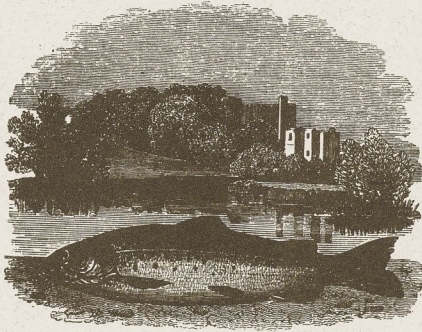


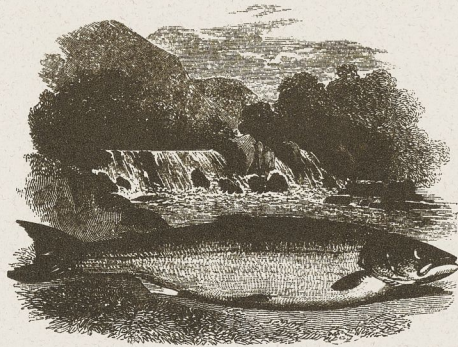
*"The Montana State University Library provides an opportunity that is rare in this world; to read some of the finest things ever written about fish and fishing and apply it to the total experience."*

– Bud Lilly



*"Learn it, and get really good at it, and your fishing will be better for several reasons."*

– From "Bud Lilly's Guide to Fly Fishing the New West"



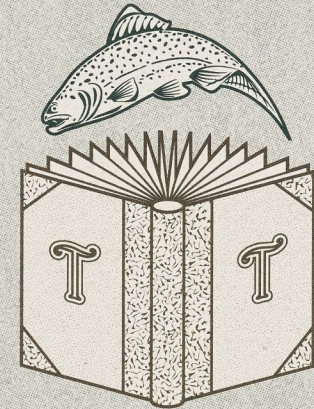
*"There is learning on the river and there is learning in the halls of academe. This collection ties the two together."*

– Bruce Morton, Dean

MONTANA STATE UNIVERSITY LIBRARIES  
TROUT & SALMONID COLLECTION  
P.O. BOX 173320  
BOZEMAN, MT 59717-3320



MERRILL G. BURLINGAME  
SPECIAL COLLECTIONS



*The  
Trout & Salmonid  
Collection*

*At The*

MONTANA STATE  
UNIVERSITY LIBRARIES

*Education ♦ Research ♦ Conservation  
Science ♦ Economics  
Literature*

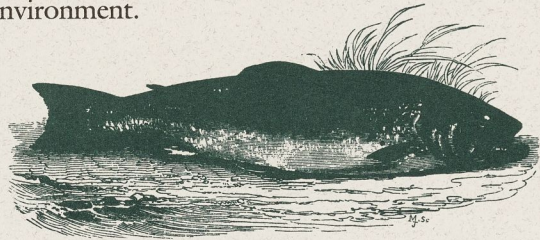




## SPAWNING NEW OPPORTUNITIES AT TROUT UNIVERSITY

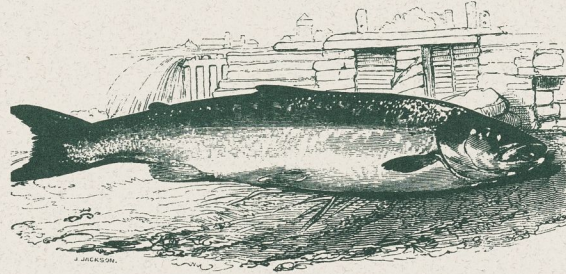
THE TROUT IS A MONTANA TOTEM; it contributes to the definition of what Montana is and who we are. The importance of the trout in Montana has led the Montana State University Libraries to set about building what is intended to become the nation's (the world's?) preeminent trout and salmonid collection.

Not only will the collection support the world-class fish and fisheries research that is done at MSU, but we also hope that it will become a focal point of local and regional pride for those who care about the trout and its well-being. Housed in the MSU Libraries' Merrill G. Burlingame Special Collections, the collection will be open to the public for use on the premises in a controlled archival environment.



The scope of collection will be the broadest possible, encompassing the biology of the fish, cold water fisheries, angling, politics, economics, culinary arts, spiritual, literary and philosophical works; books, periodicals, diaries, theses and dissertations, scientific reports, and other appropriate documentation.

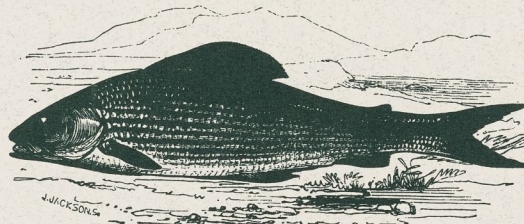
The collection will be built on the firm foundation of two recently donated collections. One devoted to fish and fisheries, of over 11,000 titles, half of which are estimated to be salmonid-related, appraised at \$230,000; and the other devoted to angling, of 350 volumes, and appraised at \$40,000.



*We hope you will support this special enterprise.*

Our primary missions at Montana State University are teaching, research and service. What better way to educate people about trout and the other salmonids than through this special collection? Whether it is ecological, economic, biological, scientific documentation, literary, angling or culinary information you seek, we have a broad range of material available to educate you on trout and salmonids.

In order to continue to grow and sustain this collection, we are embarking on a campaign to raise funds. We need your help to ensure the quality of the collection for current and future generations. Our initial goal is to raise \$100,000 for an endowment. Please, consider a gift to support this outstanding resource. Now and hereafter, a lot of people will be very grateful that you did.



*Brochure illustrations are from the Edward Jesse 1856 edition of Izaak Walton's "The Compleat Angler."*

*Yes, I would like  
to make a gift  
to The Trout &  
Salmonid Collection  
at the Montana State University Libraries.*



I/we pledge \$ \_\_\_\_\_ to  
The Trout & Salmonid Collection Endowment:

In Memory of: \_\_\_\_\_

In Honor of: \_\_\_\_\_

Visa/MC \_\_\_\_\_  
Account number

Expiration date

Signature (required)

Last name First

Mailing address

City State ZIP code

Phone E-mail

*Please send gift to:*

MSU-LIBRARIES  
TROUT & SALMONID COLLECTION  
MONTANA STATE UNIVERSITY-BOZEMAN  
P.O. BOX 173320  
BOZEMAN, MT 59717-3320

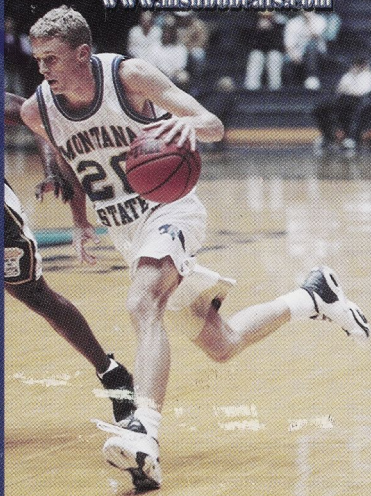
*For more information, please feel free to contact us:*

Bruce Morton, Dean or  
Patricia Denison, Director for Library Development  
(406) 994-3340 ♦ <http://www.lib.montana.edu/>

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**2000-2001  
BOBCATS**

[www.msubobcats.com](http://www.msubobcats.com)



## Women's Basketball Schedule

NOV. 6	MANUKAU-AUCKLAND, NEW ZEALAND-EXHIB.	7:05 PM
13	NWBL ELITE-EXHIBITION	7:05 PM
21	@ University of California-Riverside	5:45 PM
24-25	@ Cancun Tournament	5:30 PM
DEC. 1	UNIVERSITY OF PORTLAND	7:05 PM
5	@ Gonzaga University	7:00 PM
6	@ University of Idaho	7:00 PM
10	@ University of San Francisco	2:00 PM
12	@ San Jose State University	7:30 PM
16	MONTANA TECH	6:05 PM
22	GONZAGA UNIVERSITY	7:05 PM
31	UNIVERSITY OF ALASKA-FAIRBANKS	7:05 PM
JAN. 4	*@ Eastern Washington University	7:00 PM
6	*@ Portland State University	7:05 PM
12	*@ University of Montana	7:35 PM
17	* WEBER STATE UNIVERSITY	7:05 PM
20	* IDAHO STATE UNIVERSITY	7:05 PM
25	*@ California State University-Northridge	7:05 PM
27	*@ Northern Arizona University	7:05 PM
FEB. 1	* EASTERN WASHINGTON UNIVERSITY	7:00 PM
3	* PORTLAND STATE UNIVERSITY	7:05 PM
7	* CALIFORNIA STATE UNIV. SACRAMENTO	7:05 PM
11	* UNIVERSITY OF MONTANA	2:05 PM
15	*@ California State University Sacramento	7:05 PM
17	*@ Idaho State University	7:05 PM
22	* Northern Arizona University	7:05 PM
25	* CALIFORNIA STATE UNIV. NORTHRIDGE	2:05 PM
MAR. 3	*@ Weber State University	2:05 PM
8-10	Big Sky Conference Tournament	TBA

Home games in **BOLD CAPS** are played in Worthington Arena.

\*Big Sky Conference Game

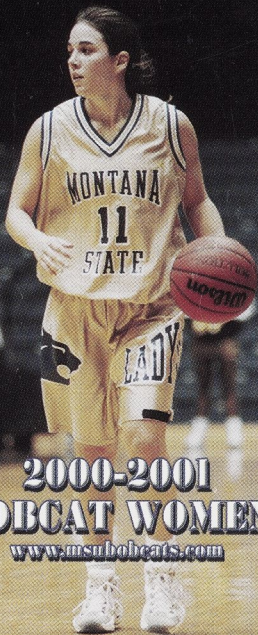
Time listed is time at game site.

Call 406-994-CATS for tickets!

Photo by: Mark MacLeod



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**2000-2001  
BOBCAT WOMEN**  
[www.msubobcats.com](http://www.msubobcats.com)

## Men's Basketball Schedule

NOV. 4	SONS OF BLUE ANGELS-EXHIBITION	7:05 PM
11	KORABEL (UKRAINE)	7:05 PM
18	WESTERN ILLINOIS	7:05 PM
20	@ University of Nevada	7:05 PM
24-26	@ Big Island Tournament	TBA
DEC. 3	University of Wyoming-"Border War"	3:05 PM
6	@ Western Illinois University	7:00 PM
9	@ Mississippi State	2:00 PM
11	UNIVERSITY OF NEVADA-RENO	7:05 PM
16	UNIVERSITY OF IDAHO	7:05 PM
23	@ University of Idaho	7:05 PM
29-30	HOLIDAY STORES/TOUCH AMERICA TOURN. 6:00/8:00 PM 29 Portland vs. Radford and MSU vs. St. Francis 30 Consolation and Championship game; Holiday Stores/Touch America Tour.	
JAN. 4	* EASTERN WASHINGTON UNIVERSITY	7:05 PM
6	* PORTLAND STATE UNIVERSITY	7:05 PM
13	* UNIVERSITY OF MONTANA	7:05 PM
18	*@ Weber State University	7:05 PM
20	*@ Idaho State University	7:35 PM
25	* CALIFORNIA STATE UNIV.-NORTHRIDGE	7:05 PM
27	* NORTHERN ARIZONA UNIVERSITY	7:05 PM
FEB. 1	*@ Eastern Washington University	7:00 PM
3	*@ Portland State University	7:05 PM
7	*@ California State University Sacramento	7:05 PM
10	*@ University of Montana	7:00 PM
15	* CALIFORNIA STATE UNIV. SACRAMENTO	7:05 PM
17	* IDAHO STATE UNIVERSITY	7:05 PM
22	*@ Northern Arizona University	7:05 PM
24	*@ California State University Northridge	7:05 PM
MAR. 3	* WEBER STATE UNIVERSITY	7:05 PM
8-10	@ Big Sky Conference Tournament	TBA

Home games in **Bold CAPS** are played in Worthington Arena.

\*Big Sky Conference Game

Time listed is time at game site.

Call 406-994-CATS for tickets!

Photo by: Dean Hendrickson



Museum of the Rockies  
MSL  
600 W. Hagy  
Bozeman MT 59717



983  
Bud Lilly  
16 W. Birch  
Three Forks MT 59752





April 17, 2000

Dear Bud,

It was a real treat to have you  
talk to the museum's doents this  
morning about fly fishing equipment  
and have you demonstrate casting.

Thank you so much for sharing your  
time and expertise with us! We really  
appreciate it.

Sincerely

Dee Seidel

Volunteer Coordinator

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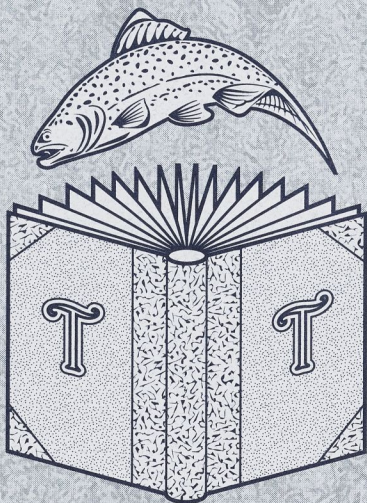
V O L U N T E E R S

*Make the Difference*

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*The Friends of the*  
MONTANA STATE UNIVERSITY LIBRARIES



*Invite you...*



*Net proceeds of this event will benefit Renne Library's  
renovation/furnishings campaign.*

*To please join us for our  
Annual Friend-Raiser Dinner*

**“The Hero with a Thousand Vices:  
*A River Runs Through It*  
as Folklore and History.”**

Keynote Speaker:  
**Dr. Paul Schullery**

*Noted historian, author and director emeritus  
of the American Museum of Fly Fishing*

**Thursday, October 11, 2001  
MSU Student Union Building Ballrooms**

- 6:00 p.m. - Social Hour ~ Silent Auction
- 7:00 p.m. - Dinner, Choice of Entrées
- 7:45 p.m. - Live Auction
- 8:00 p.m. - Keynote Address

### **Silent Auction Items**

Quilted wall hanging  
Shirley Sedivy framed photography  
Original art by Louis Archambault  
Jim Dolan art  
Nutcracker performance tickets & dinner  
John Montagne handcrafted bowl  
Ned Mueller charcoal  
Lori Brigham acrylic painting  
Hand painted coffee table  
Two nights lodging & fishing tips at  
Bud Lilly's Angler's Retreat

### **Live Auction Items**

Handmade table by artist Debbie Moeller  
Dinner & entertainment for 8 at the home of  
MSU President and Mrs. Gamble  
Framed print by Louis Archambault

For more information call 994-3119



For more information about the Friends of the MSU Libraries,  
visit our web site at [www.lib.montana.edu/about/friends](http://www.lib.montana.edu/about/friends)



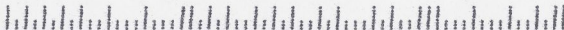
**The Libraries**

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Lib. Development - (406) 994-3340

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Bozeman MT



Mr Bud Lilly  
Mrs Esther Lilly  
2007 Sourdough Rd  
Bozeman MT 59715-5874



# Reserve This Date

October 11<sup>th</sup>, 2001

6:00 - 9:00 p.m.

## Annual Friends of the MSU Libraries' Dinner & Silent Auction

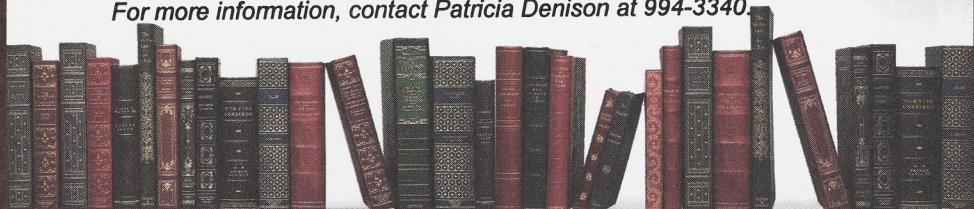
featuring

noted historian, nature writer and former  
Executive Director of the American Museum of Fly Fishing

### Dr. Paul Schullery

*A formal invitation will follow in September.*

*For more information, contact Patricia Denison at 994-3340.*





**MONTANA STATE PARKS FOUNDATION**

**P.O. Box 474**

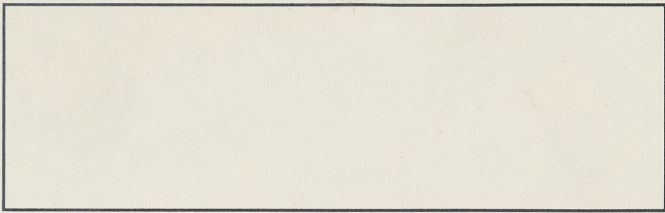
**Livingston, MT 59047**

Bud Lilly  
2007 Soundough Rd  
Bozeman, MT 59715

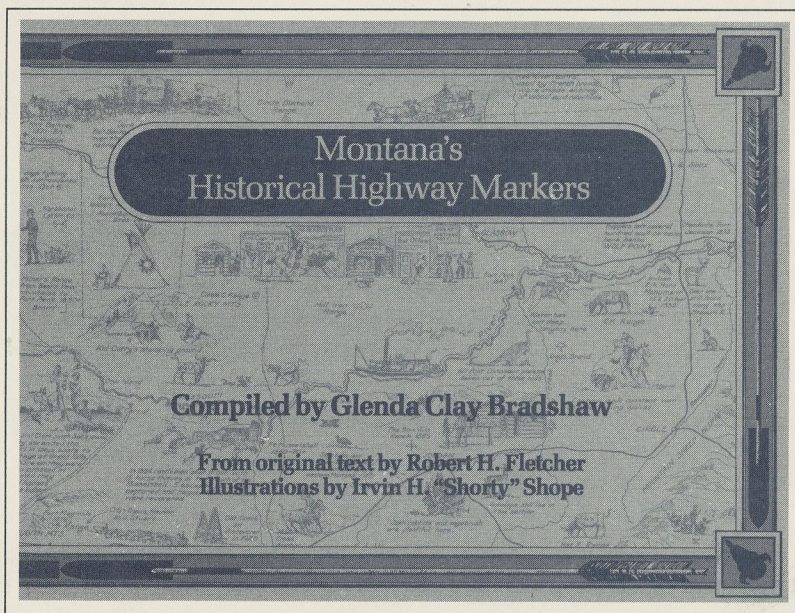
(USPS 594 320)

Montana Historical Society  
225 N. Roberts St.  
Helena, MT 59620

Return Postage Guaranteed



## NEW FROM THE MONTANA HISTORICAL SOCIETY



“A cowboy leaned over in the saddle of his dusty sorrel to read the roadside sign erected on Highway 34 near old Nevada City. Next to him a sleek sedan with New York license plates pulled up, and the driver leaned out to study the same sign. The cowboy turned to the driver of the sedan. “Talks turkey, don’t it?” he said. ‘I never miss one of ’em when I’m travelin’ in Montana.”

*Minneapolis Tribune, 1945*

You don't have to miss any of Montana's historical highway markers either. With *Montana's Historical Highway Markers* you can reread your favorite signs or plan which ones to see on your next trip. You can also learn the story behind the creation of Montana's historical road signs, which have helped travelers learn about the state for fifty-four years. Illustrated with drawings by Shorty Shope, this enjoyable collection contains the text of all 156 signs and the biographies of their creators, Bob Fletcher, Shorty Shope, and Ace Kindrick.

**Compiled by Glenda Clay Bradshaw, Foreword by Michael Korn**  
**88 pages, map, illustrations, index, bibliography, \$8.95 (plus \$1.50 shipping)**

**ALSO AVAILABLE:** Reprint of 1937 Fletcher and Shope Historical Map of Montana, 36" x 28", \$4.95 (plus \$1.50 shipping).

Please send me:

\_\_\_ *Montana's Historical Highway Markers* @ \$8.95 \_\_\_

\_\_\_ Fletcher and Shope Historical Map @ \$4.95 \_\_\_

**OR get both for just \$12.00.**

\_\_\_ Sets with book and map @ \$12.00 \_\_\_

Shipping \_\_\_

Total Enclosed \_\_\_

Name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

**SHIPPING**—Add \$1.50 for first item, \$.50 for each additional item, not to exceed \$5.00 per order to one address.

Check or money order enclosed

Visa or Mastercard # \_\_\_\_\_

Exp. date \_\_\_\_\_

**MAIL ORDER TO:** Montana Historical Society  
225 N. Roberts St.  
Helena, Montana 59620

*A Montana Centennial Publication*



# MONTANA STATE PARKS FOUNDATION

Box 474 - 109 West Callender Street  
Livingston, MT 59047

January 4, 2001

Meeting of Board of Directors

11:30 AM at Windbag Restaurant on Last Chance Gulch – Helena, MT

## MINUTES

Meeting called to order at 11:45 AM by Chairman Wayne Hirst.

Board members present: Wayne Hirst, Polly Bailey, Hal Harper, Gail Gutsche.  
Bud Lilly and Mark Behan could not attend. Terry Gruber sent a proxy vote.  
Also in attendance – Director Bob Raney and advisor George Ochenski.

Director Raney reported on responses to EA's and management plans for the following locations and activities: FWP fee proposals, Mallard's Rest FAS EA, Bannack State Park EA, Wayfarer's State Park EA, DFWP State Trails Plan, Programmatic Latrine Replacement, Headwaters Interpretive Plan, Clark's Lookout State Park EA, Logan State Park EA, Parks Program Six Year Plan, Lewis and Clark Caverns Trail EA

Director Raney gave a report on the activities surrounding Chief Plenty Coups State Park. Montana DFWP is under two laws requiring the expenditure of \$500,000 on maintenance at this park prior to July, 2001. DFWP has spent less than \$60,000 in this budget cycle and intends to spend about \$180,000 in the next two year cycle. MSPF has signed with Earth Justice Legal Defense Fund and the Crow Tribe to pursue a mandamus action against DFWP over this issue. After a motion by Polly Bailey, the board unanimously voted to continue with legal action while trying to get the agency to accept its responsibilities without going to court. The board instructed the director to meet with new Department Director Jeff Hageny as soon as possible and discuss this and other subjects. The board wants to give the department no more than two week from that meeting for the department to produce a response in writing that meets our demands (meets the intent of the law) or we promptly proceed with legal action.

Chairman Hirst directed discussion on activities to fit under MSPF 2001 work plan.

