

Improving Efficiency and Effectiveness of Accessing Montana Natural Heritage Program Information

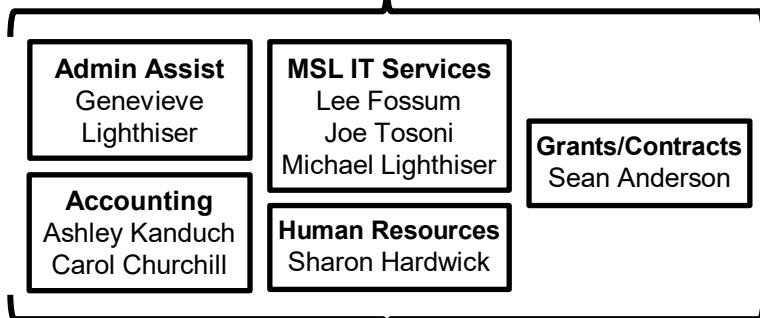
Bryce Maxell, Program Coordinator bmaxell@mt.gov



Montana Natural Heritage Program Organization Chart



MSL HR, IT, Business, Administrative Support

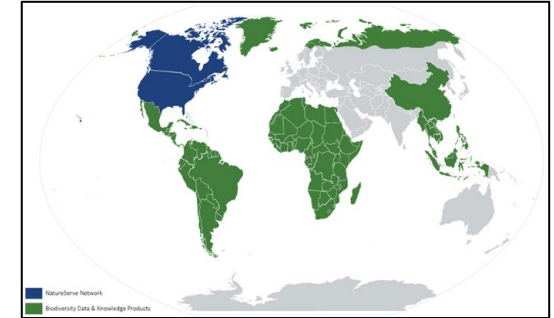


Montana State Library Commission

Jennie Stapp
State Librarian

Evan Hammer
Digital Info Administrator

Bryce Maxell
Program Coordinator



Contracted Services

Land Cover
UM Spatial Analysis Lab



Wetland Mapping
UM O'Connor Center RMW



Avian Specialist
MT Audubon Bo Crees



Botany Species Modeling
Scott Mincemoyer

Information Services Program

Braden Burkholder
Data Systems & Sciences Lead

Dave Ratz
Web Projects Manager

Scott Blum
Biologist / Info Specialist

Kyle Kaskie
Biological Data Scientist

Sherry Berrin
Biological Data Assistant

Zoology Program

Dan Bachen
Senior Zoologist

Alexis McEwan
Asst Zoologist / Bat Acoustic Data Analyst

Empty
Invertebrate Zoologist

Botany Program

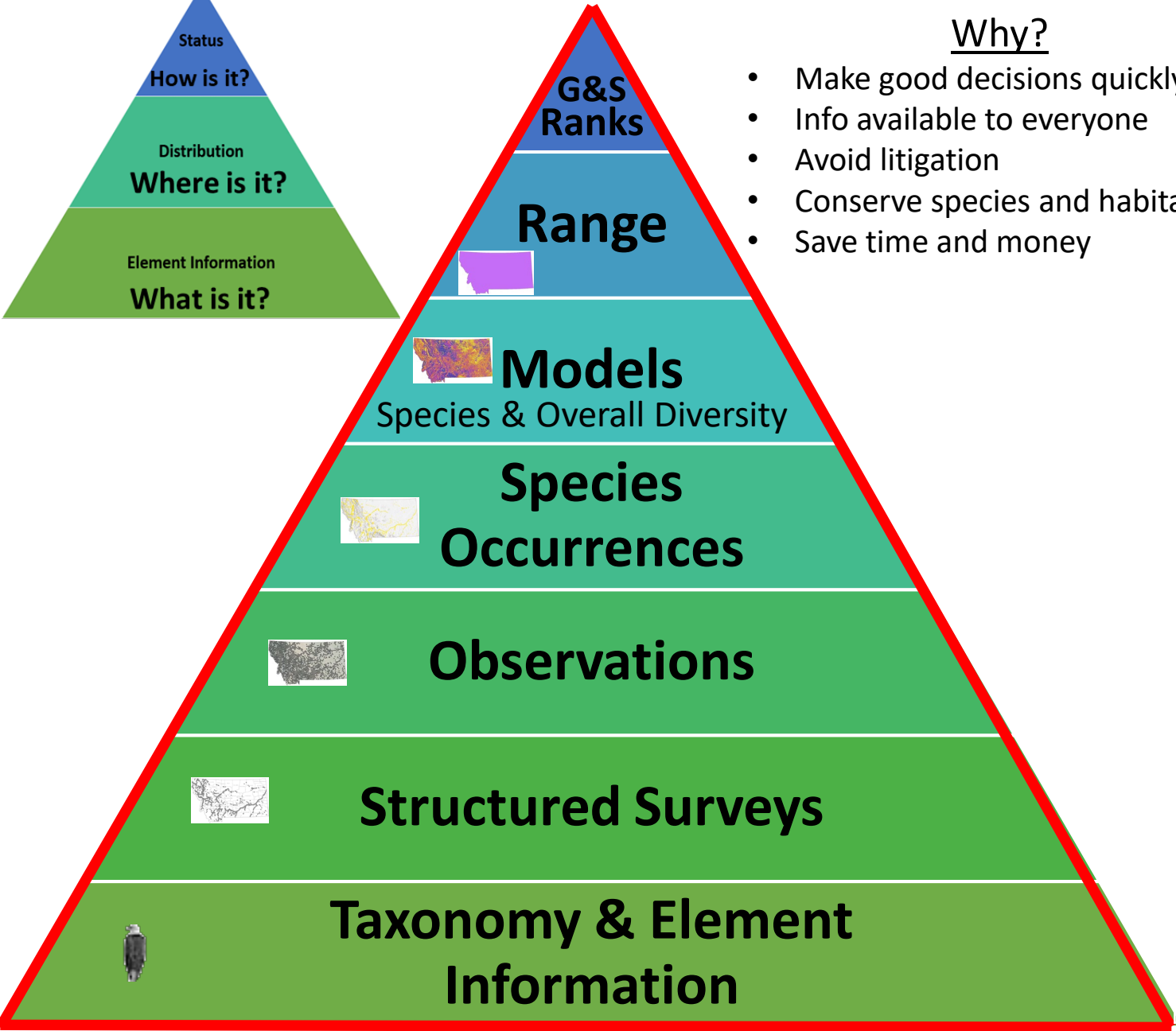
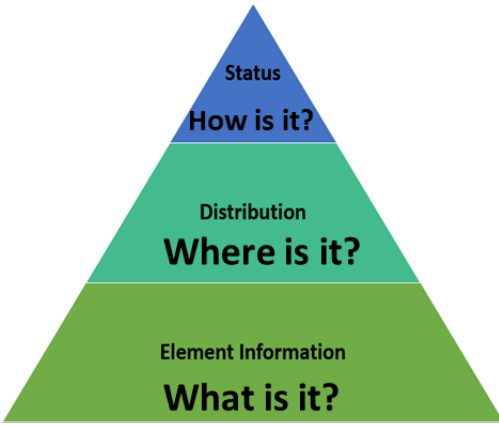
Andrea Pipp
Program Botanist

Kenda Herman
Botany Data Assistant

Ecology Program

Empty
Vegetation Ecologist

Our Data Framework



Why?

