

Proceedings
Sixth Montana Plant Conservation Conference

February 9 and 10, 2010 • University of Montana, Missoula



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The Sixth Montana Plant Conservation Conference will be devoted to acquiring new tools for protecting natural resources and managing threats to biological diversity. The morning of the first day will be an introduction to three on-line plant database resources followed by hands-on instructional workshops (be sure to bring your laptop with wireless card if you have one). That afternoon there will be a symposium on the pros and cons of using herbicide to manage weeds in wildlands followed by a panel/audience discussion. The second day of the conference will consist of two workshops. Botanists and resource managers will review the Montana Natural Heritage Program Species of Concern (SOC) list, providing new information on distribution and threats and suggestions for rank changes. That afternoon will be a meeting of the Important Plant Areas (IPA) Committee and others who wish to attend will work to develop vegetation-based IPA criteria and evaluate at least one IPA nomination.



The mission of the Montana Native Plant Society is to preserve, conserve, and study the native plants and plant communities of Montana, and to educate the public about the value of our native flora.



The Mission of the Montana Natural Heritage Program is to be Montana's source for reliable, objective information and expertise to support stewardship of our native species and habitats, emphasizing those of conservation concern.



Helping People Help the Land. The Natural Resources Conservation Service provides leadership in a partnership effort to help people conserve, maintain, and improve our natural resources and environment.



The University of Montana-Missoula pursues academic excellence as indicated by the quality of curriculum and instruction, student performance, and faculty professional accomplishments. The University accomplishes this mission, in part, by providing unique educational experiences through the integration of the liberal arts, graduate study, and professional training with international and interdisciplinary emphases.

Cover Illustration of *Mertensia ciliata* by Rich Adams.

Schedule

Tuesday, February 9

8:30-9:30 Registration

Montana On-line Databases for Plant Conservation

Moderator: Peter Lesica *Division of Biological Sciences, University of Montana*

9:30-9:50 Let Your Fingers Do the Botanizing: the University of Montana On-line Database. *Zia Maumenee and Peter Lesica, Division of Biological Sciences, University of Montana*

9:50-10:10 Accessing and Using Montana Natural Heritage Program Web Services for Plant Information. *Allan Cox, Montana Natural Heritage Program*

10:10-10:30 INVADERS Database System for Initiation of Early Detection and Rapid Response to New Invaders. *Peter M. Rice and Eldon Umphrey, Division of Biological Sciences, University of Montana and Jane Mangold, Montana State University Extension Service*

10:30-10:45 Break

10:45-12:30 Hands-on database training. BRING YOUR LAPTOP with WIRELESS! We will break into three rooms (one for each database), and presenters will train you to use their database one-on-one.

12:30-1:30 Lunch on your own. There are more than a dozen places to eat within ten minutes of the University Center (see p. 8).

When Should We Use Herbicide to Manage Wildlands?

Moderator: Steve Sutherland, USDA Forest Service

1:30-1:50 Spotted Knapweed Control Effort Imperils Native Plants. *Matt Rinella, USDA Agricultural Research Service, Fort Keogh, Miles City*

1:50-2:10 Non-Target Plant Species Response to Broad-leaf Herbicide Treatments. *Peter Rice, Division of Biological Sciences, University of Montana*

2:10-2:30 Efficacy of a Common Herbicide Treatment for Mitigating Impacts of Knapweed Invasion. *Yvette K. Ortega and Dean E. Pearson, Rocky Mountain Research Station, USDA Forest Service, Missoula*

2:30-2:50 Break

2:50-3:10 Plateau herbicide and re-seeding after a wildfire on Mt Sentinel. *Marilyn Marler, Division of Biological Sciences, University of Montana; Cara Nelson and Elizabeth Crone, University of Montana College of Forestry; and Heather Whiteley, Environmental Studies Department, University of Montana.*

3:10-3:30 Why are nontarget effects of herbicides so hard to understand? *Elizabeth Crone, College of Forestry, University of Montana*

3:30-4:45 Panel and Audience Discussion.
Panel members: Elizabeth Crone, Andy Kulla (Lolo National Forest), Yvette Ortega, Peter Rice, Matt Rinella