1. The board unanimously agreed that we should continue with our work on Environmental Assessments and management plans as well as the Natural Places Legacy (follow FWP and Travel Montana and their Lewis and Clark development activities).
2. The board unanimously decided we should pursue expansion of the state park system. Our efforts will be directed at additional primitive parks all across the state. We should make efforts to acquire leases on state lands for this purpose as well as working with others to have Montana acquire title to special places. Our efforts must recognize the resistance of the present political makeup in Montana to acquiring additional public lands. Therefore this is a long-term plan, 10 years

minimum, and is for the express purpose of acquiring more reasonable, primitive, and affordable places for outdoor recreation for Montana citizens.

3. The board desires to make our presence known at the legislature, to follow bills, and to testify when necessary in behalf of Montanans special places and the funds that are used to purchase, develop and maintain them. The board agreed to fund a lobbyist when necessary and within our 501(c)(3) status. Director Raney is requested to participate as well.
4. It is the boards desire that Director Raney use the newly acquired computer equipment (lap top, projector, printer) to make public presentations to advance our views on management of public parks, FASs and other public recreation and historical, cultural and geological special places. The board directed Raney to purchase a digital camera for about \$600.00 using the remaining @\$300 of Norcross grant and our cash balance. It was noted by the board that Raney should develop a presentation program both for public presentations and for potential fundraiser presentations. The board desires to increase work activities and therefore asked director Raney to step up fundraising activities and pay for grant writing assistance if necessary.
5. The board desires to have Director Raney pursue HB 495 (public participation and accountability) responsibilities that DFWP is not complying with.
6. The board desires to pursue Plenty Coups Park activities until DFWP complies with the law. Then, the board desires we cooperate with others to develop and help implement a management change at the park into one that recognizes Crow culture, historical, cultural and museum responsibilities, and the Peace Park dream of Chief Plenty Coups.

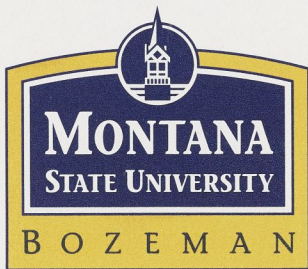
Chairman Hirst reported on our finances. We have taken in \$10,000 in operating funds and \$5,000 for equipment purchase in the past year. Balance in account on Dec 31, 2000, (after removing \$4,700 due on computer equipment) is \$8,950.

The board unanimously agreed that Director Raney will be paid according to the balance of our account, not to exceed \$2000 in any month without a board conference call. Further the board decided that all checks for pay and expenses for Director Raney and any contractors would be paid by checks issued by Chairman Hirst. The board agreed to cover office expenses (including rent, phone, and office necessities) as well as travel expenses for Director Raney and contractors.

The next meeting will be held on call of Chairman Hirst.

Board adjourned at 12:55 PM

Minutes prepared on June 5, 2001 by Chairman Raney.



**Office of the President**

211 Montana Hall  
P.O. Box 172420  
Bozeman, MT 59717-2420

Telephone (406) 994-2341  
Fax (406) 994-1893

July 18, 2001

Bud and Esther Lilly  
2007 Sourdough Road  
Bozeman MT 59715

Dear Bud and Esther:

Please join me in the Sky Box during one of our home football games this Fall. Coach Kramer and the Bobcats are revved up and ready for action.

Because seating is limited in the Sky Box, if you are able to attend please reply to this invitation with your choice of dates from the following:

9/22/01	Bobcats v. <i>Cal Poly</i>	1pm
9/29/01	Bobcats v. <i>CS Northridge</i>	1pm
10/13/01	Bobcats v. <i>Sacramento St</i>	1pm; Homecoming
10/27/01	Bobcats v. <i>N. Arizona</i>	1pm; Parents Weekend

Please reply and use whatever means is most convenient for you: by phone, mail, fax, or email to [sfraser@montana.edu](mailto:sfraser@montana.edu).

Thanks so much for your support of Montana State University. Please do me the favor of replying to this invitation by Tuesday, August 14, 2001. **GO CATS!**

Best,

Geoff Gamble  
President

GG/sf



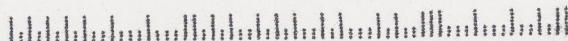
**MUSEUM OF THE ROCKIES**

Montana State University  
600 W. Kagy Blvd.  
Bozeman, MT 59717-2730



Bud and Esther Lilly  
2007 Sourdough Road  
Bozeman, MT 59715

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Museum of the Rockies, Inc.

## Annual Membership Meeting and Dinner

Monday, October 29, 2001

Strand Union Building

Montana State University-Bozeman

Please join us for

No-Host Cocktails 6:00 PM

Dinner 7:00 PM

Keynote Speaker...

**Jack Horner**

Curator of Paleontology, Museum of the Rockies

### “A Dinosaur Hall for the 21<sup>st</sup> Century”

Limited seating available  
Please return reservations  
by October 12, 2001



Torosaurus



MUSEUM OF THE ROCKIES

February 3, 2000

Bud and Esther Lilly  
2007 Sourdough Road  
Bozeman, MT 59715

Dear Esther and Bud,

I'm so pleased you'll be joining us for "*Starry Night*," at the Museum of the Rockies. It promises to be an elegant and fun-filled evening. As you may have heard, the ball is completely sold out. At present, we are working with a wait-list in hopes of accommodating everyone as cancellations occur.

I thought you might enjoy a having sneak preview of the items included in this year's live and silent auctions. The museum's Ball Committee has done an outstanding job of gathering donated trips, special events, art, lovely accent pieces and a myriad of both favorite and unusual offerings for the auction. It's wonderful to see how the whole community pitches in to make this auction really special.

We've had a number of requests to accept remote bids, both prior to and during the auction itself. We will accept advance bids by mail, fax (406/994-2682) or e-mail (maryp@montana.edu), or remote bids by cell phone during the live auction. If you have friends who cannot attend but would be interested in bidding on one or more items, please feel free to have them contact me at 994-4973.

I look forward to seeing you at the ball.

Sincerely,

Mary E. Peterson  
Development Director

*Glad you're  
coming - better wear  
your dancing shoes!*





## **Live Auction Item #5: FLY FISHING on MONTANA'S FABLED WATERS**

*The Museum of the Rockies in Bozeman, Montana, has put together a once in a lifetime fly fishing trip to some of Montana's most exclusive – and challenging – trout rivers and spring creeks. Four 4 days and 3 nights, two fishermen will travel through the heart of southwest Montana, fishing waters not usually accessible to the general public, guided by some of the region's top guides, wined, dined and accommodated by some of Montana's finest restaurants and hotels. The fishing will not be easy, but anglers will have an unparalleled opportunity to catch trophy trout in truly unique settings.*

### **Itinerary:**

#### **Day 1 – Monday, September 11, 2000**

- Fishing* – The **Boulder River** south of Big Timber, one of the finest freestone dry-fly streams in the United States. Meet fishing guide Dude Tyler, who grew up on a ranch on the Boulder, at Dan Baileys' Fly Shop in Livingston at 8:00 a.m. for the drive to the Boulder Valley. Fishing will be available on the P Bar Ranch and at other secret locations in the heart of the country featured in the recent movie, *The Horse Whisperer*. The Boulder River in September, gin clear beneath the magnificent Boulder and Beartooth plateaus, receives a strong run of large brown trout from the Yellowstone River. These browns and large resident rainbows rise readily to grasshopper patterns, although careful approaches and long casts are sometimes necessary to fool the big ones. (Donors: P Bar Ranch and Dude Tyler)
- Dinner* – Dinner donated by **The Grand Hotel** in Big Timber.
- Lodging* – **Heaney Ranch Guest House**, situated on the banks of a private trout pond and the Boulder River near Big Timber. The Heaneys will also provide the next morning's breakfast. (Donors: William and Vivian Heaney)

#### **Day 2 – Tuesday, September 12, 2000**

- Fishing* – **Nelson Spring Creek** south of Livingston on the PMD Ranch. Meet Chet Marion at the Yellowstone Angler in Livingston at 9:00 a.m. The only stretch of private water on the famous Paradise Valley Spring Creeks, Nelson Spring Creek on PMD Ranch has a large variety of trout habitat, from refreshing plunge pools, to shallow water flats, to deep spring ponds, all of which offer the opportunity to catch 3 - 4 pound rainbow, cutthroat and brown trout on tiny flies. With the Absaroka Mountains as a backdrop, and perhaps with a fresh dusting of snow, September fishing on Nelson Spring Creek can be immensely challenging. Chet Marion, however, is the "Dean" of Yellowstone River Valley fishing guides, and has generously agreed to share his many years of experience fishing on Nelson Spring Creek. (Donors: PMD Ranch and Chester Marion)
- Dinner* – Dinner provided by **Looie's Down Under**, Main Street, Bozeman, MT.
- Lodging* – **The Voss Inn**, Bozeman's finest Bed & Breakfast, Bozeman, MT.

Day 3 – Wednesday, September 13, 2000

*Fishing –* **O'Dell Spring Creek** south of Ennis. Meet Bill Long or Rock Ringling of the Montana Land Reliance in Ennis for the short trip to O'Dell. Meandering through the flat, open, treeless terrain of the Madison Valley, O'Dell Spring Creek provides incomparable pool and riffle habitat for enormous trout that emerge with heart stopping deliberation from deep pools and impossibly undercut banks. Be forewarned, however: O'Dell Spring Creek can be so challenging that fishless days are not uncommon, even for the best fishermen. Yet, if the stream is fishing well, the rewards are incomparable: Numerous 18" - 24" brown trout will rise readily to small dry flies or hopper patterns. Few people have had significant guiding experience on O'Dell because it is rarely open to the public. Yet, Bill Long and Rock Ringling have fished the stream consistently through the years and share techniques that have produced fish for them in the past. **Special Guest Star:** You will be joined by **Bud Lilly**, perhaps Montana's most famous and respected fishing guide. Bud has been a lifelong advocate of preservation of the outstanding fisheries of the Madison Valley, and will join you to share his unparalleled fishing expertise. (Donors: Granger Ranches, Alexander Bing III, The Montana Land Reliance, and Bud Lilly)

*Dinner & Lodging –* Provided by **The Old Hotel, Twin Bridges, Montana.**

Day 4 – Thursday, September 14, 2000

*Fishing –* **Ruby River on the Snowcrest Ranch** or **Red Rock River on Turner Ranches.** Depending on which location offers better prospects, Turner Ranches has generously offered either location as a fishing destination. Meet Tom Harman at Harman's Fly Shop in Sheridan to decide on the best destination, given local conditions. The Ruby River on the Snowcrest Ranch offers miles of secluded meandering meadow stream, loaded with fish both large and small, with a glorious backdrop featuring the Snowcrest Mountains, perhaps southwest Montana's most secluded and dramatic mountain range. The Red Rock River on the Turner Ranch features miles of rich stream habitat. Huge fish, some running out of Clark Canyon Reservoir, must be stalked carefully but offer a fishing experience that rivals and often surpasses the best fishing that is available in New Zealand or Argentina. Tom Harman owns the Harman Fly Shop in Sheridan, Montana, and has extensive experience guiding and outfitting on southwest Montana's Rivers. (Donors: Turner Ranches and Tom Harman, Harman Fly Shop)

***SPECIAL BONUS ITEM!!!!***  
***A \$250.00 Gift Certificate at Dan Bailey's Fly Shop for flies, tackle  
and other fishing merchandise !!!***

*NOTE: Winning anglers must furnish their own tackle and equipment. If the winners do not have their own vehicle and therefore need transportation between sites, the Museum of the Rockies will provide transportation, beginning Monday morning, September 11<sup>th</sup> through Thursday night, September 14<sup>th</sup>, subject to normal car rental terms and conditions. Lunches will be provided streamside by the fishing guides; gratuities to guides are not included. Meals and lodging will be furnished exclusive of beverages and gratuities.*

**"Starry Night" at the Museum of the Rockies**

February 12, 2000

**List of Auction Items**

**THE LIVE AUCTION**

**1. To-die-for Golf at the Stock Farm**

Charles Schwab spent \$39 million developing this exclusive Tom Fazio-designed course in Hamilton, Montana. Only twenty of the club's 300 members reside in Montana and one of them has offered to *host your foursome*. Warren Wilcox of Missoula, along with MOR insider Shag Miller of Butte, will treat your group to green fees, cart and lunch. To be used between May 15 and June 10, 2000. Arranged by Warren Wilcox and Shag Miller.

Requested opening bid: \$750

**2. To Hell (Creek) and Back...**

Join the paleontology crew and *dig for dinosaurs with Jack Horner* this summer! Jack will take up to four adults for a two and one-half day dig at Hell Creek, near Fort Peck Lake. You'll learn the basics of identifying fossilized bone and digging techniques. This new site was extraordinarily productive last summer, so come prepared for a find. Bring your camping gear, because the crew will be roughing it. Must be used during summer, 2000. Donated by Jack Horner and the MOR Paleontology Department.

Requested opening bid: \$1,000

**3. My Kind of Town!**

Experience *Chicago* the way it was meant to be seen! You'll be treated to a flight to the Windy City, where you'll enjoy two nights in a downtown hotel. While you're there, you'll have tickets to the award-winning Oprah Winfrey show. To find out why it's called the City of Big Shoulders, you'll join Jim Stacke of Stein Roe Farnham for lunch at the Metropolitan Club, followed by a tour of the Commodities Exchange. And no trip to the Windy City would be complete without a Cubs game, so bring your cap and enjoy the game on us! Must be used in May 2000. Donated by Montana Travel, Kathy Malone, Jim Stevens, and Jim Stacke of Stein Roe & Farnham.

Requested opening bid: \$1,500

**4. Intimate Concert and Dinner**

Treat your guests to a very special private concert in your own home or selected setting, featuring the distinctively Montana music of *classical guitarist Stuart Weber*. Top it off with an elegant five-course dinner for up to twelve people, catered by *Hunter Lacey*, whose motto is "a rare medium, well done," and whose culinary skills are becoming legendary. Hunter will advise on choice of wines, if desired, but wine is not included. Donated by Stuart Weber and Hunter Lacey.

Requested opening bid: \$1,200

5. **It Was a *Very* Good Year...**

This rare *1945 Lafite Rothschild* is reputed to be the best vintage of all, save 1865 and 1870. It even surpasses the best of the 1961's, according to Germany's rare-wines.com. "The nose reminds me of dried roses," the critic states, "and keeps you fascinated. It is very sweet and stylish on the palate and lives on its perfect balance rather than on power." There was frost in May '45, reducing the yield but the concentration of pure fruit in this vintage is enormous. The best 1945's are known for their staying power. Donated by Mike Owen.

Requested opening bid: \$1,200

6. **Expert Anglers' Package: Fly-Fishing on Montana's Fabled Waters**

This is a once-in-a-lifetime fly fishing trip to some of Montana's most exclusive—and challenging—trout rivers and spring creeks! For four days and three nights, two fishermen will travel through the heart of southwest Montana, fishing waters not usually accessible to the general public and guided by some of the region's top guides. You'll begin on September 11, 2000, at the P Bar Ranch and other, secret locations on the *Boulder River* south of Big Timber, guided by Dude Tyler as you seek out the browns and large resident rainbows in scenery straight out of *The Horse Whisperer*. Dinner that night will be at the Grand Hotel in Big Timber, and you'll sleep well at Bill and Vivian Heaney's guest cabin on the banks of the Boulder. The next morning you'll meet Chester Marion at The Yellowstone Angler in Livingston and tie on tiny flies to stalk the rainbows, cutthroats and browns at *Nelson Spring Creek on PMD Ranch*, the only stretch of private water on the famous Paradise Valley Spring Creeks. You'll dine that night at Looie's Down Under in Bozeman and stay at the Voss Inn. On September 13, you'll drive to Ennis, where you'll meet Bill Long or Rock Ringling of the Montana Land Reliance, who will advise you about fishing on *O'Dell Spring Creek*, with its open landscape and incomparable pool and riffle habitat for enormous trout. O'Dell is challenging fishing, so to increase your chances of landing these trophy trout, Montana's own *Bud Lilly* will come along to lend his considerable expertise. That night you'll have tales to tell while you dine and bed down at The Old Hotel in Twin Bridges. Finally, on September 14, Ted Turner offers you a choice (depending on conditions) of the *Ruby River on the Snowcrest* or *Red Rock River on the Turner Ranches*. Tom Harmon will guide you for this culminating day of fishing experience that rivals New Zealand or Argentina. Finer details and donors are listed on fliers available at each table this evening.

Requested opening bid \$2,500

7. **A Swinging Montana Hoe-Down**

Put on your dancin' boots and gather up a couple dozen of your best gals and pals! It's going to be a hot night on *August 6*, at your very own barn dance featuring the foot-stomping music of *Montana Rose*! Your party for 24 will include a buffet dinner, beer and wine, catered for you at Doris and Bill Heckerman's historic Renne Barn. Donated by the Heckermans and Montana Rose.

Requested opening bid \$1,100

8. **Discover the Real Lewis and Clark**

The Lower Portage campsite of Lewis and Clark's great American odyssey—the only scientifically authenticated Lewis and Clark campsite—invites you to reach out and touch their actual campfire sites, to consider how the Corps of Discovery felt as they faced the portage, and to experience the 'groundtruthing' work of MOR historical archaeologist *Ken Karsmizki*. You'll travel to Great Falls and spend a night in camp, followed by a float trip into Fort Benton, where you'll spend the following night in the comfort of the newly renovated Grand Union Hotel. Ken will also introduce you to the mysteries of finding steamboats on the prairie! Donated by Ken Karsmizki and the MOR Lewis and Clark Historical Archaeology Project.

Requested opening bid: \$1,000

9. **Where in the Universe is Carmen Sandiego?**

A billion miles from earth, that dastardly villain, Carmen Sandiego, has just made off with the beautiful rings of Saturn! Help your museum—as you help NASA and the ACME Detective Agency track Carmen down, bring her to justice, get back those rings—and have a great party afterwards! With your help, the Taylor Planetarium will bring a special, interactive planetarium show, based on the award-winning PBS series, "Where in the World is Carmen Sandiego?" to Bozeman. Across the country, this experience is breaking box office records as it features Academy Award winner Rita Moreno as the voice of Carmen, Tony Award winner Lynne Thigpen as "The Chief," and the music of Rockapella from the original series. It's a uniquely exciting experience for families, school classes or the young at heart, and makes an outstanding choice for a party. Your winning bid for this item will entitle you to a *special preview performance with a catered party*; up to three additional free special performances for your invited guests; and inclusion on the list of sponsors shown for every performance during the public run of the show. Party and showing dates will be available after Labor Day, 2000.

Requested opening bid \$3,000

10. **Euro-Week for Two in Germany**

Savor a week in the *medieval city of Tuebingen*, in southern Germany. You will be special guests of MSU's partner institution, University of Tubingen, with accommodation and breakfast in the university's lovely guesthouse, on a hill overlooking the scenic old village. Rector Magnusus, the university president, and Axel Markert, director of international relations, will host you for dinner. You'll also receive passes to Tuebingen's University Museum of Paleontology, located in a 15<sup>th</sup> century castle and boasting the 'Vogelherd Figuren,' some of mankind's oldest artifacts. Visit Caroline McGill's old haunts from her own sojourn in Tuebingen to study medicine in 1910! From Tuebingen, it's an easy drive into the Black Forest and other nearby attractions. Dates open, depending on availability, for one year. Does not include airfare. Donated by Axel Markert and the University of Tuebingen.

Requested opening bid: \$750

## THE SILENT AUCTION

### Glamorous Get-Aways

**11. Fly South for Sun and Natural History in San Diego**

Airfare for two to San Diego, with a two-night stay at the Hilton San Diego Mission Bay. While you're enjoying San Diego's many attractions, take in the San Diego Museum of Natural History as only a museum insider can! Museum Director Mick Hager will provide a private tour and take you to lunch. Some travel restrictions will apply. Donated by the Travel Station, Hilton Hotels and the San Diego Museum of Natural History.

Value: \$1,100

**12. Awesome Fishing, Deluxe Accommodations and Impeccable Guides**

...await you at *Battle Creek Lodge* in Choteau. Jack Salmond grew up on this 20,000 acre ranch, and now shares its 7 private glacial lakes and 21 miles of private mountain streams with his guests. Fish for Kamloop Rainbows, German Browns, Eastern Brookies and Native Cutthroats amid abundant wildlife and spectacular scenery, then relax in luxurious accommodation and enjoy gourmet meals in renovated historic cabins. Two nights for two people, best used between July 1 and September 15, 2000. Donated by Jack and Myrtle Salmond.

Value: \$1,600

**13. September in Sun Valley**

This beautiful Sun Valley, Idaho condo will be yours for a week in late September 2000. Situated close to the ski slopes in one of the nicest areas in Sun Valley, the condo accommodates two couples, plus a third individual in the loft--or a family of seven. Sun Valley offers golf, tennis, hiking, pack trips, trap shooting and ice shows featuring Olympic skaters in summer. Excellent restaurants and shops abound. Donated by Niki Gnehm.

Value: \$1,420

**14. Cheer for the Broncos in Denver**

Big Sky Airlines will take you and your companion to Denver, where you'll be treated to a Denver Broncos game! Some travel restrictions will apply. Donated by Big Sky Air and Sue Leigland.

Value: \$725

**15. Peace and Tranquility for a Week: Private Beach House in Costa Rica**

Seated atop a 30-foot high coral reef in Manzanillo, Costa Rica's southernmost town, this simple but attractive beach house overlooks the Caribbean Ocean and is surrounded by the rainforest of the Gandoca-Manzanillo Wildlife Refuge. The house has 3 bedrooms and can sleep six. Modern kitchen and bathroom facilities. Cook for yourself, or arrange cooking and cleaning for about \$8/day. Locally, you can fish for huge tarpon, watch dolphins, dive, snorkel, enjoy sea kayaking and jungle tours. No TV, stereo or phone, and no phones in the town. Donated by Jim and Ann DiBerardinis of Adventures and the Talamanca Dolphin Foundation.

