

# Overview of Montana Natural Heritage Program Data Resources

Webinar – January 25<sup>th</sup> 2010

Powerpoint Posted at: <ftp://nris.mt.gov/Webinar/>  
(load this into Windows Explorer and right click to save to your local hard drive)

**Bryce A. Maxell**

**Interim Director / Senior Zoologist  
Montana Natural Heritage Program**

**(406) 444-3655**

**[bmaxell@mt.gov](mailto:bmaxell@mt.gov)**





- Established by MT Legislature in 1983 as “a program of information acquisition, storage, and retrieval for data relating to the flora, fauna, and biological community types of Montana”



- Part of the Montana State Library's Natural Resource Information System



- Operated as a program under University of Montana



- Part of the Natural Heritage Network -- NatureServe



# BOTANY PROGRAM DATA RESOURCES



**Scott Mincemoyer**

**Program Botanist**

**Montana Natural Heritage Program**

**(406) 444-2817**

**[smincemoyer@mt.gov](mailto:smincemoyer@mt.gov)**

**<http://mtnhp.org/plants/default.asp>**



*Shoshonea pulvinata* (Shoshonea)





# Accessing Plant Information

**Announcements**  
**NEW! Natural Heritage Program Webinars!**

- What's New**
- Natural Heritage MapViewer
  - Wetland Reference Network
  - Land Stewardship Maps
  - New Easement Web Map
  - MT Wetlands Data
  - Milk Marias Wetlands Assessment Web Site
  - User Services Survey

- Recent Publications**
- *The Checklist of Montana Dragonflies & Damselflies*
  - *Aquatic Invertebrate Species of Concern...*
  - *Checklist of Montana Vascular Plants*
  - *More Publications...*

- Related Resources**
- Montana GIS Portal
  - NatureServe Explorer
  - NRCS PLANTS Database
  - Avian Science Center

- Montana Natural Heritage Program**
- **Montana Field Guide**
  - **Natural Heritage MapViewer NEW!**
  - **Natural Heritage Tracker**
  - **Animal Species of Concern Report**
  - **Plant Species of Concern Report**
  - **Animal Information**
  - **Plant Information**
  - **Ecology Information**
  - **Wetlands Information**
  - **Land Management Mapping**
  - **Submit Observations**
  - **Request Information**

The Natural Heritage Program provides information on Montana's species and habitats, emphasizing those of conservation concern. The Program is operated by the University of Montana in partnership with the Montana State Library.

**A Montana Species of Concern**



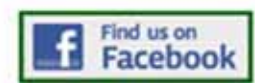
**Pileated Woodpecker *Dryocopus pileatus***  
Image from the Montana Field Guide

- Our Partners**
-  Montana State Library
  -  University of Montana
  -  Natural Resource Information System
  -  NatureServe

We're part of a network of over 80 Natural Heritage Programs that share data through NatureServe. Find species and ecological data for North America at **NatureServe Explorer**.



Thanks to our many other partners. **Read more...**



# Taxonomic Focus for Plant Data Resources (focus on Species of Concern)

## Primary Focus

Vascular Plants

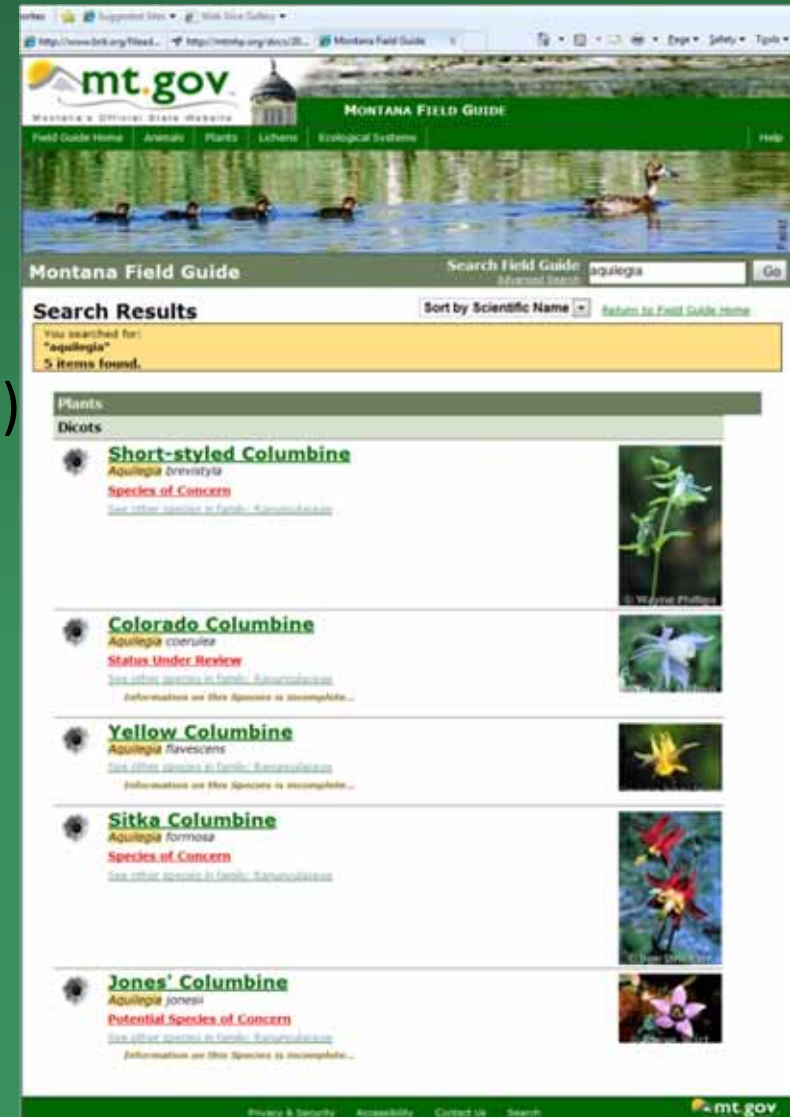
## Secondary Focus

Bryophytes (mosses and liverworts)

Lichens

## Tertiary Focus

Other Groups such as Fungi, Algae,  
Diatoms. (Not Available)



The screenshot displays the Montana Field Guide website interface. At the top, the 'mt.gov' logo is visible alongside navigation links for 'Field Guide Home', 'Animals', 'Plants', 'Lichens', and 'Ecological Systems'. A search bar on the right contains the text 'aquilegia'. Below the search bar, the 'Search Results' section indicates '5 items found'. The results are categorized under 'Plants' and 'Dicots'. Five species are listed, each with a small image and a status label:

- Short-styled Columbine** (*Aquilegia formosa*): Species of Concern
- Colorado Columbine** (*Aquilegia coerulea*): Status Under Review
- Yellow Columbine** (*Aquilegia flavescens*): Information on this species is incomplete...
- Sitka Columbine** (*Aquilegia formosa*): Species of Concern
- Jones' Columbine** (*Aquilegia jonesii*): Potential Species of Concern

The footer of the page includes links for 'Privacy & Security', 'Accessibility', 'Contact Us', and 'Search', along with the 'mt.gov' logo.

# Checklist of Montana Vascular Plants

[http://mtnhp.org/Docs/020210\\_MT\\_Plant\\_List.pdf](http://mtnhp.org/Docs/020210_MT_Plant_List.pdf)

## Checklist of Montana Vascular Plants

April 12, 2010

By  
Scott Mincemoyer  
Montana Natural Heritage Program  
Helena, MT

This checklist of Montana vascular plants is organized by Division, Class and Family. Species are listed alphabetically within this hierarchy. Synonyms, if any, are listed below each species and are slightly indented from the main species list. The list is generally composed of species which have been documented in the state and are vouchered by a specimen collection deposited at a recognized herbaria. Additionally, so in the state being reported in published and unpublished botanical checklist is made possible by the contributions of numerous botanists throughout Montana's history. Recent work by Peter Lesica on compiling this checklist as has Lavin and Seibert's "Grasses of Flora of North America (FNA 1993+)" have also proved very beneficial. The nomenclature used in this checklist relies heavily on these previous authors.

The Checklist of Montana Vascular Plants can be viewed on our website at: <http://mtnhp.org/plants/default.asp>

This publication will be updated periodically with more frequent review of the taxonomy and nomenclature of particular taxa to need to clarify the presence or absence in the state of some species.

### Number of Taxa Recognized

Families: 134  
Genera: 721  
Species: 2559  
Intraspecific Taxa: 261  
Hybrid Taxa: 13  
Unique Taxa: 2720  
Native: 2262  
Exotic: 431

\*The number of Native and Exotic Taxa may not equal the number to taxa, which are only reported for Montana, being categorized as

Scientific Name	Common Name	Global Rank	State Rank	Origin	State Status	Wetland Ind. Status	C Of C Value
<i>Lycopodium complanatum</i> <i>Diplazium complanatum</i>	Trailing Clubmoss	G5	S3S4	Native			7
<i>Lycopodium dendroideum</i> <i>Lycopodium obscurum</i> var. <i>dendroideum</i>	Treelike Clubmoss	G5	S1	Native	SOC		
<i>Lycopodium inundatum</i> <i>Lycopodiella inundata</i>	Northern Bog Clubmoss	G5	S1	Native	SOC		
<i>Lycopodium lagopus</i> <i>Lycopodium clavatum</i> var. <i>lagopus</i>	Running-pine	G5	S1	Native	SOC		
<i>Lycopodium stichense</i> <i>Diplazium stichense</i>	Alaskan Clubmoss	G5	S3?	Native	Review		
<b>Filicinophyta</b>							
<b>Filicopsida</b>							
<b>Aspleniaceae</b>							
<i>Asplenium trichomanes</i>	Maidenhair Spleenwort	G5	SH	Native	SOC		
<i>Asplenium trichomanes-ramosum</i> <i>Asplenium viride</i>	Limestone Maidenhair Spleenwort	G4	S2S3	Native	Review		
<b>Azollaceae</b>							
<i>Azolla filiculoides</i>	Pacific mosquitofern	G5	SNR	Unkn/Undt			
<b>Dennstaedtiaceae</b>							
<i>Pteridium aquilinum</i>	Bracken Fern	G5	S4	Native			
<b>Dryopteridaceae</b>							
<i>Athyrium alpestre</i> <i>Athyrium americanum</i> <i>Athyrium distentifolium</i>	Alpine Ladyfern	G4G5	S3S4	Native	Review		
<i>Athyrium filix-femina</i>	Ladyfern	G5	S4	Native			5
<i>Cystopteris fragilis</i>	Brittle Bladder Fern	G5	S4S5	Native			
<i>Cystopteris montana</i>	Mountain Bladder Fern	G5	SH	Native	SOC		10



# Plant Occurrence and Observation Data

Today: >7,000 Occurrences supported by  
>10,000 Observations

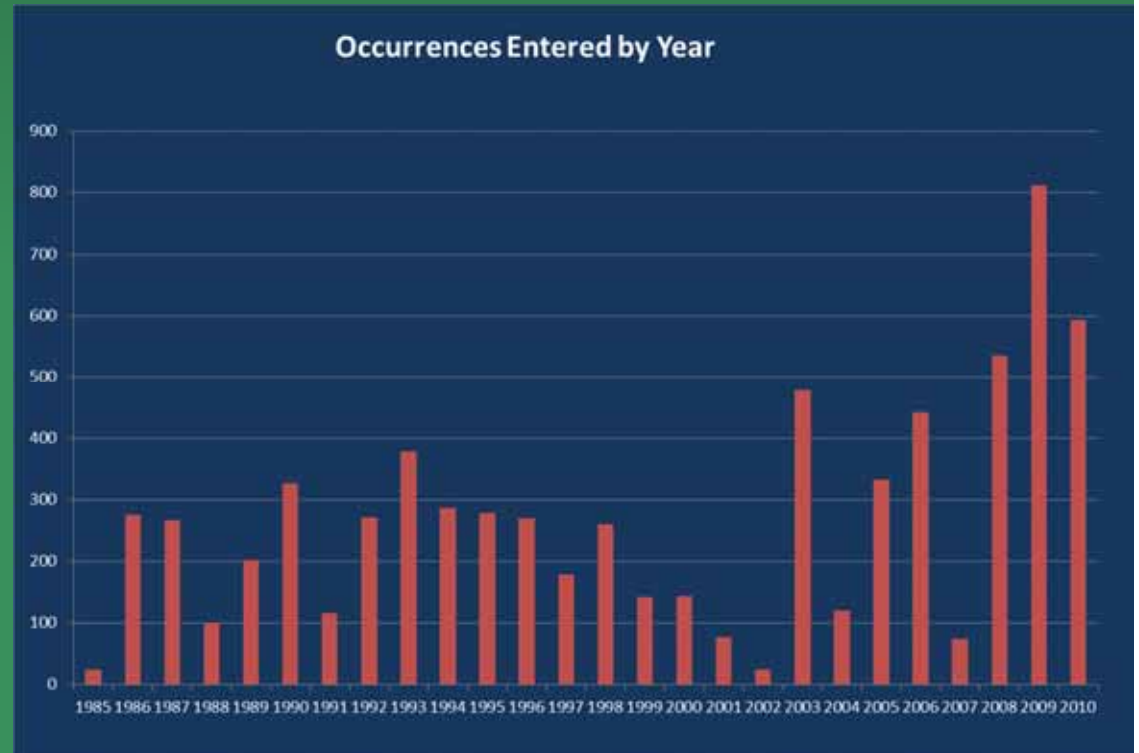
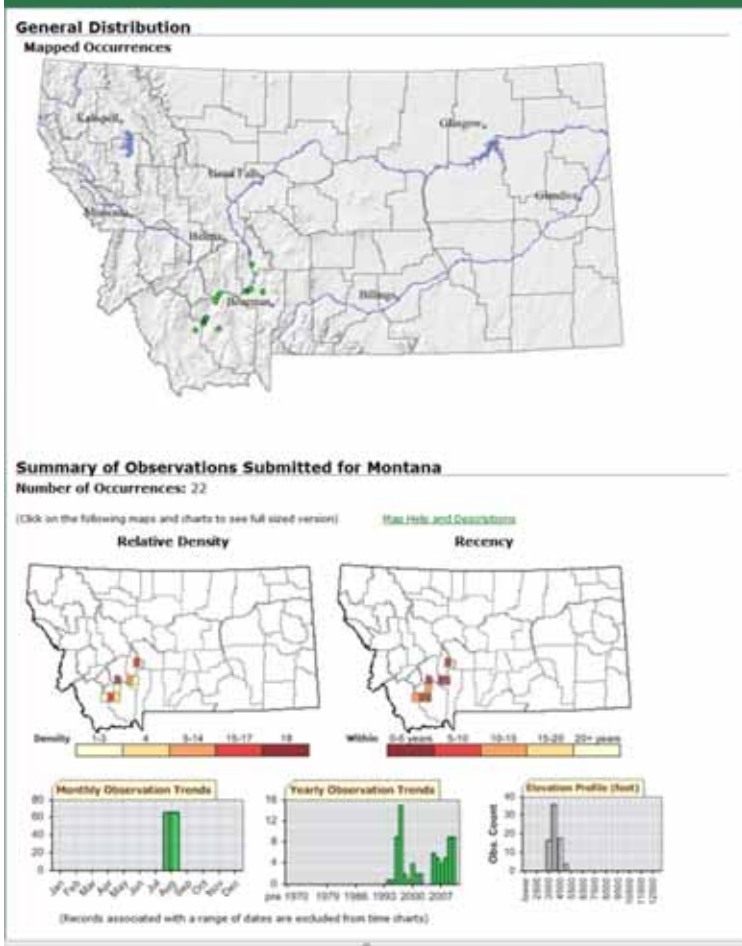
2008: 5,500 Occurrences

6,500 Observations

2006: 4,000 Occurrences/Observations

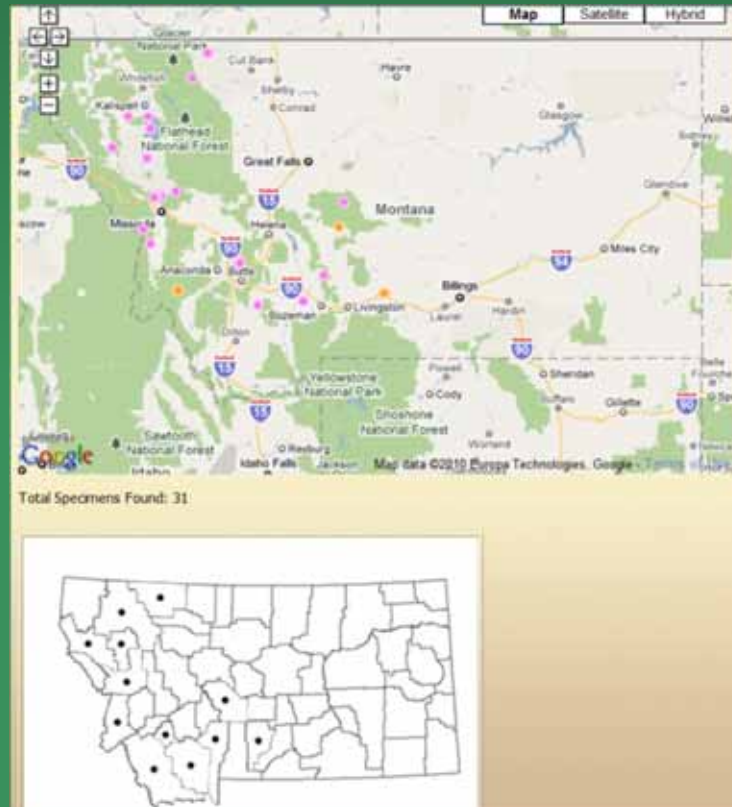


*Spiranthes diluvialis* (Ute Ladies' Tresses)



# Plant Observation Data for Non-SOC Plants?

- Primary Sources
  - Digitized Herbaria Collections (UM 70,000+; MSU 60,000+; Other Collections)
  - Associated Species Records from SOC Records (50,000+)
  - Other Datasets
  - Online submittal?
- How to display?



*Lewisia rediviva* (Bitterroot) from UM Herbarium



# Species of Concern Report

<http://mtnhp.org/SpeciesOfConcern/?AorP=p>

- Web-based report has replaced hard copy
- Still archive as a PDF annually
- Short habitat descriptions recently added
- Rank/status reviews take place year-round
- Major review of state ranks this winter

FLOWERING PLANTS - DICOTS (MAGNOLIOPSIDA) 245 SPECIES  
ALL RECORDS (NO FILTERING)

SCIENTIFIC NAME COMMON NAME TAXA SORT	OTHER NAMES	FAMILY (SCIENTIFIC) FAMILY (COMMON)	GLOBAL RANK	STATE RANK	USEWS	USES	BLM	MNPS THREAT CATEGORY	HABITAT
<a href="#">Adoxa moschatellina</a> Muskrat-root		<a href="#">Adoxaceae</a> Moschatel Family	G5	S2		SENSITIVE			Rock/Talus
Species verified in these Counties: Carbon, Granite, Jefferson, Madison, Meagher, Park, Stillwater State Rank Reason: Sparingly distributed across sw Montana. Populations are generally small, though they occur in habitats not generally impacted by human disturbance or invasive weeds. Building of roads and trails may potentially impact populations.									
<a href="#">Agastache cusickii</a> Cusick's Horsemint		<a href="#">Lamiaceae</a> Mints	G3G4	S1		SENSITIVE	SENSITIVE		Rock/Talus
Species verified in these Counties: Beaverhead State Rank Reason: This species is known in Montana from only a few locations in the Teton and Beaverhead Mountains. The steeply sloping habitat and relative remoteness of most populations minimizes its vulnerability to grazing and timber harvest -- the principle current land uses. However, these slopes can be vulnerable to destabilization if impacted by activities such as mining or road maintenance; the largest occurrence is in an area that is quarried for rock/gravel.									
<a href="#">Alnus rubra</a> Red Alder		<a href="#">Betulaceae</a> Birch / Alder	G5	S1					Mesic Forest
Species verified in these Counties: Lincoln, Sanders State Rank Reason: Rare in Montana, where it occurs only in the extreme western portion of the state. The species is at the eastern end of its range in the state.									
<a href="#">Ammannia rubra</a> Scarlet Ammannia	<a href="#">Ammannia caudata</a> <a href="#">ssp. rubra</a>	<a href="#">Lythraceae</a> Loosestrife Family	G5	S1					Wetland/Riparian
Species verified in these Counties: Phillips, valley State Rank Reason: Known from 1 extant population in Roosevelt County and 1 historical collection in northeastern Montana.									
<a href="#">Amorpha canescens</a> Lead Plant		<a href="#">Fabaceae</a> Pea Family	G5	S1					Prairie
Species verified in these Counties: Carter, Rosebud State Rank Reason: Known from three historical collections from southeast Montana.									
<a href="#">Antennaria densifolia</a> Dense-leaved Pussytoes		<a href="#">Asteraceae</a> Aster / Sunflowers	G3	S1		SENSITIVE			Alpine
Species verified in these Counties: Deer Lodge, Granite State Rank Reason: Known from one high elevation site in the Asaquola-Pepper Wilderness on the border of Deerlodge and Granite counties. The single occurrence is in a designated wilderness, which should protect it from most human caused disturbance. However, it is susceptible to trail-building and maintenance activities.  Threats: Low Trends: unknown									
<a href="#">Aquilegia</a>		<a href="#">Ranunculaceae</a>	G5	S2		SENSITIVE			Mesic Forest