4:45-5:00 Discussion summary. *Steve Sutherland*

Wednesday, February 10

8:30-12:00 Workshop: Threats and Ranks of Montana's Plant Species of Concern. **Moderator: Scott Mincemoyer, Montana Natural Heritage Program**

We will review all the SOC species, updating the threats, threat category, and state Heritage ranks. Botanists and managers accomplish this task by contributing new information for species they manage. Please review the SOC list before you come <http://mtnhp.org/SpeciesOfConcern/?AorP=p>. This is important work because this list directs conservation actions by both agencies and NGOs.

12:00-1:00 Lunch on your own

1:00-3:30 Workshop: Montana's Important Plant Areas. **Moderators: Karen Shelly and Peter Lesica, University of Montana**

Peter will review the criteria and nomination form developed for species-based IPAs last year. After that the IPA Committee will review at least one nomination. This could result in the designation of Montana's first Important Plant Area. Karen will lead a discussion on developing protocols and criteria for designating IPAs based on plant communities.

Abstracts

Let Your Fingers Do the Botanizing: the University of Montana On-line Database

Zia Maumenee and Peter Lesica, Division of Biological Sciences, University of Montana

The herbarium database project, funded by the National Science Foundation (NSF), is a conglomeration of label data from approximately 70,000 Montana specimens into one searchable database. This database, housed in the Division of Biological Sciences at the University of Montana, features a SQL Server back end and a Specify Software front end. Specify was and is continuously being developed by bioinformatics experts at the University of Kansas with an NSF grant. It is meant to be appropriate for all manner of biological museums. Numerous students and staff have come together to develop the data entry forms, enter these specimens into the database, and develop a website to make the database available to the World Wide Web. The website's searchable fields include taxonomy, habitat, county, collector, and locality (<http://herbarium.dbs.umt.edu/database/Default.aspx>). The database has already paid off for many areas of research. Field biologists have used the website to locate study sites or find out when a particular species will be in flower or fruit. Historians have used the database to track the paths of Montana botanists or discover who collected plants in a particular area of interest. Agency botanists use the website to determine the commonness and threats to species of concern. Biogeographers get help determining the distribution of species in Montana. After four years, the NSF grant ends in February. We envision that data from new acquisitions will continue to be entered. The University of Washington is waiting to hear the fate of their proposal to combine herbarium databases from Washington, Oregon, Idaho and Montana into one large Northwest database.

Accessing and Using Montana Natural Heritage Program Web Services for Plant Information

Allan Cox, Montana Natural Heritage Program

The Montana Natural Heritage Program (MTNHP) 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. My talk will begin with a brief overview of the information and services the MTNHP offers. The overview will be followed by introductory descriptions of three on-line services the MTNHP offers: 1) the Montana Field Guide, 2) the Montana Species of Concern On-line Report, and 3) Predicted Suitable Habitat Models for Selected Montana Plant Species. These on-line services may be accessed at <http://mtnhp.org>. The following workshop will allow participants to access these on-line services with assistance from MTNHP staff.

INVADERS Database System for Early Detection and Rapid Response to New Invaders

Peter Rice & Eldon Umphrey, University of Montana and Jane Mangold, Montana State University

The INVADERS Database system at <http://invader.dbs.umt.edu/> provides comprehensive historic documentation of exotic plant invasions of the five Pacific Northwest States (MT, WY, ID, OR, WA). The total number of exotic and native plant names in the system is 9,133; including synonyms, varieties, and subspecies. There are currently 124,565 distribution records. The temporal span of these distribution data is 1875 through 2009. Outputs to user initiated queries include tabular summaries, graphs, and maps representing county level resolution of invasive plant spread over time and space in the five state region. The online system has provisions for user accounts to enter their new reports of exotic plants and instantly update the database and include the new data in output maps and graphs. Users can also request email notification of new weed reports for any species or geographic areas of interest. Montana State University, University of Montana, and the Montana Department of Agriculture are cooperating to recruit and train professional and lay citizens concerned about invasive plants to increase the dataflow to INVADERS so it can serve as part of an Early Detection and Rapid Response system for detecting new invasion patterns and more quickly invoke an appropriate and timely management response.

