the composition, distribution, and status of Montana's aquatic and terrestrial communities available through website
- Work with Information Services staff to maintain and improve content of ecological information on Heritage websites, including wetland mapping and assessments, land cover mapping, and ecological community accounts
- Respond to requests for information on the distribution, composition, successional dynamics, conservation status, management, and appropriate survey methods for terrestrial, aquatic, and wetland communities

**Goal Three: Training****IS:**

- Promote use of Heritage data resources through outreach and training sessions
- Provide an ongoing support program to train and inform agency Partners in effectively using technical resources, services, and applications, through webinars, PowerPoint presentations at professional meetings, or agency groups

**Goal Four: Consultation and Leadership****AS:**

- Coordinate all program activities with Partners and program areas
- Participate in regional and national network coordination meetings and conference calls to help ensure continued compatibility of Heritage data standards; take advantage of opportunities and advocate for initiatives that would benefit Montana

- Organize annual Partners' Meeting with State, Federal, tribal, county, industry, NGO, university and other Partners who use MTNHP data and services

**IS:**

- Gather information from users about their information needs, format/access preferences, and the effectiveness of our delivery systems and tools
- Provide regular updates on the website and through emails as new resources become available, including reports, web tools, Montana Field Guide enhancements, etc.

**B:**

- Monitor populations of ESA-listed and globally rare plant and lichen species
- Conduct field surveys for plant and lichen Species of Concern, ESA-listed species, and globally rare species in under-surveyed geographic areas and habitats
- Review the status of plant and lichen taxa, assign state ranks and, where appropriate, assign global ranks, and document these status ranks
- Collect and manage occurrence and observation data on plant and lichen Species of Concern gathered by others
- Present results of surveys or status assessments of plants and lichens at professional and public meetings
- Develop reports and peer-reviewed publications on the distribution, status, and biology of Montana's plant and lichen species
- Maintain a list of related web resources relevant to plants and lichens
- Respond to requests for information on the identification, biology, ecology, conservation status, management, and appropriate survey methods for plant and lichen species

**Z:**

- Review the status of vertebrate and invertebrate animal taxa, assign state ranks, assist NatureServe with assigning global ranks when appropriate, and document these status ranks
- Present results of surveys or status assessments of animals at professional and public meetings
- Develop reports and peer-reviewed publications on the distribution, status, and biology of Montana's animal species
- Respond to requests for information on the identification, biology, ecology, conservation status, management, and appropriate survey methods for vertebrate and invertebrate species

**E:**

- Consult with landowners, tribes and agencies on management and restoration of terrestrial, aquatic, and wetland ecological systems
- Support agencies and professional groups in identifying important ecological areas
- Present results of surveys or status assessments of terrestrial and aquatic communities at professional and public meetings

- Publish reports and peer-reviewed publications on the composition, distribution, and status of Montana's aquatic and terrestrial communities
- Respond to requests for information on the distribution, composition, successional dynamics, conservation status, management, and appropriate survey methods for terrestrial, aquatic, and wetland communities

### **Goal Five: Collaboration**

#### **AS:**

- Coordinate all program activities with Partners and program areas within NHP
- Collaborate with Library staff to effectively represent the mandate, activities, and products of MTNHP through publications, reports, brochures, posters, maps, fact sheets, etc.
- Participate in regional and national network coordination meetings and conference calls to help ensure continued compatibility of Heritage data standards; take advantage of opportunities and advocate for initiatives that would benefit Montana

#### **IS:**

- Maintain and develop new ways for data contributors to submit animal, plant, and habitat information, including observations, plot data, and photographs
- Conduct exchanges of plant, animal, and community information with NatureServe outside of the Biotics environment
- Work with the MSL Digital Library staff to effectively cross reference and integrate MTNHP information and data with the MSL catalogue, search methods, and reference services
- Administer data servers that are used to store information internal to the firewall and disseminate information external to the firewall as well as roll up services to regularly transfer information between these servers across the firewall; coordinate with NRIS
- Create map services for MTNHP data that Partners can consume in their GIS or web applications, including land management, land cover, species occurrences, wetland and riparian mapping, and animal and plant point observation data
- Design, develop, and deploy a "Mid-level" functional access to MTNHP Species of Concern (SOC), habitat, and species list information in the Natural Heritage MapViewer to support planning and resource management activities of local government, private consultants, and conservation organizations.
- Gather information from users about their information needs, format/access preferences, and the effectiveness of our delivery systems and tools
- Respond to requests for plant and animal occurrences and wetland information used in Environmental Assessments
- Continue to work with Digital Library staff to enhance discovery of biological information in the GIS Portal

**B:**

- Collect and manage occurrence and or observation data on plant and lichen Species of Concern gathered by others
- Collect and manage occurrence and observation data on plants and lichens that are not SOC gathered by others
- Work with other Heritage staff to regularly exchange information with NatureServe
- Present results of surveys or status assessments of plants and lichens at professional and public meetings
- Develop reports and peer-reviewed publications on the distribution, status, and biology of Montana's plant and lichen species
- Work with Info Services staff to maintain and improve content of botanical information on MTNHP websites

**Z:**

- Collect and manage observational data that has been gathered by others for animals that are not Species of Concern (SOC)
- Collect and manage observational data on animal SOC that has been gathered by others
- Conduct field surveys for vertebrate and invertebrate species with a focus on SOC and under-surveyed geographic areas and habitats.
- Collect and manage observational data on animal SOC that has been gathered by others.
- Compile photographic images of vertebrate and invertebrate animal species and locations where animal surveys have been conducted
- Create predicted distribution maps for animal SOC
- Work with other Heritage staff to regularly exchange information with NatureServe.
- Collect and manage observational data on animal SOC that has been gathered by others
- Review the status of vertebrate and invertebrate animal taxa, assign state ranks, assist NatureServe with assigning global ranks when appropriate, and document these status ranks
- Develop reports and peer-reviewed publications on the distribution, status, and biology of Montana's animal species
- Present results of surveys or status assessments of animals at professional and public meetings
- Work with Information Services staff to maintain and improve content of zoological information on Heritage websites

**E:**

- Develop crosswalks between different vegetation classification schemes to facilitate use of MTNHP products and products created by others
- Present results of surveys or status assessments of terrestrial and aquatic communities at professional and public meetings



- Work with tribes, agencies, and private entities to achieve goals set out in work plan.
- Work with Information Services staff to maintain and improve content of ecological information on Heritage websites, including wetland mapping and assessments, land cover mapping, and ecological community accounts

### **Goal Six: Sustainable Success**

#### **IS, B, Z, E:**

- Maintain current web presence

#### **AS:**

- Administer existing contracts and grants
- Identify and secure new sources of funding, extensions of existing funding, or augmentation of existing funding