Minimum bid: \$500

**16. Fairways and Waterways in the Flathead Valley**

Winner of the 1999 Best of the West Award, Marina Cay Resort is nestled into the water's edge of Bigfork Bay where the Swan River spills into Flathead Lake, the largest freshwater lake in the West. You and your companion will be treated to two nights at the resort, along with a round of golf (with cart) at Eagle Bend Golf Club and dinner at Mountain Lake Lodge, overlooking Flathead Lake. May not be used in June, July or August. Donated by Marina Cay Resort, Eagle Bend Golf Club and Mountain Lake Lodge.

Value: \$500

**17. Pick Your Vacation Week in Scottsdale**

Just outside Phoenix you'll find your vacation home, an elegant three-bedroom lakeside house which can accommodate up to six people. Includes a swimming pool, hot tub and boat for your use. Check with Buzz and Judy Cowdrey for availability, and plan your one week stay to take place during the first half of any month in the year 2000. Donated by Buz and Judy Cowdrey.

Value: \$1,500

**18. Ocean View Room at Pompano Beach's Beachcomber Hotel**

Enjoy the charming ambiance of Pompano's best resort, not to mention the 300 feet of wide, golden sand private beach, while you stay for two nights in complimentary accommodations at the Best Western Beachcomber Hotel and Villas in Pompano Beach/Fort Lauderdale, Florida. Your room will include an oversized, Mediterranean style balcony overlooking tropical gardens. Must be used by October 1, 2000. Donated by the Best Western Beachcomber Hotel.

Value: \$250

**19. Getaway to the Wingate--Without Even Leaving Town!**

Enjoy two nights in a luxurious king jacuzzi suite at the Wingate Inn, Bozeman's newest and finest property built for big sky business. Make use of the hotel's excellent telecommunications connectivity features--or just relax in your private jacuzzi. Donated by the Wingate Inn.

Value: \$270

**20. Why Drive Home from Big Sky...**

...when you can stay the night at the Comfort Inn and enjoy a complimentary dinner at the Rainbow Ranch Lodge, courtesy of *Explore!* Magazine. Donated by Michael and Heidi Dougherty of *Explore!* Magazine.

Value: \$185

**21. A Night at the 320 Guest Ranch**

MOR founder Dr. Caroline McGill purchased this working ranch in 1936 as a retreat for herself and her friends. Today, the 320 awaits you as a Guest Ranch in beautiful Gallatin Canyon. Enjoy a dinner sleigh ride for two and a complimentary overnight. Must be used by April 1, 2000. Donated by the 320 Guest Ranch.

Value: \$180

*Ever-So-Special Events!*

**22. Dinner with Governor and Mrs. Racicot**

Your party of six will join Governor and Mrs. Racicot for dinner at the Governor's mansion, including a tour of the art collection. Must be used before Thanksgiving, 2000. Donated by the Governor.

Requested Minimum Bid: \$500

**23. Easy Rider for a Day**

Put on your new leather jacket and gloves and hop on a demo *Harley-Davidson* for a day! You'll receive registration and tuition for a motorcycle safety class to obtain a motorcycle endorsement on your driver's license. Then, as soon as you're ready, roar on over to the Paradise Valley and ride with *Peter Fonda!* When you and Peter are done, Russ Chatham will host you for dinner and drinks at Chatham's Livingston Bar and Grille. Donated by Yellowstone Harley-Davidson, Peter Fonda and Chatham's Livingston Bar and Grille.

Requested minimum bid: \$500

**24. Dinosaur Sleep-Over Party**

Scavenge for goodies with a T-rex, snooze with Mama Maiasaur.... Only at the Museum of the Rockies!! The Museum's Education staff will provide a memorable party for up to 10 children of *any* age. The evening will include special activities, fossil preparation, food, fun and a sleepover in the Dinosaur Hall. Subject to Museum schedule of events. Donated by the MOR Education and Public Programs Division.

Value: \$600

**25. Busman's Holiday?**

An old-fashioned picnic for 12, with special picnic lunches from Charlie's packed in the museum's own *Yellowstone Park Bus*. Enjoy a guided tour of the Valley with the top down, while *Dave Swingle* enchants your guests with history, geology and little known facts. Dates subject to Dave's availability. Donated by MOR, Dave Swingle and Charlie's.

Value: \$600

**26. Songs of the Old West...and more!**

A full hour of play time is included in this concert by *Saddle Bags*, specializing in music of the old west based on memories of Gene Autry, Roy Rogers and Montana Slim. Sure to bring a smile, the group is fast becoming known in the region and includes Alice and Maureen Hanks and Jim McMillan (alias MSU Dean of Letters and Sciences). Based on availability for your selected date. Donated by Saddle Bags.

Value: \$450

**27. Limo to Your Dinner at Lone Mountain Ranch**

Step out in style for your dinner for four at Lone Mountain Ranch, because you'll be going there and back in a limousine! Dinner for four, or two dinners for two, plus four hours limousine service. Limo may be used Sunday through Thursday only. Donated by Lone Mountain Ranch and Classic Limo.

Value: \$400



28. **"Life Beyond Chardonnay," an Uncommon Wine Tasting**  
Let *Martin Richard*, food and beverage manager for Riverside and long-time wine steward, critic and writer, treat your party of up to 24 people to a chance to learn the vocabulary of wines that may be unfamiliar. For the occasion, Martin has selected Longridge Sauvignon Blanc from New Zealand, Trimbach Pinot Blanc, Karly Marsanne, a Vouvray (Chenin Blanc), a Tempranillo from Spain, and Phelps' Le Mistral, a California Rhone clone. Purchaser must provide wine glasses and arrange date, subject to Martin's availability. Must be used by August 31, 2000. Donated by Martin Richard.

Value: \$350

29. **Children's Tea and Manners Party at the Tinsley Homestead**  
*Margaret Woods*, MOR curator of history and textiles, will host this afternoon tea for up to ten children in the museum's Tinsley Homestead. Margaret will help the children understand the importance of courtesy and good manners while giving them a chance to practice being on their very best behavior with each other. Tea, sandwiches, tarts and cakes will be provided by Wellington's English Tea and Pastry of Bozeman.

Requested minimum bid: \$250

30. **Original Poetry Reading and Dinner**  
Bozeman poets *Greg Keeler and Dave Sands* will read some of their poetry, and make some up on the spot, while your party dines at the Sands' home. Dinner for 6-8, with poetry interspersed. Arrange a mutually agreed-up date during the year 2000. Donated by Greg Keeler, Dave and Kippy Sands.

Value: \$250

31. **Tennis Brunch Party**  
*Anne Milner* will host your group of 6-8 for brunch at her home. Besides tennis, your guests may choose croquet or bocce. Must be used by September 15, 2000. Donated by Anne Milner.

Value: \$100

32. **Bozeman Symphony Season Tickets**  
Two season tickets in section three for the 2000-01 season. Preferably (but not necessarily) for new season ticket holders.

Value: \$160

*These Are a Few of My Favorite Things...*

33. **From Gibson Guitar's Custom Line**  
...Comes this CL30 Deluxe acoustic guitar. Features Gibson's fast-action neck, a solid spruce top and Gibson's Advanced Bracing Pattern. Made of warm, deep-toned African Bubinga, with Rosewood neck and fingerboard and abalone inlay. Donated by Gibson Guitar of Montana.

Value: \$1,850

34. **Vintage French Wines**  
This special selection of fine Bordeaux includes one bottle each of Chateau-Figeac, '70; Chateau Calon-Segur '61, Chateau Timberlay '75, Chateau Gloria '75; Chateau Trotanoy '70; and Chateau Leoville Barton '66. Donated by Mike Owen.

Value: \$1,200

**35. Designer Perfume Assortment**

A dozen designer perfumes in beautiful antique style bottles, including Cartier, Guerlain, St. John, Halston, Givenchy and VonClief & Arpeles. Packed in a white china planter. Perfect for home or gifts for special friends. Donated by Doris Heckerman.

Value: \$800

**36. Fine California Wines**

A wonderful selection of six old Zinfandels: Beaulieu Vineyard, Georges Latour, Private Reserve '74; Stags Leap Cabernet Sauvignon '78; Caymus Cabernet Sauvignon '78; Ridge Zinfandel, Lytton Springs '75; Ridge Zinfandel, York Creek '78; Monterey Peninsula Winery, Amador Zinfandel, Ferraro Ranch '78. Donated by Mike Owen.

Value: \$500

**37. Selected White and Red Burgundies**

Three bottles of Santenay Clos d Malte Blanc (1997), and three bottles of Cote de Nuits Villages (1997) Pinot Noir from Maison Louis Jadot. Donated by Denys Slater.

Value: \$350

**38. Excellent Cabernets Sauvignon**

Three bottles each of two fine Cabernets Sauvignon selected especially for you: Chateau St. Jean (1996) Cinq Cepages, and San Saba (1996). Donated by Denys Slater.

Value: \$200

**Fine Art**

**39. Susan Burrows Dabney, "Starry Night"**

Nationally exhibited Bozeman painter Susan Burrows Dabney created this wonderful work in oil especially for the Museum of the Rockies ball this year. The Maudlow granary stands tall under the stars, while the warm glow of firelight invites you inside nearby homes. The painting is approximately 16" x 24". Donated by Susan Burrows Dabney of Savant Clair Galerie, with hand-done gold leaf frame donated by Beaucoup Framing and Gold Leaf.

Minimum bid requested: \$1,500

**40. Floyd DeWitt, "The Equestrien"**

Sculptor Floyd DeWitt's sense of family shines through this work in bronze, representing a child's delight in hitching a ride on his father. No. 1 of 15, 1997. Approximately 6.5" tall by 9" long. Donated by David and Kippy Sands.

Value: \$1,500

**41. Dennis Harrington, "Graceful Escape"**

An original bronze by Dennis Harrington, one of a limited edition of 16, an elk in bronze mounted on a black marble base. Approximately 16" wide by 15" tall. Donated by the MSU President's and Provost's offices.

Value: \$1,000

Personal and Professional Services

42. **Your Kid Art Becomes a Custom Children's Quilt**  
Museum of the Rockies exhibits director and designer *Beth Merrick* will incorporate your child's artwork into a custom-made quilt, in your choice of color themes. The quilt will be 30" x 40" maximum, applied and embellished with machine quilting. Please allow six months after the artwork is supplied. Donated by Beth Merrick and Quilting in the Country.  
Value: \$600
43. **Architectural Consulting**  
Four hours of consulting by *Matt Faure* and *Kip Halvorson* of Nick Fullerton Architects.  
Donated by Fullerton Architects.  
Value: \$600
44. **6-7' Colorado Blue Spruce Planted for You**  
Cashman Nursery will deliver and plant a beautiful, 6-7 foot Colorado blue spruce in your yard.  
Donated by Cashman Nursery.  
Value: \$215
45. **Expert Advice on Caring for Your Collection**  
Museum registrar and collections manager *Amy McKune* will review your personal collection and advise on appropriate methods to preserve it. The survey will include identification of materials needed and vendors who sell these materials, but will not include appraisals. Donated by MOR Research and Collections Division and Amy McKune.  
Value: \$200
46. **An Accent Painting for Your Home**  
An original art work on your wall: hand-painted accents with a Montana theme. Artist Karry Hesla will come to your home to arrange a mutually agreeable accent painting. Donated by Karry Hesla/KCA Enterprises.  
Value: \$275
47. **Private Yoga Lessons**  
Yoga instructor *Karen Averitt* offers four one-hour private Yoga lessons in your own home. Must be used before May 1, 2000 or extended by mutually agreement. Donated by Karen Averitt.  
Value: \$200
48. **Personal Training and Tanning Session**  
Gallatin Valley Health and Fitness Group offers you one personal training session, one tanning session, a t-shirt and a one-month pass to your choice of the Bozeman Athletic Club or Universal Sports and Courts. Donated by Gallatin Valley Health and Fitness Group.  
Value: \$125
49. **Create a Harmonious Living and Working Environment**  
Bozeman practitioner *Jennifer Morrical* uses the ancient Chinese art of *Feng Shui* to balance the energy of your surroundings, promoting opportunities, prosperity, creativity, healing and relationships. One hour consultation in your home. Donated by Jennifer Morrical.  
Value: \$60

### Jewelry

50. **Montana Yogo Sapphire Earrings**  
Set in 14k yellow gold; .49 ct. total weight, AA grade oval cut. Donated by Miller's Jewelry.  
Value: \$350
51. **Earrings in an Original Design**  
Brushed sterling and 14k. gold twisted loop earrings by Gerhardt. Donated by JS Jewelry Studio.  
Value: \$275
52. **Authentic Tradebeads: Double-Strand Blue Necklace and Earring Set**  
Russian Faceted beads of various shapes and sizes are deep blue in color and date back to the 1800s. The small cobalt blue beads are Venetian Glass and also date back to the 1800s. The silver in this piece is a mix of Bali silver and Sterling silver. Created and donated by Steve McCracken of Whistling Hawks  
Value: \$260
53. **Silver Earrings, Pearl and Crystal Necklace**  
Donated by Meridian.  
Value: \$247
54. **Authentic Tradebeads: Red and Radiant Necklace and Earring Set**  
This necklace is composed mostly of small Red White-Hearts. They are called white-hearts because the centers are white and they are the oldest beads on this necklace, dating back to the 1700s. The long red tube beads are Bugle beads and date to the 1800s. The small striped beads are Venetian Glass and also date back to the 1800s. The silver is a combination of Bali silver and Sterling silver. Created and donated by Steve McCracken of Whistling Hawks.  
Value: \$240
55. **Grizzly Bear Bolo Tie**  
This grizzly was first hand carved in Elk antler, then a mold was made for the lost wax process. The final product is made of high quality Sterling silver. Created and donated by Steve McCracken of Whistling Hawks.  
Value: \$120

### Art and Artifact

56. **Trout Study #2**  
Bozeman Native *Dana Kuglin* created this study of composition and color for a larger, commissioned piece. Kuglin's style is based on the interaction of light and shadow in a natural setting. Made of 75% reused materials, this piece is a lost wax original, cast in aluminum with a powder coated finish to add color.  
Value: \$2,700

57. **Paleoindian Projectile Points**  
 Typical of Montana Paleoindian archaeological finds dating from 11,000 to 8,000 years ago, these nine dated and named obsidian projectile point reproductions were made by flintknapper Dale P. Herbert of York, Montana as educational materials for the Museum of the Rockies' Prehistoric Archaeology Program. Donated by Leslie Davis, MOR curator of Archaeology and Prehistory.  
 Value: \$800
58. **Elliott Eaton**  
 Painting by well-known Montana contemporary artist Elliott Eaton. Donated by Edith Harrington Sanks.  
 Value: \$300
59. **Jeff Walker, "Horseshoe Hill Clouds"**  
 Framed oil painting by Montana artist Jeff Walker. Donated by Chaparral Fine Art.  
 Value: \$400
60. **Nicole Righter Sundling**  
 Black-and-white art photograph in rustic frame. Donated by Nicole Righter Sundling.  
 Value: \$350
61. **Tim Crawford, "Spring Creek"**  
 A framed original scenic color photograph by Bozeman photographer Tim Crawford. Print size is approximately 11x 14." Donated by T. Crawford Enterprises.  
 Value: \$225
62. **Daniel Smith, "Cry of the Raven"**  
 Limited edition print entitled "Cry of the Raven." Donated by Daniel Smith.  
 Value: \$145
63. **Daniel Smith, "Frontier Memory"**  
 Limited edition print entitled "Frontier Memory," depicting a kestrel. Donated by Daniel Smith.  
 Value: \$165
64. **Tim Crawford, "Valley of the Flowers"**  
 Framed poster entitled "Valley of the Flowers." Approximately 14" x 20". Donated by T. Crawford Enterprises.  
 Value: \$50

*Distinctive Furniture and Accents for Your Home*

65. **Oak Entertainment Center**  
 Traditional style entertainment center with two drawers, pocket door and glass doors. Will hold up to 32 in. TV. 66.5" w. x 43.7" h. x 21.1" d., red oak color. Donated by Montana Furniture Galleries.  
 Value: \$1,600

66. **"Sinkers" Trunk**  
Old cypress trunk by a New Orleans furniture maker. Donated by Montana Expressions.  
Value: \$500
67. **Sixteenth Century African Pot**  
From Mali. Donated by Primitive Art Works in Chicago.  
Value: \$500
68. **Matrioshka**  
Wonderfully detailed Russian-made matrioshka is a set of 12 nested figures. Donated by Montana Gift Corral.  
Value: \$225
69. **Cocuchas Pottery**  
From Ceramica Michoacana, this 14" x 20" Mexican pot is by Gloria Aleman. Donated by Davis-Torres Collection.  
Value: \$225
70. **Pewter Pitcher and Platter**  
With raised wildlife theme. Donated by Madison House.  
Value: \$175
71. **Framed Trout Poster**  
Explains the experience of fishing in the words of Norman McLean, "One great thing about flyfishing is that after a while nothing exists of the world but thoughts about flyfishing." Donated by Rod and Evelyn Walinchus of Visions West Gallery.  
Value: \$160
72. **Lewis and Clark Throw**  
100% virgin wool blanket, Lewis and Clark Columbia River scene. Donated by the Museum of the Rockies Store.  
Value: \$140
73. **Mission Mantle Clock**  
Solid alder construction with quartz pendulum movement. 12"h x 8"w x 4.25"d. Donated by Round Valley Iron Works/House in Order.  
Value: \$125
74. **Round wooden Bowl**  
Donated by Montana Expressions.  
Value: \$95

Read Any Good Books Lately?

75. **Donald Teague**  
Collector's edition book, signed and numbered by the artist. Includes collector's print of watercolor featured on the cover of the trade edition of this publication, now unavailable. Donated by Thomas Nygard Gallery.  
Value: \$300
76. **Lewis and Clark Journals: Atlas, Volume I**  
Donated by the Museum of the Rockies Store.  
Value: \$150
77. **The Art of the Creel**  
With the advent of "catch and release" fishing, the creel no longer has much utilitarian value. Instead, it is being recognized for its folk art appeal. This book documents more than 200 varieties of fishing creels, beautifully photographed by Gretchen Duykers on location in the Madison Valley. Donated by Dan McClain of the Blue Heron.  
Value: \$80
78. **Montana Century, Signed Copy**  
Signed by Michael P. Malone. Donated by the Country Bookshelf.  
Value: \$50
79. **Trout Reflections: A Natural History of the Trout and Its World**  
Drawing from 40 years of personal study and observations, naturalist David Carroll leads readers through the yearly cycle of the trout in this enchanting and richly detailed journal of a trout fisherman. This book, signed by the author, is currently out of print. Donated by David Carroll.  
Value: \$20

Go Outdoors and Play!

80. **Classic 19<sup>th</sup> Century English Bicycle**  
Ridden only three times in its history, this Pashley bicycle is a true classic. Donated by Gardiner and Bobbi Green.  
Value: \$700
81. **The View Will Be Perfect All Season at Bridger Bowl**  
Bridger Bowl adult season ski pass for the 2000-01 season, and brand new Scott air-control goggles. Donated by Bridger Bowl and PhD Skis.  
Value: \$545
82. **Horseback Riding in the Madison Range**  
Enjoy a day-long horseback trip in the Madison range, for two people, including lunch in the great outdoors. You may invite friends to join you at your expense. Must be prearranged. Donated by Beardsley Outfitting.  
Value: \$240

- 83. Whitewater Rafting on the Yellowstone**  
Guided full-day trip for two on the Yellowstone begins on the north edge of the Park, where you'll paddle continuous wave rapids of the Gardiner section. You'll have a riverside lunch freshly prepared on site and a little relaxation before hitting the big water rapids of Yankee Jim Canyon. Must be used between July 1 and August 31, 2000. Donated by Montana Whitewater.  
Value: \$110
- 84. Two Free Day Passes to Big Sky**  
Two complimentary adult single day ski passes for Big Sky. Must be used during the current 1999-2000 ski season. Donated by Big Sky Resort.  
Value: \$104
- 85. For the Beginning Flycaster**  
Here's just what you need: a three-hour beginning casting lesson from the experts at the Bozeman Angler. To boost your spirits while you learn, enjoy a t-shirt and mug that identify you as an up and coming angler! Call ahead to make your reservation for class. Donated by the Bozeman Angler.  
Value: \$73
- 86. Brodin Landing Net**  
From Brodin's Pro Series, this "Trout" model net has a three ply bow of monkey wood and ash. Its sculpted handle and streamlined appearance lighten the net without compromising strength. Donated by Brodin Nets.  
Value: \$69
- 87. Scott Ski Goggles (2 pair)**  
Scott pro series goggles. Donated by PhD Skis.  
Value: \$50 each pair
- 88. Bob Ward's Gift Certificates (2)**  
Donated by Bob Ward's & Sons, Inc.  
Value: \$25 each

*Indulge Yourself and Your Loved Ones*

- 89. Keep Warm in this Long Blanket Coat**  
An original design from Cindy Owings, this full-length boiled wool coat is size Medium in black, with single button closure and a chenille stitched rose leaf design on the collar. Sorry, but no exchange on this versatile item. Donated by Cindy Owings Designs.  
Value: \$398
- 90. Reversible Leather Vest**  
Texturized brown leather, with hand-painted and stenciled designs and stamped with petroglyphs and gold leaves; in size medium. Donated by Grace France.  
Value: \$250



91. **Truffles for a Year**  
Indulge yourself! One pound of chocolates or truffles each month for a year. Donated by JoNaes Candies.  
Value: \$300
92. **Flowers for a Year**  
Start each month with fresh flowers for a whole year. Pick up your arrangement of fresh flowers the first week of each month. Donated by the Country Flower Shop.  
Value: \$300
93. **Personal Luxuries**  
This lovely antique finished Greek urn is filled with bath products, a candle and a silk scarf. Donate by Reflections.  
Value: \$175
94. **Bread for a Whole Year**  
This Great Harvest bread gift pack includes 25 gift certificates for a loaf of bread. Choose from a great selection of bread that is constantly changing throughout the year. Donated by Great Harvest Bread Company.  
Value: \$150
95. **Bocce Set**  
Imported from Italy, professional quality, with nylon carrying case. Donated by The Great Rocky Mountain Toy Company.  
Value: \$120
96. **Software for the Kids**  
Make learning *very cool* with Microsoft Magic School Bus Adventure Series Software: Volume 1: Dinosaurs & Inside the Earth, Volume 2: Rainforest and Ocean, and Volume 3: Human Body and Solar System. Minimum system requirements include a PC 486/33, Windows 95, 8Mb RAM, 10 Mb hard disk space, 2x CD-ROM drive, sound card, mouse and speakers or headphones. Donated by Microsoft, the Burns Telecommunications Center and Jacqueline and Brad Bean.  
Value: \$120
97. **Sweater and Turtleneck Set**  
Alps wool cardigan with Alpine design; matching 100% cotton turtleneck. Donated by Stylon.  
Value: \$106
98. **Baby Bunting**  
Winter bunting bag, size 9-12 mo., by Cakewalk from the Netherlands. Donated by Lilly Lu.  
Value: \$98
99. **Not a Creature Was Stirring...Mouse Rugs (3)**  
Pamper the little critter who serves you so well...your computer mouse! And enjoy the precise movement offered by this high-tech Lextra fabric. Choose from three cute rug patterns. Donated by Susan Nelson and Kippy Sands.  
Value: \$25 each