Montana Natural Heritage Program - Windows Internet Explorer

<http://mtnhp.org/SpeciesOfConcern/StatePop>

Montana Natural Heritage Program

Species Rank / Status

View as PDF PDF Errors? Export to Excel (version 2003+) Download Plant SOC Field Form

**Plant Species of Concern** (switch to Animals report) Species List Last Updated 10/06/2009

440 Species of Concern  
134 Potential Species of Concern  
All Records (no filtering)

Expand All | Collapse All

- Introduction
- Species of Concern
- Potential Species of Concern
- Additions To Statewide List
- Species Removed From Statewide List

SPECIES	DATE	NOTES
<a href="#">Penstemon attenuatus</a> var. <a href="#">militaris</a> Taper-leaved heart-tongue	10/6/2010	Reports of this variety in Montana were based on a mis-identified specimen at the MONTU Herbarium. Specimen was re-determined to <i>Penstemon attenuatus</i> var. <i>pseudoprocerus</i> by Craig Freeman in 2010.
<a href="#">Kalmia polifolia</a> Bog Laurel	3/18/2010	The Montana material of <i>Kalmia</i> which has been treated as <i>K. polifolia</i> based on size characters appears to all be properly treated within <i>K. microphylla</i> . <i>Kalmia polifolia</i> in the strict sense is a species of the northeastern U.S., upper midwest and across portions of Canada.
<a href="#">Poa arnowiae</a> Short-leaved Bluegrass	3/3/2010	Moved to Status Under Review pending further taxonomic clarification of <i>Poa arnowiae</i> in relation to <i>Poa wheeleri</i> and the previously used name <i>Poa curta</i> . Additional review of Montana specimens is also needed.
<a href="#">Taraxacum eriophorum</a> Rocky Mountain dandelion	2/11/2010	Species was removed from SOC status due to a taxonomic change. It is now treated as part of the more common <i>Taraxacum canadense</i> .
<a href="#">Eustoma grandiflorum</a> Showy prairie gentian	2/11/2010	Removed from SOC status due to insufficient information on the habitat and locality of the single Montana collection. May have been an isolated introduction into the state.
<a href="#">Senecio spribillei</a> Cabinet Mountain Groundsel	10/26/2009	<i>Senecio spribillei</i> was incorrectly described as a new species based on the single known Montana location, which is actually a disjunct population of <i>Senecio etneeri</i> . See <i>Senecio etneeri</i> for additional information.
<a href="#">Townsendia spathulata</a> Sword Townsend-daisy	9/16/2009	Moved to PSOC list. The species' viability in the state does not appear to be at risk due in part to its relatively widespread distribution in southwest and south-central Montana and its overall abundance.
<a href="#">Townsendia nuttallii</a> Nuttall's Townsend-daisy	9/15/2009	Removed from SOC status as this taxon is considered to be conspecific with the more common <i>Townsendia hookeri</i> .
<a href="#">Driphidium bicolor</a> ssp.	9/11/2009	Moved to PSOC list. A Montana endemic that is widespread in sw Montana and locally common in some habitats.

Current Number of SOC's  
347 Vascular plants  
61 Bryophytes  
32 Lichens

# Habitat Associations

Linking Plant Species Of Concern to Ecological System Types in Montana Field Guide

<http://fieldguide.mt.gov/>

**Habitat**

Open, mesic grasslands in the valleys and foothills usually with rough fescue, Richardson's needlegrass and Idaho fescue. Occasionally with scattered ponderosa pine or broadleaf shrubs. Soils are usually deep and loamy. *S. spaldingii* typically occurs on northerly aspects and along draws and swales.

**Ecological Systems Associated with this Species**

- Details on Creation and Suggested Uses and Limitations
- Commonly Associated with these Ecological Systems
  - Grassland Systems
    - Rocky Mountain Lower Montane, Foothill, and Valley Grassland
- Occasionally Associated with these Ecological Systems
  - Forest and Woodland Systems
    - Rocky Mountain Ponderosa Pine Woodland and Savanna

Montana Natural Heritage Program - Windows Internet Explorer

State Rank Reason: None in Montana, where it is absent from a few occurrences from the southwest portion of the state. Little survey data are available for known occurrences.

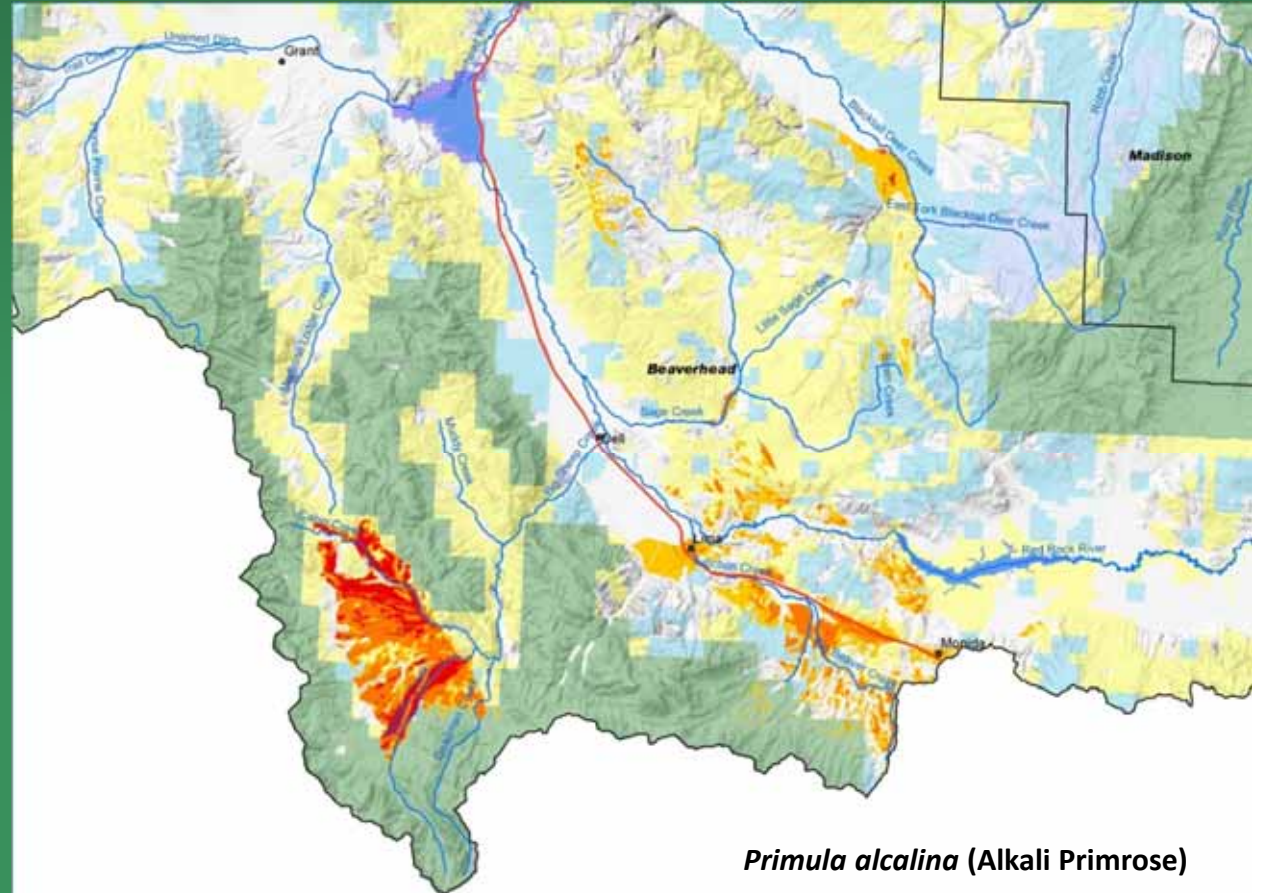
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<a href="#">Adesmia muschkeana</a> Musk-root		Adesmiaceae Mouchetia Family	G5	S2				SENSITIVE	Rock/Talk
<a href="#">Aristida cuthcuti</a> Cocks Harvest		Lamiaceae Mints	G5G4	S1				SENSITIVE SENSITIVE	Rock/Talk
<a href="#">Alnus rubra</a> Red Alder		Betulaceae Birch / Alder	G5	S1					Mesic Forest
<a href="#">Armenia rubra</a> Scarlet Armenia	Armenia rubra ep. rubra	Lythraceae Loosestrife Family	G5	S1					Wetland/Riparian
<a href="#">Astragalus</a> Lion's Paw		Fabaceae Pea Family	G5	S1					Wetland
<a href="#">Antennaria densifolia</a> Downy-leaved Plantain		Asteraceae Aster / Sunflowers	G3	S1				SENSITIVE	Alpine
<a href="#">Aquilegia</a>		Ranunculaceae	G5	S2					Mesic Forest

# Predicted Habitat Models

<http://mtnhp.org/models/>

- Available for all BLM-Sensitive Plant Species
- Will make models for other SOC available as time and funding allow
- JPG Images, Georeferenced PNG's, Metadata
- 90-meter state-wide grids
- ~12 Environmental Input Layers





# Federally-Listed Plants Lead on Surveys and Monitoring

## Water Howellia

Located >60 new occurrences in the last 4 years.  
Now known from over 200 wetlands in MT.



## Spalding's Catchfly

Located a large population in 2010, which  
qualifies as a Core Conservation Area



## Ute Ladies' Tresses

Survey and monitor  
publically-accessible sites



...and Whitebark Pine is a  
Candidate for Listing



# Wetland Plant ID Workshops

**Conducted 7 wetland Plant ID Training Courses in 2010**

- 150 attendees
- EPA/MT-DEQ sponsored project
- Will conduct similar workshops in future pending funding



© MTNHP - Scott Mincemoyer

# Zoology Program Data Resources



**Bryce A. Maxell**

Interim Director / Senior Zoologist  
Montana Natural Heritage Program  
(406) 444-3655  
bmaxell@mt.gov

**Paul Hendricks**



**Susan Lenard**



**Coburn Currier**



**Dave Stagliano**





# Accessing Zoology Information

### Announcements

**NEW!** Natural Heritage Program Webinars!

### What's New

- Natural Heritage MapViewer
- Wetland Reference Network
- Land Stewardship Maps
- New Easement Web Map
- MT Wetlands Data
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### Recent Publications

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- Aquatic Invertebrate Species of Concern...*
- Checklist of Montana Vascular Plants
- More Publications...

### Related Resources

- Montana GIS Portal
- NatureServe Explorer
- NRCS PLANTS Database
- Avian Science Center

## Montana Natural Heritage Program

- Montana Field Guide**
- Natural Heritage MapViewer NEW!**
- Natural Heritage Tracker**
- Animal Species of Concern Report**
- Plant Species of Concern Report
- Animal Information**
- Plant Information
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- Land Management Mapping
- Submit Observations**
- Request Information**

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### A Montana Species of Concern



**Pileated Woodpecker** *Dryocopus pileatus*  
Image from the Montana Field Guide

### Our Partners

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# Taxonomic Focus for Animal Data Resources (Focus on Species of Concern)

## Primary Focus

Vertebrates, especially SOC

## Secondary Focus

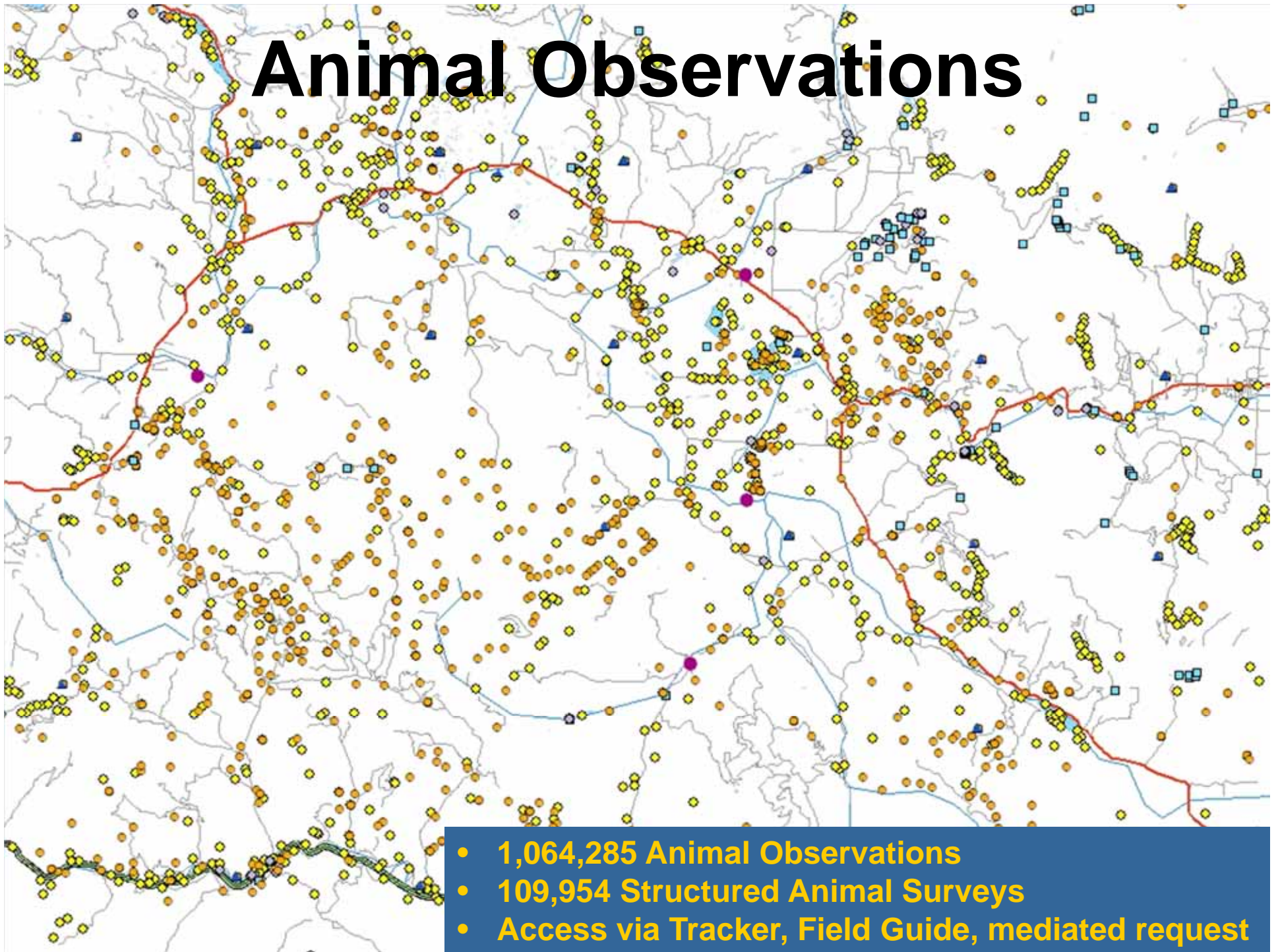
Invertebrate groups or species of conservation concern or economic importance, often in collaboration with others

## Tertiary Focus

Other invertebrates



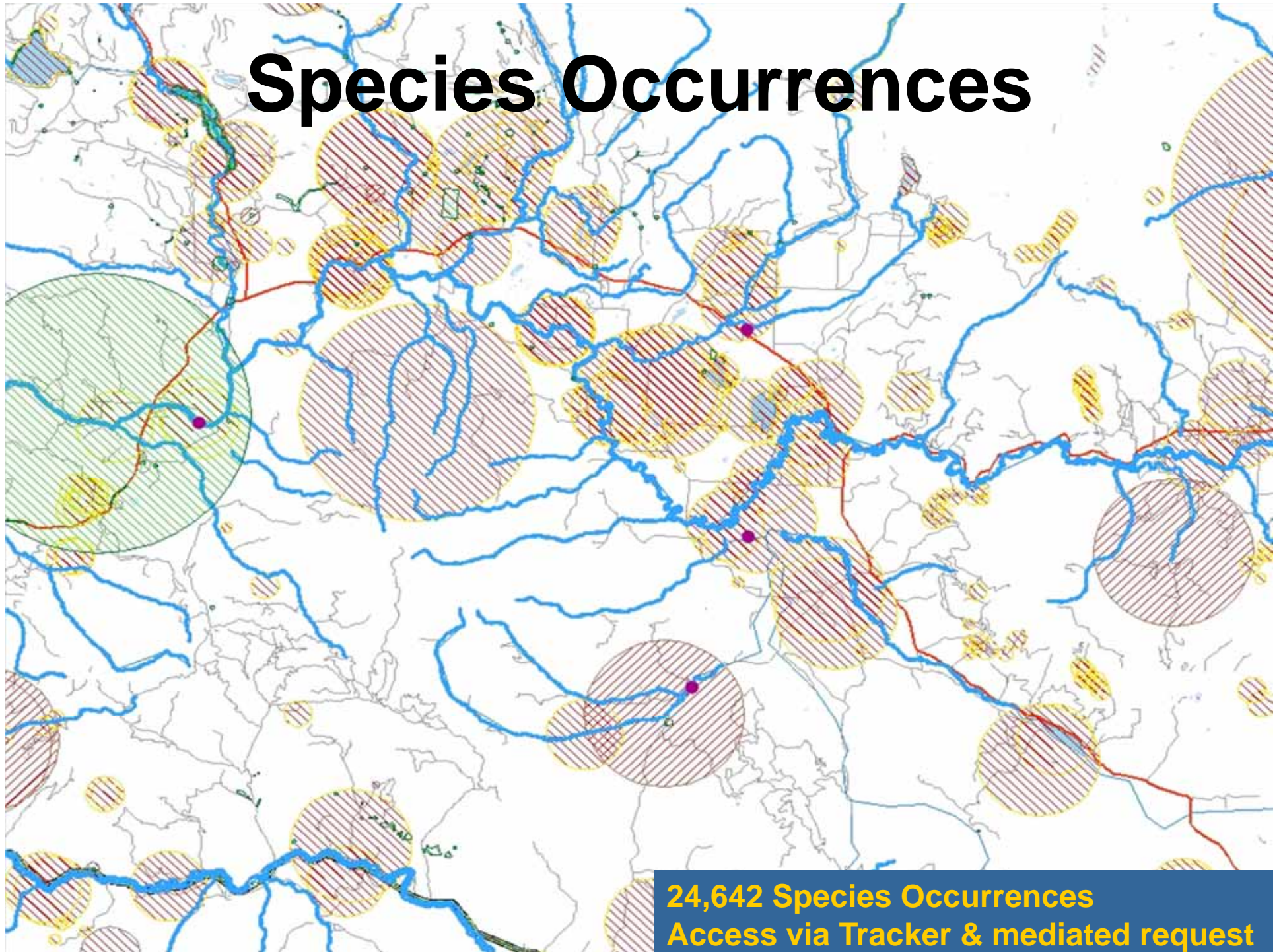
# Animal Observations



- 1,064,285 Animal Observations
- 109,954 Structured Animal Surveys
- Access via Tracker, Field Guide, mediated request