- Make good decisions quickly
- Info available to everyone
- Avoid litigation
- Conserve species and habitats
- Save time and money

**Number Now
(% Change)**

4,840 (+1.5%)

2,822 (+8%)

1,061 (+27%)

81,256 (+10%)

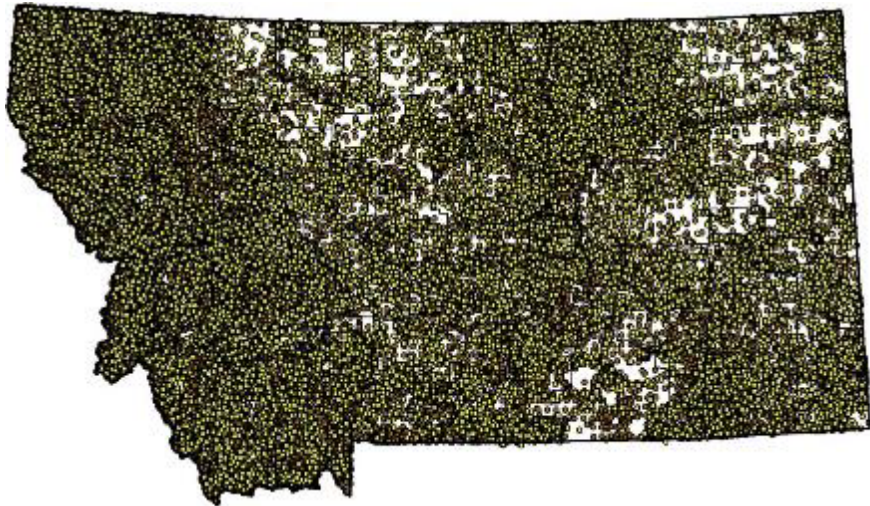
4,563,253 (+21%)

460,680 (+10%)

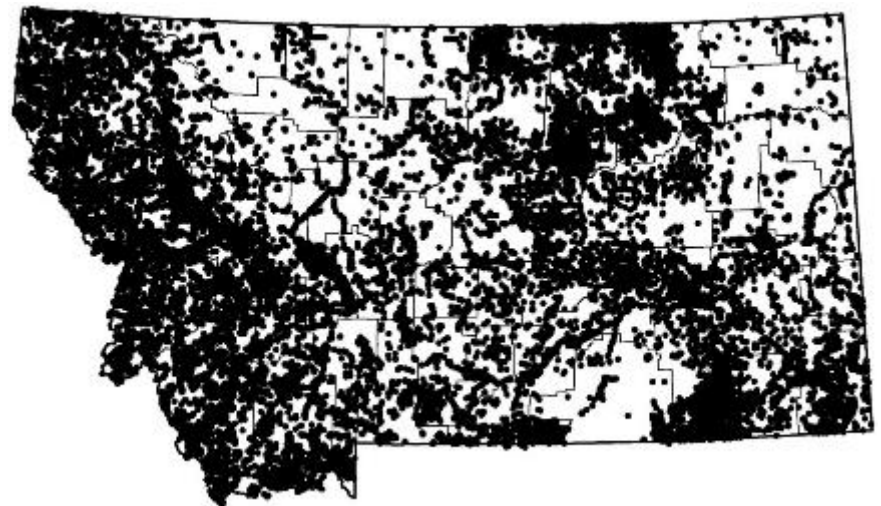
15,675 (+27%)