## BIRDS OF THE THREE FORKS AREA

J = Birds expected in July

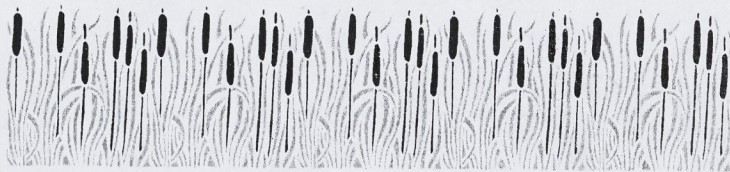
American White Pelican	Double-crested Cormorant (J)	
Great Blue Heron (J)	Canada Goose (J)	MacGillivray's Warbler (J)
Green-winged Teal	Mallard (J)	Common Yellowthroat (J)
Northern Pintail	Blue-winged Teal	Western Tanager (J)
Cinnamon Teal	Northern Shoveler	Rufous-sided Towhee (J)
Gadwall	American Wigeon	American Tree Sparrow
Canvasback	Redhead	Chipping Sparrow
Ring-necked Duck	Lesser Scaup	Vesper Sparrow
Common Goldeneye	Barrow's Goldeneye	Lark Sparrow
Bufflehead	Common Merganser (J)	Savannah Sparrow
Red-breasted Merganser	Ruddy Duck	Song Sparrow (J)
Turkey Vulture (J)	Osprey (J)	Dark-eyed Junco
Bald Eagle	Northern Harrier (J)	Red-winged Blackbird (J)
Red-tailed Hawk (J)	Golden Eagle	Western Meadowlark (J)
American Kestrel (J)	Merlin	Brewer's Blackbird (J)
Peregrine Falcon	Prairie Falcon	Common Grackle (J)
Ring-necked Pheasant	Sora	Brown-headed Cowbird (J)
American Coot	Sandhill Crane	Northern Oriole
Killdeer (J)	Spotted Sandpiper (J)	Cassin's Finch
Common Snipe	California Gull (J)	Red Crossbill
Rock Dove (J)	Mourning Dove (J)	Common Redpoll
Great Horned Owl	Common Nighthawk	Pine Siskin (J)
White-throated Swift (J)	Calliope Hummingbird	American Goldfinch (J)
Rufous Hummingbird	Belted Kingfisher (J)	Evening Grosbeak
Yellow-bellied Sapsucker (J)	Downy Woodpecker (J)	
Hairy Woodpecker (J)	Northern Flicker (J)	
Western Wood-pewee (J)	Least Flycatcher	
Western Kingbird (J)	Eastern Kingbird (J)	
Horned Lark	Tree Swallow (J)	
Violet-greened Swallow (J)	Northern Rough-winged Swallow (J)	
Bank Swallow (J)	Cliff Swallow (J)	
Barn Swallow (J)	Pinyon Jay	
Black-billed Magpie (J)	American Crow (J)	
Common Raven (J)	Black-capped Chickadee (J)	
Red-breasted Nuthatch (J)	Rock Wren (J)	
House Wren (J)	Ruby-crowned Kinglet	
Mountain Bluebird (J)	Townsend's Solitaire	European Starling (J)
Veery	Swainson's Thrush	Warbling Vireo (J)
American Robin (J)	Gray Catbird (J)	Red-eyed Vireo
Sage Thrasher	Bohemian Waxwing	Yellow Warbler (J)
Cedar Waxwing (J)	Loggerhead Shrike	American Redstart (J)



THE MONTANA  
WATERCOURSE

**Montana's Wetlands**  
**and Riparian Areas**

Bozeman, December 7, 2005



Please  
Return



THE MONTANA  
WATERCOURSE

**Montana's Wetlands**  
**and Riparian Areas**

Bozeman, December 7, 2005





Montana Department of Transportation's

# Wetland Mitigation Program

Wetland Bulletin # 1

## The Montana Department of Transportation Creates Wetlands?

### *Section 404 Clean Water Act Requirements*

The Montana Department of Transportation (MDT) is required to mitigate, create and restore wetland habitats across the state. Why, you ask? As a result of federal regulations under Section 404 of the Clean Water Act and federal highway regulations under 23 CFR 777 – Mitigation of Impacts to Wetlands and Natural Habitats, plus the mandates of Executive Order # 11990, MDT is required to mitigate impacts to wetlands and other aquatic resources from transportation projects that are federally funded. These impacts typically result from transportation projects such as road reconstructions, bridge replacements and safety improvements that occur throughout the state of Montana.

Transportation projects may cause the destruction of

## Protective Requirements for MDT Wetland Mitigation Sites on Private Property

### *Protective Covenants*

MDT is required to develop wetland mitigation sites to meet federal regulations. A number of safeguards are necessary to protect the wetland, both during its development and into the future, in order to prevent destruction and development detrimental to the wetland/aquatic resource. These requirements include perpetual conservation easements, water rights for the wetland, permanent fencing, grazing prohibitions and future management plans.

**Conservation Easements:** Wetland mitigation sites are generally developed to mitigate impacts to wetlands by transportation projects. The U.S. Army Corps of Engineers requires that a permanent or perpetual conservation easement be utilized for all mitigation sites developed on private property. The

Infrared Imagery - purchase • \$40  
400DS

## Montana's Wetlands and Riparian Areas

### Agenda

• or print out a map

December 7<sup>th</sup>, 2005, 1-5pm  
Holiday Inn, Bozeman  
Realtor Continuing Education Course

1:00 – 1:10: Introductions and pre-survey  
Debbie Zarnt, the Montana Watercourse ✓

1:10

# A guide to STREAM PERMITTING in Montana

1:4

2:2

2:4

3:1

#### PERMITTING TIPS

#### HOW TO USE A GUIDE TO STREAM PERMITTING IN MONTANA

3:3

A. MONTANA NATURAL STREAMBED AND LAND PRESERVATION ACT (310 Permit)

B. MONTANA STREAM PROTECTION ACT (SPA 124 Permit)

4:0

C. MONTANA FLOODPLAIN AND FLOODWAY MANAGEMENT ACT

D. FEDERAL CLEAN WATER ACT (404 Permit)

4:2

E. FEDERAL RIVERS AND HARBORS ACT (Section 10 Permit)

F. SHORT-TERM WATER QUALITY STANDARD FOR TURBIDITY (318 Authorization)

4:4

G. MONTANA LAND-USE LICENSE OR EASEMENT ON NAVIGABLE WATERS

H. MONTANA WATER USE ACT (Water Rights/Change Authorizations)

I. MONTANA WATER USE ACT (Water Reservations)

J. STORM WATER DISCHARGE PERMIT AUTHORIZATION

K. STREAMSIDE MANAGEMENT ZONE LAW

L. OTHER LAWS THAT MAY APPLY

CREDITS

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## Montana's Wetlands and Riparian Areas

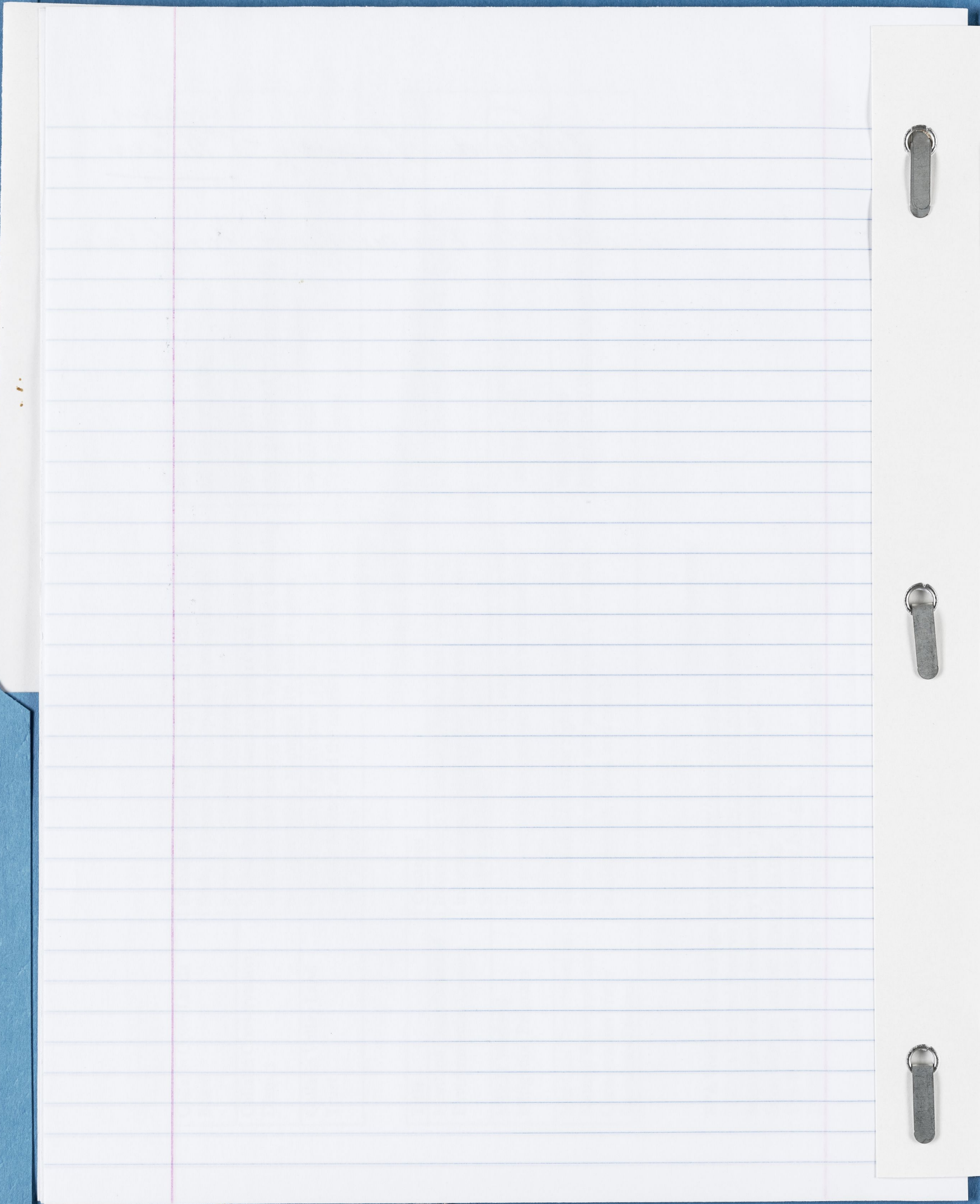
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- 1:00 – 1:10: Introductions and pre-survey ✓  
Debbie Zarnt, the Montana Watercourse
- 1:10 – 1:40 What are wetlands and riparian areas and what do they do?  
water quality, flood control, economics, wildlife, erosion.  
Debbie Zarnt, the Montana Watercourse *contact*
- 1:40 – 2:25: Water Resources in the Gallatin Valley: An Inventory of Wetland  
and Riparian Areas.  
Tammy Crone, Gallatin Local Water Quality District
- 2:25 – 2:45: Break
- 2:45 – 3:15: Wetland Regulations  
Lynda Saul, Wetlands Program Manager, MT DEQ
- 3:15 – 3:30 Wetland Review Board and the Unified Development Ordinance  
Ron LeCain, Confluence Consulting
- 3:30 – 4:00 Wetland Conservation Programs  
Tom Hinz, Montana Wetlands Legacy
- 4:00 – 4:20: Break
- 4:20 – 4:45: Artificial Ponds  
Debbie Zarnt, the Montana Watercourse
- 4:45 – 5:00: Post survey and Wrap up





# Wetlands and Riparian Areas

## MONTANA'S WETLANDS & YOU - A NATURAL PARTNERSHIP

### Montana Is Fortunate To Possess A Wealth And Variety Of Wetlands Within Its Borders

For many years though, wetlands were considered wastelands. The federal government even encouraged draining and filling them. It is estimated that about one-fourth of Montana's wetlands have been lost to agriculture and urbanization.

### Improve Water Quality

Wetlands improve water quality because they:

Wetlands catch sediment, filter pollutants, and improve stream and river function.

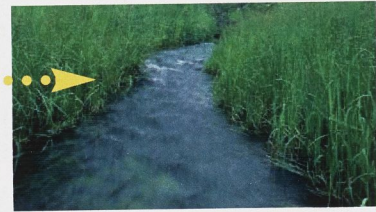


### Reduce erosion

Wetlands buffer the effects of soil erosion caused by runoff or flooding. Trees, shrubs, sedges and other riparian plants bind and hold soil, stabilize streambanks in place and slow runoff or flood waters. Reduced erosion means less sediment in lakes and streams. Less sediment equals cleaner water.

### Remove nutrients

Wetlands take up, use and store nutrients and filter them out of the water. Cattails are particularly good at removing nutrients from water.





# Wetland Mitigation Program

Wetland Bulletin # 1

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The Montana Department of Transportation (MDT) is required to mitigate, create and restore wetland habitats across the state. Why, you ask? As a result of federal regulations under Section 404 of the Clean Water Act and federal highway regulations under 23 CFR 777 – Mitigation of Impacts to Wetlands and Natural Habitats, plus the mandates of Executive Order # 11990, MDT is required to mitigate impacts to wetlands and other aquatic resources from transportation projects that are federally funded. These impacts typically result from transportation projects such as road reconstructions, bridge replacements and safety improvements that occur throughout the state of Montana.

Transportation projects may cause the destruction of wetlands or other aquatic resources, requiring MDT to mitigate for these losses at a minimum acreage ratio of an acre for an acre to replace these lost habitats.

*continued on page 2*

## Protective Requirements for MDT Wetland Mitigation Sites on Private Property

### Protective Covenants

MDT is required to develop wetland mitigation sites to meet federal regulations. A number of safeguards are necessary to protect the wetland, both during its development and into the future, in order to prevent destruction and development detrimental to the wetland/aquatic resource. These requirements include perpetual conservation easements, water rights for the wetland, permanent fencing, grazing prohibitions and future management plans.

**Conservation Easements:** Wetland mitigation sites are generally developed to mitigate impacts to wetlands by transportation projects. The U.S. Army Corps of Engineers requires that a permanent or perpetual conservation easement be utilized for all mitigation sites developed on private property. The purpose of such an easement is to insure permanent protection of the wetland mitigation site so that it is not drained, filled and/or destroyed in the future. The conservation easement boundaries are surveyed, and the conservation easement is registered and recorded with a Certificate of Survey in the County Clerk and Recorder's office for the county of record.

**Water Rights:** As wetlands require water to survive, an essential requirement for developing a wetland mitigation site is ensuring that adequate hydrology is present to allow the wetland to survive. A water right is required to protect the hydrology of the wetland and to prevent other incompatible water uses that might drain the wetland. To secure water for a developing wetland site, MDT requires that water rights be available from the landowner and within the watershed. If water rights are available, MDT applies

*continued on page 3*

## INSIDE THIS ISSUE

- 1 MDT Creates Wetlands?
- 1 Protective Requirements for MDT Wetland Mitigation Sites on Private Property
- 2 Wetland Regulations
- 3 MDT Owned Wetland Mitigation Sites
- 4 Commonly Asked Questions and Answers
- 4 Conservation Easements

In addition, MDT must replicate – in kind – wetland habitat types such as scrub/shrub wetlands and replace those functions and values destroyed by these projects, such as flood attenuation, short/long term water storage, wildlife habitat, sediment/nutrient retention and groundwater recharge.

To meet Section 404 of the Clean Water Act requirements for the U.S. Army Corps of Engineers, MDT is looking for drained wetlands and/or degraded stream channels throughout the state that could potentially be restored to natural conditions. These types of restoration efforts would provide mitigation credits toward transportation-related project impacts.

The Corps of Engineers requires MDT to develop wetland mitigation in close proximity to the project-related wetland impacts (on-site) or within the major watershed (off-site) where the impacts occur so that the functions and values of lost wetlands are replaced in that watershed.

If you have drained wetlands or channelized stream corridors or would like to develop wetlands for wildlife habitat on your property, please contact the Montana Department of Transportation's Environmental Service's Bureau at (406) 444-7228, TTY (406) 444-7696. Ask for the wetland mitigation specialist or wetland engineer.

### **Other Agency Contacts Restoring Wetlands In Montana:**

#### **PARTNERS FOR WILDLIFE PROGRAM**

U.S. FISH & WILDLIFE SERVICE  
MR. JIM STUTZMAN (406) 727-7400 EXT. 24  
Provides funding and technical assistance to private landowners interested in fish and wildlife projects on their property.

#### **MONTANA WETLANDS LEGACY**

MONTANA FISH, WILDLIFE & PARKS  
MR. TOM HINZ – COORDINATOR (406) 994-7889  
New program established to protect, restore and enhance wetland and riparian communities in the state of Montana through cooperative actions among state, federal and local agencies and conservation groups.

## **Wetland Regulations**

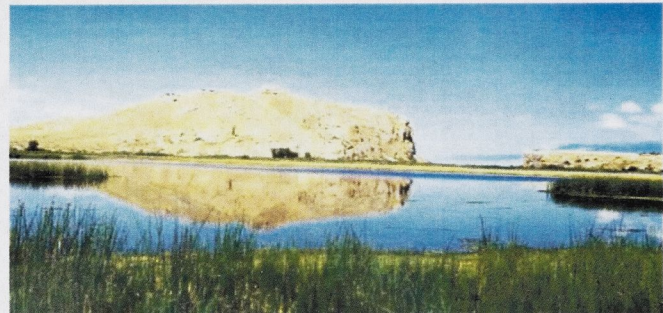
MDT is required to mitigate all unavoidable wetland impacts in accordance with the following regulations:

**Section 404 of the Clean Water Act:** This federal law requires that wetland impacts greater than 1/10 of an acre, associated with permitted activities under nationwide and individual permits, be mitigated at a minimum of an acre for an acre.

**Executive Order # 11990:** President Jimmy Carter issued this presidential order on May 24, 1977 in furtherance of the National Environmental Policy Act of 1969. It requires that each federal agency or federally funded project as permitted by law, shall avoid undertaking or providing assistance for new construction located in wetlands, unless 1) there are practical alternatives to such construction activities, and 2) the proposed activity includes measures to avoid and minimize harm to wetlands during construction.

**23 CFR 777 – Mitigation of Impacts to Wetlands and Natural Habitats:** This Federal Highway Administration (FHWA) regulation revised the rules concerning eligibility for Federal-aid transportation funding of activities to mitigate impacts to wetlands and natural habitats due to highway projects funded under the provisions of Title 23, US Code. It also updated the previous FHWA wetland regulations to conform to the wetland and natural habitat mitigation provisions contained in the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA) and the Transportation Equity Act of for the 21st Century (TEA 21).

*Photograph taken during the summer of 2001 of the Beaverhead Gateway Ranch wetland mitigation site near Dillon, Montana.*



## MDT Owned Wetland Mitigation Sites

MDT can also purchase properties to develop wetland mitigation. Over the past several years, MDT has purchased 400 acres across the state in an effort to meet the Army Corps of Engineers' compensatory wetland mitigation requirements. Some of these wetlands were developed in former borrow material pit locations that bisected groundwater levels and were reclaimed as wetlands. Some sites are as small as five acres, while others are large as 100 acres. Several are located in the Billings area, with other sites scattered across the state.

One MDT-owned site of particular interest is situated adjacent to Montana Highway Route 35, close to the town of Creston in Flathead County. This 20-acre parcel was purchased in 1995 for the express purpose of developing wetlands that would mitigate the wetlands impacted by the Creston North & South Highway 35 reconstruction project. Since that time, the site has developed into an emergent wetland marsh with two open water areas totaling 14 acres, which provide a wealth of habitat for waterfowl and other wildlife. There is a parking area with public access for wildlife viewing only. No hunting is allowed on the property due to the close proximity of residences in the area.

*View of the MDT owned Creston wetland mitigation site near Kalispell during the summer of 2001.*



### Protective Requirements

*continued from page 1*

for either a new water right or a change in use for an existing water right for the wetland mitigation site. MDT may secure a change in use of the existing water right from agriculture to wildlife and waterfowl from the Montana Department of Natural Resources and Conservation in the name of both the landowner and MDT.



*View of the recently restored Kleinschmidt Creek near Ovando during the fall of 2001.*

**Fencing:** To protect each wetland mitigation site, MDT requires that each site be permanently fenced. The fence is used to outline the boundaries of the conservation easement area. The purpose of this fencing is two-fold: first, to protect the wetland from free-ranging livestock and motor vehicles during its development; and second, to allow for future management of the site.

**Grazing/Management:** During the development of a wetland mitigation site, MDT is required to monitor the growth of wetland vegetative communities and planted trees/shrubs for a period of time determined by the Army Corps of Engineers. During that time, which can range from three to five years, grazing is prohibited to allow vegetation to establish. Once the monitoring is complete, MDT works with the landowner to develop a grazing management plan that will preserve the established wetland and vegetation community.

## Commonly Asked Questions and Answers

**Q: Who pays for wetland mitigation?**

A: MDT generally pays for all aspects of developing wetland mitigation projects on private property. MDT will provide funding to purchase a wetland conservation easement, to develop the wetland design and to construct the wetland. Or MDT can purchase completed wetland credits from a landowner who develops wetlands in accordance with the Army Corps' Wetland Banking Guidance.