Spotted Knapweed Control Effort Imperils Native Plants

Matt Rinella, USDA Agricultural Research Service, Fort Keogh, Miles City

Ecosystem managers face difficult decisions when managing invasive species. Using aggressive practices to reduce invader abundance often reduces invaders' competitive impacts on natives. But it is often difficult or impossible to control invaders without also damaging natives. So a critical question becomes: which is worse for native biota, invaders or things done to control invaders? We attempted to answer this question for a very common scenario. Specifically, we studied several grassland natives exhibiting long-term coexistence with an invader and asked if herbicide use altered relative abundances of the species. Whether or not grazing was excluded, one-time herbicide use made two native forbs exceedingly rare for our entire 16-year study period. Herbicide also rendered several other native forbs rare, but only when grazing was excluded, and there is evidence that the dominant invader became more dominant in response to the decreases in native forb abundances. Some herbicide applications are doubtless warranted because they target small invader patches or larger areas with virtually no remaining natives. However, other herbicide applications occur where substantial native populations occur, and our data suggest these applications can be ill-advised.

Non-Target Plant Species Response to Broad-leaf Herbicide Treatments

Peter M Rice, University of Montana

Factors before, during, and after herbicide treatments all affect target weed selectivity and non-target plant species response. The pretreatment abundance of weeds and desirable plants set preconditions for spray site recovery. Herbicide active ingredient and formulation, rate, phenological timing and physiological activity, total volume and coverage, and placement all affect selectivity and non-target response. Post-treatment weather, particularly precipitation, and proximity of plant propagules can enhance or constrain desirable shifts in community composition. Although competition with an unchecked dominating weed is perpetual the herbicide pulse is transitory. The principal community level effect of spraying is to alter the intensity of competitive interactions between numerous individual

species. Previously scarce resources disproportionately captured by the dominating target weed, most importantly soil moisture in these somewhat xeric environments, and safe microsites, are now available allowing many population abundance shifts. The most typical response to herbicide prescriptions appropriate for the maintenance or restoration of native communities is a first year post-spray decline in non-target forb abundance followed by recovery in subsequent years. We will examine examples of this predominant trend using indicator species analysis, ordination over time, and lifeform summaries.

Efficacy of a Common Herbicide Treatment for Mitigating Impacts of Knapweed Invasion

Yvette K. Ortega and Dean E. Pearson, Rocky Mountain Research Station, USDA Forest Service, Missoula

Broadleaf herbicides are commonly used in wildlands to suppress exotic weeds and relieve negative impacts of invasion. However, weed control measures can incur side effects that counter intended effects. Therefore, the costs and benefits of applying these measures must be carefully evaluated in relation to management goals. We conducted a long-term field study examining impacts of spotted knapweed invasion on native communities and the degree to which a broadcast application of picloram mitigated these impacts. The herbicide treatment effectively suppressed knapweed. Treatment also restored cover of native perennial grasses to match baseline no-invasion levels, but only in plots where knapweed levels were initially high. At all initial invasion levels, treatment reduced cover and species richness of native forbs to levels typically found at more advanced levels of knapweed invasion. Treatment also promoted increases in cheatgrass. Most effects persisted through the sixth and final post-treatment year and would likely be enforced by repeated herbicide applications. Used alone, broadcast herbicide applications may not mitigate the overall impacts of weed invasion on native communities or restore conditions to the pre-invasion state. Observed side effects of treatment may be considered acceptable when management goals are focused towards enhancing grass production on rangelands or preventing the spread of target weeds into pristine areas. However, these side effects may undermine goals that include overall restoration of native communities,

particularly when broadcast applications are used. More targeted application methods such as spot spraying could improve efficacy by localizing side effects. Integrating herbicide with other weed management techniques may help to promote desirable species over problematic invaders.