Distribution of 15,675 Species

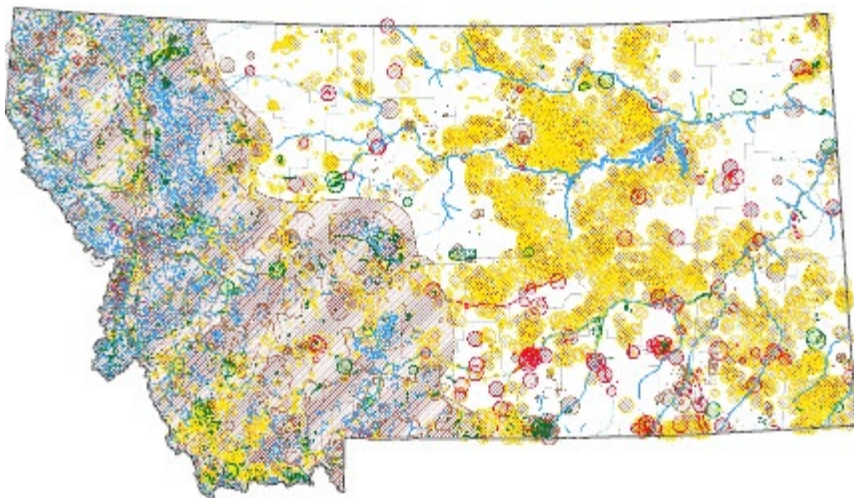
~4.5 Million Observations



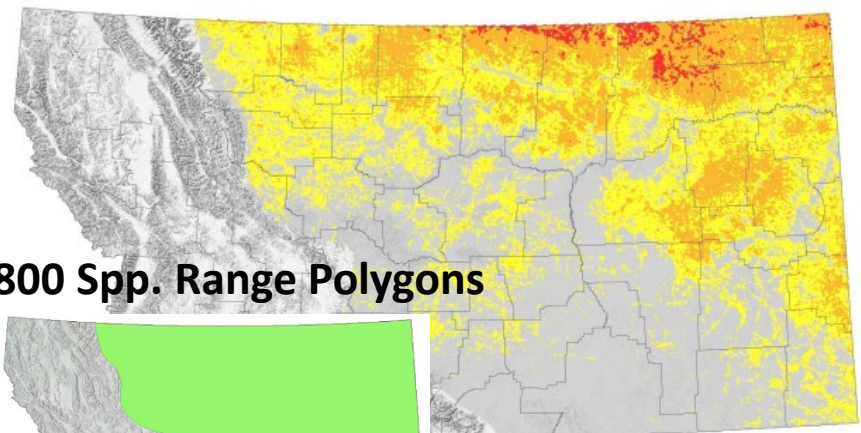
~460,000 Surveys



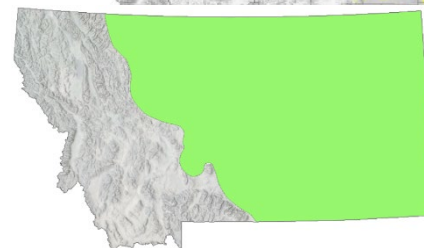
~81,000 Species of Concern Occurrences



~1,100 Species Modeled

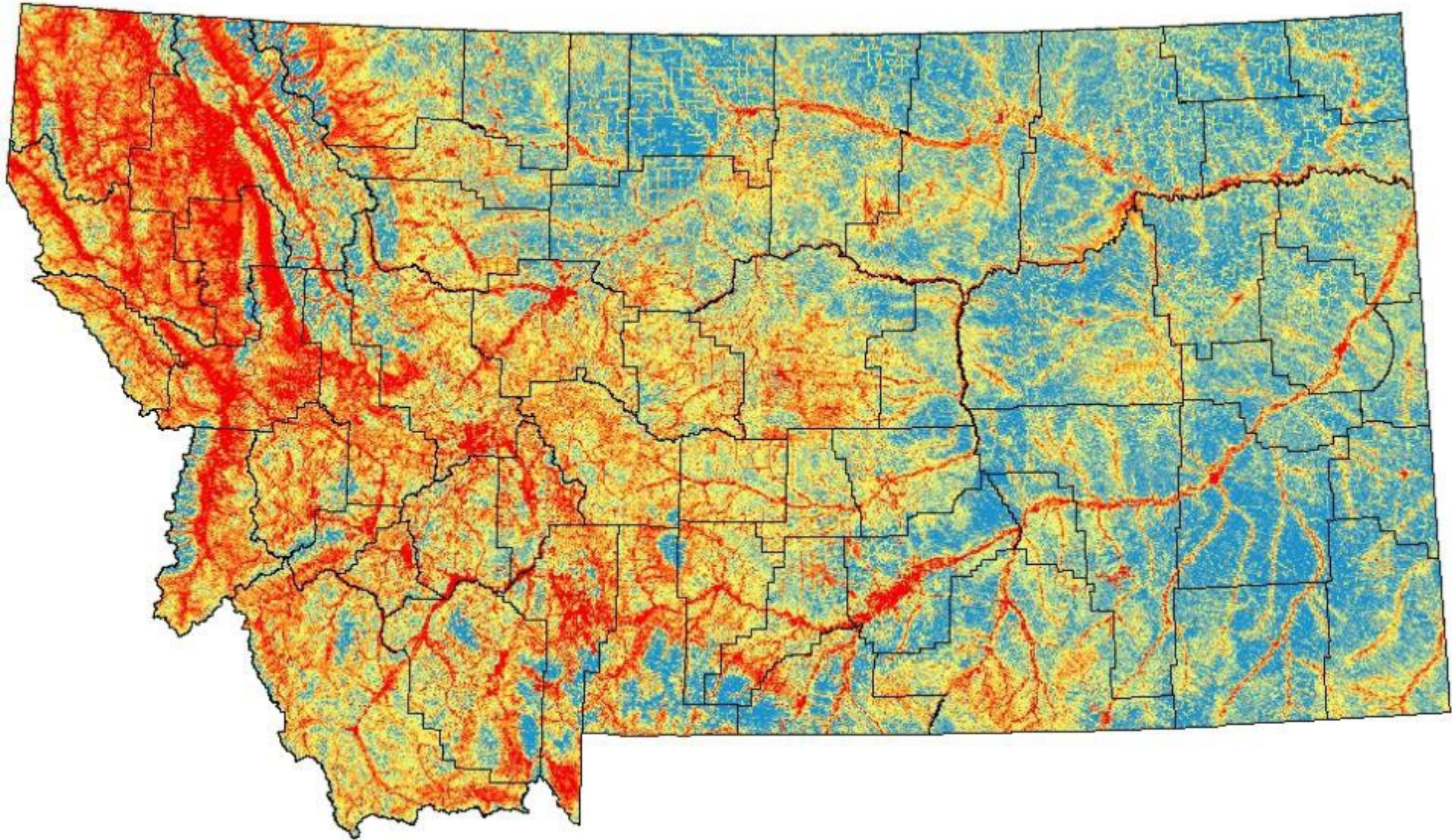


~2,800 Spp. Range Polygons



Optimal Suitability
Moderate Suitability
Low Suitability
Unsuitable

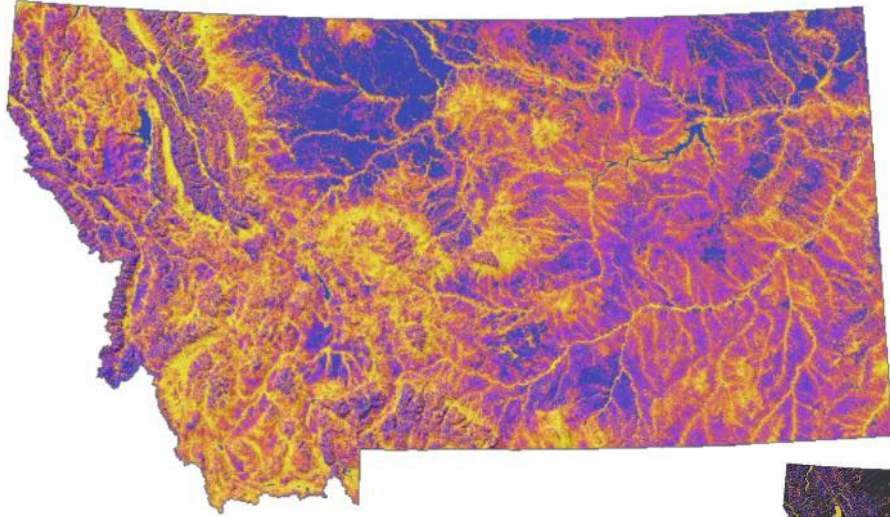
Cumulative Statewide Risk of Invasion by 41 Modeled State-listed Noxious Weeds