**Q: How does MDT find out about potential wetland mitigation sites?**

A: Potential wetland mitigation sites are located through a variety of ways, including from landowners contacting MDT to develop wetlands on their property; from resource agencies (Montana Fish, Wildlife & Parks) and/or conservation organizations (Ducks Unlimited) contacting MDT with potential project sites; and through MDT acquiring excess right of way along a project corridor.

Selected sites are then evaluated for a number of important requirements, and a wetland delineation is conducted to determine the number of existing wetland acres and the potential for developing wetland credit acres for Corps approval. This evaluation period generally takes 30 to 60 days, depending upon the size of the property.

**Q: What is the minimum size of property MDT will accept to build wetlands?**

A: MDT attempts to maximize the wetlands it can develop at each site in order to create reserve wetland credits for other transportation projects impacting wetlands. The minimum size MDT looks at is approximately 10 acres, but smaller parcels adjacent to MDT projects may be used.

**Q: What kind of property is MDT interested in locating?**

A: MDT is looking for property that contains drained or degraded wetlands and/or channelized stream corridors. If the site has a high groundwater table and ditches or tile drains have been installed to "dry out" the site for agricultural production, MDT is very much interested in looking at these sites due to a high potential for wetland development.

**Q: How long does it take MDT to develop a wetland project?**

A: MDT wetland projects generally average two to three years from start to finish, depending on the time it takes to secure water rights, negotiate a wetland conservation easement and design the type of wetland project appropriate to the site.

## Conservation Easements

*What is the difference between a wetland conservation easement and fee title?*

A wetland conservation easement is an encumbrance placed on the land in perpetuity, and the fee title remains in the name of the landowner. The use of the land is limited to the extent of the terms and conditions as set out in the easement. The landowner may have limited use of the land in order to protect the developed wetland. The value of an easement may be less than the value of a fee interest in the land.

A wetland conservation site is acquired in fee when the title of the land transfers to the state. The state owns and maintains the wetland as the landowner transfers all rights, title and interest to the state. The compensation is based on market value of the fee interest or title to the land.

A landowner can donate an easement or fee interest for land to be developed as a wetland mitigation site. There is no compensation for donated land, although there may be tax advantages to the landowner. In addition, the landowner benefits from the development of a wetland site into perpetuity.

**For More Information:** Please contact the Environmental Services Bureau at (406) 444-7228 and ask for the wetland personnel. The TTY number is (406) 444-7696.

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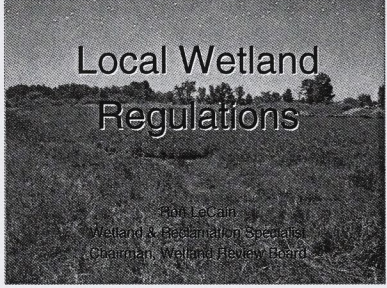

**The Montana Department of Transportation attempts to provide reasonable accommodations for known disabilities that prevent a person from participating in any activity, program or service of the Department. Alternate accessible formats of this document are available upon request. For more information, please call (406) 444-7228, TTY (406) 444-7696.**

**This publication was produced at a cost of \$\_\_\_ per copy, including \$\_\_\_ for printing.**

City of Bozeman  
Unified Development Ordinance


## Local Wetland Regulations

Paul LeCain  
Wetland & Reclamation Specialist  
Chairman, Wetland Review Board



City of Bozeman Wetland Regulations

- Federal Wetland Regulations
  - Wetlands and Waters of the U.S.
  - Migratory Bird Rule
- 2001 SWANCC Decision
  - Overruled migratory bird rule.
  - Limited U.S. Army Corp of Engineers (USACE) jurisdiction to isolated or adjacent wetlands.




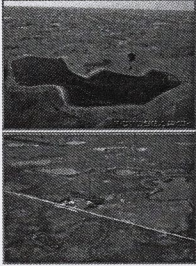

City of Bozeman Wetland Regulations

- Isolated vs. Connected Wetlands
  - Connected Wetlands


City of Bozeman Wetland Regulations

- Isolated vs. Connected Wetlands
  - Isolated Wetlands

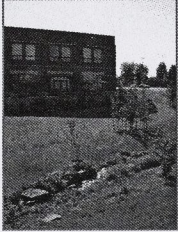

City of Bozeman Wetland Regulations

- City of Bozeman's Unified Development Ordinance (UDO)
  - Wetland Regulations
    - Provides protection for isolated wetlands not under USACE jurisdiction.
  - Wetland Review Board
    - Review projects impacting isolated wetlands and provides recommendations.



City of Bozeman Wetland Regulations

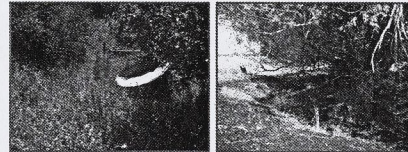
- Watercourse Setbacks
  - 50 foot setbacks from all perennial waterways.
  - Setbacks must be increased by width of any wetland within setback.

- Typical Recommendations
  - Montana Department of Transportation (MDT) function and value assessment.
    - Category I, II wetland recommendations
    - Category III, IV wetland recommendations



- Typical Recommendations
  - Wetlands with scrub/shrub habitat
    - Typically recommend 50 foot setback.



- Take Home Message
  - Incorporate Early Assessment and Planning for Aquatic Features.

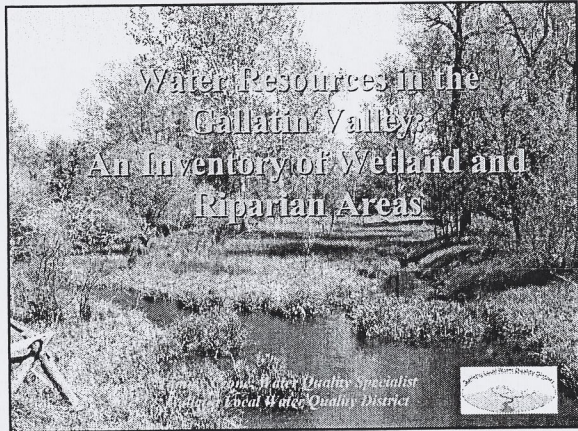


**QUESTIONS?**

Ron LeCain  
Confluence, Inc  
P.O. Box 1133  
Bozeman, MT 59771-1133  
p. 406-585-9500  
f. 406-582-9142  
rlecain@confluenceinc.com








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### Presentation Overview

- About the Gallatin Local Water Quality District
- The modification of water resources/conditions in the Gallatin Valley
- Inventory of wetland and riparian resources in the Gallatin Valley
- Ground Water & Surface Water: One Resource
- Local ground water/surface water issues
- Helpful resources

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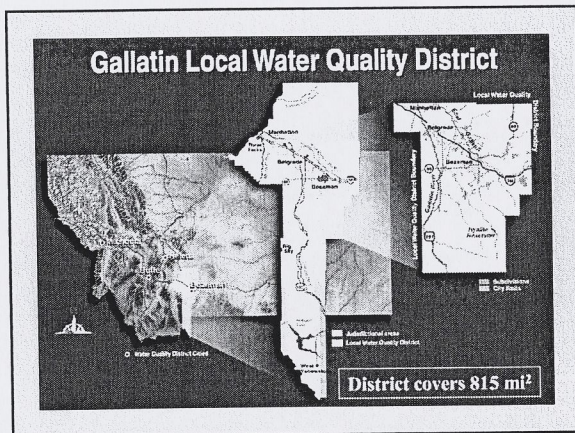
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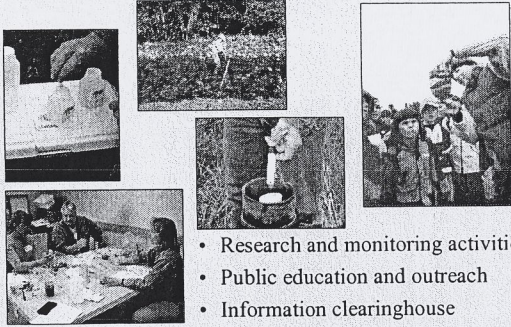
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*"Protect and preserve ground water and surface water within the District"*



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### **Modification of Water Resources in the Gallatin Valley**

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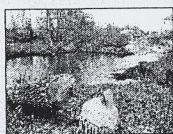
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### **The "hydrologic modifiers": Pre-settlement**

#### **• Beaver**

- The original hydrologic engineers!
- maintain wetlands that can sponge up floodwaters, slow the flow of floodwaters, reduce erosion, raise the water table and act as the "earth's kidneys" to purify water
- #'s reduced due to hunting/trapping



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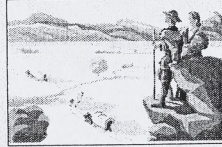
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## The "hydrologic modifiers": Post-settlement

- **Humans**

- Irrigation ditches
- Pond development
- Streambank stabilization (rip rap)
- Wetland draining and wetland filling (for agricultural production and development)
- Transportation corridors



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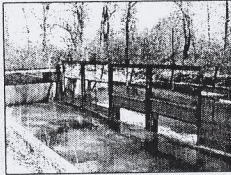
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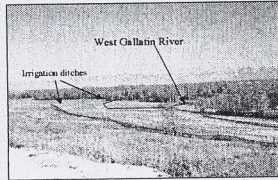
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## Irrigation



- Transport water to semi-arid areas.
- Provides GW recharge



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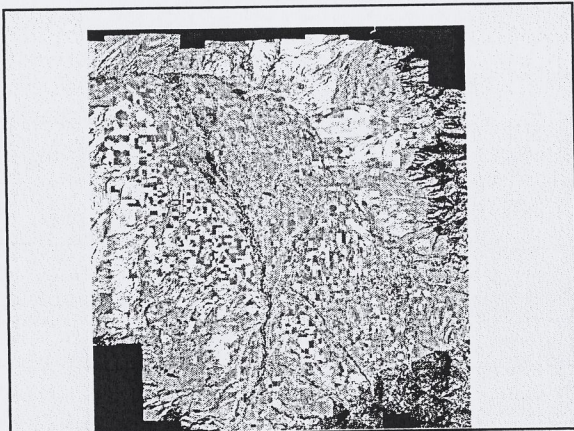
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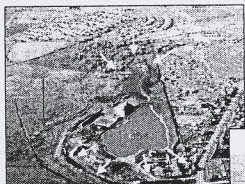
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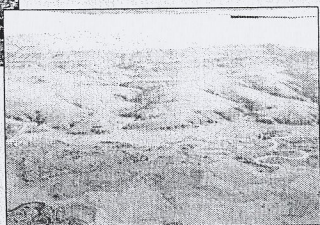
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### Man-made Ponds



- Alter the hydrologic landscape

- Capture shallow ground water



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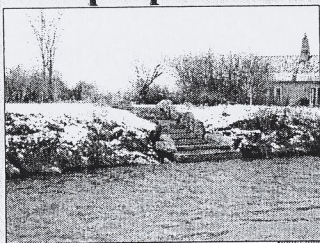
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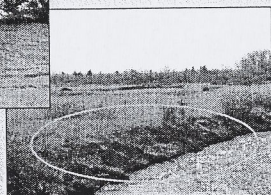
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### Rip rap/man-made structures



- Increases water velocity downstream
- Can increase streambank erosion downstream

- During flooding events can be transported and impact downstream conditions.



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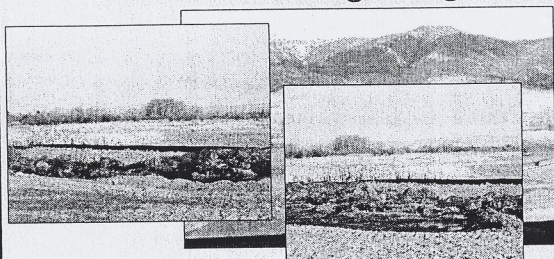
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### Wetland draining/filling



- Alters, and can prohibit, ground water recharge
- Reduction in or elimination of flood water control
- Reduction in or elimination of contaminant filtering

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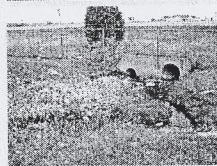
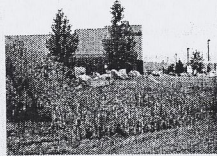
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### Examples of Impacts from Commercial Development and Transportation Corridor

- Commercial development in historic wetland area.
- Transportation corridors altered surface water flow.




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### Value of Wetlands to Humans

- Wetlands cover only 4-6% of global land surface.
- 75% of species in Montana are highly associated with wetlands.



- Decades of wetland destruction.
- Flooding in New Orleans and other Gulf Coast areas could have been minimized.

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### Putting a price tag on it

Monetary value based on:

- Functional Ecological Value
  - Performing ecological functions that humans would be required to perform anyway
    - Stormwater management, pollutant filtration, flood control, etc.

Ecosystem Type	Unit value (\$/ha/yr)
Estuaries	22,832
Wetlands	14,785
Lakes/rivers	8,498
Forest	969
Grasslands	232

Mitsch & Gosslink, 2000

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**Inventory of  
Wetland and Riparian  
Resources  
in the  
Gallatin Valley**

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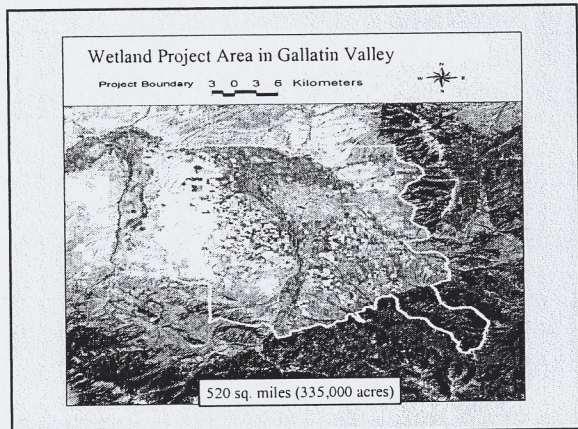
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**Questions Addressed...**

- **How** are wetland and riparian areas currently distributed in the Gallatin Valley?
- **What** is the maximum historical extent of wetland and riparian areas in the Gallatin Valley?
- **Where** and how have land use changes impacted these resources?

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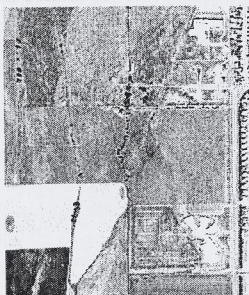
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### Color Infrared Imagery



- Aerial photos taken on 9/9/01, after prolonged dry conditions and prior to first killing frost.
- Using CIR images at this time of year highlights wet areas by showing actively growing plants in red.
- Wet areas due to artificial irrigation or natural (high GW, wetlands, riparian) water source.
- Aerial photographs processed into high resolution digital images that could be viewed on computer.

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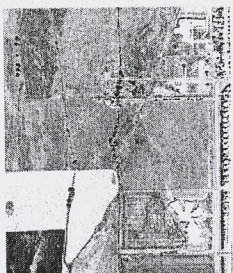
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### Why CIR?



- Used as primary tool for mapping wetland and riparian features.
- Used for comparison with historical photographs.
- Provides a resource for future analysis of changes to wetland and riparian resources.
- Other existing spatial datasets can be directly overlaid on the CIR imagery.

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### Examples of GIS layers created

#### Map Legend

- Riparian/Wetland Mixed (Sept. 2001)
- Wetland (Sept. 2001)
- Maximum Historical Wetland and Riparian Combined



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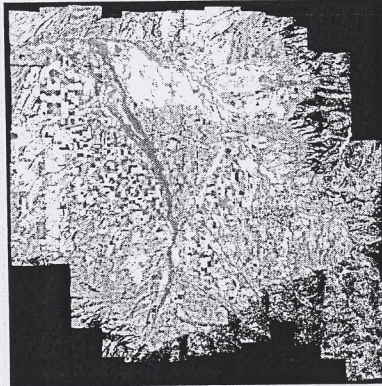
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**The  
Final  
Product**




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**Inventory of Gallatin Valley  
Wetlands in 2001  
RESULTS**

2001	Total Acres	%Study Area	Maximum size (acres)	Minimum size (acres)	Count
Wetlands	8,960.85	2.68	706.45	0.31	401
Riparian	13,923.90	4.16	960.16	0.16	530
GRAND TOTAL	22,884.75	6.84	1666.61	0.47	931

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**Comparing Historical to  
2001 Inventory**

HISTORICAL	TOTAL ACRES	% STUDY AREA
Wetlands/riparian extent	59,849	17.89
2001 INVENTORY	TOTAL ACRES	% STUDY AREA
Wetlands	8,981	2.68
Riparian	13,924	4.16
2001 Inventory Grand Total:	22,905	6.84

- In 2001, 38% of historical wetlands in Gallatin Valley remain (US average = 46%)

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### Historical Impacts to Resources

- Trapping, reduction in beaver population
- Agricultural development
  - Draining wet areas, irrigation canals, flood irrigation, cropping, grazing.
- Urban development
  - Draining wet areas, filling wetlands, altering drainage
- Transportation corridors
  - Filling wetlands, altered drainage, blocking sub-surface water flow
- Suburban development
  - Mixture of all other impacts, widespread changes in land use, associated changes in impacts from agriculture.

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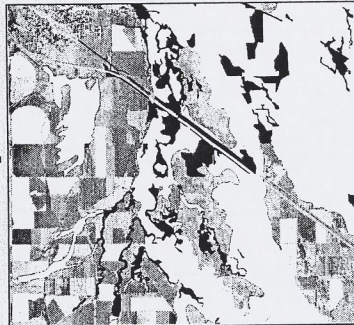
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### Historical vs Current Wetlands at I-90 & West Gallatin Corridor

Map Legend

- Riparian/Wetland Mixed (2001)
- Wetlands (2001)
- Maximum Historical Wetland and Riparian Combined



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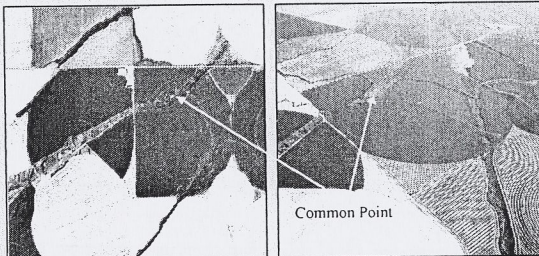
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### Example of Features Created by Agriculture



Irrigation dependent wetland and riparian habitat, Madison Plateau.

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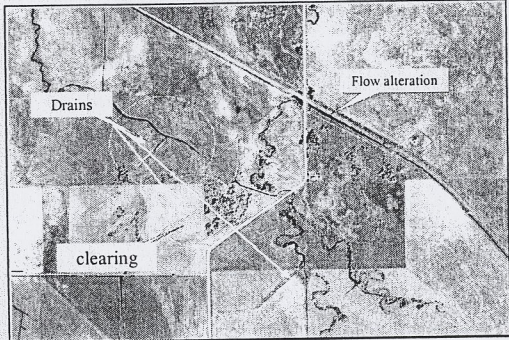
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**Evidence of Clearing, Draining & Altering of Flow**



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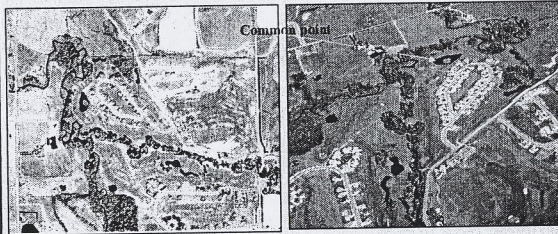
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**Example of Impacts from Residential Development**



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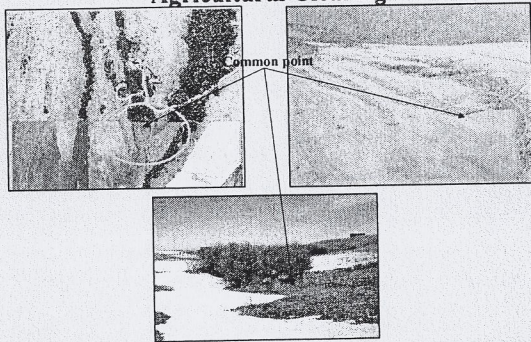
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**Example of Suburban Development and Agricultural Clearing**



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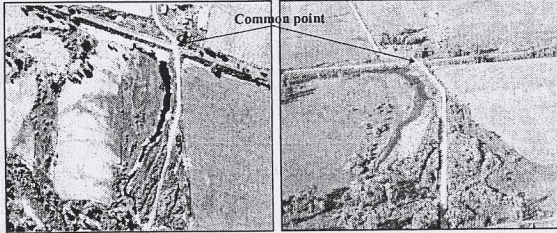
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### Example of Impacts from Roadbeds and Hydrologic Modification



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### Wetland & Riparian Inventory: A Resource for Real Estate Professionals

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### Some Uses

- Recognizing situations where you might need to send your client to a natural resource professional or permitting agency for further assistance.
- Assist your clients...
  - to identify potential wetland and riparian areas on a parcel of interest.
  - looking for property to put in conservation easement.
  - to determine need for wetland delineations, potential permit requirements for site development, etc.
  - understand potential building constraints for a site prior to purchase.

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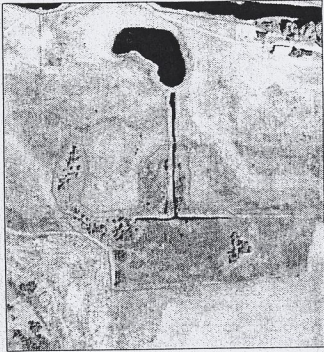
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**Potential Restoration Site - Example**



Wetland

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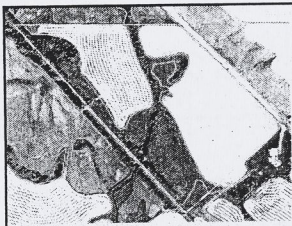
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- Minor subdivision
- Identified areas of existing and historical wetland conditions

• Determined need for specialized wastewater treatment system



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## Ground Water & Surface Water: One Resource

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### Ground Water Flow In the Gallatin Valley

- General SE to NW flow.
- Recharge mainly from leaking streams & ditches.
- Minor recharge from precipitation, underground flow from bedrock.
- Primary recharge areas are W. Gallatin and Gallatin Range.
- No significant recharge from Horseshoe Hills.