Plateau Herbicide and Re-Seeding After a Wildfire On Mt Sentinel

Marilyn Marler, Division of Biological Sciences, University of Montana; Cara Nelson and Elizabeth Crone, University of Montana College of Forestry; and Heather Whiteley, Environmental Studies Department, University of Montana

Herbicides can be effective at controlling exotic species in plant communities with a healthy native plant component. However some areas are so severely degraded (by invasive plants and their history of disturbance) that little or no native plant cover remains. In these situations, suppression of one invasive species (like Dalmatian toadflax) can result in proliferation of a different invasive species (like cheatgrass), and restoration goals are not met. Cheatgrass is particularly troublesome because it prevents establishment of natives by re-seeding, and because it is ubiquitous throughout Western Montana. We need better methods of combining re-vegetation with herbicide selection and timing of application to better reach our management goals. Mount Sentinel was burned in the summer 2007, and this provided an opportunity to study various management treatments. We established study plots in the most degraded areas that were burned, and compared efficacy of the herbicide Plateau (fall application 2007) with and without revegetation with native seeds, with efficacy of the herbicide Tordon 22k (spring application 2008) with and without revegetation. We will present some preliminary results and discuss future treatment options.

Why Are Nontarget Effects of Herbicides So Hard to Understand?

Elizabeth Crone, College of Forestry, University of Montana

Due to increasing invasion by exotic plants, and the growing recognition of their negative impacts on native systems, there has been a dramatic rise in efforts to suppress exotics,

often through the use of herbicides. In Montana, estimates of herbicide use by private landowners suggest that over 80,000 hectares are treated annually in this state alone. Much of this herbicide use is in natural areas or semi-natural areas such as rangelands and managed forests, where the goal of herbicide application is to kill target weeds, while maintaining or enhancing native biodiversity. In principle, suppression of invasive plant populations should release native plant species from competition and enhance natural areas. However, in practice, herbicide use often leads to a decrease in the cover of native forbs and an increase in grass cover. This is significant, because in grasslands, most of the plant biodiversity is a function of forb diversity. Forbs provide habitat structure and food for many wildlife and insect species, so declines in forb diversity are likely to have negative effects on higher trophic levels. In addition, this increase in grass cover is often in the form of undesirable species, such as cheatgrass, rather than desirable forage species.

Herbicide use in natural areas differs fundamentally from use in agricultural systems because the dynamics of nontarget species are typically not directly under management control. By focusing primarily on control of target species, current practices lead to unintended overuse by many landowners. Therefore, management guidelines need to allow for natural dynamics of nontarget species, as well as suppression of target species. To illustrate this point, I will describe a study of nontarget effects of the herbicide picloram (Tordon) on a native dominant forb, arrowleaf balsamroot (*Balsamorhiza sagittata*, Asteraceae). After a single application in 2002, flowering was suppressed through 2007. Although this did not directly kill balsamroot plants, we calculated that suppression of seed production for so many years could be sufficient to cause balsamroot populations to decline in the long term, depending on how often herbicides were used. Herbicide use at intervals of greater than 10 years would likely benefit balsamroot, but herbicide use at more frequent intervals would cause populations to decline. I discuss the implications of this case study for management of other species, and the reasons that these dynamics are so hard to detect in short-term studies.

Workshop: Montana Plant Species of Concern and Threat Ranks

Moderator: Scott Mincemoyer, Montana Natural Heritage Program

At the 2006 plant conservation conference, a process was initiated to assess threats and assign threat ranks to Plant Species of Concern (SOC) with a goal of highlighting those plant species which are most at risk in the state. A threat classification and methodology were developed and data and input gathered from biologists, which resulted in the assignment of initial threat ranks for 70% of the plant SOC in the state. Methodology, initial threat ranks and associated data may be found on the MNPS website (<http://www.mtnativeplants.org/43>), and the assigned threat ranks have been incorporated into the Montana Natural Heritage Program's on-line Field Guide and Plant Species of Concern Report, both available at <http://mtnhp.org/>. The goal of this workshop is to solicit additional input and review the assigned threat ranks to Plant SOC. Participants will have the opportunity to submit threats information and recommend changes to the ranks for particular species prior to the conference, during the workshop, and after the conference. During the workshop, we will: 1) review methodology and criteria. 2) review individual species' threat ranks and Heritage ranks, and 3) gather input and feedback on the assigned ranks. Please review the plant SOC list and threat ranks before you come at <http://mtnhp.org/SpeciesOfConcern/?AorP=p>.