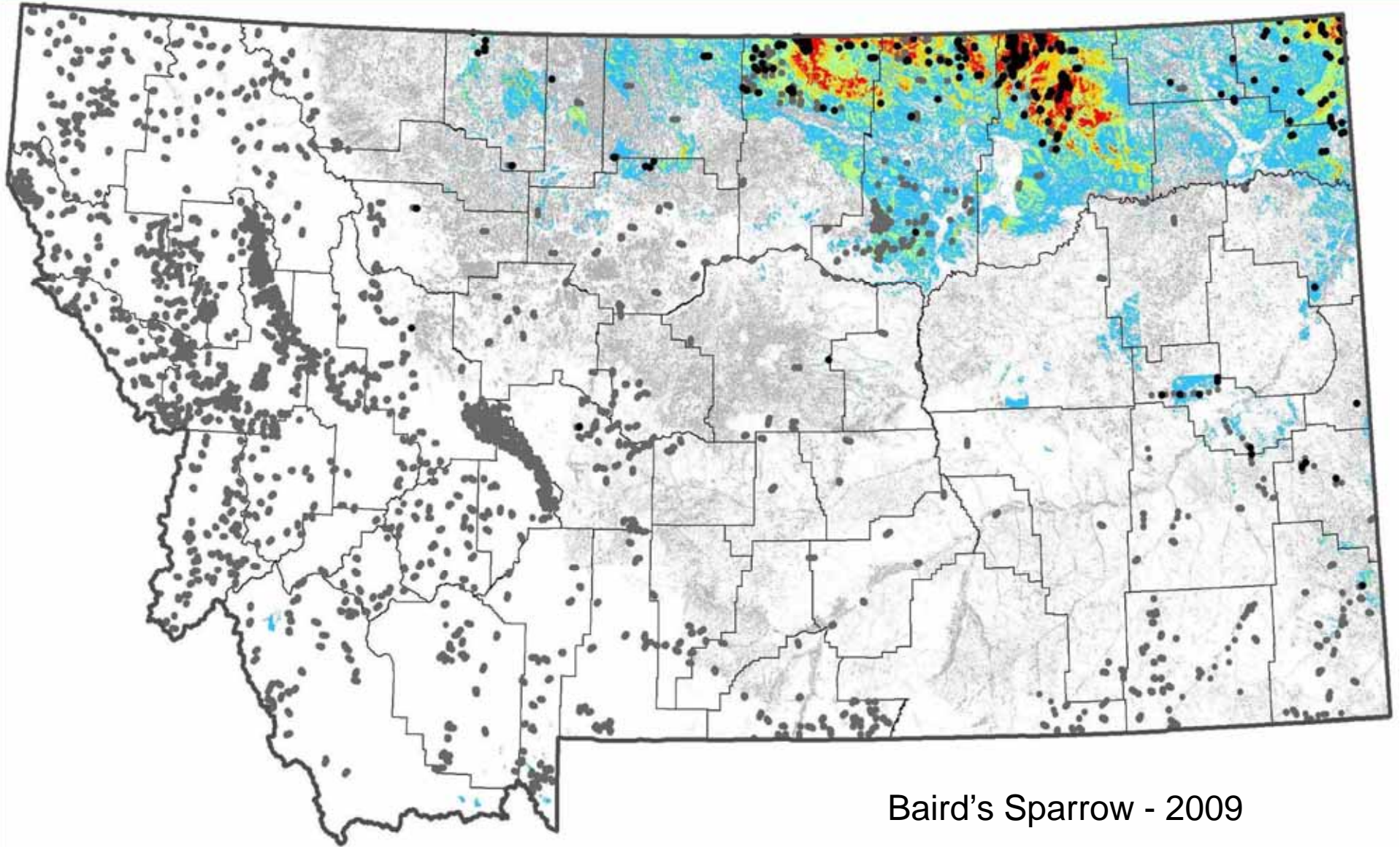
# Species Occurrences



24,642 Species Occurrences  
Access via Tracker & mediated request



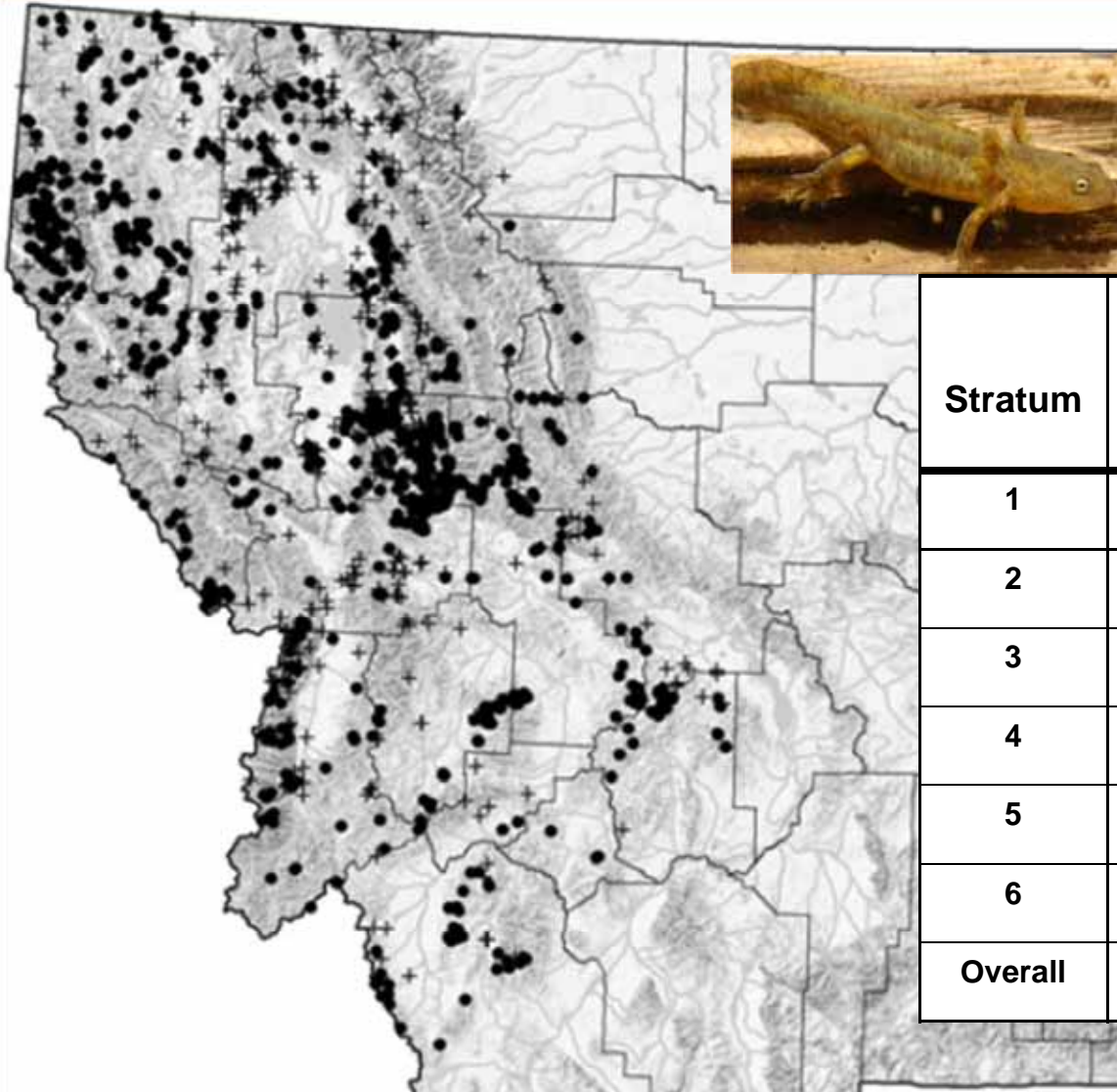
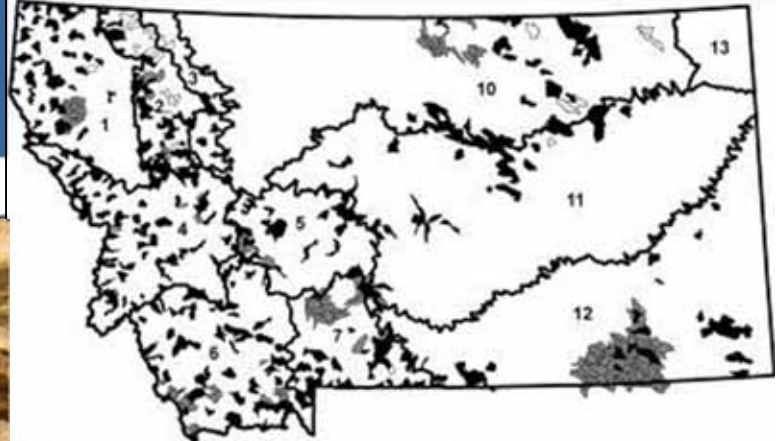
# Predicted Distribution Models – Deductive & Inductive



Baird's Sparrow - 2009

Access via mediated request

# Long-toed Salamander (*Ambystoma macrodactylum*)



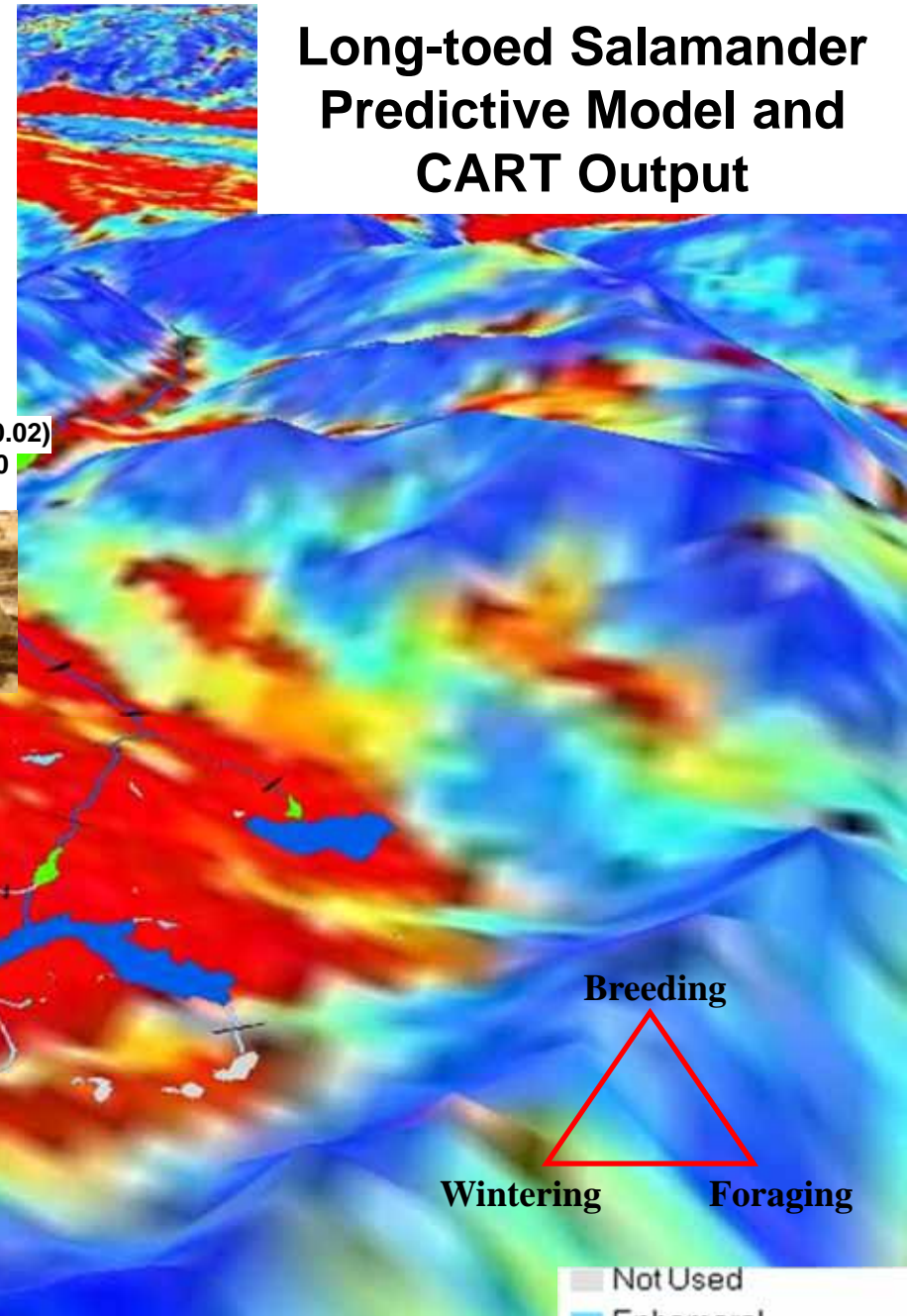
Stratum	N Watersheds / Sites	Naïve Watershed Occupancy Rate (95% CI)	Naïve Site Occupancy Rate (95% CI)
1	53 / 286	66 (55–77)	44 (39 – 50)
2	36 / 638	75 (63–87)	31 (28 – 35)
3	4 / 43	24 (2–98)	12 (2 – 21)
4	65 / 803	77 (68–86)	44 (41 – 48)
5	3 / 11	33 (0–87)	18 (0 – 41)
6	24 / 338	58 (39–78)	10 (7 – 13)
Overall	185 / 2119	70 (64–76)	34 (32 – 36)

Powerpoint overview of Montana's amphibian and reptile species, including identification, habitat use, site occupancy rates, and Maxent and CART model outputs:

[http://mtnhp.org/animal/presentations/060709\\_MT\\_Herps\\_ID\\_Status\\_files/frame.htm](http://mtnhp.org/animal/presentations/060709_MT_Herps_ID_Status_files/frame.htm)



# Long-toed Salamander Predictive Model and CART Output

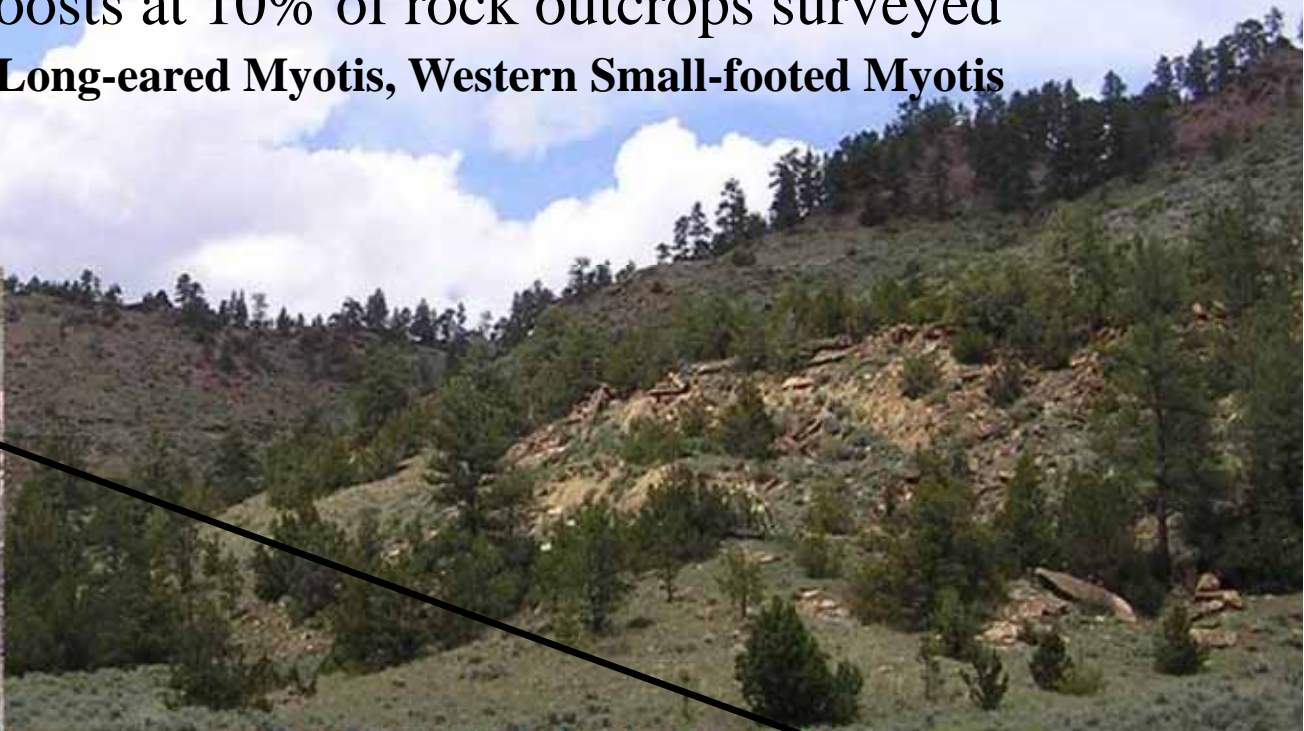


MT Amphibian and Reptile Status Assessment, Literature Review, and Conservation Plan:  
[http://mtnhp.org/reports/Amphibian\\_Reptile\\_Conservation\\_Plan.pdf](http://mtnhp.org/reports/Amphibian_Reptile_Conservation_Plan.pdf)



# Bats and Rock Outcrops

Bats detected in day roosts at 10% of rock outcrops surveyed  
**Pallid Bat, Big Brown Bat, Long-eared Myotis, Western Small-footed Myotis**



**Pallid Bat**

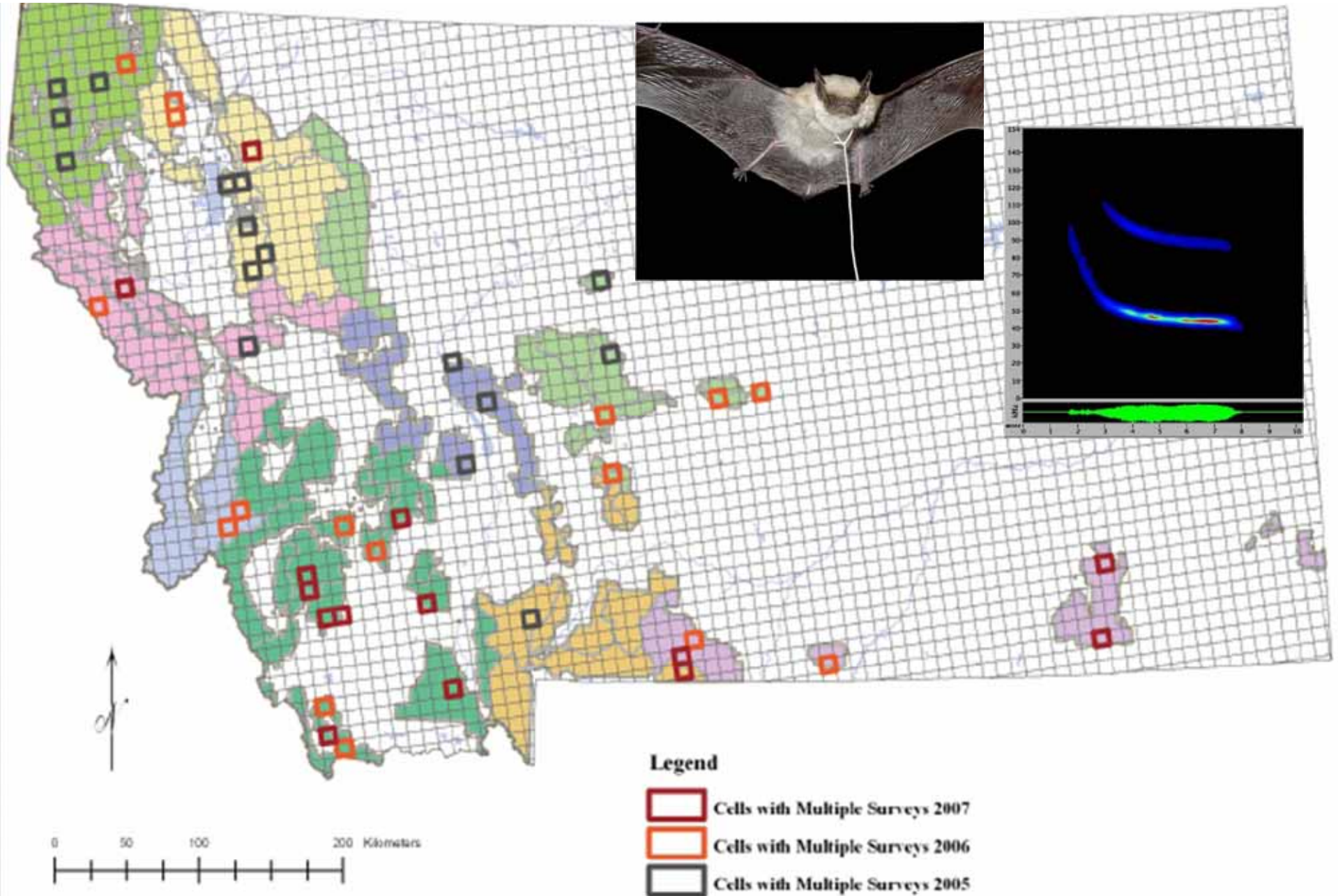


**Western Small-footed Myotis**





# USFS and Diversity Monitoring Bat Grid Surveys



# Land Mollusk Surveys and Field Guide

Western Sites: 1 to 13 species

- 76 Species Total
- Identified 4 Native Taxa New to MT
- Global Ranks Reduced for 7 species