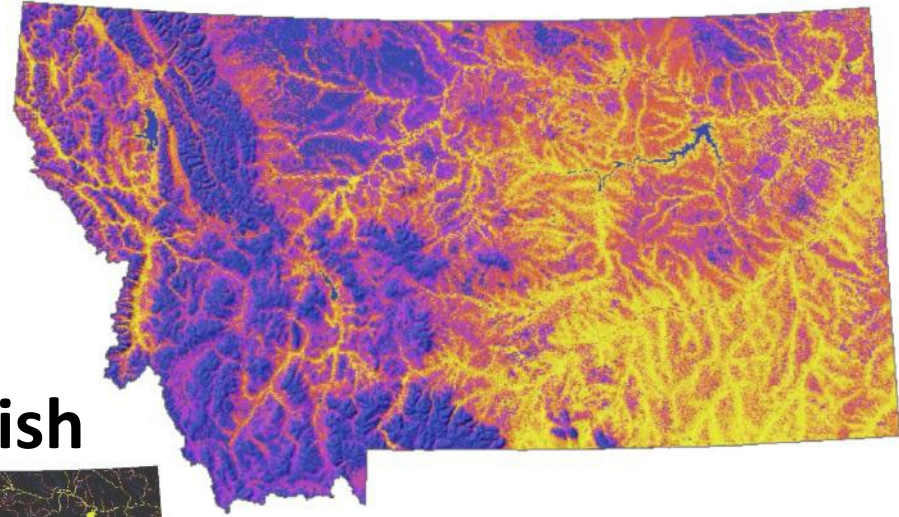
* Statewide categorical 90 x 90-meter pixel outputs for individual species' models were scored as (Optimal = 1, Moderate = 0.75, Low = 0.25, unsuitable = 0), added across all species, binned into 10 equal quantiles, and displayed with hotter to cooler colors representing higher to lower cumulative risk of invasion.

Predicted Habitat Suitability for Biodiversity

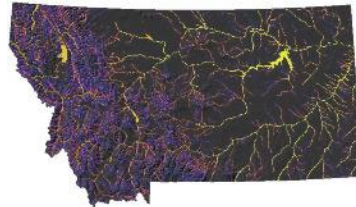
Mammals (N = 102)



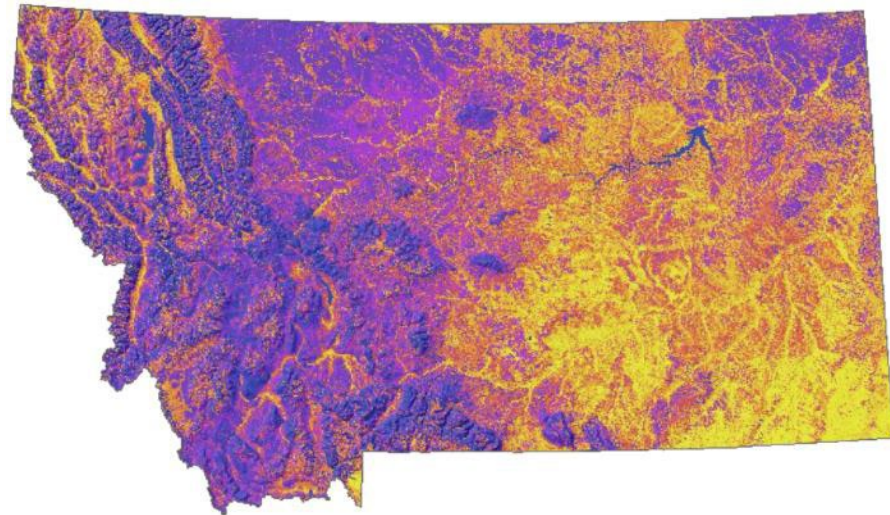
Reptiles (N = 16)



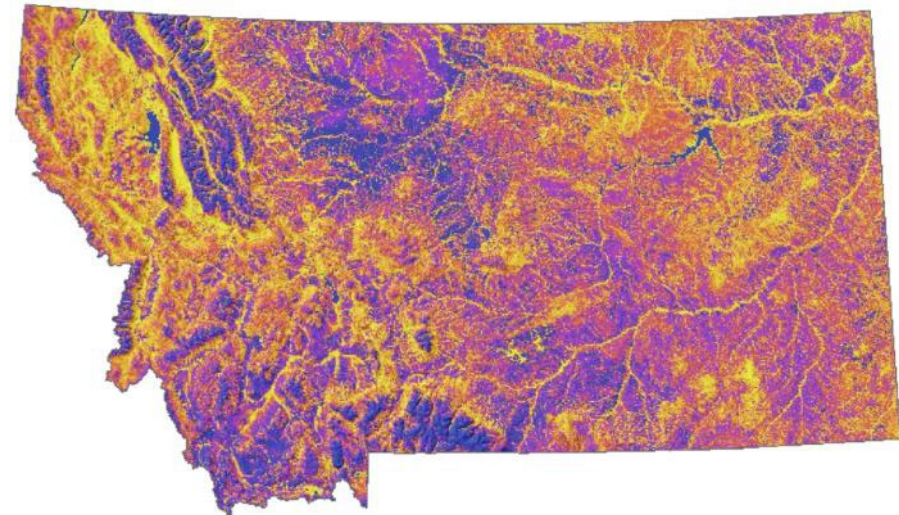
Fish



Amphibians (N = 13)



Birds (N = 274)

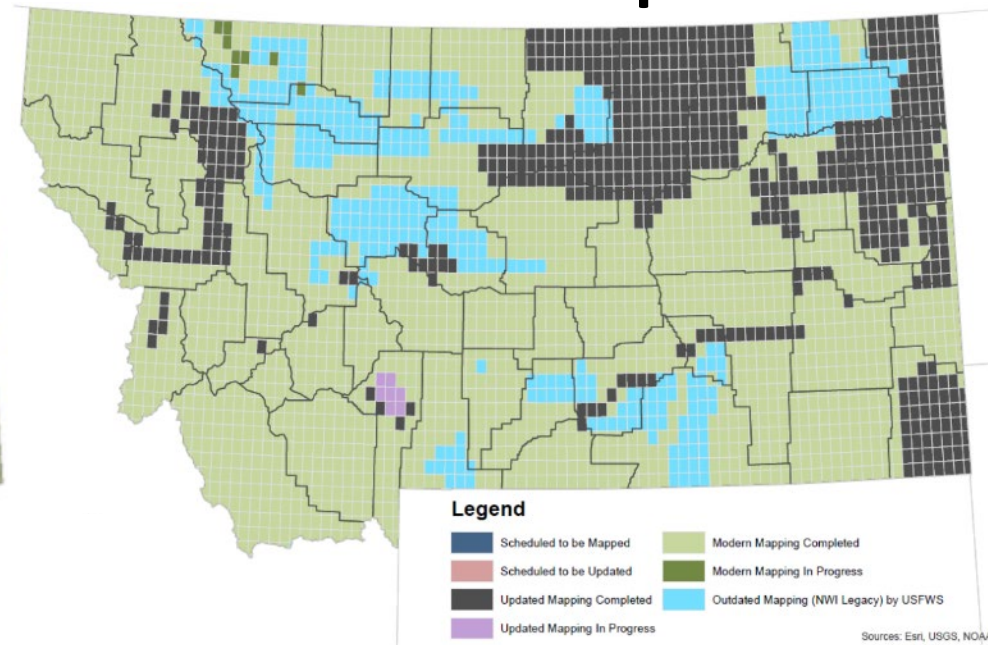


Distribution of Habitats

Land Cover



Wetland & Riparian



* Spatial Data Infrastructure Homepage

https://msl.mt.gov/geoinfo/msdi/land_use_land_cover/

- Story Map
- Downloads and Web Service
- Ecological Site Reviewer
- Land Cover Validation Tool Kit
- Moving toward NVC in 2023