Additions and Deletions to the SOC List Since 2007

Additions:

***Physaria ludoviciana*:** Restricted in Montana to sandy sites in the extreme eastern portion of the state.

***Botrychium adnatum*:** A recently described species which is globally rare and recently discovered in northwest Montana.

***Botrychium gallicomontanum*:** A recently described species which is globally rare and recently discovered in northwest Montana.

***Botrychium michagenense*:** A recently described species which is globally rare and recently discovered in northwest Montana.

***Botrychium tunux*:** A recently described species which is globally rare and recently discovered in northwest Montana.

***Botrychium yaaxudakeit*:** A recently described species which is globally rare and recently discovered in northwest Montana.

***Delphinium burkei*:** Rare. Currently known from a few locations in western Montana in mesic meadows and grasslands.

***Castilleja nivea*:** Rare. Currently known from only a few collections from sw and south-central Montana mountain ranges. Most of these collections were made more than 30 years ago.

Deletions:

***Townsendia spathulata*:** 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.

***Townsendia nuttallii*:** Removed from SOC status as this taxon is considered to be conspecific with the more common *Townsendia hookeri*.

***Delphinium bicolor ssp. calcicola*:** Moved to PSOC list. A Montana endemic that is widespread in sw Montana and locally common in some habitats. The viability of this endemic subspecies does not appear to be at risk.

***Orogenia linearifolia*:** More common than previously known with few potential threats to the viability of the species in MT.

***Ranunculus jovis*:** More common than previously known with very few potential threats to the viability of the species in MT.

***Zizia aurea*:** Reports for Montana are based on mis-identified specimens of *Zizia aptera*.

***Mentzelia montana*:** The 2 previously reported locations in Montana were mis-identified specimens of *M. dispersa* and *M. nuda*.

***Erigeron radicans*:** Removed due to overall abundance and lack of threats to high elevation habitats.

***Ribes velutinum*:** The single Montana location was based on a mis-identified specimen of *R. montigenum*.

***Lesquerella paysonii*:** Montana occurrences belong to *Physaria carinata* (formerly *Lesquerella carinata*), which is a SOC.

SOC Threat Form

Severity of Threat

High: loss of all individuals or destruction of habitat; irreversible or requiring >100 years for recovery
 Medium: major reduction of population or habitat requiring >50 years for recovery
 Low: non-trivial reduction of population or reversible reduction or habitat destruction with recover in 10-50 years
 Insignificant: essentially no reduction of population or habitat or recovery within less than 10 years

Scope of Threat

High: >60% of Montana population affected; Medium: 20-60% affected; Low: 5-20%, Insignificant: <5 %

Immediacy of Threat

High: Threat is operational; Medium: Threat operational in 2-5 years; Low: 5-20 years; Insignificant: >20 years

Species _____

Threat _____ Severity H M L I Scope H M L I Immediacy H M L I

Threat _____ Severity H M L I Scope H M L I Immediacy H M L I

Threat _____ Severity H M L I Scope H M L I Immediacy H M L I

Comments _____

Workshop: Montana's Important Plant Areas

Moderators: Karen Shelly and Peter Lesica, University of Montana

Important Plant Areas (IPAs) are areas of great importance for plant conservation. They are designated based on significant populations of rare, threatened or endangered species or outstanding examples of habitat types of conservation concern. The goal of Montana's IPA Program is to identify and protect a network of the best sites for plant conservation across the state. Montana's IPA Program is part of a global strategy for plant conservation. The IPA Species of Concern Committee met over the past two years

and developed criteria and guidelines. The IPA Plant Communities Committee will follow suit in the near future. Peter will review the criteria and nomination form developed for species-based IPAs last year. Then the IPA Committee will review at least the nomination submitted for Logan Pass in Glacier National Park. This could result in the designation of Montana's first Important Plant Area. Afterward Karen will lead a discussion on developing protocols and criteria for designating IPAs based on plant communities.