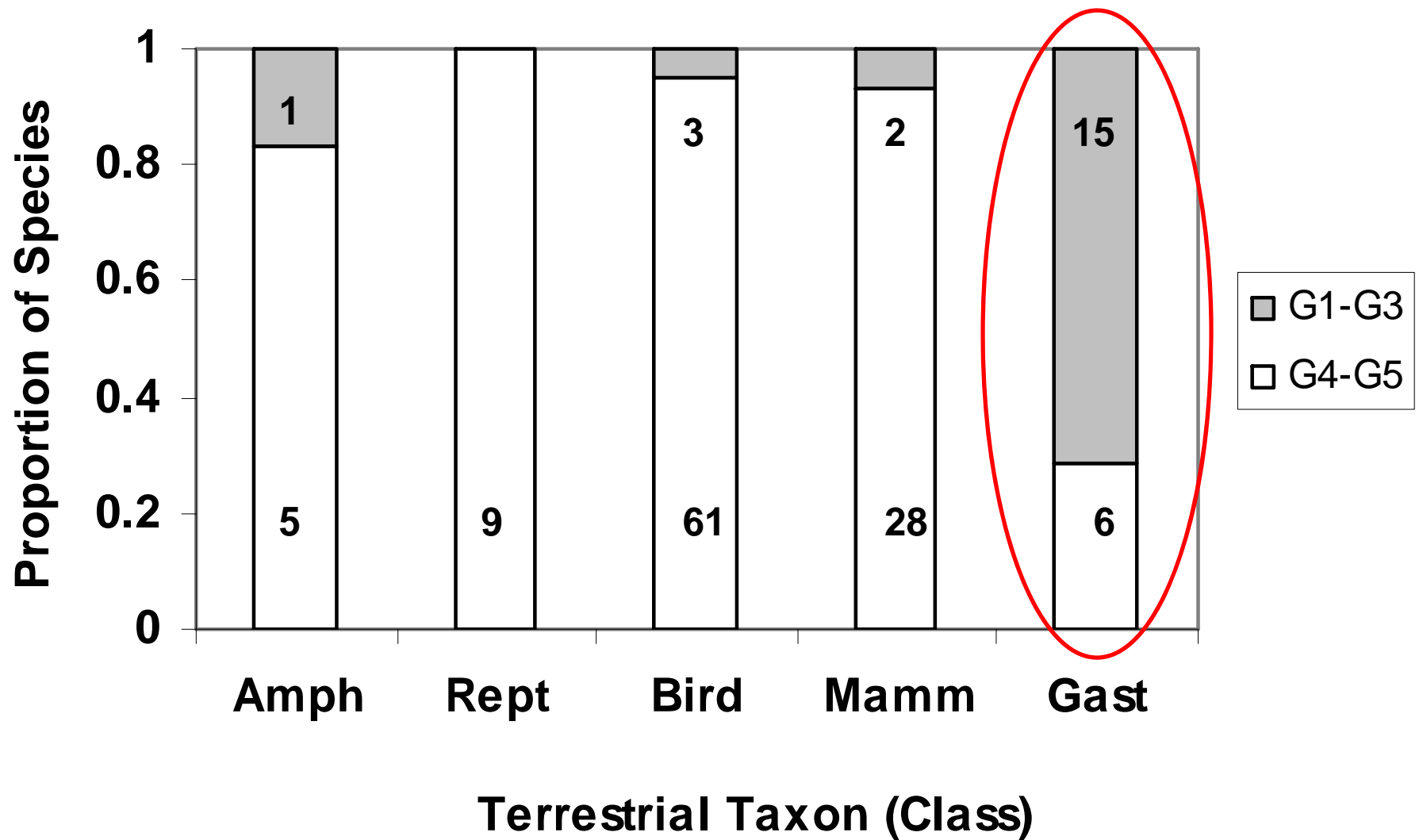
Eastern Sites: 1 to 7 species



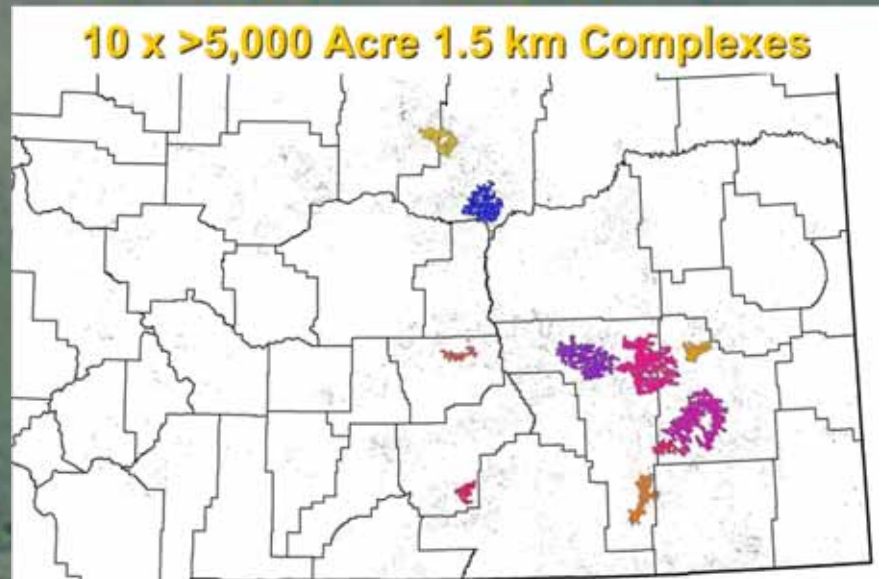
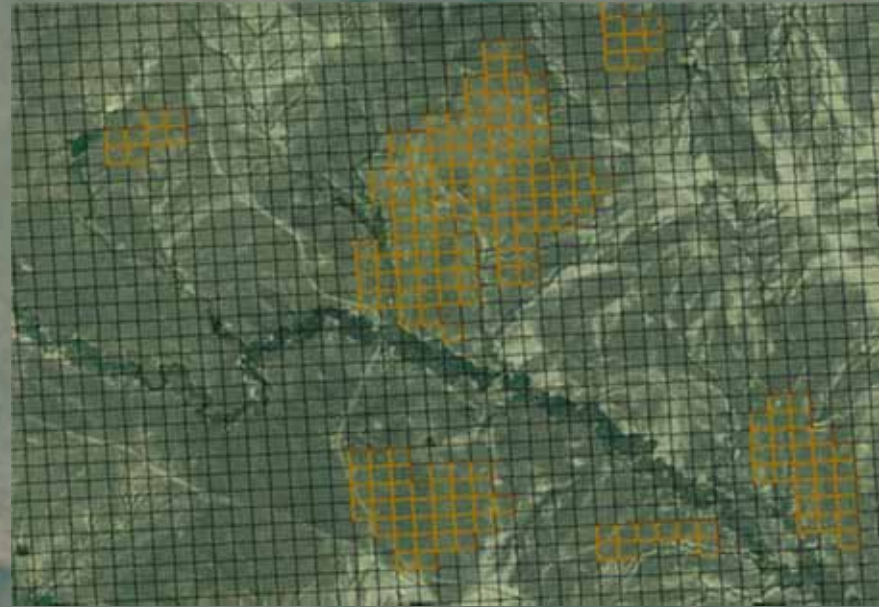


# Global Ranks of Montana SOC Land Animals

## Montana SOC Land Animals: Global Ranks



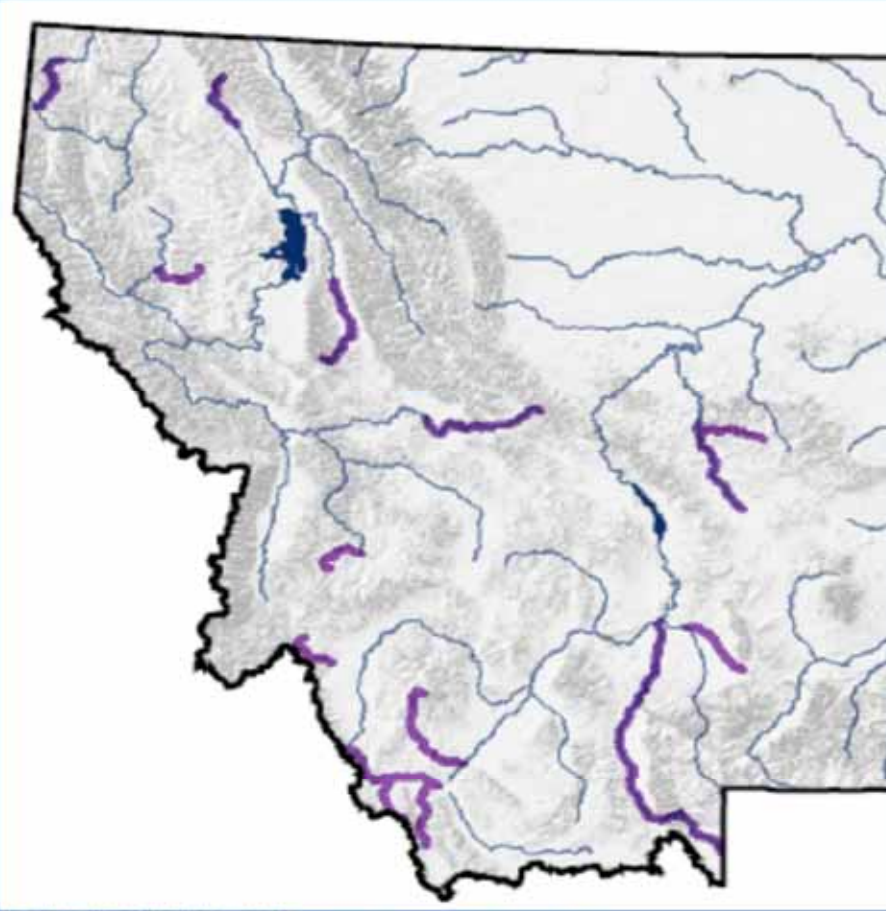
# Statewide Mapping Black-tailed Prairie Dog Colonies Using NAIP Imagery



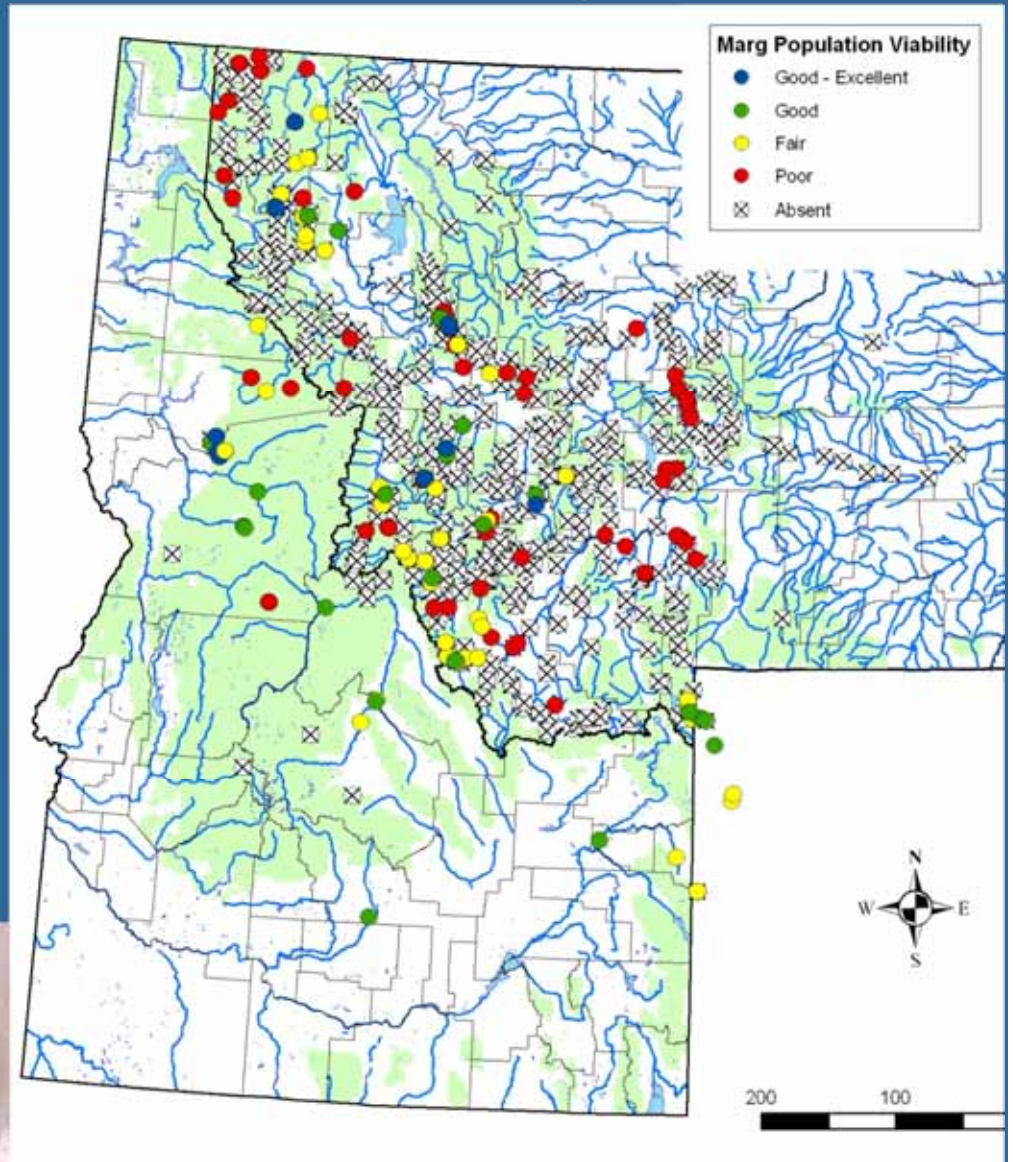


# Western Pearlshell Mussel Status in Montana MT SOC in 2008, USFS Region 1 Sensitive in 2010

Populations known in 2005

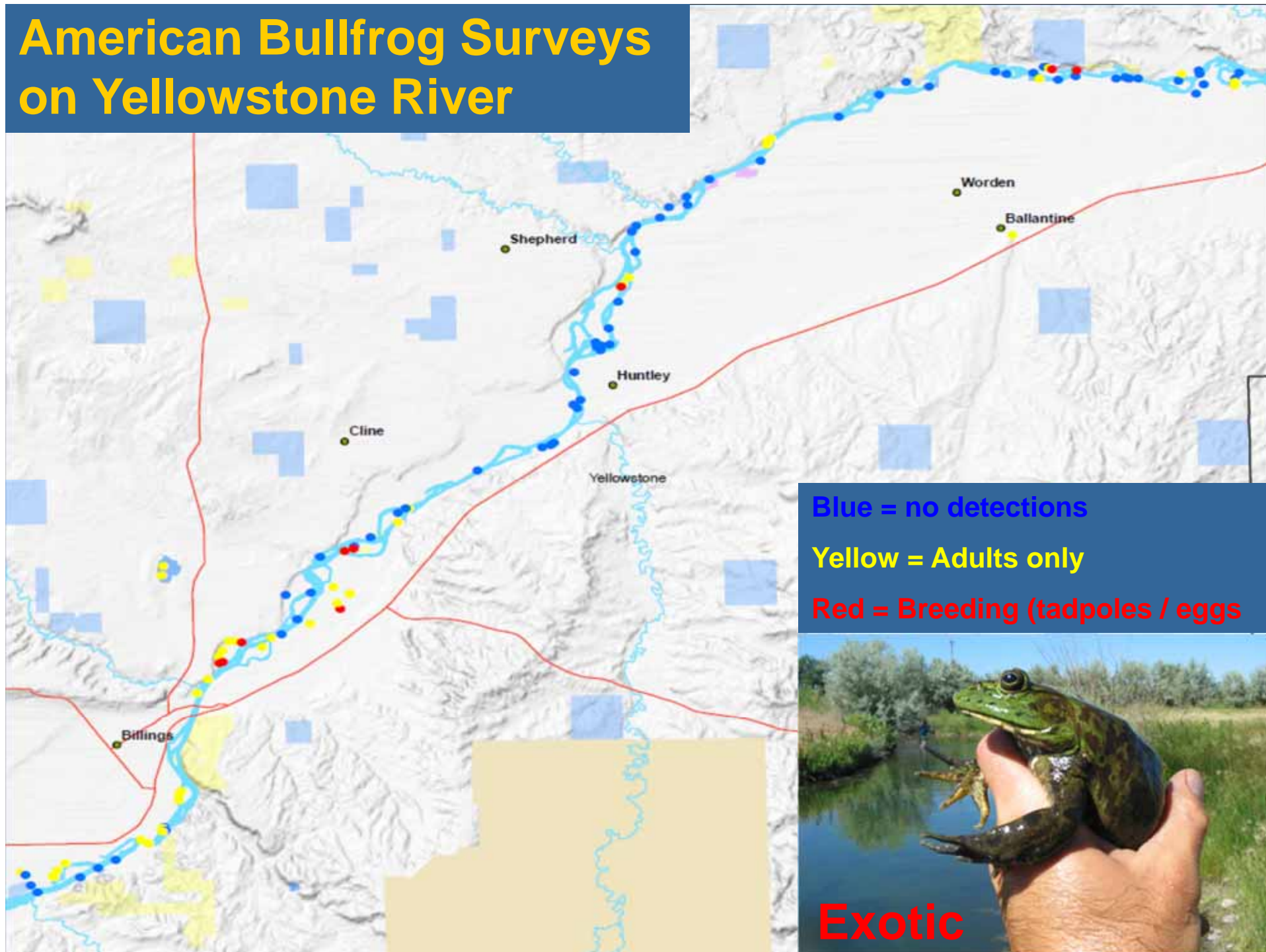


Current 2010 knowledge of populations





# American Bullfrog Surveys on Yellowstone River





## **Highest Priorities for Zoology Data Resource Development**

- **Predictive distribution models developed/evaluated**
- **Occupancy analyses of recent survey data**
- **Bat hibernacula and roost locations in general (WNS)**
- **Timing and routes of bat migration (Hoary, Eastern Red)**
- **Pesticide Impacts to Pollinators and Pollinator/Plant Relationships**
- **Species distribution data for tribal lands**
- **Full development of all Field Guide Accounts**
- **Make species' literature citations available on Field Guide**
- **7<sup>th</sup> Edition of Montana Bird Distribution Book**

# Ecology Program Data Resources



**Linda Vance**

**Senior Ecologist / Director Spatial Analysis Lab**

**Montana Natural Heritage Program**

**(406) 444-3380**

**livance@mt.gov**

## Ecology Project Managers



Cat McIntyre

Meghan Burns

Dave Stagliano

Tara Luna

Karen Newlon

## Spatial Analysis Lab



Melissa Hart

Claudine Tobalske

Ute Langner

## Wetland Photointerpreters



Erika Colaiacomo

Robin Lium

Jessica Clarke

Gary Carnefix

Maya Daurio

# Accessing Ecology Information

Home | Animals | Plants | **Ecology** | Wetlands | Publications | Data | About | SEARCH Heritage Submit

### Announcements

**NEW!** Natural Heritage Program Webinars!

### What's New

- Natural Heritage MapViewer
- Wetland Reference Network
- Land Stewardship Maps
- New Easement Web Map
- MT Wetlands Data
- Milk Marias Wetlands Assessment Web Site
- User Services Survey

### Recent Publications

- The Checklist of Montana Dragonflies & Damselflies*
- Aquatic Invertebrate Species of Concern...*
- Checklist of Montana Vascular Plants
- More Publications...

### Related Resources

- Montana GIS Portal
- NatureServe Explorer
- NRCS PLANTS Database
- Avian Science Center

## Montana Natural Heritage Program

- Montana Field Guide
- Natural Heritage MapViewer **NEW!**
- Natural Heritage Tracker
- Animal Species of Concern Report
- Plant Species of Concern Report
- Animal Information
- Plant Information
- Ecology Information
- Wetlands Information
- Land Management Mapping
- Submit Observations
- Request Information

The Natural Heritage Program provides information on Montana's species and habitats, emphasizing those of conservation concern. The Program is operated by the University of Montana in partnership with the Montana State Library.