* 3.2 million + acres mapped

* 87% of state is mapped

* 385 quads still to map

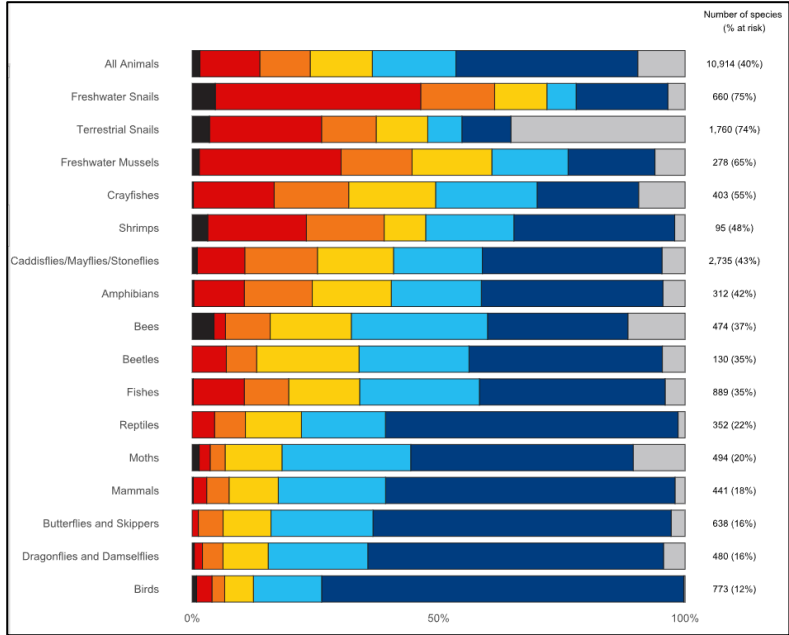
<https://storymaps.arcgis.com/stories/77e6bf223649419c95c596cbc2da9529>

Conservation Status Ranks



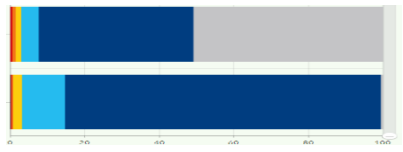
Rank		Definition
G1	S1	At high risk because of extremely limited and/or rapidly declining population numbers, range and/or habitat, making it highly vulnerable to global extinction or extirpation in the state.
G2	S2	At risk because of very limited and/or potentially declining population numbers, range and/or habitat, making it vulnerable to global extinction or extirpation in the state.
G3	S3	Potentially at risk because of limited and/or declining numbers, range and/or habitat, even though it may be abundant in some areas.
G4	S4	Apparently secure, though it may be quite rare in parts of its range, and/or suspected to be declining.
G5	S5	Common, widespread, and abundant (although it may be rare in parts of its range). Not vulnerable in most of its range.
GX	SX	Presumed Extinct or Extirpated - Species is believed to be extinct throughout its range or extirpated in Montana. Not located despite intensive searches of historical sites and other appropriate habitat, and small likelihood that it will ever be rediscovered.
GH	SH	Historical, known only from records usually 40 or more years old; may be rediscovered.
GNR	SNR	Not Ranked as of yet.
GU	SU	Unrankable - Species currently unrankable due to lack of information or due to substantially conflicting information about status or trends.
GNA	SNA	A conservation status rank is not applicable because the species or ecosystem is not a suitable target for conservation activities as a result of being: 1) not confidently present in the state; 2) non-native or introduced; 3) a long distance migrant with accidental or irregular stopovers; or 4) a hybrid without conservation value.

Global Ranks for U.S. Animals

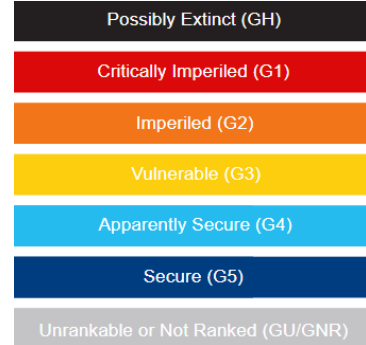


State Ranks for MT Animals

Invertebrates

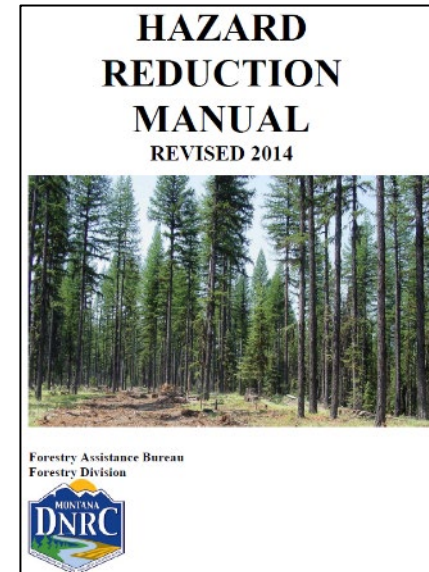
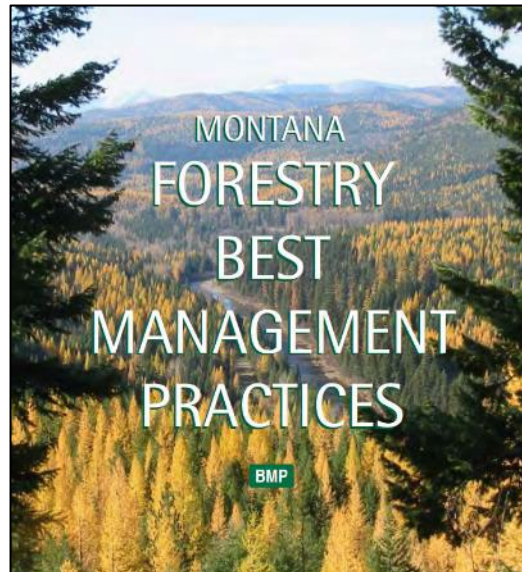
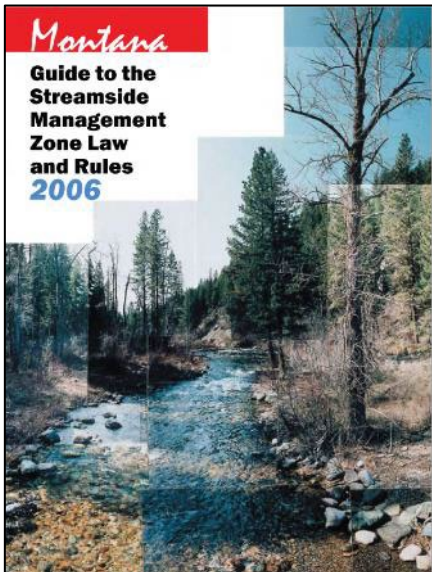