Instructions for Completing the Plant Area Nomination Form Based on Plant Species of Concern

Criteria: A site in Montana may be nominated as an "Important Plant Area (IPA)" if it meets one of the following criteria:

- a. Site contains at least one plant species of concern that is globally ranked as a G1, G2, or G3, or,
- b. Site contains an assemblage of at least three plant species of concern that are state ranked by the Montana Natural Heritage Program (MTNHP) as an S1 or S2.

For each G1, G2, and G3 species the committee will pick the best five sites if more than 50% of the global population occurs in Montana or the best three sites if less than 50% of the global population occurs in Montana.

Nominated Site Name: Provide a name for the nominated site.

General Location: State the closest geographical landmarks, such as a road, town, river, and/or mountain.

Site Coordinates: Provide the coordinates for the central portion of the nominated site using either the Township, Range, Section (TRS); Universal Transverse Mercator (UTM); or latitude/longitude. If additional information is needed then complete the blank field for the appropriate coordinate system. Be sure to include the datum used for determining the UTM or latitude/longitude.

Maps / Photographs: Please provide in either hardcopy or electronic format a map that: a) clearly shows the site's boundaries; b) approximate location within Montana; and c) the site's location. Photographs of the site are optional. NOTE: If submitted electronically, map(s) and photograph(s) must be provided as separate files from this form.

County: Name the county that contains the nominated site.

Elevation: Write the elevation at the center of the site or the elevational range of the site. Indicate the unit of measure (feet or meters).

Size of Area: Write the approximate size of the site and provide the unit, such as acre, square feet, square mile, etc. There are no size limits for nominating an IPA.

Property Ownership: Provide the name of the landowner, if under private ownership, or the land management agency that contains this site. Be as specific as possible, for example, USFS, Helena National Forest, Lincoln Ranger District. List any other designations the site may have. Examples include but are not limited to Wilderness Area; Research Natural Area; and Montana Department of Transportation Wetland Mitigation Site.

Plant Species of Concern (SOC) Information: Complete the table for all of the SOC plants that occur at the site. Use a 2nd form if more space is needed; if two copies of the form are submitted for one site then do not repeat information already supplied on the first form. For each plant SOC: a) provide the most current global and state ranking (website: www.mtnhp.org); b) enter the date that you last observed the plant(s); c) write an approximate population size based on your last observation date; and d) based on your observations, state the general trend in the population. Indicate in the table if the trend is unknown. If the trend is known than provide the knowledge or evidence to support your answer in the numerical line that corresponds with the particular plant SOC.

Threats: Based on your observations, list relevant real or potential threats for each SOC plant. For each threat provide a level, as defined below (2006 Plant Species of Concern, MTNHP):

High = Generally defined as a significant likelihood of impacts, activities, or events that will result in a severe (>60%) reduction in population numbers or habitat for the species in Montana. The threat(s) exist(s) in part or all of the species' range or are thought to be imminent. A combination of less severe threats may combine to raise the overall threat level to high.

Moderate = Generally defined as a significant likelihood of impacts, activities, or events that will result in a severe (20-60%) reduction in population numbers or habitat for the species in Montana. The threat(s) exist(s) in part or all of the species' range or may be expected to occur in the near future (usually 1-5 years). Several low-level threats may combine to raise the overall threat level to moderate.

Low = Generally defined as a significant likelihood of impacts, activities, or events that will result in a small though significant (5-20%) reduction in population numbers or habitat for the species in Montana. The threat(s) exist(s) in part or all of the species' range or may be expected to occur in the future (usually 5-20 years).

Very Low = No significant likelihood of impacts, activities, or events that will result in a reduction in population numbers or habitat for the species in Montana.

NA = Not Assessed

What qualifies this site as an IPA? In 1300 words or less, give the reasons why the nominated site deserves recognition and conservation. Your answer should address several aspects of the site, such as plant assemblage; population viability, size, health, and/or genetics; quality of the site in terms of weeds, land-use issues, and/or other threats; uniqueness of the site; biogeographical considerations (population widely disjunct, geology, etc.); and/or other attributes. In addition, provide a rationale for placement of the boundaries.