**A Montana Species of Concern**



**Pileated Woodpecker** *Dryocopus pileatus*  
Image from the Montana Field Guide

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 mt.gov  
Montana's Official State Website



# Current Objectives

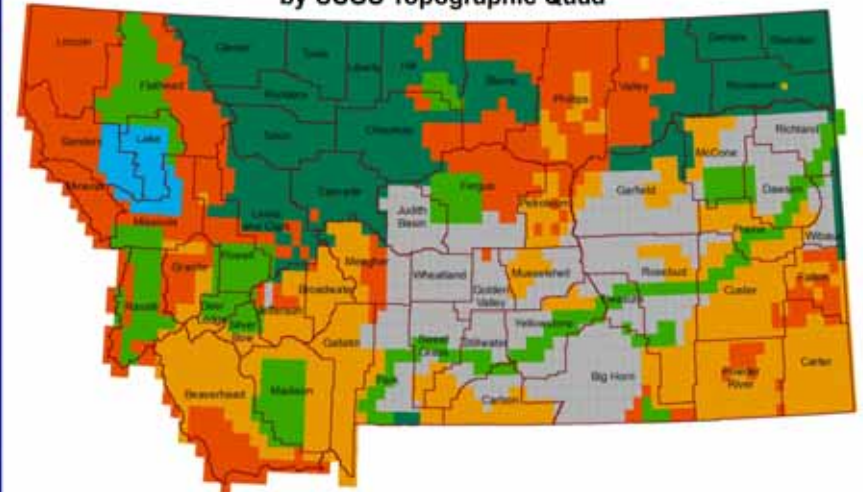
- Mapping, modeling and spatial analysis of wetland and terrestrial habitats
- Description, assessment and analysis of wetlands and riparian areas
- Description, assessment and analysis of upland plant communities and ecological systems
- Classification, description, assessment and analysis of aquatic communities
- Summaries of management and restoration practices for terrestrial and wetland habitats



# Statewide Wetland and Riparian Mapping

- 992 USGS quads mapped to date (~1/3 of state)
- 1,258,361 acres mapped to date (942,359 acres of wetlands and 316,002 acres of riparian habitats)
- Part of MSDI Framework and National Wetlands Inventory
- Access NWI approved via NWI
- Access all data via GIS data, Montana

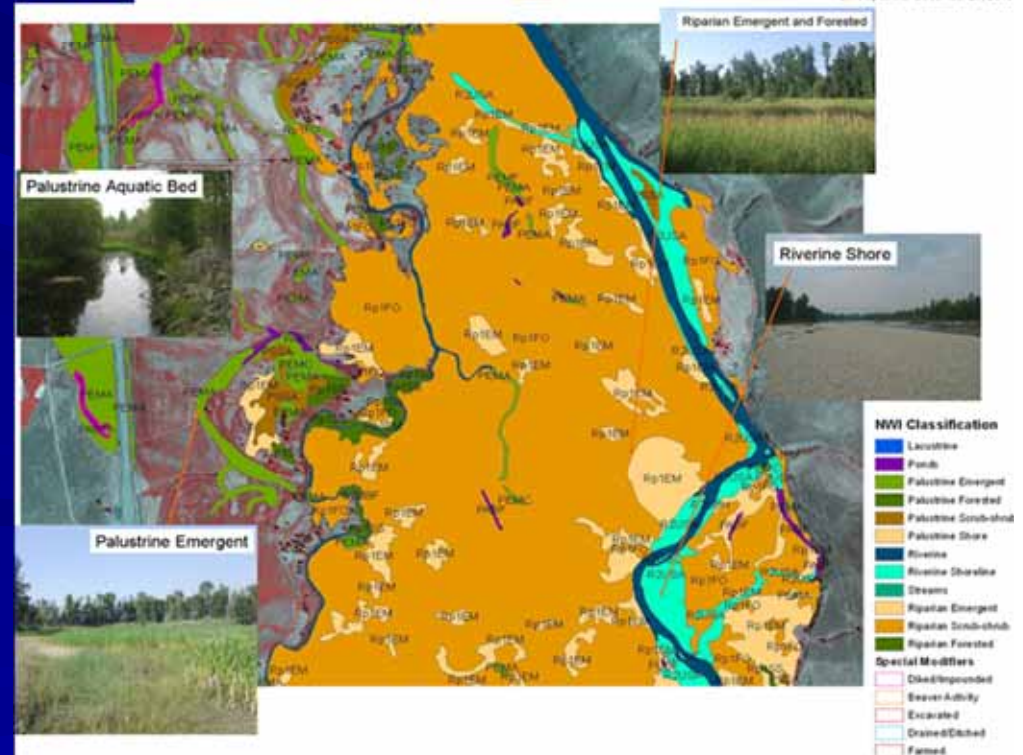
National Wetland Inventory Wetland Mapping Status by USGS Topographic Quad



NWI Wetland Mapping Status



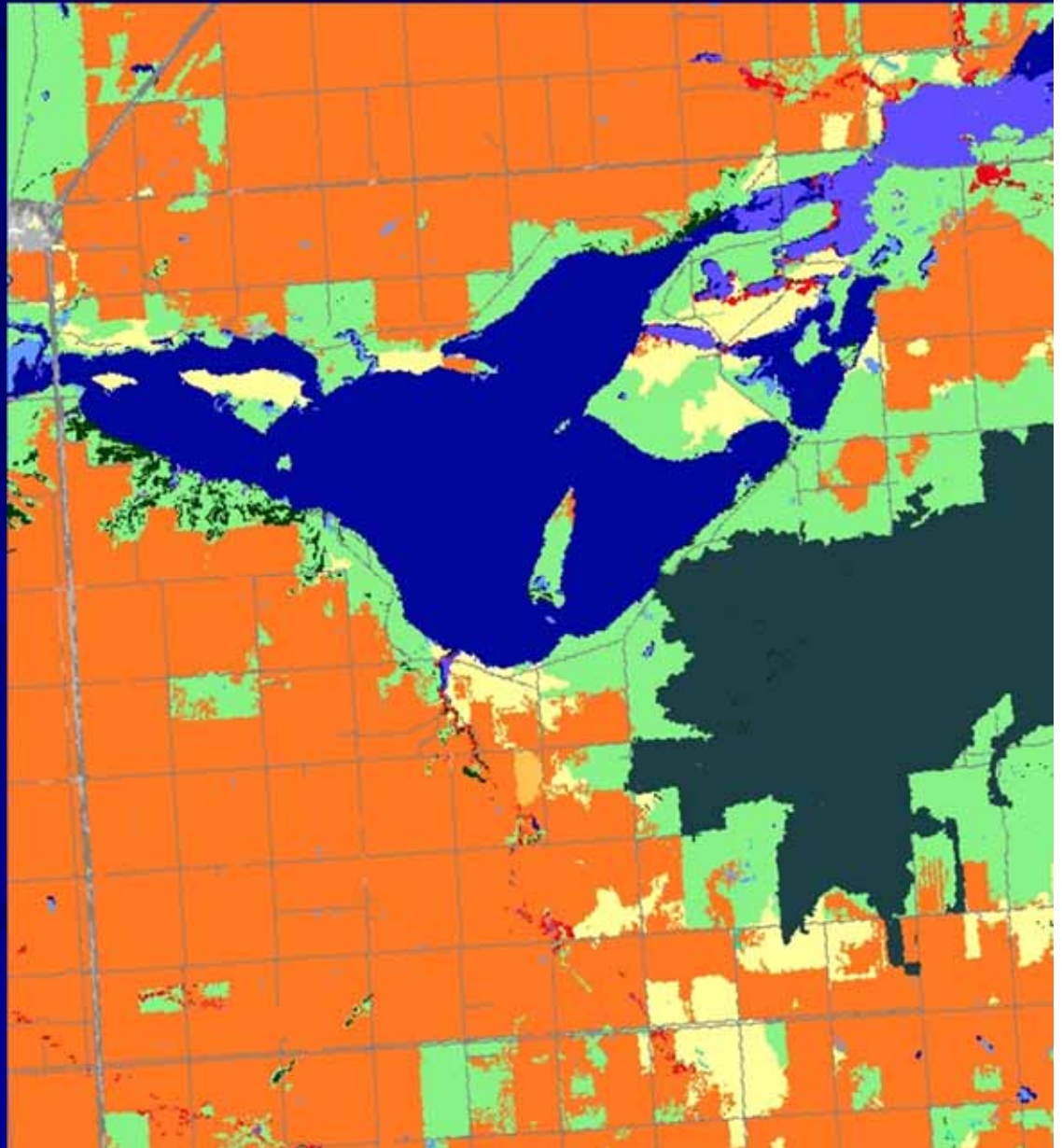
Last Updated: December 27, 2010





# Statewide Land Cover Mapping

- Statewide land cover mapping at 1:100K
- ReGAP modified, corrected and updated for Montana
- Legend based on ecological systems and described in online Field Guide and linked to animal species  
<http://fieldguide.mt.gov/>
- MSDI Framework Layer
- Accessible in Map Viewer  
<http://mtnhp.org/mapviewer/>
- Map service will soon be available through NRIS



# Assessment & Monitoring

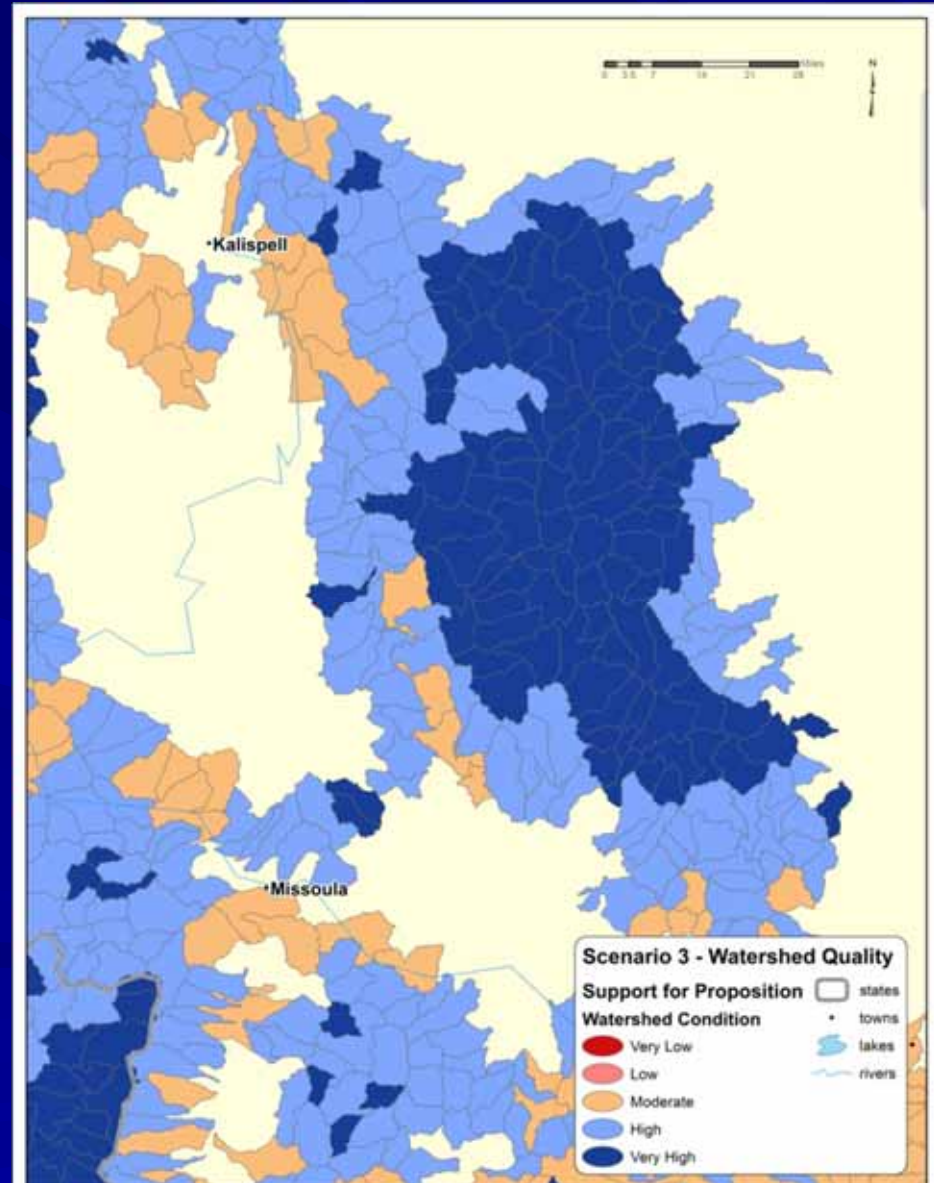
- Assessment of wetland ecological integrity through rotating basin assessments across Montana
- Characterization of range of natural variability in wetland and riparian ecosystems
- GIS- and field-based assessments of riparian health along big rivers
- Identification of high-quality communities on BLM lands





# Landscape Characterization

- Using high-resolution imagery to model sage grouse habitat suitability across large landscapes
- Predictive modeling of areas susceptible to cheatgrass infestation
- Statewide landscape integrity modeling
- Integrated Restoration Protection Strategy (IRPS) for USFS Region 1



# Aquatic Surveys and Classification

- Statewide classification of stream types and the expected communities of macroinvertebrates and/or fish species
- Using dragonflies and damselflies as indicators of wetland condition
- Statewide mussel and macroinvertebrate surveys





# Future Plans for Ecology Program

- Continue statewide wetland mapping
- Updates and improvements to land cover map
- Ecological systems rankings
- Terrestrial and wetland systems susceptible to climate change
- Mapping and documentation of groundwater-dependent ecosystems
- Restoration planning, monitoring and support for aquatic and wetland systems
- Collecting and Incorporating data from partner agencies



# Data Retrieval - Systems and Services Staff



**Allan Cox**

**Systems and Services Manager  
Montana Natural Heritage Program**

**(406) 444-3989**

**acox@mt.gov**

## Systems and Services Staff



Scott Blum



Karen Walker



Dave Ratz



Martin Miller



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**Pileated Woodpecker *Dryocopus pileatus***  
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**mt.gov**  
Montana's Official State Website

**MONTANA FIELD GUIDE**

Field Guide Home | Animals | Plants | Lichens | Ecological Systems | Help

**Montana Field Guides** Search Field Guide

**Animals - Animalia**  
(Latin - breath, soul): Multicellular organisms that develop from the fertilization of an egg by a sperm. Heterotrophic (obtain food by ingestion).

**Plants - Plantae**  
(Latin - plant): Multicellular organisms that are autotrophic (make complex "food" molecules from basic constituents). Most use photosynthesis.

**Lichens - Fungi**  
(Latin, derived from Greek - sp(h)onges, sponges): Obtain food through absorption, excrete enzymes for digestion. Ex. molds, mushrooms, lichens.

**Ecological Systems**  
Ecological systems represent recurring groups of biological communities that are found in similar physical environments and are influenced by similar dynamic ecological processes, such as fire or flooding.

Welcome to our Montana Field Guides. These guides and this website are a collaborative effort between the Montana Natural Heritage Program and Montana Fish, Wildlife and Parks. The Animal Field Guide provides information on identification, habitat, ecology, reproduction, range, and distribution of Montana's animals; new features include a hierarchal approach to finding an animal of interest, thumbnail photos of the animals and additional links. The Plant Field Guide offers information on plant species of concern, including references and photographs.

Select a Field Guide to start browsing or use the Search.

sponsored by

**Montana Natural Heritage Program**  
Animal Species of Concern Report  
Plant Species of Concern Report  
NH Tracker  
Wetlands Information

**Montana Fish, Wildlife & Parks**  
Species of Concern  
Endangered Species  
Living With Wildlife

**DISCOVER MONTANA'S EcoSYSTEMS!**

Privacy & Security | Accessibility | Contact Us | Search

**NEW!!**

**Collaborative Project**

\* In FY10 - 223,400 visits (4,296 per week) and 11,170 hours of use (215 per week)



# New Advanced Search Features

## Advanced Search

Search Field Guide

Go

The Advanced Search allows you to find species with specific characteristics. The Rank and Status will search based on how that species is ranked by NatureServe (Global Ranks), the Montana Natural Heritage Program (State Ranks), and by federal agency status.

- Selecting multiple items **Between the major sections** will result in an "AND" search.
  - (eg. Common Name=Salp AND Species of Concern=SOC)
- Selecting multiple items **Within a pick list** will result in an "OR" search.
  - (eg. Species of Concern = SOC OR Potential SOC)

### Animal and Plants Search

#### Species

Scientific Name:

Common Name:

Search

Reset

#### Family

Scientific Name:

Common Name:

#### Order

Common Name (Scientific Name):

#### Major Taxonomic Group

Multi-select is allowed. Use <CTRL> <Click> to select or deselect.

Taxa:

Mammals  
Birds  
Reptiles  
Amphibians  
Fish  
Invertebrates  
Vascular Plants  
Bryophytes  
Lichens

#### Species Rank / Status

Multi-select is allowed but only within a single picklist. Use <CTRL> <Click> to select or deselect.

Species of Concern:

SOC  
Potential SOC  
Status Under Review

Global:

G1  
G2  
G3  
G4  
G5  
GN  
GU

State:

S1  
S2  
S3  
S4  
S5  
SH  
SN  
SU  
SX

USFWS:

Delisted - monitored  
Listed endangered  
Listed threatened

USFS:

ENDANGERED  
SENSITIVE  
THREATENED

BLM:

SENSITIVE  
SPECIAL STATUS

FWP Conservation Tier:

1  
2  
3  
4


### Ecological Systems Search

Group

Search

Reset

# New Ecological Systems Field Guide

 Montana's Official State Website

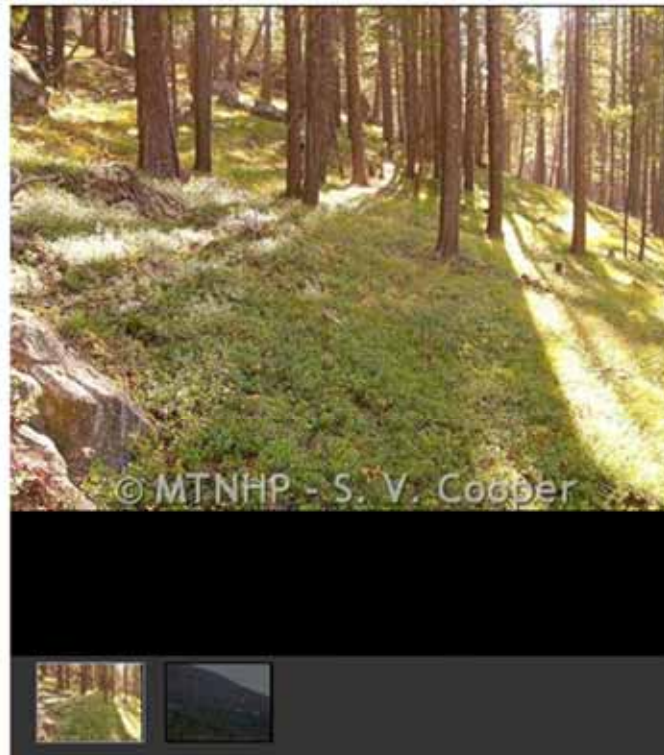
**MONTANA FIELD GUIDE**

[Field Guide Home](#) | [Animals](#) | [Plants](#) | [Lichens](#) | [Ecological Systems](#) | [Help](#)

Montana Field Guides  Search Field Guide   
Advanced Search

[Home](#) - [Other Field Guides](#)  
[Ecological Systems](#)  
[Forest and Woodland Systems](#)

## Rocky Mountain Lodgepole Pine Forest



Provisional State Rank: [S3](#)



### General Description

This forested system is widespread in upper montane to subalpine zones of the Montana Rocky Mountains, and



### Diagnostic Characteristics

forest and woodland, acidic, shallow ustic soils, organic A horizon greater than 10 cm, *Pinus contorta*

### Similar Systems

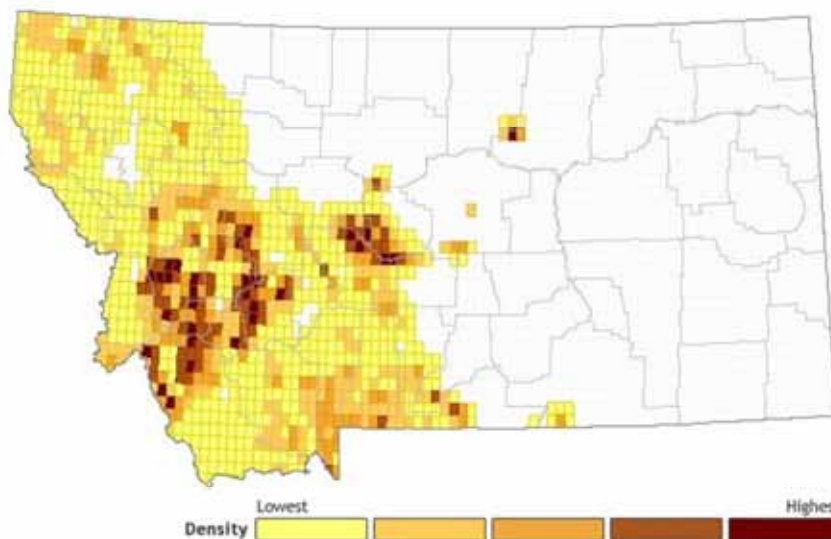
- [Rocky Mountain Poor Site Lodgepole Pine Forest](#)

### Range

This system occurs throughout the Montana Rocky Mountains and the island ranges from valley bottoms west of the Continental Divide to upper subalpine forests.