Vertebrates

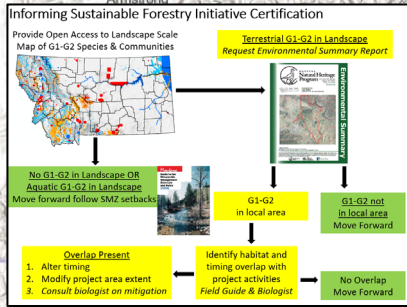


Need Three Main Products to Facilitate SFI Certification and Navigate Environmental Reviews

1. **Spatial Tool for Mills for Sourcing**
2. **Brochure for Mills and Landowners on How to Request information from MTNHP**
3. **Brochure for Landowners on Individual G1-G2 Species and Habitats and Their Management**



G1-G2 Species Location Tool to Support Timber Sourcing that Meets Sustainable Forestry Initiative Certification Requirements



184 G1G2 species in MT

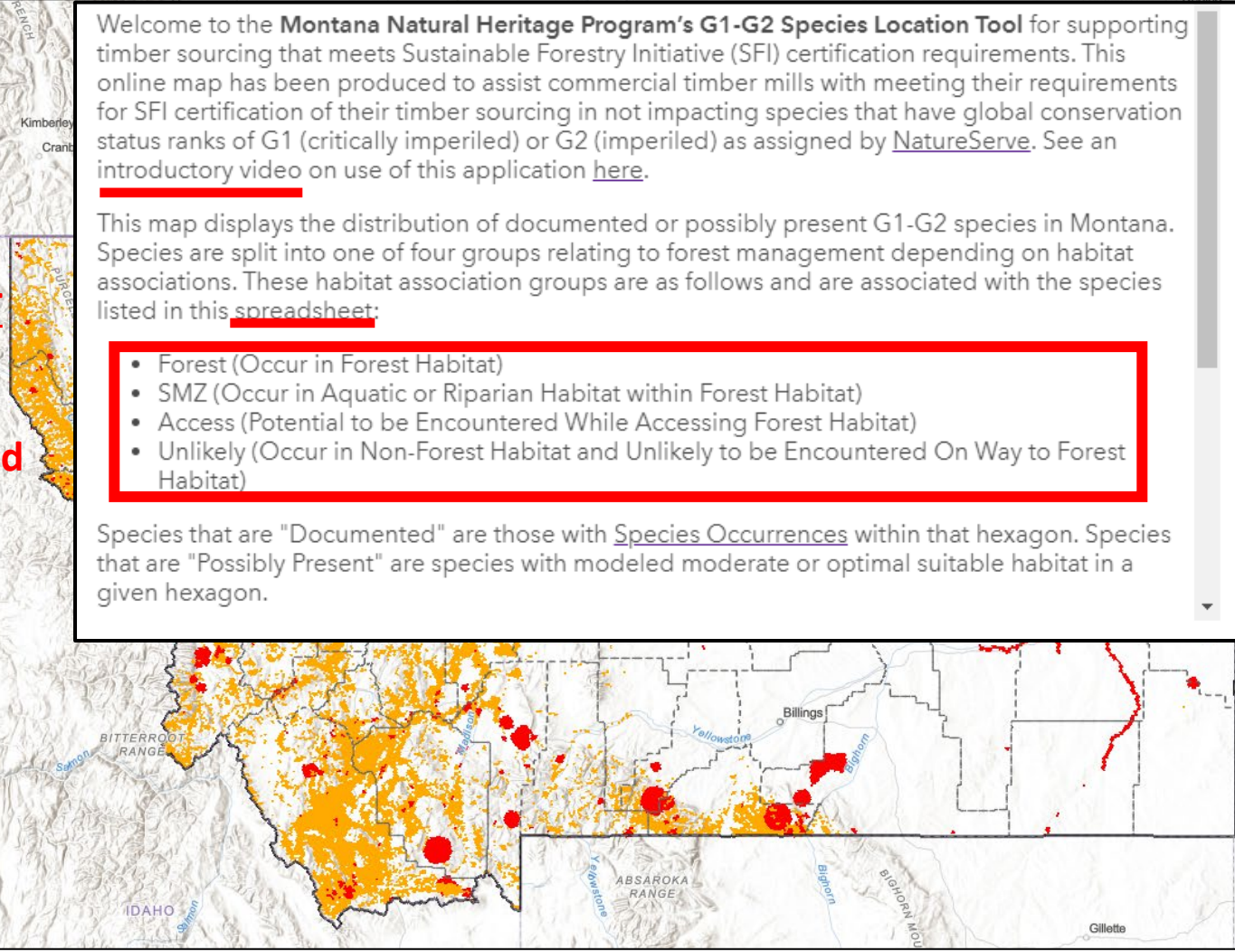
- Forest: Documented **16 species**
- Forest: Possible **4 widespread**
- SMZ: Documented **25 species**
- SMZ: Possible
- Access: Documented **16 species**
- Access: Possible
- Unlikely: Documented **44 species**
- Unlikely: Possible

Welcome to the **Montana Natural Heritage Program's G1-G2 Species Location Tool** for supporting timber sourcing that meets Sustainable Forestry Initiative (SFI) certification requirements. This online map has been produced to assist commercial timber mills with meeting their requirements for SFI certification of their timber sourcing in not impacting species that have global conservation status ranks of G1 (critically imperiled) or G2 (imperiled) as assigned by [NatureServe](#). See an introductory video on use of this application [here](#).