Form Submittal: Provide your name (first and last), date you submitted this form; organization affiliation (if any); complete mailing address; electronic mailing address (optional); and the best phone number for contacting you.

Please submit hard copy forms to:
Montana Native Plant Society
Attention: Conservation Committee
P.O. Box 8783
Missoula, MT 59807-8783.

Please submit electronic forms and maps to:
Peter Lesica at peter.lesica@mso.umt.edu

Your nomination will be reviewed by the IPA Committee which meets once a year. The Committee will contact you if there are questions. Updates regarding Important Plant Areas in Montana will be presented at the Montana Plant Conservation meeting held during the winter of even-numbered years.

Conference Dining within Walking Distance of Campus

University Center

- Commons-2nd floor
- Eson Gib Asian Cuisine Inc. Fresh Sushi Bar
 - Pizza Hut
 - Wingstreet
 - Mark Pi's
 - Garden City Greens
 - Casa Nina
 - Docs Sandwich Shop
- Jus Chillin-2nd floor-gourmet coffees, smoothies, soups, baked goods
- UC Market-1st floor-considerable selection of grab and go bagels, pastries, cookies, chips, fruit, snacks and sandwiches; coffee/espresso/chai bar

Lommansson Center (just west of the oval on campus)

- Food Zoo-self-serve, buffet-style meals with unlimited seconds; homemade soups, salad bar, fresh fruit, baked desserts, daily vegetarian and vegan options
- Cascade Country Store
 - Old El Paso Café
 - Barrel Head Pizza
 - Grizzly Grille
 - Block and Barrel Deli
 - Bear Claw Bakery desserts and pastries
- La Peak-gourmet coffee and espresso drinks, sandwiches, crepes, quiche, bakery goods

West of Campus

- Java Neighborhood Coffee House and Market, 1221 Helen (one block west of campus, located in the old Freddy's Feed and Read) - a limited supply of bagels, muffins, wrapped homemade deli sandwiches, homemade soup, smoothies, mocha, java
- Food for Thought, 540 Daly Avenue and Arthur, located in the old Chimney Corner. A large selection of sandwiches, salads, burritos, cookies

North of Campus across the foot bridge

- Quizno's Classic Subs-1001 East Broadway in shopping center east of the footbridge
- Rattlesnake Trading Company-1002 East Broadway. Deli sandwiches, salad, baked goods
- Five Guys Burgers and Fries, 820 East Broadway. Burgers, hot dogs, veggie or grilled cheese sandwich, fries; Price range \$2.29-\$5.19
- Finnegan's Family Restaurant, 700 East Broadway over Rattlesnake Creek. An extensive breakfast, lunch, dinner served 24 hrs; Price range \$7.00-\$17.00 for meals
- Subway, 624 East Broadway
- River Wok Asian Grill, 624 East Broadway
- Press Box Restaurant Casino and Sports Bar, 835 East Broadway. Pizza, burgers, sandwiches, salad, fish, chicken, steak, beer, wine
- Pizza Hut, 801 East Broadway
- Burger King, 701 East Broadway
- Taco Bell, 651 East Broadway
- Finn and Porter Steak, Seafood & Chops, 100. Madison in the Double Tree Hotel Missoula/Edgewater

Accommodations

Many of these are listed on the Missoula Chamber of Commerce website, missoula-chamber.com. Distances listed are for walking. Lodgings are organized according to proximity to campus, closest first. Cheapest is asterisked.