### Ecological System Distribution

Approximately 12,817 square kilometers are classified as Rocky Mountain Lodgepole Pine Forest in the 2009 Montana Land Cover layers. *Grid on map is based on USGS 7.5 minute quadrangle map boundaries.*



### Montana Counties of Occurrence

Big Horn, Blaine, Broadwater, Carbon, Cascade, Chouteau, Deer Lodge, Fergus, Flathead, Gallatin, Glacier, Golden Valley, Granite, Jefferson, Judith Basin, Lake, Lewis and Clark, Lincoln, Meagher, Mineral, Missoula, Park, Phillips, Pondera, Powell, Ravalli, Sanders, Silver Bow, Stillwater, Sweet Grass, Teton, Wheatland

### Spatial Pattern

Matrix

### Environment

This system generally occurs on dry to intermediate sites with a wide seasonal range of temperatures and

### Species Associated with this Ecological System

Details on how we associated these species with this Ecological System

Species Commonly Associated with this Ecological System

#### Mammals

- Masked Shrew (*Sorex cinereus*)
- Vagrant Shrew (*Sorex vagrans*)
- Dwarf Shrew (*Sorex nanus*) **SOC**
- Pygmy Shrew (*Sorex hoyi*)
- Long-eared Myotis (*Myotis evotis*)
- Long-legged Myotis (*Myotis volans*)
- Western Small-footed Myotis (*Myotis ciliolabrum*)
- Big Brown Bat (*Eptesicus fuscus*)
- Spotted Bat (*Euderma maculatum*) **SOC**
- Mountain Cottontail (*Sylvilagus nuttalli*)
- Least Chipmunk (*Tamias minimus*)
- Red-tailed Chipmunk (*Tamias ruficaudus*)
- Columbian Ground Squirrel (*Spermophilus columbianus*)
- Red Squirrel (*Tamiasciurus hudsonicus*)
- Northern Pocket Gopher (*Thomomys talpoides*)
- Bushy-tailed Woodrat (*Neotoma cinerea*)
- Heather Vole (*Phenacomys intermedius*)
- Montane Vole (*Microtus montanus*)
- Water Vole (*Microtus richardsoni*)
- Porcupine (*Erethizon dorsatum*)
- Gray Wolf (*Canis lupus*) **SOC**
- Black Bear (*Ursus americanus*)
- Raccoon (*Procyon lotor*)
- Fisher (*Martes pennanti*) **SOC**
- Least Weasel (*Mustela nivalis*)
- Wolverine (*Gulo gulo*) **SOC**
- Canada Lynx (*Lynx canadensis*) **SOC**
- Mountain Lion (*Puma concolor*)
- Mule Deer (*Odocoileus hemionus*)
- Moose (*Alces americanus*)
- Preble's Shrew (*Sorex preblei*) **SOC**
- Dusky or Montane Shrew (*Sorex monticolus*)
- Water Shrew (*Sorex palustris*)
- Little Brown Myotis (*Myotis lucifugus*)
- Fringed Myotis (*Myotis thysanodes*) **SOC**
- California Myotis (*Myotis californicus*)
- Silver-haired Bat (*Lasiurus noctivagans*) **PSOC**
- Hoary Bat (*Lasiurus cinereus*) **SOC**
- Townsend's Big-eared Bat (*Corynorhinus townsendii*)
- Snowshoe Hare (*Lepus americanus*)
- Yellow-pine Chipmunk (*Tamias amoenus*)
- Yellow-bellied Marmot (*Marmota flaviventris*)
- Golden-mantled Ground Squirrel (*Spermophilus lateralis*)
- Northern Flying Squirrel (*Glucomys sabrinus*)
- Deer Mouse (*Peromyscus maniculatus*)
- Southern Red-backed Vole (*Myodes gapperi*)
- Meadow Vole (*Microtus pennsylvanicus*)
- Long-tailed Vole (*Microtus longicaudus*)
- Western Jumping Mouse (*Zapus princeps*)
- Coyote (*Canis latrans*)
- Red Fox (*Vulpes vulpes*)
- Grizzly Bear (*Ursus arctos*) **SOC**
- Marten (*Martes americana*)
- Short-tailed Weasel (*Mustela erminea*)
- Long-tailed Weasel (*Mustela frenata*)
- Striped Skunk (*Mephitis mephitis*)
- Bobcat (*Lynx rufus*)
- Elk or Wapiti (*Cervus canadensis*)
- White-tailed Deer (*Odocoileus virginianus*)
- Mountain Goat (*Oreamnos americanus*)

#### Birds

- Barrow's Goldeneye (*Bucephala islandica*) **PSOC**
- Sharp-shinned Hawk (*Accipiter striatus*)
- Northern Goshawk (*Accipiter gentilis*) **SOC**
- Rough-legged Hawk (*Buteo lagopus*)
- Dusky Grouse (*Dendragapus obscurus*)
- Flammulated Owl (*Otus flammeolus*) **SOC**
- Northern Hawk Owl (*Burnia ulula*) **PSOC**
- Barred Owl (*Strix varia*)
- Boreal Owl (*Aegolius funereus*)
- Common Nighthawk (*Chordeiles minor*)
- Vaux's Swift (*Chaetura vauxi*)
- Broad-tailed Hummingbird (*Selasphorus platycercus*) **PSOC**
- Lewis's Woodpecker (*Melanerpes lewis*) **SOC**
- Red-naped Sapsucker (*Sphyrapicus nuchalis*)
- Hairy Woodpecker (*Picoides villosus*)
- American Three-toed Woodpecker (*Picoides dorsalis*)
- Hooded Merganser (*Lophodytes cucullatus*) **PSOC**
- Cooper's Hawk (*Accipiter cooperii*)
- Red-tailed Hawk (*Buteo jamaicensis*)
- Spruce Grouse (*Falcapennis canadensis*)
- Ruffed Grouse (*Bonasa umbellus*)
- Great Horned Owl (*Bubo virginianus*)
- Northern Pygmy-Owl (*Glaucidium gnoma*)
- Great Gray Owl (*Strix nebulosa*) **SOC**
- Northern Saw-whet Owl (*Aegolius acadicus*)
- Black Swift (*Cypseloides niger*) **SOC**
- Calliope Hummingbird (*Stellula calliope*)
- Rufous Hummingbird (*Selasphorus rufus*) **PSOC**
- Williamson's Sapsucker (*Sphyrapicus thyroideus*)
- Downy Woodpecker (*Picoides pubescens*)
- Black-backed Woodpecker (*Picoides arcticus*) **SOC**
- Northern Flicker (*Colaptes auratus*)

Click on Species Name to View Information from the Animal Field Guide



Home - [Other Field Guides](#)

Kingdom - Animals - [Animalia](#)

Phylum - Vertebrates - [Craniata](#)

Class - Birds - [Aves](#)

Order - Songbirds - [Passeriformes](#)

Family - Longspurs and Snow Buntings - [Calcariidae](#)

Species - Chestnut-collared Longspur - *Calcarius ornatus*

# Animal Field Guide Updates

## Chestnut-collared Longspur - *Calcarius ornatus*



Chestnut-collared Longspur

### Species of Concern

Global Rank: [G5](#)  
State Rank: [S2B](#)

### Agency Status

USFWS:  
USFS:  
BLM: [SENSITIVE](#)  
FWP Conservation Tier: [3](#)  
PIF: [2](#)

[TRACKER](#) » » » »  
Montana Observations

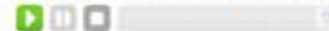
[NatureServe](#)  
Species Report

[Google](#) for more  
Images

[Google](#) for more  
Web  
Pages

[Submit new Animal  
Observations](#)

### Listen to an Audio Sample



Copyright by Borror Laboratory of Bioacoustics, Department of Evolution, Ecology, and Organismal Biology, Ohio State University, Columbus, OH, all rights reserved.

### Text Includes

- General Description
- Diagnostics
- Migration
- Habitat
- Food Habits
- Ecology
- Reproduction
- Management

**Calls  
added for  
All Birds**

# Field Guide Updates

## Hemispheric Range Map Updates

### Adding New Species

- Dragonflies
- Damselflies
- Butterflies
- Moths





# Field Guide Updates

## References

### Web Search Engines for Articles on "Chestnut-collared Longspur"

- [WorldCat](#)
- [Google Scholar](#)
- [Google Books](#)
- [Science.gov](#)

**Species-specific  
search engine links**

### Additional Sources of Information Related to "Birds"

- [American Ornithologists Union](#)
- [Audubon](#)
- [Avian Science Center](#)
- [BBS - North American Breeding Bird Survey](#)
- [BIRDNET](#)
- [Birds in a Sagebrush Sea - Managing Sagebrush Habitats for Bird Communities](#)
- [Cornell Lab of Ornithology](#)
- [eBird](#)
- [Feather Atlas \(Flight Feathers of North American Birds\)](#)
- [MAPS \(Monitoring Avian Productivity and Survivorship\)](#)
- [MOB \(Montana's Bird Observation List Serve\)](#)
- [Montana Audubon](#)
- [Montana Bird Checklist](#)
- [Montana Bird Conservation Partnership and Montana Partners in Flight](#)
- [Montana Chapter of the Wildlife Society](#)
- [Natural Heritage Tracker \(Statewide Database of Animal Observations\)](#)
- [North American Breeding Bird Survey](#)
- [Owl Research Institute](#)

**Working on Bibliographic Database (70,000 references) to show literature cited and additional literature for all species**

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[Home](#)[Animals](#)[Plants](#)[Ecology](#)[Wetlands](#)[Publications](#)[Data](#)[About](#)SEARCH 

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Image from the Montana Field Guide

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# NATURAL HERITAGE TRACKER

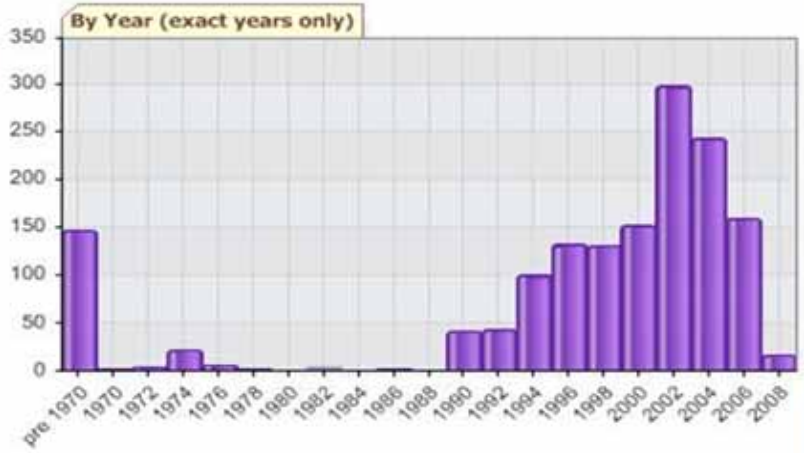
- 9,240 hours of agency use
- 20,507 hours of total use (142 hours per week)



Western Toad



TAXA	ID (click to EDIT)	Common Name (Scientific Name)	OBSERVERS	OBSERVATION DATE		LOCATION			Spatial Precision (Meters)	TYPE	PENDING	Additional info		
				MONTH DAY YEAR	Notes	LL QLL QOLL	COUNTY	Comments				Males	Juveniles	
amphibians	<a href="#">10588219</a>	Western Toad ( <i>Bufo boreas</i> ) <i>Species of Concern</i>	Bell, Matthew	Jul 13, 2008		28A3	Lewis and Clark	7.5 Miles WSW of Hedges Mountain	0		Pending	Unknown Sex	Juveniles	
												Males	Immature	
												Females	1	Eggs
												Pairs		Nest
<p><b>Species Observation Notes:</b> 65mm SVL, female seen on trail between parking area and rope swing.</p> <p><b>Habitat Observation Notes:</b> Tall grasses/vegetation downslope toward lake. Dry, rocky, mostly open ponderosa pine forest upslope.</p>														





# View Photos of Sites Surveyed



Montana Natural  
Heritage Program  
**TRACKER**  
MTNHP.ORG/Tracker

The screenshot displays the Montana Natural Heritage Tracker web application interface. The top navigation bar includes the program logo, the text "NATURAL HERITAGE TRACKER", and the URL "mt.gov". Below the navigation bar is a menu with options: Home, File, Edit, View, Window, Help, and Sign Out. The main content area is divided into several sections:

- Left Sidebar:** Contains navigation and map controls. It includes sections for "Reports", "Add Animal Observations", "Photo Viewer", "Photosets" (with "Amphibian Inventory Photos" checked), and "Map Layers". Under "Map Layers", there are two sub-sections: "Map Layers" and "Base Map". The "Map Layers" section includes checkboxes for Towns, County, LL / OLL / OQLL, Highways, 24K Roads, Township and Range, Lakes/Streams, Conservation Easements, and Special Designation Lands. The "Base Map" section includes radio buttons for Air Photos (color 2005), Air Photos (color infrared), Air Photos (color 2005 w/ 2004 hi res cities), Air Photos (b/w), Topographic (hillshade), Topographic, Highway map, Hillshade, and [No Base Map]. A search bar at the bottom of the sidebar is labeled "Search for Location".
- Map:** Shows a satellite view of a mountainous region with numerous yellow camera icons representing survey sites. A yellow arrow points from a site on the map to the "Identify" panel.
- Identify Panel:** A pop-up window displaying details for a selected site. It includes coordinates (Lat: 45.2731, Long: -110.11073), SPX: 552083, SPY: 113900, and Elevation: 2962 meters (9718 feet). It lists three photos with their respective site names, dates, and file names. The first photo is for Site = 7038008 - Pond, 1.3 miles S of Lake Mountain, dated Aug 13, 2005, with file name 7\_038\_008.jpg. The second and third photos are for Site = 7043036 - Pond, 5.4 miles SW of Tumble Mountain, dated Aug 13, 2005, with file names 7\_043\_036a.jpg and 7\_043\_036b.jpg. A "Click to view larger image" link is present for the third photo.
- Photo Viewer:** A large window showing a landscape photo of a pond in a mountainous area, which is a larger view of the photo selected in the "Identify" panel.
- Map Annotations:** A red triangle is drawn on the map, with the word "Breeding" above it, "Wintering" to the left, and "Foraging" to the right.



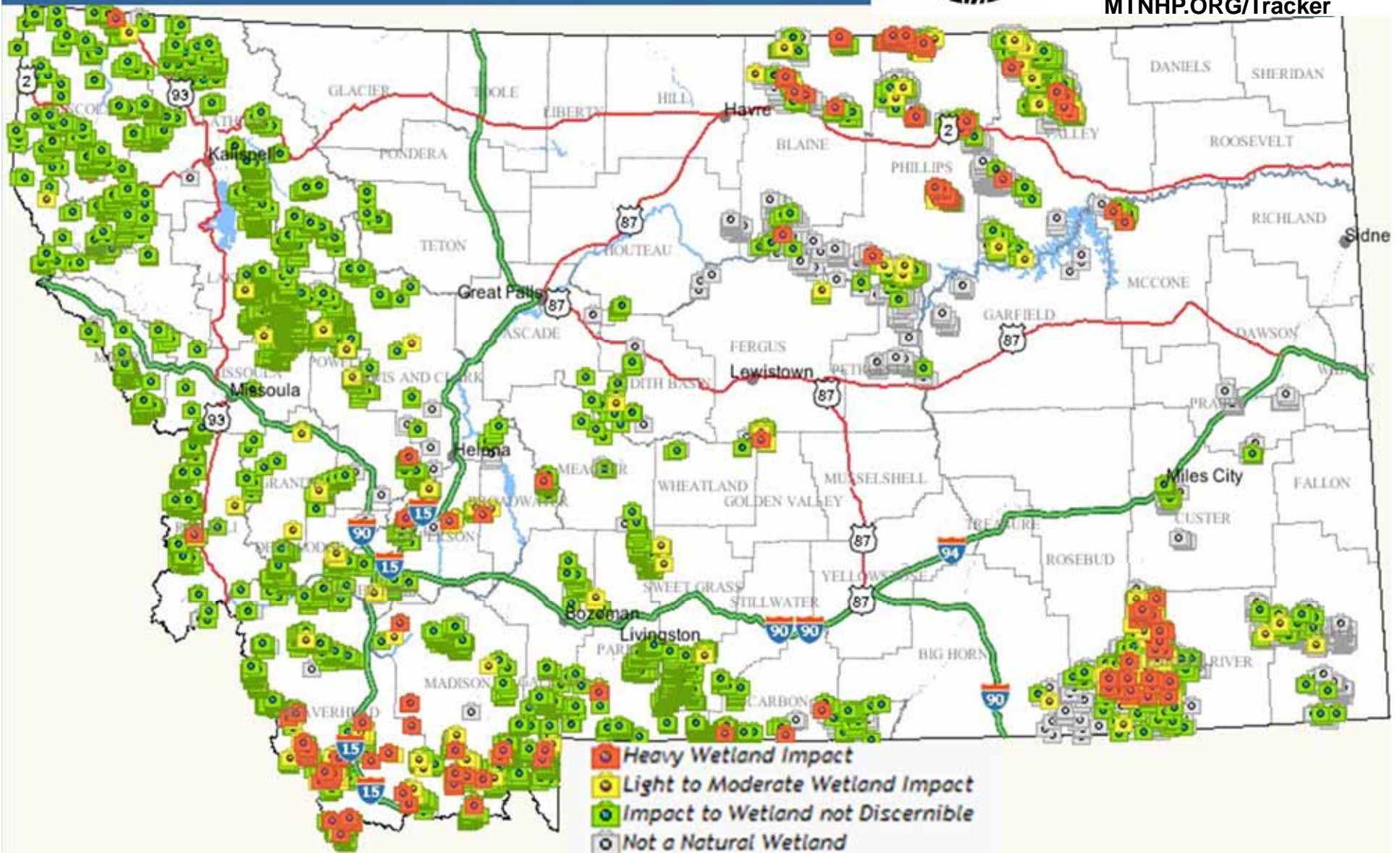
# Structural Impact to Wetlands



Montana Natural  
Heritage Program

## TRACKER

[MTNHP.ORG/Tracker](http://MTNHP.ORG/Tracker)









# Accessing Web Information

## Announcements

**NEW! Natural Heritage Program Webinars!**

## What's New

- Natural Heritage MapViewer
- Wetland Reference Network
- Land Stewardship Maps
- New Easement Web Map
- MT Wetlands Data
- Milk Marias Wetlands Assessment Web Site
- User Services Survey

## Recent Publications

- *The Checklist of Montana Dragonflies & Damselflies*
- *Aquatic Invertebrate Species of Concern...*
- *Checklist of Montana Vascular Plants*
- *More Publications...*

## Related Resources

- Montana GIS Portal
- NatureServe Explorer
- NRCS PLANTS Database
- Avian Science Center

## Montana Natural Heritage Program

- Montana Field Guide
- **Natural Heritage MapViewer *NEW!***
- Natural Heritage Tracker
- Animal Species of Concern Report
- Plant Species of Concern Report
- Animal Information
- Plant Information
- Ecology Information
- Wetlands Information
- Land Management Mapping
- Submit Observations
- Request Information

The Natural Heritage Program provides information on Montana's species and habitats, emphasizing those of conservation concern. The Program is operated by the University of Montana in partnership with the Montana State Library.

### A Montana Species of Concern



**Pileated Woodpecker *Dryocopus pileatus***  
Image from the Montana Field Guide

## Our Partners

-  Montana State Library
-  University of Montana
-  Natural Resource Information System
-  NatureServe

We're part of a network of over 80 Natural Heritage Programs that share data through NatureServe. Find species and ecological data for North America at **NatureServe Explorer**.



Thanks to our many other partners. [Read more...](#)





# Viewing Land Cover

Navigation and toolbars at the top include: Favorites, NHP Landcover, NATURAL HERITAGE MAP VIEWER, Scale 1:5,500,000, mt.gov, Field Guide, Use Standard Controls, Full Extent, and Feedback.

**Task Selection**

Which Toolset would you like?  
Landcover

**Tools**

**Landcover Type Distribution:**  
Select Landcover Type  
 Show Landcover Highlight

**Identify Landcover By:**  
County  
 Show Identify Boundaries


Reset Map

**Map Layers**

Towns >>  
 Roads >>

**Base Layer Fader Control**  
Landcover: Hillshade  
[Slider]

Search for Location



Map Labels: Kalispeel, Havre, Glasgow, Wolf Point, Sidney, Great Falls, Lewis and Clark, Missoula, Helena, Bozeman, Billings, Mullan, Absarokee, Yellowstone.

MT Landcover

**Charts and Data**

Identify Results display here

**Task Selection**

Which Toolset would you like?  
Landcover

**Tools**

**Landcover Type Distribution:**  
Select Landcover Type  
 Show Landcover Highlight

**Identify Landcover By:**  
Section  
 Show Identify Boundaries

Reset Map

**Map Layers**

Towns >>  
 Roads >>

**Base Layer Fader Control**  
Landcover Hillshade

**Search for Location**

**Township & Range**

Township 5 N S  
Range 13 E W

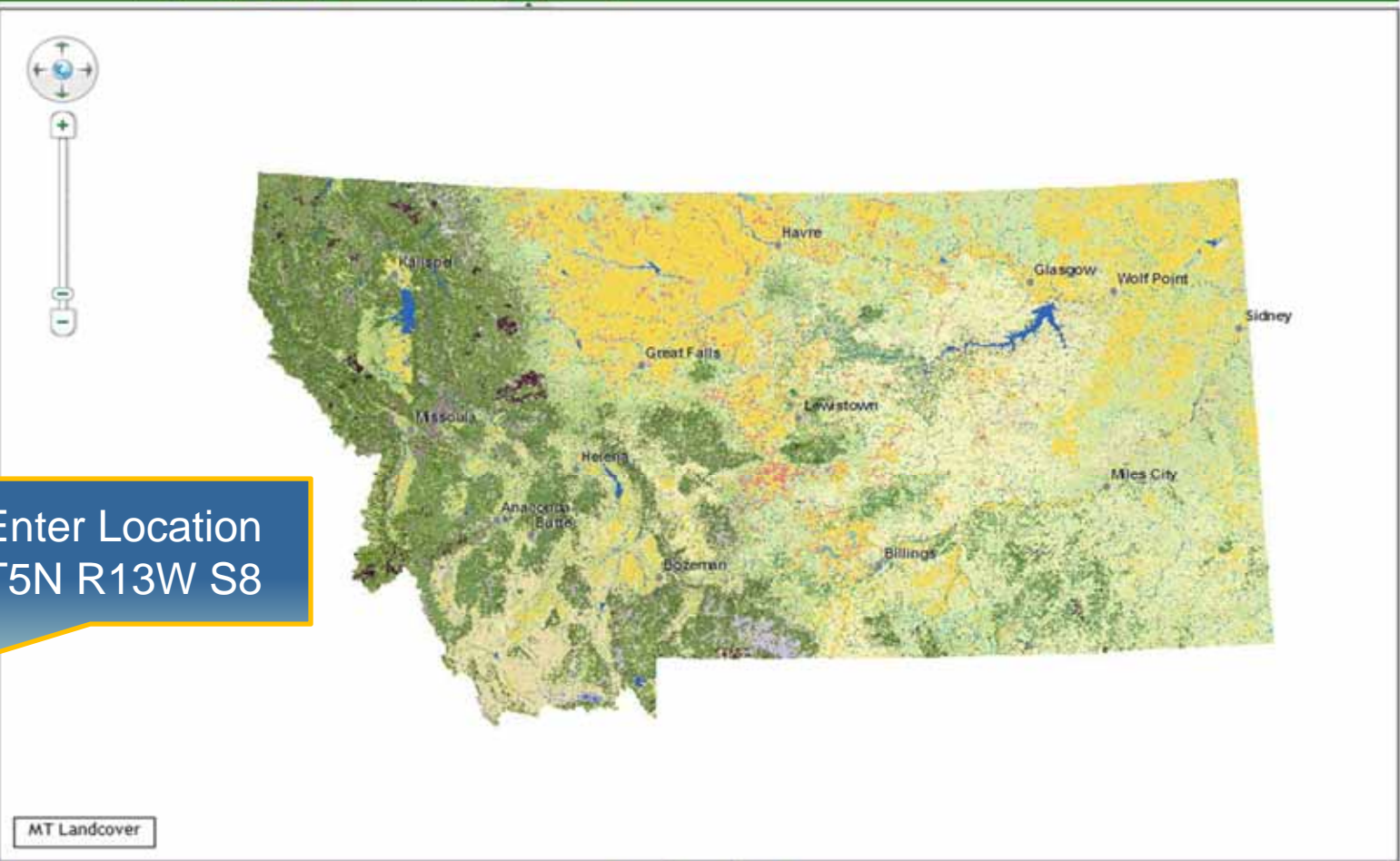
Sections Define the corners of the rectangle you'd like to search by clicking.