Discharge Area

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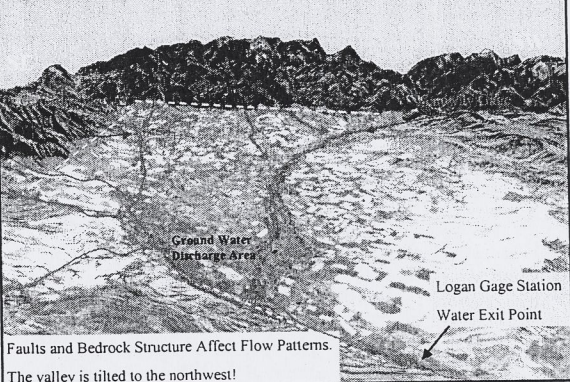
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### Controls on Surface Water Flow Patterns



Ground Water Discharge Area

Logan Gage Station  
Water Exit Point

Faults and Bedrock Structure Affect Flow Patterns.  
The valley is tilted to the northwest!

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## The Hyporheic Zone

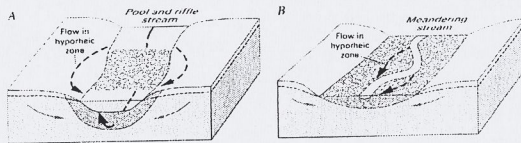


Figure 14. Surface-water exchange with ground water in the hyporheic zone is associated with abrupt changes in streambed slope (A) and with stream meanders (B).

- Near stream channels there are complex GW/SW interactions and flow patterns due to meanders, abrupt changes in stream gradient, and changes in sediments.
- A zone of mixed ground water and surface water creates a unique environment for aquatic insects.

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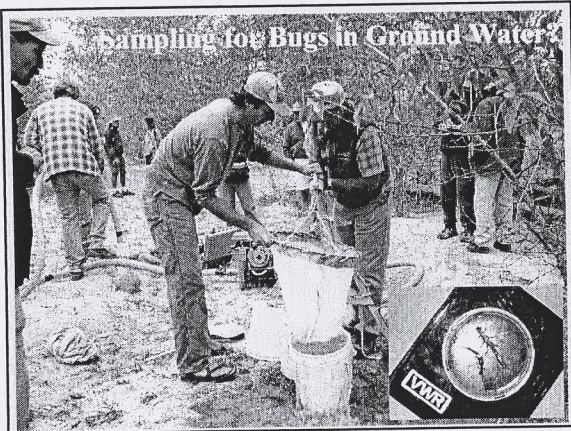
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## Local Issues

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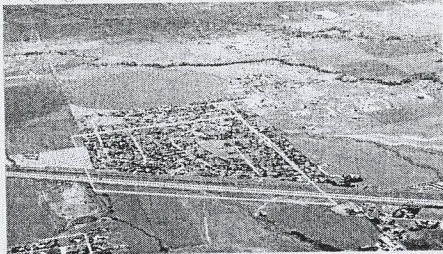
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### GW/SW Interactions

#### Changing land use - Mountain View Subdivision



- Ground-water levels dropped 5-10 ft.
- Probably due to changes in land use upgradient from flood irrigation to commercial/residential development.
- Over 30 wells had to be deepened or replaced.

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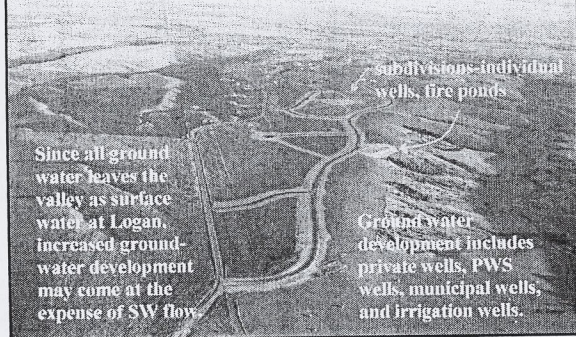
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### Possible Impacts to Surface Waters from Valley-Wide Ground-Water Development



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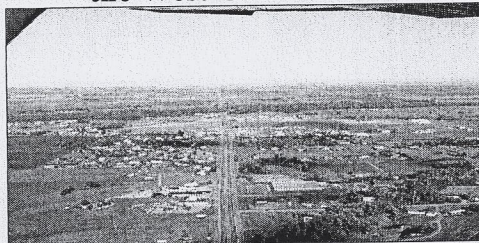
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### Capture of Ground Water near the West Gallatin River



- Part of the Upper Missouri River Closed Basin - No appropriations of ground water that is immediately or directly connected to surface water.
- Rapid growth and numerous applications for high-capacity wells concerns irrigators with surface-water rights.

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**Local Resources**

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**Gallatin Local Water Quality District**

- Provide answers to hydrologic questions (surface water and ground water).
- Provide educational materials for your clients.
- Guide you to appropriate agency for assistance.

[www.gallatin.mt.gov/GLWQD](http://www.gallatin.mt.gov/GLWQD)

Alan English, Manager 582-3148  
[Alan.english@gallatin.mt.gov](mailto:Alan.english@gallatin.mt.gov)

Tammy Crone, Water Quality Specialist 582-3145  
[Tammy.crone@gallatin.mt.gov](mailto:Tammy.crone@gallatin.mt.gov)

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**Gallatin Conservation District**

- 310 permits (streambed work)
- Weed abatement and management
- Education

Marcie Murnion, Administrator 522-4011  
[Marcie.murnion@mt.nacdnet.net](mailto:Marcie.murnion@mt.nacdnet.net)  
[www.gallatined.mt.nacdnet.org/](http://www.gallatined.mt.nacdnet.org/)

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### **MT Department of Natural Resources & Conservation**

- water right applications
- well permitting
- ponds

Scott Compton, Region Manager (Bozeman office)

[scompton@mt.gov](mailto:scompton@mt.gov)

[www.dnrc.mt.gov](http://www.dnrc.mt.gov)

586-3136

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### **Greater Gallatin Watershed Council**

- Non-profit grassroots organization. Established 2004.
- Mission: to conserve and restore the greater Gallatin Watershed resources through focused action.
  - Action areas:
    - Coordination (community focus event)
    - Collaboration (grants, projects, Parade of Homes idea)
    - Education (public forums)
    - Research (sponsor grants, GW/SW Interaction)
    - Technical Assistance & Administrative Support (to existing subwatershed groups)
- Web site: [www.greatergallatin.org](http://www.greatergallatin.org) (under construction)
- Contact: [Tammy.Crone@gallatin.mt.gov](mailto:Tammy.Crone@gallatin.mt.gov) 582-3145

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### **Montana Wetlands Legacy**

- Wetland preservation and restoration efforts
- conservation easements
- leases
- in lieu fee program
- cooperative agreements

Tom Hinz, Coordinator 994-7889

[thinz@montana.edu](mailto:thinz@montana.edu)

[www.wetlandslegacy.org](http://www.wetlandslegacy.org)

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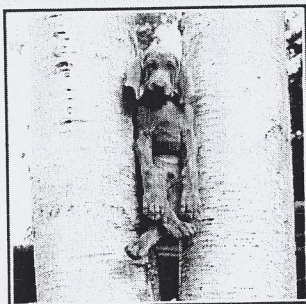
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**Thank You!**



Some days all you can do is smile and wait for some kind soul  
to come pull your \_\_\_ out of the bind you've gotten yourself into.

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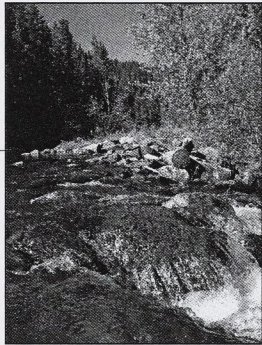
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## Sales of Property Near Water?

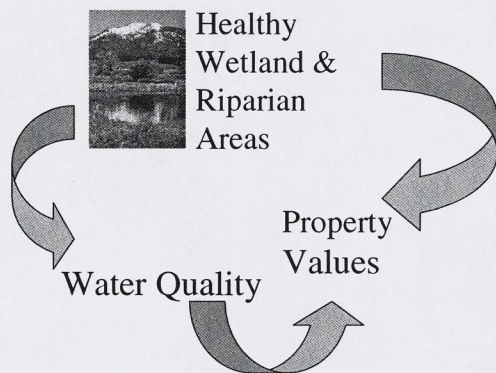
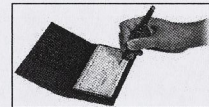


## Property Values

People pay more for property near clear water

☛ \$10,000 - >\$400,000  
(Krysel et al. 2003)

☛ \$200 / foot shoreline  
(Michaels et.al 1996)



## Course Goals

- ☛ Basic understanding of wetlands and riparian areas
- ☛ Educate clients
- ☛ Connect them to resources
- ☛ Help them make good choices

## Introduction

- ☛ What are Wetlands and Riparian Areas
- ☛ Functions
- ☛ Benefits



## Wetlands



EPA



McWeneger Slough, near  
The Flathead River

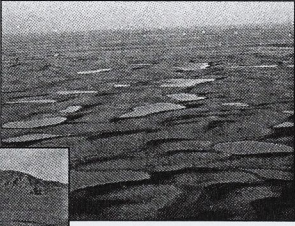
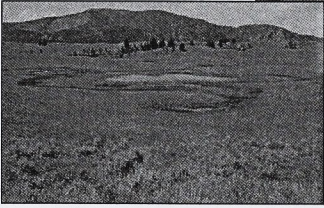
☛ Areas inundated or saturated by surface or ground water for part or most of the year

- ☛ Hydrology
- ☛ Soils
- ☛ Vegetation



Prairie Potholes

Eastern MT


Near Ovando, MT

Joe Stutzman USFWS

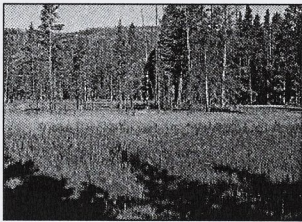



Temporarily flooded pothole fills in spring and dries in the summer.





Peatlands

- ✓ Fen or Bogs
- ✓ Organic Soil
- ✓ Little or no drainage





Biscuit Basin, Southern MT

Slope Wetlands  
or  
Seeps and Springs

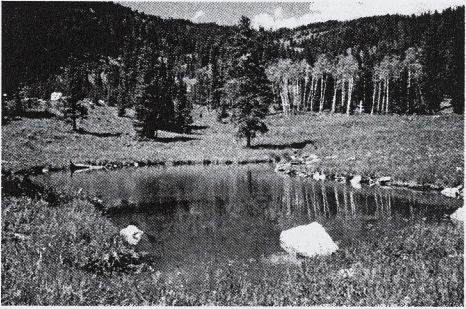



Pete Husby

Wetlands near rivers and lakes

Artificial

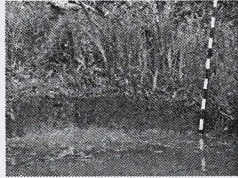


ADC

## Identifying Wetlands

### Soils

- Grey
- Black – organic matter



## Identifying Wetlands

### Plants

- Buttressed trunk
- Shallow roots
- Floating leaves or stems
- Air filled tissue in roots and stems



## Identifying Wetlands

### Hydrology

- Water
- Soggy Soils
- Water marks



Tammy Crone GLWQD

## Identifying Wetlands

### 4 Agencies

- Army Corps of Engineers - ACOE
- Environmental Protection Agency - EPA
- Fish and Wildlife Service – FWS
- Natural Resource Conservation Service - NRCS



## Riparian Areas

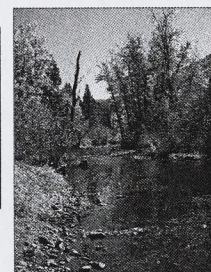
- Different vegetation due to water
- More robust growth



## So What Do They Do?



Larry Urban MDOT

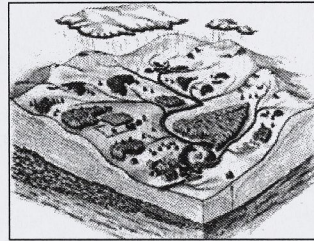


## River Systems

- ✓ Balance between water and sediment



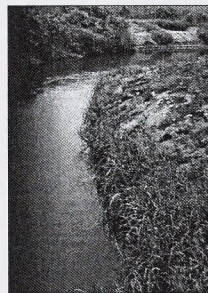
## Watersheds



Coloradowatershed.org

## Riparian Areas

- ✓ Slows stream flow
- ✓ Collects sediment



Cows and Fish

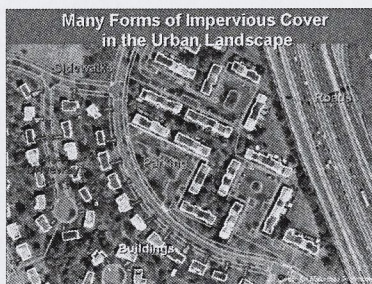
## Prevents Erosion

- ✓ 5cm root depth resists erosion up to 20,000 X better than bare soil

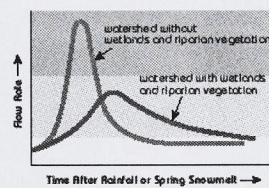


Cows and Fish

## Storm Water Runoff



## Runoff With and Without Riparian Areas and Wetlands



↑ Volume ↑ Speed = ↑ Erosion

## Erosion of Riparian Areas

- ☞ Degrades Water Quality
- ☞ Impairs Fisheries
- ☞ Prevents access to floodplain
- ☞ Increases downstream flooding

Where does the water go when it can't reach it's floodplain?

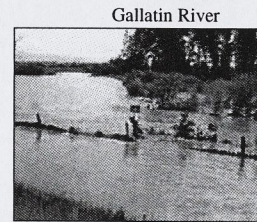


Cows and Fish

## Flood Control

- ☞ An acre of wetlands can hold

**1 – 1.5 Million**  
Gallons of Water

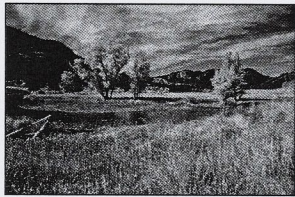


Gallatin River

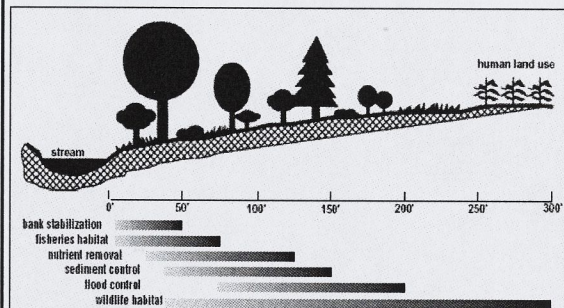
NRCS

## Buffers: Most Effective Protection

- ☞ Natural, undeveloped, vegetated areas surrounding a stream or wetland

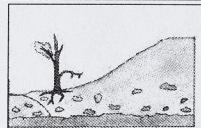
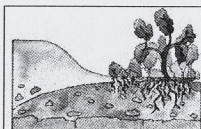


## Buffer Widths



Riparian Buffers by Connecticut River Joint Commissions

## Water Quantity and Buffers

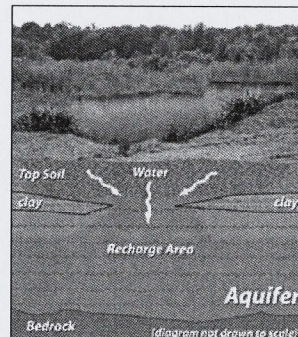


Cows and Fish

- ☞ What happens to streamflow and runoff in each case?

## Water Quantity

- ☞ Recharge to aquifers

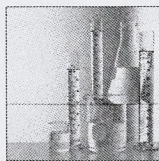


Copyright Lightwork Visual Communication

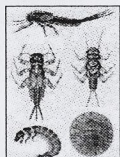
## Water Quality



Physical



Chemical

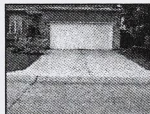


Biological

## Water Quality

700% higher phosphorous rate input development 1940 's vs 1990's (Panuska, 1994)

- Hard Surface Area
- Removing riparian / shoreline vegetation
- Fertilized lawns

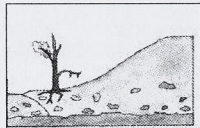
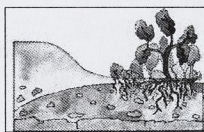


stencilsystems



Handywoman.com

## Water Quality and Buffers



Cows and Fish

What happens to runoff containing sediment and pollution in each case?

## Water Quality



Water Slows and Settles



Colorado State University

Plants, soil microorganisms, and soil particles absorb nutrients and pollutants

## Montana's Water Quality



Caro.com

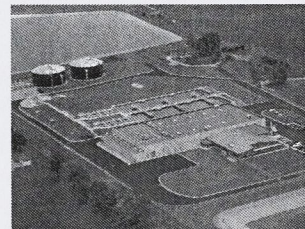
56% population relies on clean surface water

46% relies on clean ground water

## Economics

Water Supply

- Cleaning polluted water is expensive





## Economics

- ✓ Fisheries
- ✓ Agriculture
- ✓ Can increase property values
  - Increase local tax revenue



## Wildlife

- ✓ Shelter, food, and nesting sites for many species



## Wildlife

- ✓ Healthy wetlands attract more wildlife



## Benefits of Wetlands and Riparian Areas

- ✓ Water Quality
- ✓ Water Quantity
- ✓ Flood Control
- ✓ Erosion
- ✓ Wildlife
- ✓ Economics



## Montana's Wetlands

- ✓ 27% disappeared
- ✓ 1-2% of land area

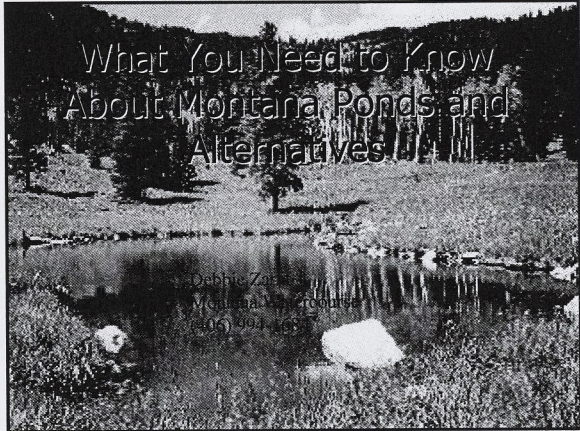


MSU Ag Extension

## What You Can Do

- ✓ Encourage buffers
- ✓ Increase awareness
- ✓ Put client in touch with resources






## Introduction

- Ponds
  - Well Constructed vs. Poorly Constructed
- Alternatives
  - Some may better meet land owner goals
- Important considerations when developing a pond

## Well Constructed Ponds


- Benefits Wildlife
- Improve Aesthetics
- Improve Fisheries
- Provide Recreation




Larry Urban MDOT

## Poorly Constructed Ponds

- Threats to instream flows and water rights
- Degrade water quality
- Threat to wetlands




Tom Hinz



## Poorly Constructed Ponds


- Introduce exotic / undesirable species
  - Aquatic Plants
  - Fish
  - Weeds

Purple Loosestrife



umn.edu

Yellow Perch



JOSEPH TOWELL/ERI


## What Do You Want on Your Property?



Improve aesthetics &/or vegetation



Fish habitat



Wildlife viewing

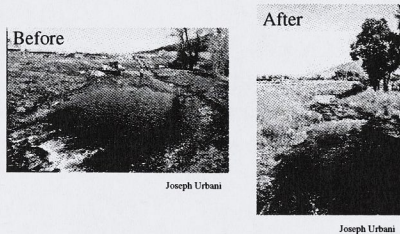


Fire suppression, swim, paddle, etc.

A  
D  
C

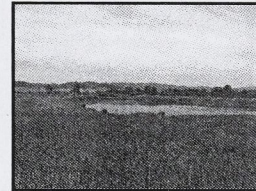
## Alternatives to Building a Pond

### Stream Restoration



## Alternatives to Building a Pond

- Wetland Enhancement or Restoration



## Alternatives to Building a Pond

### ■ **Seasonal Ponds**

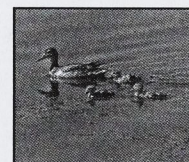
- Water from seasonal runoff and / or ground water
- Good alternative if limited water supply



NPS Jim Peaco

## Seasonal Ponds

- Good waterfowl habitat
- Much less expensive



## Alternatives to Building a Pond

### Wildlife Protection / Habitat Improvement



NRCS

## Pond Development Process

- Due Diligence
- Long Process



Madison Valley Ranchlands Group

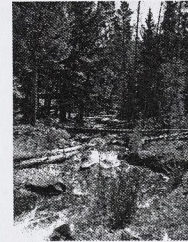
## It's the Water (Part I)

- Where will the water come from?



## It's the Water (Part II)

- Is there a water right?
- Time
- Type
- Seniority



## Bottom Line: Water

- If you don't have the water, you don't have a pond.