This map displays the distribution of documented or possibly present G1-G2 species in Montana. Species are split into one of four groups relating to forest management depending on habitat associations. These habitat association groups are as follows and are associated with the species listed in this [spreadsheet](#):

- Forest (Occur in Forest Habitat)
- SMZ (Occur in Aquatic or Riparian Habitat within Forest Habitat)
- Access (Potential to be Encountered While Accessing Forest Habitat)
- Unlikely (Occur in Non-Forest Habitat and Unlikely to be Encountered On Way to Forest Habitat)

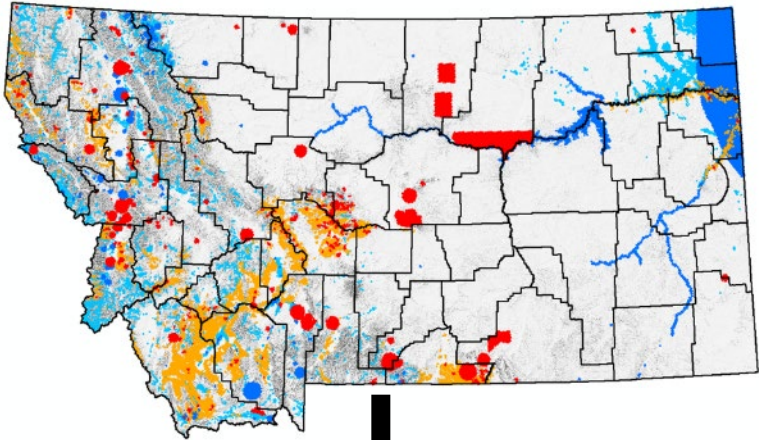
Species that are "Documented" are those with [Species Occurrences](#) within that hexagon. Species that are "Possibly Present" are species with modeled moderate or optimal suitable habitat in a given hexagon.



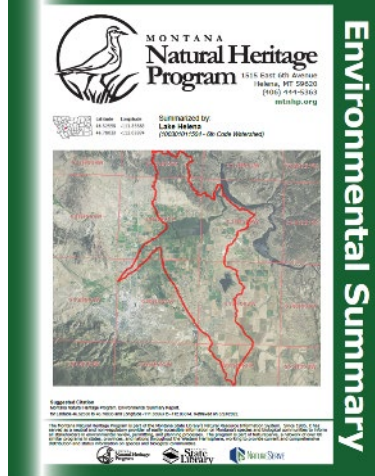
Can we make a training video, brochure, ArcGIS Online application or dashboard to make your process more efficient and effective?

Informing Sustainable Forestry Initiative Certification

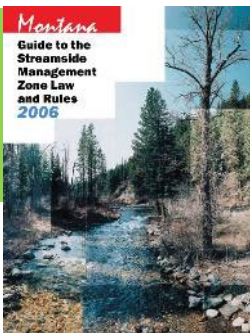
Provide Open Access to Landscape Scale Map of G1-G2 Species & Communities



Terrestrial G1-G2 in Landscape
Request Environmental Summary Report



No G1-G2 in Landscape OR Aquatic G1-G2 in Landscape
Move forward follow SMZ setbacks



G1-G2 in local area

G1-G2 not in local area
Move Forward

Overlap Present

1. Alter timing
2. Modify project area extent
3. Consult biologist on mitigation

Identify habitat and timing overlap with project activities
Field Guide & Biologist

No Overlap
Move Forward



Requesting an Environmental Summary Report or Geodatabase <https://mtnhp.org>

The screenshot shows the top navigation bar of the Montana Natural Heritage Program website. The 'mt.gov' logo is on the left. The main navigation menu includes 'Home', 'Animals', 'Plants', 'Ecology', 'Wetlands', 'Publications', 'Data', 'About', and 'Quick Data'. The 'Data' link is highlighted with a red box. Below the navigation bar, there are sections for 'Announcements' (New Ecology journal articles by MTNHP staff), 'Montana Natural Species Snapshot', and a 'Submit Request' button, which is also highlighted with a red box. A search bar is located on the right side of the navigation bar.

The screenshot shows the 'Request Tracker' interface. At the top, there are logos for the Montana Natural Resource Information System, the Montana Natural Heritage Program, and the Montana Water Information System. The title 'Request Tracker' is prominently displayed in the center. Below the title, there is a navigation bar with five links: 'Main Menu', 'Current Requests', 'New Request', 'User Profile', and 'Login'. The 'New Request' and 'User Profile' links are highlighted with red boxes.

1. Go to Data and Submit Request
2. Set up User Profile
3. Login and File New Request
4. Request an Environmental Summary Report or Single Species Overview and specify location of interest

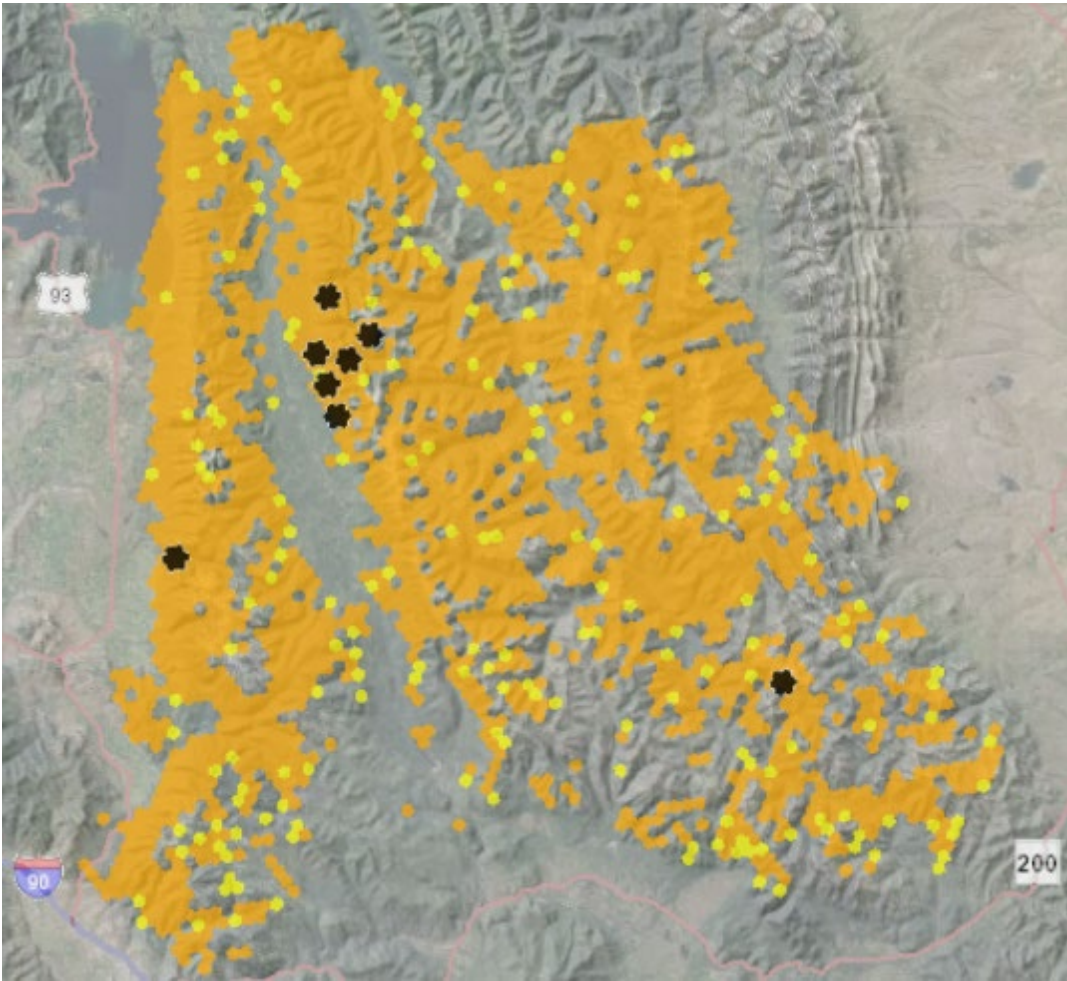
The screenshot shows the 'New Request' form. The form is enclosed in a red border. It contains the following fields and options:

- Requester:** Bryce Maxell
- Request Title:** [Empty text box]
- For:** Heritage (If the request is on others' behalf, choose a different affiliation to match).
Choose an affiliation... [Dropdown menu]
- Intended use:** Select an intended use... [Dropdown menu]
- Date Needed By:** (not set) [Calendar icon]
- Description:** (Please be as specific as possible) [Large text area]
- Location:** (Please be as specific as possible - include coordinates, boundaries, placenames, watershed, county, legal description, USGS quad, river or highway corridor, etc.) [Large text area]
- Submit Request** [Button]

Carinate Mountain Snail (*Oreohelix elrodi*)



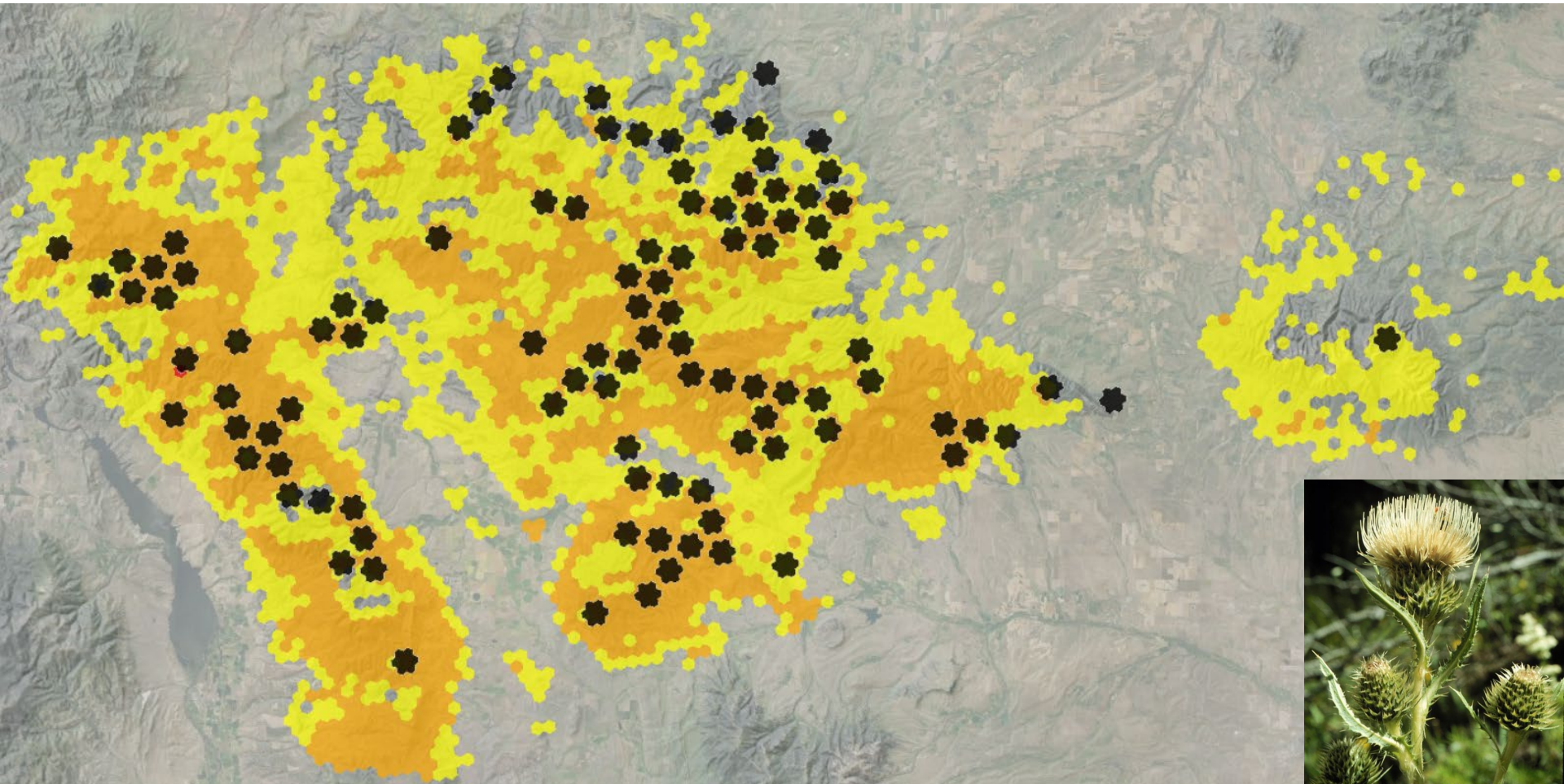
Described originally as exposed limestone talus below tree line, but examination of the rock at four of five sites revealed they are predominantly argillite, sometimes with diorite or minor amounts of limestone. Occupied sub-alpine talus sites may lack forest canopy altogether or occur under an open mixed conifer canopy including Douglas-fir, western larch, ponderosa pine, western redcedar (near streams), with aspen, paper birch and mock orange scattered along the margins of talus slopes. The exception is an expanse of limestone well above tree line on the Scapegoat Plateau. Live animals present mostly within the talus under or on rocks, or in accumulations of duff within the talus (Hendricks 1998, 2012; Hendricks et al. 2008).



Long-styled Thistle (*Cirsium longistylum*)



C. longistylum occurs in a variety of open habitats that receive full to partial sun. The best habitats for the species occur in montane to subalpine meadows. Occurrences are also common along roadsides, herbaceous-dominated riparian areas and open forests of Douglas-fir, lodgepole pine or whitebark pine. Plants occur as low 4800 feet elevation up to approximately 8100 feet with the majority of the occurrences between approximately 6000 and 7500 feet. Known occurrences of *C. longistylum* are predominantly on calcareous soils derived from dolomites, limestones or shales.



Questions?

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