6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

search reset

**Named Features Search**  
Map Name Search (24K)  
Water Body

Enter Location  
T5N R13W S8



**Charts and Data**

Identify Results display here



NHP Landcover - Windows Internet Explorer  
http://mtnhp.org/ecology/mapviewer/

NATURAL HERITAGE MAP VIEWER  
Scale 1:9,010  
mt.gov Field Guide Use Standard Controls Full Extent Feedback

Task Selection  
Which Toolset would you like?  
Landcover

Tools  
Landcover Type Distribution:  
Select Landcover Type  
 Show Landcover Highlight

Identify Landcover By:  
Section  
County  
LatiLong  
Quarter LatiLong  
Quarter Quarter LatiLong  
Quadrangle  
4th Code Watershed  
5th Code Watershed  
6th Code Watershed  
Township  
Section

Landcover Hillshade

Search for Location

MT Landcover

Charts and Data

Identify Results display here

Select Identify by Section

NHP Landcover - Windows Internet Explorer  
 http://mtnhp.org/ecology/mapviewer/

NATURAL HERITAGE MAP VIEWER Scale 1:9,010  
 mt.gov Field Guide Use Standard Controls Full Extent Feedback

Task Selection  
 Which Toolset would you like?  
 Landcover

Tools  
 Landcover Type Distribution:  
 Select Landcover Type  
 Show Landcover Highlight  
 Identify Landcover By:  
 Section  
 Show Identify Boundaries  
 Reset Map

Map Layers  
 Towns  
 Roads

Base Layer Fader Control  
 Landcover Hillshade

Search for Location









MT Landcover

Charts and Data

Section 005013W008

[Printable Report](#)  
 Show Selected Area Highlight

Primary Composition of Landcover

56%		<a href="#">Rocky Mountain Lodgepole Pine Forest</a>	<a href="#">View Full Description</a>
14%		<a href="#">Northern Rocky Mountain Lower Montane Conifer Woodland and Shrubland</a>	
8%		<a href="#">Harvested forest-grass regeneration</a>	
7%		<a href="#">Harvested forest-tree regeneration</a>	
4%		<a href="#">Rocky Mountain Subalpine-Upper Montane Grassland</a>	
4%		<a href="#">Alpine-Montane Wet Meadow</a>	
2%		<a href="#">Montane Sagebrush Steppe</a>	
2%		<a href="#">Harvested forest-shrub regeneration</a>	

Additional Limited Landcover

Click on "Printable Report" to View More Detailed Information for the Identified Area

Click on System Name to View Detailed Information in Ecological Systems Field Guide

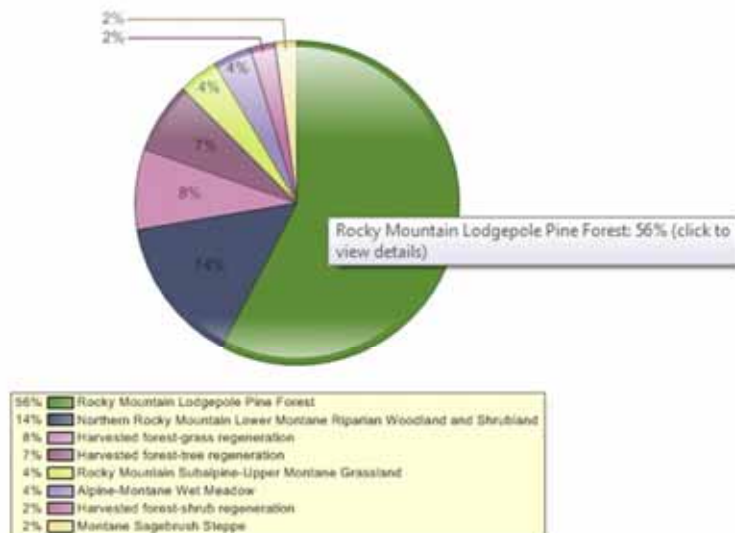




## Montana Ecological Systems - Landcover Report

Report generated 9/20/2010 2:39:38 PM

### Section 005N013W008



### Primary Composition of Landcover



**Forest and Woodland Systems**  
 Conifer-dominated forest and woodland (xeric-mesic)

56%

#### Rocky Mountain Lodgepole Pine Forest

This forested system is widespread in upper montane to subalpine zones of the Montana Rocky Mountains, and east into island ranges of north-central Montana and the Bighorn and Beartooth ranges of south-central Montana. These are montane to subalpine forests where the dominance of lodgepole pine (*Pinus contorta*) is related to fire history and topoedaphic conditions. In Montana, elevation ranges from 975 to 2,743 meters (3,200-9000 feet). These forests occur on flats to slopes of all degrees and aspect, as well as valley bottoms. Fire is frequent, and stand-replacing fires are common. Following stand-replacing fires, lodgepole pinewill rapidly colonize and develop into dense, even-aged stands. Most forests in this ecological system occur as early-to mid-successional forests persisting for 50-200 years on warmer, lower elevation forests, and 150-400 years in subalpine forests. They generally occur on dry to intermediate sites with a wide seasonal range of temperatures and long precipitation-free periods in summer. Snowfall is heavy and supplies the major source of soil water used for growth in early summer. Vigorous stands occur where the precipitation exceeds 533 millimeters (21 inches). These lodgepole forests are typically associated with rock types weathering to acidic substrates, such as granite and rhyolite. In west-central Montana ranges such the Big Belts and the Rocky Mountain Front, these forests are found on limestone substrates. These systems are especially well developed on the broad ridges and high valleys near and east of the Continental Divide. Succession proceeds at different rates, moving relatively quickly on low-elevation, mesic sites and particularly slowly in high-elevation forests such as those along the Continental Divide in Montana.

NHP Landcover - Windows Internet Explorer  
http://mtnhp.org/ecology/mapviewer/

NATURAL HERITAGE MAP VIEWER Scale 1:18,020  
mt.gov Field Guide Use Standard Controls Full Extent Feedback

Task Selection  
Which Toolset would you like?  
Landcover


Tools  
Landcover Type Distribution:  
Select Landcover Type  
 Show Landcover Highlight

Identify Landcover By:  
Section  
 Show Identify Boundaries  
Reset Map

Map Layers  
 Towns  
 Roads

Base Layer Fader Control  
Landcover Air Photos 2005

Search for Location











MT Landcover

Parts and Data

Section 005N013V

Printable Report  
 Show Selected Area Highlight

Primary Composition of Landcover

56%		<a href="#">Rocky Mountain Lodgepole Pine Forest</a>
14%		<a href="#">Northern Rocky Mountain Lower Montane Kribsian Woodland and Shrubland</a> <a href="#">View Full Description</a>
8%		<a href="#">Harvested forest-grass regeneration</a>
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4%		<a href="#">Alpine-Montane Wet Meadow</a>
2%		<a href="#">Montane Sagebrush Steppe</a>
2%		<a href="#">Harvested forest-shrub regeneration</a>

Additional Limited Landcover

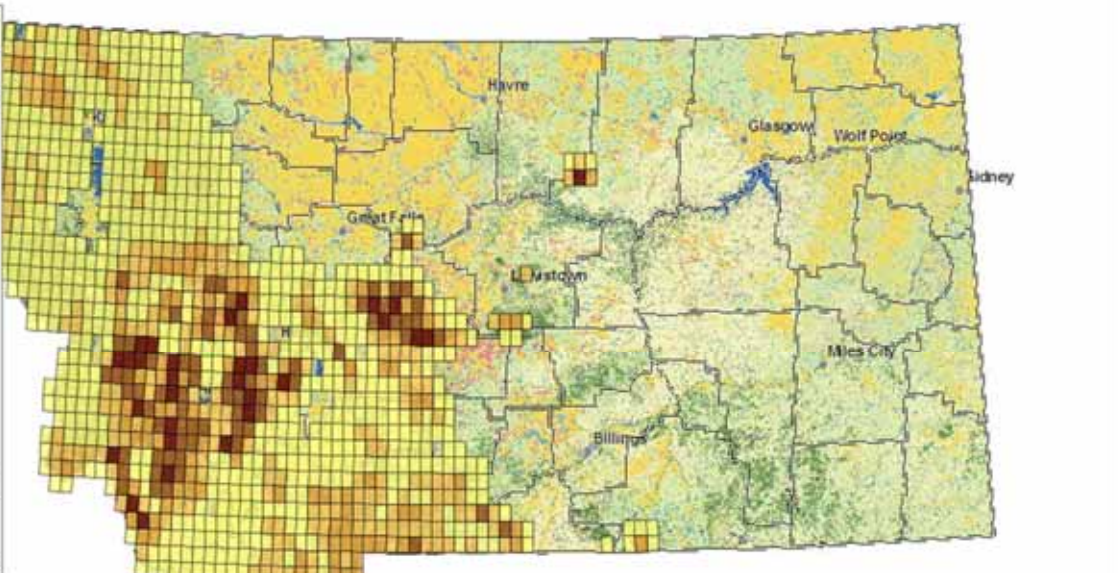


Task Selection  
 Which Toolset would you like?  
 Landcover


Landcover Type Distribution:  
 Select Landcover to Highlight

- Forest and Woodland Systems
  - Conifer-dominated forest and woodland (mesic-wet)
    - Rocky Mountain Mesic Montane Mixed Conifer Forest
    - Rocky Mountain Subalpine Mesic Spruce-Fir Forest and Woodland
  - Conifer-dominated forest and woodland (xeric-mesic)
    - Great Plains Ponderosa Pine Woodland and Savanna
    - Rocky Mountain Dry-Mesic Montane Mixed Conifer Forest
    - Rocky Mountain Foothill Limber Pine - Juniper Woodland
    - Rocky Mountain Foothill Woodland-Steppe Transition
    - Rocky Mountain Lodgepole Pine Forest
    - Rocky Mountain Montane Douglas-fir Forest and Woodland
    - Rocky Mountain Ponderosa Pine Woodland and Savanna
    - Rocky Mountain Poor Site Lodgepole Pine Forest
    - Rocky Mountain Subalpine Dry-Mesic Spruce-Fir Forest and Woodland

Clear Selection



**Charts and Data**



**Rocky Mountain Lodgepole Pine Forest**

This forested system is widespread in upper montane to subalpine zones of the Montana Rocky Mountains, and east into island ranges of north-central Montana and the Bighorn and Beartooth ranges of south-central Montana. These are montane to subalpine forests where the dominance of lodgepole pine (*Pinus contorta*) is related to fire history and topoedaphic conditions. In Montana, elevation ranges from 975 to 2,743 meters (3,200-9000 feet). These forests occur on flats to slopes of all degrees and aspect, as well as valley bottoms. Fire is frequent, and stand-replacing fires are common. Following stand-replacing fires, lodgepole pine will rapidly colonize and develop into dense, even-aged stands. Most forests in this ecological system occur as early- to mid-successional forests persisting for 50-200 years on warmer, lower elevation forests, and 150-400 years in subalpine forests. They generally occur on dry to intermediate sites with a wide seasonal range of temperatures and long precipitation-free periods in summer. Snowfall is heavy and supplies the major source of

# Viewing Land Management

**Task Selection**

Which Toolset would you like?  
Land Management

Reset Map

**Tools**

Show Land Man

Click to show Lan Legend

Summarize Lan

**Map Layer**

Search for

**Select Land Management to Highlight**

Select All | Clear Selection

- Public Lands**
  - US Forest Service
    - USFS Owned
    - Ranger Districts
    - National Forest Boundaries
    - Wilderness Area
    - Wilderness Study Area
    - Research Natural Area
    - Proposed Research Natural Area
    - Wild and Scenic River
    - National Recreation Area
    - Special Interest Area
    - Wildlife Management Area
  - US Bureau of Land Management
    - BLM Owned
    - Wilderness Area
    - Wilderness Study Area
    - National Monument
    - Area of Critical Environmental Concern
    - Wild and Scenic River
    - Outstanding Natural Area
    - Primitive Area
    - Wild Horse Range
  - National Park Service
    - National Park Service Owned
    - National Park

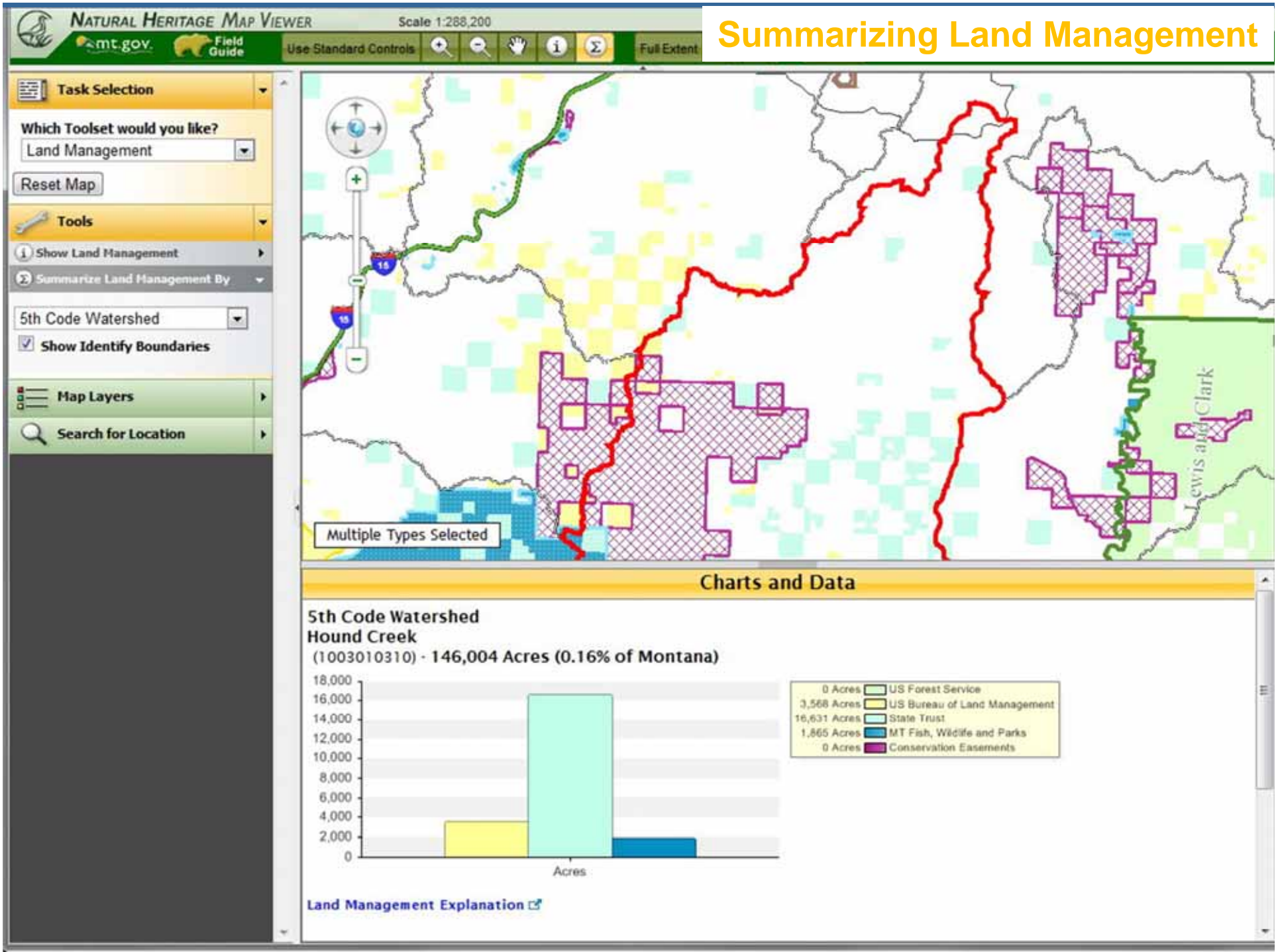
Select All Clear Selection

**Charts and Data**

I display here



# Summarizing Land Management



# Summarizing Land Management

NHP Land Management | mt.nhp.org/mapviewer3/

**NATURAL HERITAGE MAP VIEWER** Scale 1:288,200

mt.gov Field Guide Use Standard Controls Full Extent Feedback

**Task Selection**

Which Toolset would you like?  
Land Management

Reset Map

**Tools**

Show Land Management

Summarize Land Management By

5th Code Watershed

Show Identify Boundaries

**Map Layers**

Search for Location

---

**Charts and Data**

**5th Code Watershed**  
**Hound Creek**  
(1003010310) - 146,004 Acres (0.16% of Montana)

[Land Management Explanation](#)

[Expand All](#) | [Collapse All](#) | [Printable Report](#)

**Land Management Summary**

	Other Boundaries	Total Land
<b>Public Lands</b>		<b>22,064 Acres (15%)</b>
<ul style="list-style-type: none"> <li>US Forest Service                             <ul style="list-style-type: none"> <li>USFS Ranger Districts Helena - Helena: 2,036 Acres (1%)</li> <li>USFS National Forest Boundaries Helena National Forest: 2,036 Acres (1%)</li> </ul> </li> <li>US Bureau of Land Management US Bureau of Land Management: 3,568 Acres (2%)</li> <li>State Trust Montana State Trust Lands: 16,631 Acres (11%)</li> <li>MT Fish, Wildlife and Parks Montana Fish, Wildlife, and Parks: 1,865 Acres (1%)                             <ul style="list-style-type: none"> <li>MTFWP Wildlife Management Areas Beartooth Wildlife Management Area: 2,499 Acres (2%)</li> </ul> </li> <li>Conservation Easements Private: 31,003 Acres (21%)</li> </ul>		<b>Acres (&lt;1%)</b>
<b>Private Lands or Unknown Ownership</b>		<b>123,940 Acres (85%)</b>

Click on Printable Report for PDF of map and tabular summary





# MONTANA Natural Heritage Program

A program of the University of Montana and Natural Resource Information Systems, Montana State Library



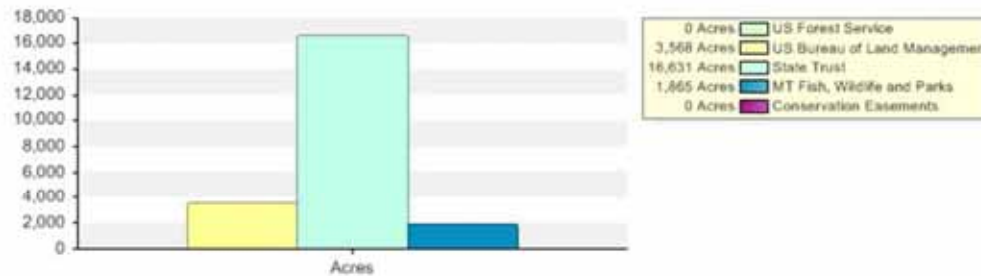
## Montana Land Management Summary

Report generated 12/10/2010 3:21:29 PM

### 5th Code Watershed

Hound Creek (1003010310) - 146,004 Acres (0.16% of Montana)

## Land Management Printable Report



### [Land Management Explanation](#)

#### Land Management Summary

[Expand All](#) | [Collapse All](#)

#### Public Lands

##### US Forest Service

###### USFS Ranger Districts

Helena - Helena

###### USFS National Forest Boundaries

Helena National Forest

##### US Bureau of Land Management

US Bureau of Land Management

##### State Trust

Montana State Trust Lands

##### MT Fish, Wildlife and Parks

Montana Fish, Wildlife, and Parks

###### MTFWP Wildlife Management Areas

Beartooth Wildlife Management Area

#### Conservation Easements

##### Private

Montana Land Reliance

#### Other Boundaries

#### Total Land

**22,064 Acres (15%)**

Acres (<1%)

2,036 Acres (1%)

2,036 Acres (1%)

2,036 Acres (1%)

2,036 Acres (1%)

3,568 Acres (2%)

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16,631 Acres (11%)

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2,499 Acres (2%)

2,499 Acres (2%)

Acres (<1%)

Acres (<1%)

31,003 Acres (21%)

#### Private Lands or Unknown Ownership

**123,940 Acres (85%)**

Citation for this report:

Montana Land Management Summary - 5th Code Watershed

Hound Creek (1003010310)

Natural Heritage Map Viewer. Montana Natural Heritage Program.