## Step II: Major Considerations



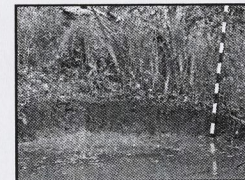
## Water Quality

- Temperature
- Dissolved Oxygen
- Nutrient Levels



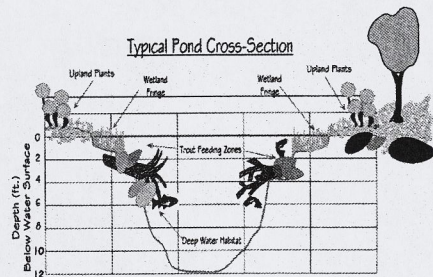
## Design Considerations

- Soil Analysis
  - Permeability
  - Salinity



## Design Considerations

### ■ Depth



## Pond Construction

- Hire Professional
- State, Federal, Private
- Currently no certification process



ADC

## Construction

- Time and financial resources to properly construct and maintain the pond?
- Estimate: \$10,000 - \$90,000



Alpina watches



## Pond Maintenance

- Long term plan
- Embankments
- Structures
- Water supply
- Water Quality
- Diverse plants
- Amphibians, fish, other life in balance



## Pond Maintenance: Other

- Drought
  - Alternative water supply
- Weeds
- Aeration
- Mosquitoes
- Nutrient management

## Pond Maintenance: Other

- Cost Estimate:
  - Up to several thousand up front
  - Several hundred / year



## Insurance

- Ponds can be considered an "attractive nuisance"
- May be an insurance benefit if considered part of a fire suppression plan

## Step III: Additional Permitting

- Fish Stocking
  - FWP Permit



## More Permits

- Can you obtain other permits?
  - Corps – 404 Permit
  - DEQ – Water Quality
  - CD – Stream Modifications
  - Others possible

## Caution: Ponds Decisions



## Take Home Messages

- Ponds can be a benefit or a liability
- Water First
- Reckoning Costs and Time
- Permits
- Alternatives

## Further Resources

- **A Guidebook for Montana Ponds**
- **Technical Resources**
- **Local Resources**
- **Financial and Technical Programs for Pond Alternatives**



*a guide to*  
**STREAM  
PERMITTING**  
*in Montana*

PERMITTING TIPS

HOW TO USE *A GUIDE TO STREAM PERMITTING IN MONTANA*

- A. MONTANA NATURAL STREAMBED AND LAND PRESERVATION ACT (310 Permit)
- B. MONTANA STREAM PROTECTION ACT (SPA 124 Permit)
- C. MONTANA FLOODPLAIN AND FLOODWAY MANAGEMENT ACT
- D. FEDERAL CLEAN WATER ACT (404 Permit)
- E. FEDERAL RIVERS AND HARBORS ACT (Section 10 Permit)
- F. SHORT-TERM WATER QUALITY STANDARD FOR TURBIDITY (318 Authorization)
- G. MONTANA LAND-USE LICENSE OR EASEMENT ON NAVIGABLE WATERS
- H. MONTANA WATER USE ACT (Water Rights/Change Authorizations)
- I. MONTANA WATER USE ACT (Water Reservations)
- J. STORM WATER DISCHARGE PERMIT AUTHORIZATION
- K. STREAMSIDE MANAGEMENT ZONE LAW
- L. OTHER LAWS THAT MAY APPLY

CREDITS

## PERMITTING TIPS

Wading through the permitting system can be difficult and confusing due to the number of agencies that have permitting authority. To make applying for a permit easier, agencies responsible for some of the permits listed in this brochure cooperatively developed a single application form that can be used when applying for permits A-G. The form can be obtained by contacting any of the agencies indicated as a participant or by downloading the form at <http://www.dnrc.mt.gov/permit.html>.

When designing your project, keep in mind the following tips:

- Plan ahead. Permit review can take from 30-120 days or more if an application is not complete. Contact all potential permitting agencies early in your planning process. All necessary permits must be obtained prior to beginning work.
- Secure landowner permission. The receipt of a permit does not mean you have landowner permission. The applicant is responsible for obtaining landowner permission before entering land not owned by the applicant.
- Submit a complete application. Consider potential impacts of your project such as temporary increases in turbidity, erosion, fisheries and aquatic life impacts due to timing of projects, etc., and include in your application how impacts will be minimized.
- Leave as much streamside vegetation as possible. Streamside vegetation is important to the health and stability of a stream. Vegetation should be removed only to the extent necessary to construct the project. Plan to revegetate the area as soon as possible to avoid erosion and prevent weed infestations.
- Get professional assistance, if necessary, for designing and constructing your project in conformity with the natural function of the stream or river. Engineering designs may be required, especially for large projects or projects that have the potential for impacts.
- Consider bioengineering methods, where appropriate, to minimize project impacts.
- Avoid projects that permanently prevent fish passage.
- Agencies may approve permit applications contingent upon modifications and may change the timing of the project to minimize impacts.

## PERMITTING TIPS

### HOW TO USE *A GUIDE TO STREAM PERMITTING IN MONTANA*

A. MONTANA NATURAL STREAMBED AND LAND PRESERVATION ACT (310 Permit)

B. MONTANA STREAM PROTECTION ACT (SPA 124 Permit)

C. MONTANA FLOODPLAIN AND FLOODWAY MANAGEMENT ACT

D. FEDERAL CLEAN WATER ACT (404 Permit)

E. FEDERAL RIVERS AND HARBORS ACT (Section 10 Permit)

F. SHORT-TERM WATER QUALITY STANDARD FOR TURBIDITY (318 Authorization)

G. MONTANA LAND-USE LICENSE OR EASEMENT ON NAVIGABLE WATERS

H. MONTANA WATER USE ACT (Water Rights/Change Authorizations)

I. MONTANA WATER USE ACT (Water Reservations)

J. STORM WATER DISCHARGE PERMIT AUTHORIZATION

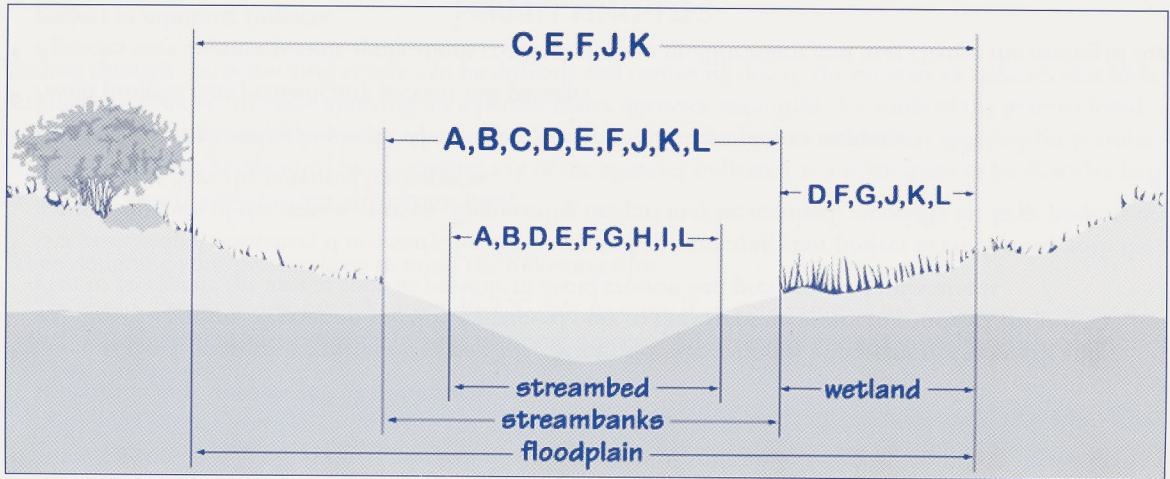
K. STREAMSIDE MANAGEMENT ZONE LAW

L. OTHER LAWS THAT MAY APPLY

## CREDITS



## HOW TO USE A GUIDE TO STREAM PERMITTING IN MONTANA



### Montana Dam Safety Act

Using the diagram above, determine where your project will take place: streambed, streambanks, wetlands, or floodplain. The letters in the diagram refer to the required permits listed below (A through L) and described on the following pages. Permits that may be necessary:

- A. Montana Natural Streambed and Land Preservation Act (310 Permit)
- B. Montana Stream Protection Act (SPA 124 Permit)
- C. Montana Floodplain and Floodway Management Act (Floodplain Development Permit)
- D. Federal Clean Water Act (404 Permit)
- E. Federal Rivers and Harbors Act (Section 10 Permit)
- F. Short Term Water Quality Standard for Turbidity (318 Authorization)
- G. Montana Land Use License or Easement on Navigable Waters
- H. Montana Water Use Act (Water Right Permit and Change Authorization)
- I. Montana Water Use Act (Water Reservations)
- J. Storm Water Discharge Permit Authorization
- K. Streamside Management Zone Law
- L. Other Laws That May Apply

## HOW TO USE A GUIDE TO STREAM PERMITTING IN MONTANA

**A. MONTANA NATURAL STREAMBED AND LAND PRESERVATION ACT (310 Permit)**

**B. MONTANA STREAM PROTECTION ACT (SPA 124 Permit)**

**C. MONTANA FLOODPLAIN AND FLOODWAY MANAGEMENT ACT**

**D. FEDERAL CLEAN WATER ACT (404 Permit)**

**E. FEDERAL RIVERS AND HARBORS ACT (Section 10 Permit)**

**F. SHORT-TERM WATER QUALITY STANDARD FOR TURBIDITY (318 Authorization)**

**G. MONTANA LAND-USE LICENSE OR EASEMENT ON NAVIGABLE WATERS**

**H. MONTANA WATER USE ACT (Water Rights/Change Authorizations)**

**I. MONTANA WATER USE ACT (Water Reservations)**

**J. STORM WATER DISCHARGE PERMIT AUTHORIZATION**

**K. STREAMSIDE MANAGEMENT ZONE LAW**

**L. OTHER LAWS THAT MAY APPLY**

CREDITS

## A. MONTANA NATURAL STREAMBED AND LAND PRESERVATION ACT (310 Permit)

### Who Must Apply

Any private, nongovernmental individual or entity that proposes to work in or near a stream on public or private land.

### Activities Requiring a Permit

Any activity that physically alters or modifies the bed or immediate banks of a perennial-flowing stream.

### Purposes of the Law

- To minimize soil erosion and sedimentation.
- To protect and preserve streams and rivers in their natural or existing state.

### Who Administers the Law

The Board of Supervisors of the conservation district in which the project takes place.

### Application Procedure/Timeline

A person planning a project must contact the conservation district office to obtain a permit application prior to any activity in or near a perennial-flowing stream. Once an application is accepted, a team that consists of a conservation district representative; a Department of Fish, Wildlife and Parks biologist; and the applicant may conduct an on site inspection. The team makes recommendations to the conservation district board, which has 60 days from the time the application is accepted to approve, modify, or deny the permit. Local rules apply. There is no charge for a 310 permit. Joint application participant—see Permitting Tips section.

*For more information, contact:*  
Your local conservation district or

Montana Association of Conservation  
Districts  
501 North Sanders  
Helena, MT 59620  
(406) 443-5711

Conservation Districts Bureau  
Department of Natural Resources and Conservation  
1625 Eleventh Avenue  
P.O. Box 201601  
Helena, MT 59620 1601  
(406) 444-6667  
<http://dnrc.mt.gov/permitting.html>

## A. MONTANA NATURAL STREAMBED AND LAND PRESERVATION ACT (310 Permit)

### B. MONTANA STREAM PROTECTION ACT (SPA 124 Permit)

### C. MONTANA FLOODPLAIN AND FLOODWAY MANAGEMENT ACT

### D. FEDERAL CLEAN WATER ACT (404 Permit)

### E. FEDERAL RIVERS AND HARBORS ACT (Section 10 Permit)

### F. SHORT-TERM WATER QUALITY STANDARD FOR TURBIDITY (318 Authorization)

### G. MONTANA LAND-USE LICENSE OR EASEMENT ON NAVIGABLE WATERS

### H. MONTANA WATER USE ACT (Water Rights/Change Authorizations)

### I. MONTANA WATER USE ACT (Water Reservations)

### J. STORM WATER DISCHARGE PERMIT AUTHORIZATION

### K. STREAMSIDE MANAGEMENT ZONE LAW

### L. OTHER LAWS THAT MAY APPLY

## CREDITS

## B. MONTANA STREAM PROTECTION ACT (SPA 124 Permit)

### Who Must Apply

Any agency or subdivision of federal, state, county, or city government proposing a project that may affect the bed or banks of any stream in Montana.

### Activities Requiring a Permit

Any project including the construction of new facilities or the modification, operation, and maintenance of an existing facility that may affect the natural existing shape and form of any stream or its banks or tributaries.

### Purposes of the Law

- To protect and preserve fish and wildlife resources.
- To maintain streams and rivers in their natural or existing state.

### Who Administers the Law

Department of Fish, Wildlife and Parks.

### Application Procedure/Timeline

Any agency or unit of government planning a project must submit a Notice of Construction (application) to the Department of Fish, Wildlife and Parks, which has up to 60 days to review the application, perform an on site investigation, and approve, modify, or deny the application. There is no application fee. Joint application participant—see Permitting Tips section.

*For more information, contact:*

Habitat Protection Bureau  
Fisheries Division  
Department of Fish, Wildlife and Parks  
1420 East Sixth Avenue  
P.O. Box 200701  
Helena, MT 59620 0701  
(406) 444 2449  
e-mail: [gphillips@mt.gov](mailto:gphillips@mt.gov)  
<http://www.fwp.mt.gov/contact/>

## B. MONTANA STREAM PROTECTION ACT (SPA 124 Permit)

## C. MONTANA FLOODPLAIN AND FLOODWAY MANAGEMENT ACT

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## K. STREAMSIDE MANAGEMENT ZONE LAW

## L. OTHER LAWS THAT MAY APPLY

## CREDITS

## C. MONTANA FLOODPLAIN AND FLOODWAY MANAGEMENT ACT

### Who Must Apply

Anyone planning new construction within a designated 100 year floodplain. Check with local planning officials or the Floodplain Management Section of the Department of Natural Resources and Conservation to determine whether a 100 year floodplain has been designated for the stream of interest.

### Activities Requiring a Permit

New construction including, but not limited to, placement of fill, roads, bridges, culverts, transmission lines, irrigation facilities, storage of equipment or materials, and excavation; new construction, placement, or replacement of manufactured homes; and new construction, additions, or substantial improvements to residential and commercial buildings.

### Purpose of the Law

To restrict floodplain and floodway areas to uses that will not be seriously damaged or present a hazard to life, if flooded, thereby limiting the expenditure of public tax dollars for emergency operations and disaster relief.

### Who Administers the Law

Floodplain Development Permits are available from the local floodplain administrator, who may be the city/county planner, sanitarian, building inspector, town clerk, or county commissioner.

### Application Procedure/Timeline

Permit applications are available from the local floodplain administrator or from the Department of Natural Resources and Conservation. Application fees are established by the local government and vary widely throughout the state. The application process may take up to 60 days. Joint application participant—see Permitting Tips section.

*For more information, contact:*

Floodplain Management Section  
Department of Natural Resources and Conservation  
1424 Ninth Avenue  
P.O. Box 201601  
Helena, MT 59620-1601  
(406) 444-0860  
or  
<http://dnrc.mt.gov/wrd/home.htm>  
Local Floodplain Administrator

## C. MONTANA FLOODPLAIN AND FLOODWAY MANAGEMENT ACT

### D. FEDERAL CLEAN WATER ACT (404 Permit)

### E. FEDERAL RIVERS AND HARBORS ACT (Section 10 Permit)

### F. SHORT-TERM WATER QUALITY STANDARD FOR TURBIDITY (318 Authorization)

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### J. STORM WATER DISCHARGE PERMIT AUTHORIZATION

### K. STREAMSIDE MANAGEMENT ZONE LAW

### L. OTHER LAWS THAT MAY APPLY

## CREDITS

## D. FEDERAL CLEAN WATER ACT (404 Permit)

### Who Must Apply

Any person, agency, or entity, either public or private, proposing a project that will result in the discharge or placement of dredged or fill material into waters of the United States. "Waters of the United States" include lakes, rivers, streams (including perennial, intermittent, and ephemeral channels with an ordinary high water mark), wetlands, and other aquatic sites.

### Activities Requiring a Permit

Any activity that will result in the discharge or placement of dredged or fill material into waters of the United States, including wetlands.

### Purpose of the Law

To restore and maintain the chemical, physical, and biological integrity of the nation's waters.

### Who Administers the Law

The U.S. Army Corps of Engineers (Corps). The U.S. Environmental Protection Agency also has regulatory review and enforcement functions under the law.

### Application Procedure/Timeline

Any person, agency, or entity, either public or private, planning a project must submit an application to the Corps for review. Permit authorization varies depending on the size and scope of the intended project.

Activities that meet the conditions for a Nationwide or Regional General Permit may be approved in 10 to 45 days. Individual Permits require more extensive review and require a public notice period. Permit approval may take 90 to 120 days. Application fees for Individual Permits may vary from \$10 for private individuals to \$100 for commercial applicants. Do not send money with the application. Applicants will be notified if a fee applies. Joint application participant—see Permitting Tips.

*For more information, contact:*

U.S. Army Corps of Engineers  
10 West 15<sup>th</sup> Street, Suite 2200  
Helena, MT 59626  
(406) 441-1375

<http://www.nwo.usace.army.mil/html/od-rmt/mthome.htm>

## D. FEDERAL CLEAN WATER ACT (404 Permit)

## E. FEDERAL RIVERS AND HARBORS ACT (Section 10 Permit)

## F. SHORT-TERM WATER QUALITY STANDARD FOR TURBIDITY (318 Authorization)

## G. MONTANA LAND-USE LICENSE OR EASEMENT ON NAVIGABLE WATERS

## H. MONTANA WATER USE ACT (Water Rights/Change Authorizations)

## I. MONTANA WATER USE ACT (Water Reservations)

## J. STORM WATER DISCHARGE PERMIT AUTHORIZATION

## K. STREAMSIDE MANAGEMENT ZONE LAW

## L. OTHER LAWS THAT MAY APPLY

## CREDITS

## E. FEDERAL RIVERS AND HARBORS ACT (Section 10 Permit)

### Who Must Apply

Any person, agency, or entity, either public or private, proposing any alteration of, or any construction activity in, on, under, or over any federally listed navigable water of the United States.

### Activities Requiring a Permit

The construction of any structure in or over any federally listed navigable waters of the United States, the excavation from or depositing of material in such waters, or the accomplishment of any other work affecting the course, location, condition, or capacity of such waters. Navigable waters in Montana are the Missouri River from Three Forks downstream to the Montana North Dakota border, the Yellowstone River from Emigrant downstream to its confluence with the Missouri River, and the Kootenai River from the Canadian border downstream to Jennings, Montana.

### Purpose of the Law

To protect the quality and quantity of navigable waters of the United States.

### Who Administers the Law

The U.S. Army Corps of Engineers (Corps).

### Application Procedure/Timeline

Applications must be submitted to the Corps for review. Permit authorization varies depending on the size and scope of the intended project.

Activities that meet the conditions for a Nationwide Permit or Letter of Permission may be approved in 10 to 45 days. Individual Permits require more extensive review and require a public notice period. Application fees for Individual Permits may vary from \$10 for private individuals to \$100 for commercial applicants. Do not send money with the application. Applicant will be notified if a fee applies. Joint application participant – see Permitting Tips section.

*For more information, contact:*

U.S. Army Corps of Engineers  
10 West 15<sup>th</sup> Street, Suite 2200  
Helena, MT 59626  
(406) 441-1375

<http://www.nwo.usace.army.mil/html/od-rmt/mthome.htm>

## E. FEDERAL RIVERS AND HARBORS ACT (Section 10 Permit)

## F. SHORT-TERM WATER QUALITY STANDARD FOR TURBIDITY (318 Authorization)

## G. MONTANA LAND-USE LICENSE OR EASEMENT ON NAVIGABLE WATERS

## H. MONTANA WATER USE ACT (Water Rights/Change Authorizations)

## I. MONTANA WATER USE ACT (Water Reservations)

## J. STORM WATER DISCHARGE PERMIT AUTHORIZATION

## K. STREAMSIDE MANAGEMENT ZONE LAW

## L. OTHER LAWS THAT MAY APPLY

## CREDITS

## F. SHORT-TERM WATER QUALITY STANDARD FOR TURBIDITY (318 Authorization)

### Who Must Apply

Any person, agency, or entity, both public and private, initiating construction activity that will cause short term or temporary violations of state surface water quality standards for turbidity.

### Activities Requiring an Authorization

Any activity in any state water that will cause unavoidable short term violations of water quality standards. "State water" includes any body of water, irrigation system, or drainage system, either surface or underground, including wetlands, except for irrigation water where the water is used up within the irrigation system and the water is not returned to other state water.

### Purposes of the Law

- To provide a short term water quality turbidity standard for construction activities. Activities must be carried out in accordance with conditions prescribed by the Department of Environmental Quality.
- To protect water quality.
- To minimize sedimentation.

### Who Administers the Law

Department of Environmental Quality.

### Application Procedure/Timeline

A 318 Authorization must be obtained prior to initiating a project. The authorization may be obtained from the Department of Environmental Quality, or may be waived by the Department of Fish, Wildlife and Parks during its review process under the Natural Streambed and Land Preservation Act (310 Permit) or the Stream Protection Act (SPA 124 Permit).

Individual applications submitted to the Department of Environmental Quality are normally processed within 30 to 60 days. Authorizations waived under the 310 or SPA 124 permit processes correspond to the time frame under each permit system, usually 30 to 60 days. There is an application fee of \$150.00 (make check or money order payable to Water Protection Bureau, Department of Environmental Quality). Joint application participant—see Permitting Tips section.

*For more information contact:*  
Water Protection Bureau  
Department of Environmental Quality  
1520 East Sixth Avenue  
P.O. Box 200901  
Helena, MT 59620-0901  
(406) 444-3080  
<http://www.deq.mt.gov>



## F. SHORT-TERM WATER QUALITY STANDARD FOR TURBIDITY (318 Authorization)

## G. MONTANA LAND-USE LICENSE OR EASEMENT ON NAVIGABLE WATERS

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## L. OTHER LAWS THAT MAY APPLY

## CREDITS

## G. MONTANA LAND-USE LICENSE OR EASEMENT ON NAVIGABLE WATERS

### Who Must Apply

Any entity proposing a project on lands below the low water mark of navigable waters.

### Activities Requiring a Permit

The construction, placement, or modification of a structure or improvements in, over, below, or above a navigable stream. If in doubt, contact the Department of Natural Resources and Conservation Land Office with jurisdiction over the project area for a determination of the navigability of the stream. If an applicant receives a 310 permit, the following activities do not apply under this section: riprap and bank stabilization projects; temporary gravel irrigation dams; river barbs under 40 feet or 10 percent of channel width; excavations of less than 10 cubic yards of river bed load accumulation; tree and debris removal not associated with a timber sale; repair and maintenance of existing irrigation structures, and irrigation pump sites; installation and maintenance of floating irrigation pumps; boat ramps, wharves, and docks.

This permit program does not apply to mining activities in navigable streams or lakes.

### Purposes of the Law

- To protect riparian areas and the navigable status of the water body.
- To provide for the beneficial use of state lands for public and private purposes in a manner that will provide revenues without harming the long term capability of the land or restricting the original commercial navigability.

### Who Administers the Law

Department of Natural Resources and Conservation (DNRC).