Goldsmith's Bed and Breakfast, 809 E. Front St., Missoula, 59802
866-666-9945, www.goldsmithsinn.com, Single, \$79-\$119; Double, \$89-\$129
Right across river from campus

Ponderosa Lodge, 800 E. Broadway, Missoula, 59802
406-543-3102/877-543-3102, ponderosalodgemt.com, Single, \$60; Double, \$65 (conference rate), 2 blocks from campus

Thunderbird Motel, 1009 E. Broadway, Missoula, 59802
406-543-7251/800-952-2400, No website, Single/double, one bed, \$60; 2 beds, \$75, and goes up in increments of \$5, 2 blocks from campus

Holiday Inn Riverside (Holiday Inn Express), 1021 E. Broadway, Missoula, 59802, 877-863-4780, www.holidayinn.com, look for Holiday Inn Express
Single, \$119; double, same, 2 blocks

Campus Inn, 744 E. Broadway, Missoula, 59802
406-549-5134/800-232-8013, www.campusinnmissoula.com, Single, \$62; Double, \$68, 2 ½ blocks to campus

* **Motel 6**, I-90 at Van Buren Street, Exit #105, 630 E. Broadway, Missoula, 59808
406-549-2387, www.motel6.com, Single, \$48, double, \$54; suites, \$70
2 ½ blocks

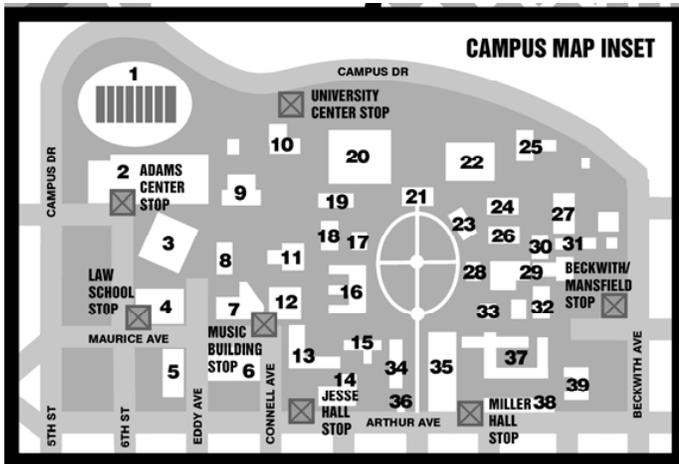
Doubletree Hotel, 100 Madison, Missoula, 59802
406-728-3100/800-222-TREE, www.missoulaedgewater.doubletree.com
Single, \$149; Double, \$159 (gov't rates w/ ID, \$91, \$101), 3 blocks

Nydia's house
406-721-9878, nydiav@gmail.com, \$50-\$70 (private residence that has a few extra rooms; full kitchen, shared bath), 3 blocks

Blossom's Bed and Breakfast, 1114 Poplar, Missoula, 59802
406-721-4690, stay@blossomsbnb.com, www.blossomsbnb.com
Single/Double: \$110-\$145, but possible conf. rates (ask for Blossom/Troy)
4 blocks from campus (7-minute walk)

Holiday Inn, 200 S. Pattee St., Missoula, 59802, 406-721-8550/888-HOLIDAY,
www.himissoula.com, Single, \$119 plus tax, 3 or 4 blocks to campus

1- Grizzly Stadium	14- Jesse Hall	27- Clapp Science Bldg
2- Adams Center	15- Turner Hall	28- Math
3- PAR-TV	16- Liberal Arts	29- Skaggs
4- Law School	17- Rankin Hall	30- Chemistry
5- Curry Health Center	18- Anderson Hall	31- Clinical Psychology
6- Gallagher Business	19- Botany	32- Health Sciences
7- Music	20- Univ.Center/Todd	33- International Center
8- Education	21- Main Hall	34- Knowles Hall
9- McGill Hall	22- Library	35- Lommasson Center
10- Aber Hall	23- Honors College	36- Native American St.
11- Social Science	24- Forestry	37- Craig/Duniway/Elrod
12- Fine Arts	25- Schreiber Gym	38- Miller Hall
13- Corbin/Brantly	26- Old Journalism	39- Pantzer Hall



Parking

Attempting to park on campus or in the neighborhoods around campus is not recommended, even with a parking permit. Out of town attendees staying at a nearby motel should walk to campus from there. Otherwise, use the Park-and-Ride. Park in one of the lots (see map) and take the free bus to campus. Busses run every 20 minutes from the north Park-and-Ride lot and every 10 minutes from the south lot. More information can be obtained from the University of Montana website <http://map.umt.edu/>.

Notes

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