Retrieved on December 10, 2010, from <http://mtnhp.org/mapviewer3/LandManagementReport.aspx?v=6&d=1003010310>

**Task Selection**

Which Toolset would you like?  
Land Management

Reset Map

**Tools**

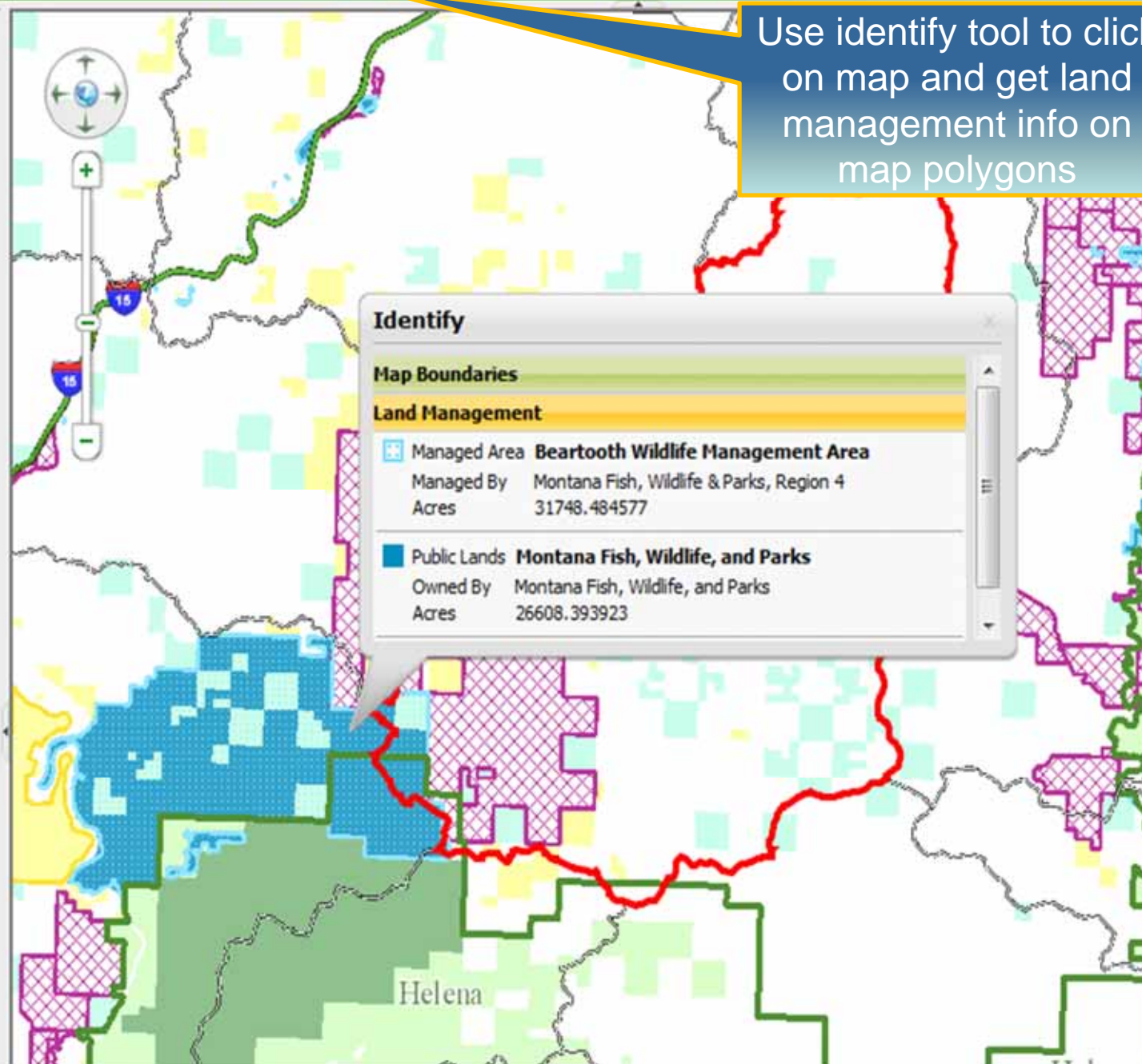
- Show Land Management
- Summarize Land Management By

5th Code Watershed

Show Identify Boundaries

**Map Layers**

Search for Location



Use identify tool to click on map and get land management info on map polygons



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**Pileated Woodpecker** *Dryocopus pileatus*  
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▲ **Report Filters**

[refresh reports](#)

[clear](#)

[Expand All](#) | [Collapse All](#)

[Geographic Locations](#)

[Plants](#)

[Species Rank / Status](#)

[View as PDF](#)

[Export to Excel \(version 2003+\)](#)

[Download Plant SOC Field Form](#)

## Plant Species of Concern

[\(switch to Animals report\)](#)

Species List Last Updated **09/16/2009**

**458** Species of Concern

**134** Potential Species of Concern

All Records (no filtering)

[Expand All](#) | [Collapse All](#)

- [Introduction](#)
- [Species of Concern](#)
- [Potential Species of Concern](#)
- [Additions To Statewide List](#)
- [Species Removed From Statewide List](#)

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Please send comments to: [mtnhp@mt.gov](mailto:mtnhp@mt.gov)

Montana Natural Heritage Program

PO Box 201800, 1515 East Sixth Avenue,

Helena, MT 59620-1800

Voioe: (406) 444-5354 Fax: (406) 444-0581



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# Wetland and Riparian Mapping Status

 Montana's Official State Website

 MONTANA NATURAL HERITAGE PROGRAM

Home | Animals | Plants | Ecology | Wetlands | Publications | Data | About

Google Custom Search

### Montana NWI Data

- Download Montana NWI Data from NRIS
- View and Download Montana NWI Maps
- View Montana Metadata

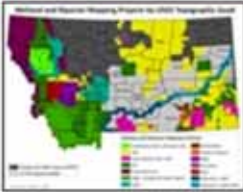
### USFWS NWI Data

- View and Download NWI Data with the Wetland Mapper
- Connect to NWI Web Map Services (WMS)
- View NWI Data in Google Earth

### NWI Mapping Standards

- FGDC Wetland Mapping Standard
- USFWS Western Riparian Mapping Standard

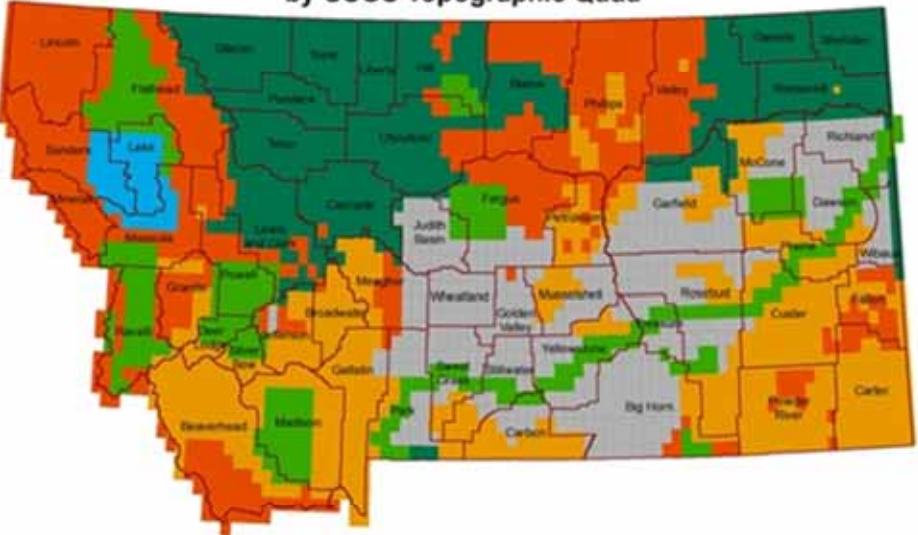
### Partners Map



## Current Status of Montana NWI Mapping

Click on the map below for a larger image to view current mapping status.

### National Wetland Inventory Wetland Mapping Status by USGS Topographic Quad



**NWI Wetland Mapping Status**

- Mapping in Progress (CSKT)
- NWI digitized from 1980s imagery and available from NWI
- No NWI Mapping Available
- Completed from 2005 imagery and available from NWI
- Mapping completed from 2005 imagery (provisional)
- Mapping in Progress

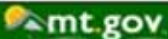
Last Updated: December 27, 2010

### Montana NWI Mapping Progress

992 USGS 24K Quads Mapped to Date for a Total of 1,258,361 Acres  
Wetlands: 942,359 Acres Mapped      Riparian: 316,002 Acres Mapped

Mapping Progress Documentation

Privacy & Security | Accessibility | Contact Us | Search





## GIS Data Downloads of NWI Approved Wetland Data

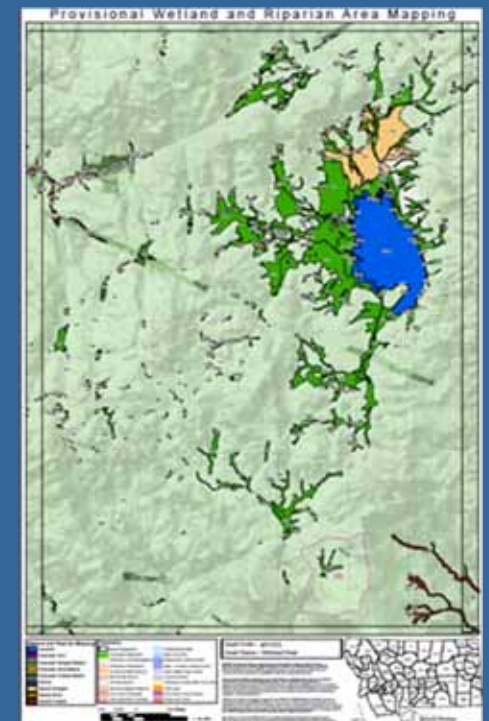
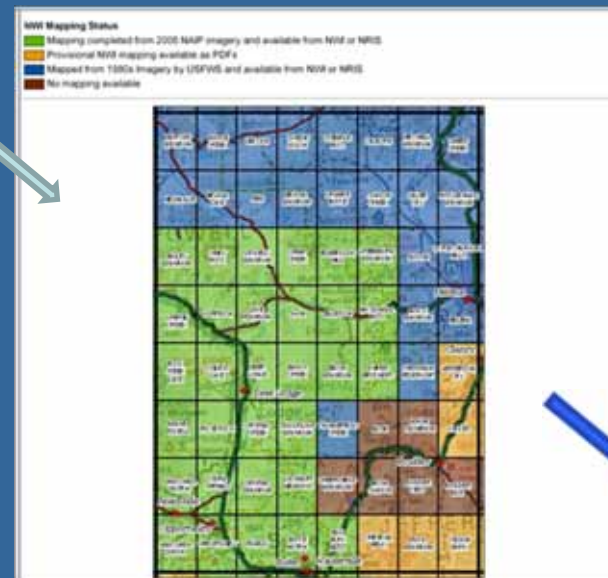
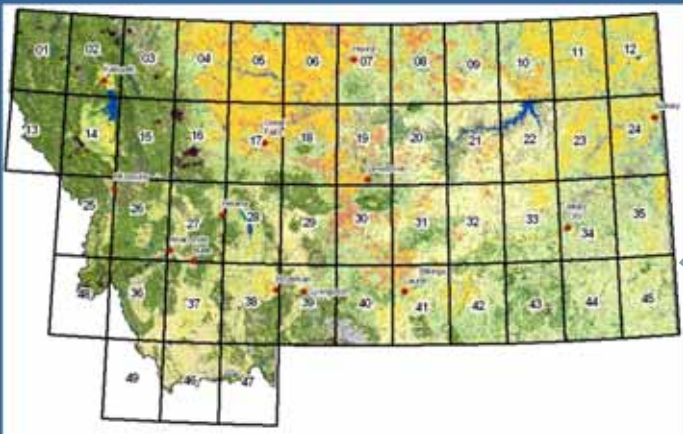
[http://mtnhp.org/nwi/nwi\\_data.asp](http://mtnhp.org/nwi/nwi_data.asp)

\* See links in box on upper left

## PDF Downloads of All Wetland Data (NWI Approved and Provisional)

[http://mtnhp.org/nwi/nwi\\_data.asp](http://mtnhp.org/nwi/nwi_data.asp)

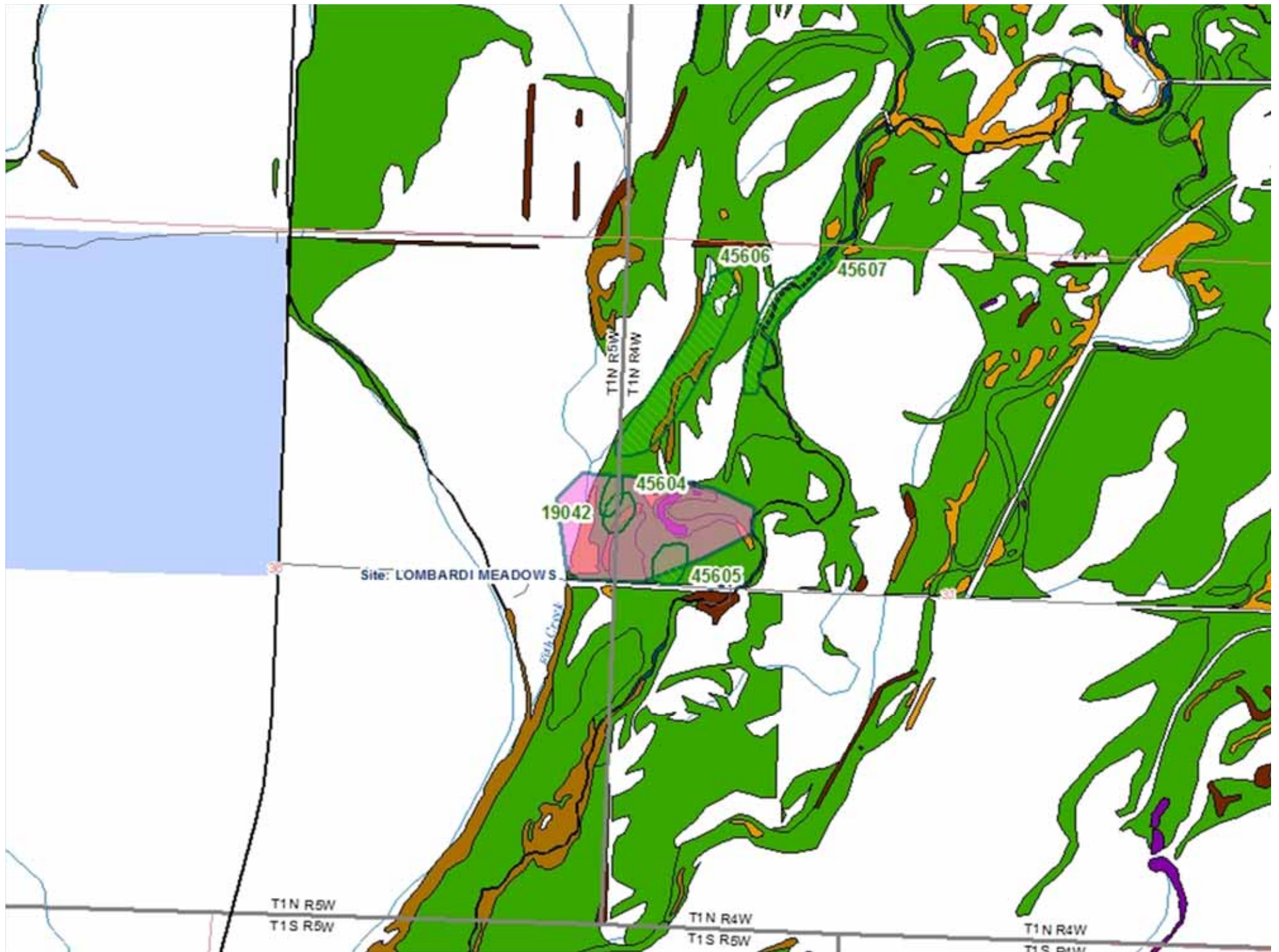
\* Click on area of interest



# Species of Concern Reviews for Environmental Assessments

- We conduct 4-5 per business day
- New: Updated Maps and Reports
- New: Inclusion of Wetlands Mapping
- Submit requests at:  
<http://nris.mt.gov/reqapp/userMain.asp>





# Accessing GIS Data

- All Requests are Confidential
- Data Acknowledgement Agreement Required
- Submit requests at: <http://nris.mt.gov/reqapp/userMain.asp>

## Data at the Natural Resource Information System

### Montana Geographic Information Clearinghouse

Welcome to the most comprehensive collection of geospatial data for Montana. NRIS contributes data to national efforts such as GeoSpatial One Stop and the National Map. We actively support GIS coordination in our state and work hard to provide value-added products and services to a diverse community of users.

#### Resource List

- [The Montana Place Names Companion](#)
- [Montana GIS Portal](#)
- [State of Montana GIS Coordination](#)
- [Montana Land Information Advisory Council \(MLIAC\)](#)
- [Montana Association of Geographic Information Professionals \(MAGIP\)](#)
- [GeoSpatial One Stop \(GeoData.gov\)](#)
- [GIS Data Hotlist](#)

#### Downloadable GIS Data

- [Montana Framework \(MSDI\) Layers](#)
- [Aerial Photographs](#)
- [Topographic Maps](#)
- [NRCS Soils Data](#)
- [NRCS REAP Data](#)
- [Digital Elevation Models](#)
- [Cadastral data](#)
- [Land Ownership Maps](#)
- [Satellite Imagery](#)

#### GIS Data List

Our old list of data you may download from us. All this data and more is available through the [Montana GIS Portal](#)

#### GIS Data Bundler

Choose multiple layers and have them clipped to a geographic area or buffer.

#### Web Services for GIS Applications

#### Montana Maps

Downloadable statewide, county, watershed, or regional map images in GIF or PDF format.

#### Applications

##### Montana Digital Atlas

Make maps and reports about individual data sets for areas you specify.

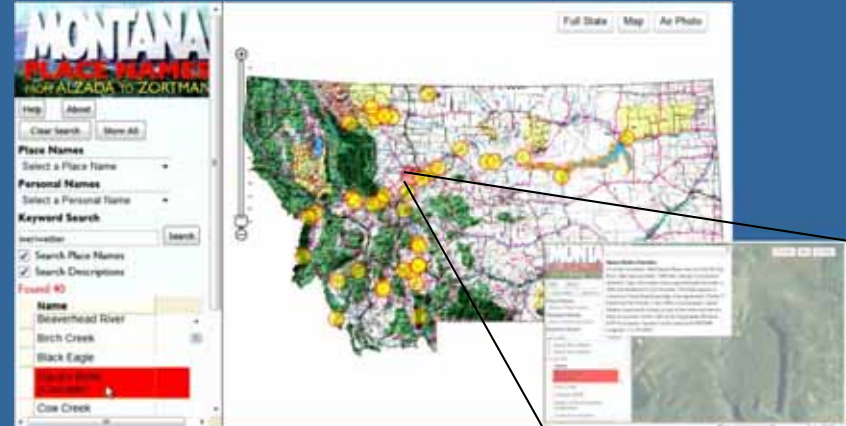
##### Topofinder II

Browse USGS topographic maps and aerial photos or zoom to any named place, coordinate, or USGS map.

##### Topofinder I

Browse USGS topographic maps and aerial photos or zoom to any named place, coordinate, or USGS map.

[More interactive applications...](#)



<http://nris.mt.gov/gis/> [ation or data NRIS](#)



Announcements

**NEW! Natural Heritage Program Webinars!**

# Upcoming Webinars



- 📅 **Title: Overview of MT Natural Heritage Program Data Resources**  
Date: Tuesday January 25, 1-2 p.m.  
Instructor: Bryce Maxell, [bmaxell@mt.gov](mailto:bmaxell@mt.gov)  
Participant Limit: **None**
  
- 📅 **Title: Wetland Data Resources**  
Date: Tuesday February 15, 1-2 p.m.  
Instructor: Linda Vance, [livance@mt.gov](mailto:livance@mt.gov)  
Participant Limit: **None**
  
- 📅 **Title: Introduction to the New Natural Heritage MapViewer for landcover and land management information**  
Date: Tuesday February 22, 1-2 p.m.  
Instructor: Allan Cox, [acox@mt.gov](mailto:acox@mt.gov)  
Participant Limit: **25**
  
- 📅 **Title: Using the Natural Heritage Tracker to access animal and plant data, and to enter animal observations**  
Date: Wednesday March 2, 1-2 p.m.  
Instructor: Allan Cox, [acox@mt.gov](mailto:acox@mt.gov)  
Participant Limit: **25**
  
- 📅 **Title: Using the Natural Heritage Tracker to access animal and plant data, and to enter animal observations**  
Date: Thursday March 3, 1-2 p.m.  
Instructor: Allan Cox, [acox@mt.gov](mailto:acox@mt.gov)  
Participant Limit: **25** and **\*\* Please note: This session is available only to state and federal agencies.**