### Application Procedure/Timeline

A DNRC land use license or easement application, along with the nonrefundable application fee and the Application for Licensing Structures & Improvements on Navigable Water Bodies (Form DS 432), must be submitted to the appropriate Land Office, located in Kalispell, Missoula, Helena, Lewistown, Billings, or Miles City. DNRC staff will review the application, conduct a field investigation if necessary, and file an environmental action checklist. A written report and recommendation is then submitted to the Special Use Management Bureau in Helena, which makes the final determination and recommends stipulations as necessary. A Land Use License can normally be reviewed, approved, and issued within 60 days upon the payment of the \$25 application fee and a minimum annual rental fee set by the department. The license may be held for a maximum period of 10 years, with the ability to request renewal for an additional 10 years. An easement requires approval from the Board of Land Commissioners, which normally takes up to 90 days. The current easement application fee is \$50, with an additional easement fee that varies based upon 50 percent of the appraised value of the adjoining property. Joint application participant—see Permitting Tips.

*For more information contact:*

DNRC Land Office  
or

Special Use Management Bureau  
Department of Natural Resources and Conservation  
1625 Eleventh Avenue  
P.O. Box 201601  
Helena, MT 59620-1601  
(406) 444-2074

<http://dnrc.mt.gov/trust/navigablerivers.htm>

## G. MONTANA LAND-USE LICENSE OR EASEMENT ON NAVIGABLE WATERS

### H. MONTANA WATER USE ACT (Water Rights/Change Authorizations)

### I. MONTANA WATER USE ACT (Water Reservations)

### J. STORM WATER DISCHARGE PERMIT AUTHORIZATION

### K. STREAMSIDE MANAGEMENT ZONE LAW

### L. OTHER LAWS THAT MAY APPLY

### CREDITS



## H. MONTANA WATER USE ACT (Water Right Permit and Change Authorization)

### Who Must Apply

Any person, agency, or governmental entity intending to acquire new or additional water rights or change an existing water right in the state.

### Activities Requiring a Permit

**General Rule** – A person must obtain a beneficial water use permit before commencing to construct new or additional diversion, withdrawal, impoundment, or distribution works for appropriation of groundwater over 35 gallons per minute or 10 acre feet per year for any surface water.

**Exceptions** – Groundwater appropriations of 35 gallons per minute or less and 10 acre feet or less must first be appropriated and put to use before a water right is issued. Stockwater impoundments of less than 15 acre feet may be constructed first and then a form filed upon completion.

### Types of Water Rights

**Provisional Permit** – Grants the use of water for a specific amount and purpose.

**Certificate of Water Right** – Issued on groundwater appropriations of 35 gallons per minute or less and 10 acre feet or less.

**Replacement Well** – Issued when an existing well fails and a new well is constructed to replace it. The priority date of the old well is retained.

**Authorization to Change** – Allows an appropriator with a recognized water right to change the place of use, point of diversion, purpose of use, or place of storage and maintain the priority date of the initial water right.

**Temporary Change:** Allows an appropriator to change the water right temporarily for a period of up to 10 years, with a possible renewal of not more than 10 years. No authorization is required for the water right to revert to the original purpose, point of diversion, place of use, or place of storage after the term expires.

**Instream Flow** – Allows water that is diverted for consumptive uses to be transferred temporarily (up to 30 years) to an instream use. All or part of the water right can be leased to the Montana Department of Fish, Wildlife and Parks, leased to another party interested in holding the right for a fishery, or converted to an instream use without a lease.

### Purposes of the Law

- To provide a permit and certificate system of water rights administration similar to systems used in other western states.
- To maintain a general adjudication of all existing water rights in the state.
- To implement a centralized record system.

### Who Administers the Law

Water Rights Bureau, Department of Natural Resources and Conservation.

### Application Procedure/Timeline

Water right application forms are available at the eight Water Resources Regional Offices located in Billings, Bozeman, Glasgow, Havre, Helena, Kalispell, Lewistown, and Missoula. Forms, fee schedules, and related information are available on the web at [www.dnrc.mt.gov/wrd/home.htm](http://www.dnrc.mt.gov/wrd/home.htm). Water right applications may take up to two years to complete.

*For more information, contact:*

Water Rights Bureau  
Department of Natural Resources and Conservation  
1424 Ninth Avenue  
P.O. Box 201601  
Helena, MT 59620-1601  
(406) 444-6610

or

Local DNRC Water Resources Regional  
Office

## H. MONTANA WATER USE ACT (Water Rights/Change Authorizations)

### I. MONTANA WATER USE ACT (Water Reservations)

### J. STORM WATER DISCHARGE PERMIT AUTHORIZATION

### K. STREAMSIDE MANAGEMENT ZONE LAW

### L. OTHER LAWS THAT MAY APPLY

### CREDITS

## I. MONTANA WATER USE ACT (Water Reservations)

### Who May Apply

Any governmental entity may apply to reserve water for existing or future beneficial uses or to maintain a minimum flow, level, or quality of water. Any person or entity that needs water for a new or existing development within the boundaries of a conservation district that holds a water reservation may apply to use a portion of the conservation district's water reservation.

### Activities Qualifying for Use of Reserved Water

All beneficial uses, including such activities related to agriculture as irrigation and stockwater. A water reservation is granted for specific uses. Contact your local conservation district to determine whether it has been granted a water reservation and whether your proposed use is authorized under that water reservation.

### Purposes of the Law

- To provide water for existing and future beneficial uses of water.
- To maintain a minimum flow, level, or quality of water.

### Who Administers the Law

The Water Rights Bureau, Department of Natural Resources and Conservation, administers the water reservations that were granted by the Board of Natural Resources and Conservation. The local conservation district authorizes the use of its water reservation and administers the individual reserved water use authorizations. The Conservation and Resource Development Division, Department of Natural Resources and Conservation, provides technical and administrative assistance to the conservation districts in preparing applications and developing their reservations.

### Application Procedure Timeline

The application for reserved water use form is available at the local conservation district office or at the Conservation and Resource Development Division's offices in Miles City, Glasgow, and Helena. An application fee is required. Contact the local conservation district to determine the appropriate fee.

*For more information, contact:*

Your local conservation district  
or

Conservation and Resource Development Division  
Department of Natural Resources and Conservation  
1625 Eleventh Avenue  
P.O. Box 201601  
Helena, MT 59620-1601  
(406) 444-6667  
or

Conservation and Resource Development Division  
Department of Natural Resources and Conservation  
321 Main Street  
PO Box 276  
Miles City, MT 59301  
(406) 232-6359  
or

Conservation and Resource Development Division  
Department of Natural Resources and Conservation  
222 6<sup>th</sup> Street South  
PO Box 1269  
Glasgow, MT 59230  
(406) 228-2561

## I. MONTANA WATER USE ACT (Water Reservations)

## J. STORM WATER DISCHARGE PERMIT AUTHORIZATION

## K. STREAMSIDE MANAGEMENT ZONE LAW

## L. OTHER LAWS THAT MAY APPLY

## CREDITS

## J. STORM WATER DISCHARGE PERMIT AUTHORIZATION

### Who Must Apply

Any person, agency, or entity, either public or private, proposing a construction, industrial, mining, or other defined activity that has a discharge of storm water into surface waters. Under the authority of the Montana Water Quality Act, permit authorization is typically obtained under a Montana Pollutant Discharge Elimination System (MPDES) "General Permit".

### Activities Requiring Permit Authorization

- Construction activity that will disturb one or more total acres including clearing, grading, and excavating activities.
- A defined industrial activity that will discharge storm water into surface waters.
- A defined mining or oil and gas activity in which storm water will come into contact with overburden, raw material, intermediate products, finished products, or waste products located on the site of such operations (including active and inactive mine sites) and discharge to surface waters.
- A defined Small Municipal Separate Storm Sewer System (MS4).

### Purposes of the Law

- To prevent degradation of surface waters from pollutants such as sediment, waste materials, industrial chemicals or materials, heavy metals, and petroleum products.
- To protect existing water quality.
- To implement and monitor the effectiveness of Best Management Practices (erosion and sediment controls, etc.) used to reduce pollutant loads.

### Who Administers the Law

Department of Environmental Quality.

### Application Procedure/Timeline

For storm water discharges associated with construction activity, permit authorization is effective upon Department receipt of a complete Notice of Intent (NOI), Storm Water Pollution Prevention Plan (SWPPP), and fee. This must be received no later than the construction activity start date. For other regulated storm water discharges, a complete Application Form, SWPPP (except for Small MS4s), and fee must be received for review at least 30 days prior to the discharge of storm water from the facility or activity. Fees vary depending on the type of permit. Contact the Department or visit the website listed below for various storm water discharge "General Permits," Application/NOI Forms, fee schedule, and other permitting forms/information.

*For more information, contact:*  
Water Protection Bureau  
Department of Environmental Quality  
1520 East Sixth Avenue  
Box 200901  
Helena, MT 59620-0901  
(406) 444-3080  
<http://www.deq.mt.gov>

## J. STORM WATER DISCHARGE PERMIT AUTHORIZATION

### K. STREAMSIDE MANAGEMENT ZONE LAW

### L. OTHER LAWS THAT MAY APPLY

### CREDITS

## K. STREAMSIDE MANAGEMENT ZONE LAW

### Who Must Apply

Any landowner or operator conducting a series of forest practices that will access, harvest, or regenerate trees on a defined land area for commercial purposes on private, state, or federal lands.

### Activities Requiring a Permit

This law prohibits the following timber harvest activities within at least 50 feet of any stream, lake, or other body of water. The Department of Natural Resources and Conservation (DNRC) must approve any exceptions to these prohibited practices.

- Broadcast burning.
- Operating wheeled or tracked vehicles except on established roads.
- Clear cutting.
- Constructing roads in the Streamside Management Zone except when necessary to cross a stream or wetland.
- Handling, storing, applying, or disposing of hazardous or toxic material in a manner that pollutes streams, lakes, or wetlands or that may cause damage or injury to humans, land, animals, or plants.
- Casting road material into a stream, wetland, or watercourse.
- Depositing slash in streams or other water bodies.

### Purposes of the Law

- To protect the quality and quantity of forest waters.
- To conserve the integrity of Montana's streamside zones.

### Who Administers the Law

Department of Natural Resources and Conservation.

### Application Procedure/Timeline

DNRC must be notified prior to beginning any forest practice. A request to conduct an alternative practice must be submitted to the appropriate DNRC field office. Alternative practices will require an environmental review. The request will be reviewed and an initial response issued within 10 days.

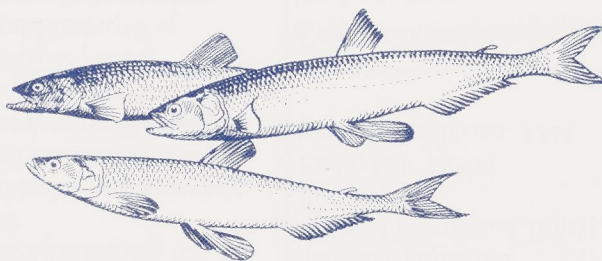
*For more information, contact:*

Forestry Division/DNRC  
2705 Spurgin Road  
Missoula, MT 59801  
(406) 542-4300

or

Local DNRC Land Office

<http://dnrc.mt.gov/forestry/ServiceForestry/index2.htm>



## K. STREAMSIDE MANAGEMENT ZONE LAW

### L. OTHER LAWS THAT MAY APPLY

#### CREDITS

LAWS	CONTACT
<p><u>Public Water Supply Watersheds</u> Requires the submission, review, and approval of detailed plans and specifications before beginning the construction or operation of any new railroad, logging road, logging camp, or electric or manufacturing plant in a public water supply watershed.</p>	<p>Department of Environmental Quality 1520 East Sixth Avenue P.O. Box 200901 Helena, MT 59620-0901 (406) 444-2544 <a href="http://www.deq.mt.gov">www.deq.mt.gov</a></p>
<p><u>Shoreline Protection and Aquatic Land Conservation Ordinance</u> Applies to all private individuals and government entities proposing to work in, over, or near any stream, river, lake, or wetland on the Flathead Reservation.</p>	<p>Shoreline Protection Flathead Reservation Tribal Complex P.O. Box 278 Pablo, MT 59855 (406) 675-2700 ext. 7222</p>
<p><u>County Septic System Regulations</u> Apply to anyone proposing to construct, alter, extend, or operate a sewage treatment and disposal system. Conventional systems must be 100 feet from the 100 year floodplain and 6 feet from groundwater. Alternative designs that are 4 to 6 feet from groundwater must be approved.</p>	<p>County Sanitarian</p>
<p><u>General Mining Laws/Small Miner's Placer and Dredge Operations</u> Apply to anyone operating a placer, dredge, hardrock, coal, sand, or gravel mine on private or public land.</p>	<p>Department of Environmental Quality 1520 East Sixth Avenue P.O. Box 200901 Helena, MT 59620-0901 (406) 444-2544      <a href="http://www.deq.mt.gov">www.deq.mt.gov</a></p>
<p><u>Lakeshore Protection Act</u> Applies to all private individuals and government entities proposing to do work in or near a body of water within a county's jurisdictional area.</p>	<p>County Government Offices  Dam Safety Program</p>

LAWS	CONTACT
<p>Applies to the construction, repair, or removal of any dam that impounds 50 acre feet or more at the normal operating pool. Construction and operation permits may be required on dams larger than 50 acre-feet.</p>	<p>Department of Natural Resources and Conservation 1424 Ninth Avenue P.O. Box 201601 Helena, MT 59620-1601 (406) 444-6613 <a href="http://www.dnrc.mt.gov/wrd/home.htm">http://www.dnrc.mt.gov/wrd/home.htm</a></p>
<p><u>Montana Pollutant Discharge Elimination System (MPDES Permit)</u> Applies to all discharges to surface water or groundwater, including those related to industrial, municipal, and other commercial discharges. In addition, several general discharge permits have been developed to streamline permitting of construction dewatering, sand and gravel operations, sewage lagoons, fish farms, animal feeding operations, disinfected water, suction dredging, and placer mining projects.</p>	<p>Water Protection Bureau Department of Environmental Quality 1520 East Sixth Avenue P.O. Box 200901 Helena, MT 59620-0901 (406) 444-3080 <a href="http://www.deq.mt.gov/wqinfo/WQPermit.asp">www.deq.mt.gov/wqinfo/WQPermit.asp</a></p>
<p><u>Montana Water Quality Act</u> Prohibits the pollution of state waters and the placement of wastes in a location where they are likely to cause pollution of any state water.</p>	<p>Department of Environmental Quality 1520 Sixth Avenue P.O. Box 200901 Helena, MT 59620-0901 (406) 444-2544 <a href="http://www.deq.mt.gov">www.deq.mt.gov</a></p>
<p><u>Fish Stocking Permit for Private Fish Ponds</u> A permit is required to stock fish in a private pond. The permit entitles the holder to stock the pond with fish from a lawful source. Applicants must verify that stocking fish does not pose an unacceptable risk to game fish or species of special concern in adjacent waters.</p>	<p>Fisheries Division Department of Fish, Wildlife and Parks 1420 East Sixth Avenue, Box 200701 Helena, MT 59620-0701 (406) 444-2449 <a href="http://www.fwp.mt.gov/fwppaperapps/fishing/FISH_POND_APPLICATION_NONCOMMERCIAL.pdf">www.fwp.mt.gov/fwppaperapps/fishing/FISH_POND_APPLICATION_NONCOMMERCIAL.pdf</a></p>

L. OTHER LAWS THAT MAY APPLY

L. OTHER LAWS THAT MAY APPLY (continued)

LAWS	CONTACT
<p><u>Confederated Salish and Kootenai Tribes Water Quality Program</u> Ordinance 89 B prohibits pollution of Flathead Reservation waters. All projects affecting reservation waters must be permitted in accordance with tribal water quality standards. All federally permitted point source discharges require certification under Section 401 of the Clean Water Act to ensure that permit conditions will maintain tribal water quality. The tribes were delegated 401 certification authority by EPA in 1995.</p>	<p>Tribal Water Quality Program Environmental Protection Division P.O. Box 278 Pablo, MT 59855 (406) 675-2700 ext. 7211</p>
<p><u>National Pollutant Discharge Elimination System (NPDES) Permit</u> The Environmental Protection Agency is the NPDES permitting agency for point source discharge permits on the Flathead Reservation. NPDES forms are available upon request from the tribal NPDES office.</p>	<p>EPA Compliance Officer NPDES Program EPA Region VIII, Montana Office 301 South Park, Drawer 10096 Helena, MT 59626 0096 (406) 441-1140</p>
<p>Permitting of stormwater discharges is also part of the NPDES program. Therefore, for all projects that may result in discharges of stormwater into reservation surface waters, submit a Notice of Intent and Notice of Completion.</p>	<p>Stormwater Program EPA Region VIII 999 18<sup>th</sup> Street Denver, CO 80202-2466</p>
<p>Construction activity greater or equal to 1 acre that could potentially contribute stormwater to surface water on the Flathead Reservation requires the development of a stormwater pollution plan. The plan must be submitted to the water quality program 30 days before construction begins.</p>	<p>Tribal Water Quality Program Environmental Protection Division P.O. Box 278 Pablo, MT 59855 (406) 675-2700 ext. 7211</p>

Development, updates, and funding of this brochure has been coordinated by the Montana Department of Natural Resources and Conservation Conservation Districts Bureau in cooperation with the following:

Montana Association of Conservation Districts  
U.S. Environmental Protection Agency  
Montana Department of Natural Resources and Conservation  
Montana Department of Environmental Quality  
Montana Department of Fish, Wildlife and Parks  
U.S. Army Corps of Engineers

*A Guide to Stream Permitting in Montana*  
is also available on the internet at  
[www.dnrc.mt.gov/permit.html](http://www.dnrc.mt.gov/permit.html)

First Issued April 1990  
Revised June 1993, October 1996,  
March 1997, and September 2000  
January 2005



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Department of Natural Resources and Conservation

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Helena, MT 59620-1601

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*Hevis*

*444-3080*

*Jay Ryan*

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## Montana's Wetlands and Riparian Areas

### Agenda

*• or print out a map*

December 7<sup>th</sup>, 2005, 1-5pm  
Holiday Inn, Bozeman  
Realtor Continuing Education Course

- 1:00 – 1:10: Introductions and pre-survey ✓  
Debbie Zarnt, the Montana Watercourse
- 1:10 – 1:40 What are wetlands and riparian areas and what do they do?  
*water quality, flood control, economics, wildlife, erosion.*  
Debbie Zarnt, the Montana Watercourse *contact*
- 1:40 – 2:25: Water Resources in the Gallatin Valley: An Inventory of Wetland and Riparian Areas.  
Tammy Crone, Gallatin Local Water Quality District
- 2:25 – 2:45: Break
- 2:45 – 3:15: Wetland Regulations  
Lynda Saul, Wetlands Program Manager, MT DEQ
- 3:15 – 3:30 Wetland Review Board and the Unified Development Ordinance  
Ron LeCain, Confluence Consulting
- 3:30 – 4:00 Wetland Conservation Programs  
Tom Hinz, Montana Wetlands Legacy
- 4:00 – 4:20: Break
- 4:20 – 4:45: Artificial Ponds  
Debbie Zarnt, the Montana Watercourse
- 4:45 – 5:00: Post survey and Wrap up



## Speaker Biographies

**Debbie Zarnt**

406-994-1684

dzarnt@montana.edu

**Debbie Zarnt** is the Community Outreach Coordinator for the Montana Watercourse. Debbie organizes adult water resource education programs and trainings across the state. She received an M.S. in Watershed Science from Colorado State University in 2004. She also has previous experience as a Hydrologic Technician with the Forest Service, Outdoor Educator, and Water Policy Researcher. Prior to attending CSU, Debbie served as a Peace Corps Volunteer in Bolivia where she coordinated and managed water system and latrine projects in rural villages.

**Tammy Crone**

406-582-3145

Tammy.crone@gallatin.mt.gov

**Tammy Crone** is the Water Quality Specialist for the Gallatin Local Water Quality District. Before joining the District in 2000, she worked for the Wisconsin Department of Natural Resources. She currently serves on the Montana Wetland Protection Advisory Council, the Board of Directors for the Greater Gallatin Watershed Council, and is vice-president of the Montana Section of American Water Resources Association. Tammy graduated from the University of Wisconsin-Milwaukee with a Bachelor of Science degree in Natural Resources and Microbiology.

**Lynda Saul**

406-444-6652

lsaul@mt.gov

**Lynda Saul** is the Montana Wetland Program Manager at the Department of Environmental Quality. She has been working in wetland protection since 1997 and on water and natural resource issues with state government since 1986 including FERC hydropower relicensing, federal reserved water rights and watershed planning. Saul spent 2004 on a state-federal job exchange working in Washington DC bringing a western perspective to the EPA Wetland Strategies and States Program Branch. She has a B.S. in Geology from Tulane University and a M.S. in Forest Hydrology from the University of Montana. Saul is currently the Vice Chair of the National Association of State Wetland Managers.

**Tom Hinz**  
406-994-7889  
thinz@montana.edu

**Tom Hinz** is coordinator of the Montana Wetlands Legacy and has an office here in Bozeman. The Legacy is a voluntary, incentive-based partnership of federal and state agencies, tribal and local government, and private conservation organizations working to protect wetlands, riparian areas, and watershed lands in Montana. Created in May, 2000, the Legacy set a five-year goal of conserving 250,000 acres during its first five years. At the end of those five years, Legacy partners had protected over 800,000 acres of watershed lands, including 27,000 acres of wetlands, and over 1,000 miles of stream habitat.

Tom is a Minnesota native who moved to Bozeman in 1968 and holds two degrees from Montana State University. He has worked in the field of migratory bird and wetland conservation since 1974. Tom and his wife Candy live south of Bozeman and enjoy traveling, outdoor activities, sports, and family adventures. Tom is currently studying Pacific reef ecology and plans to begin working in the field of near-shore marine conservation for his next career.

**Ron LeCain**  
406-585-9500  
rlecain@confluenceinc.com

**Ron LeCain** is a Wetland Ecologist / Restoration Specialist with Confluence Consulting in Bozeman, MT. Ron began his career in aquatic resource management in 1997, conducting research on the impacts of nutrient manipulations on riparian and wetland revegetation. Prior to embarking on a career in aquatic resource management, Ron served as an environmental science educator. Ron is a certified wetland delineator, with particular expertise in designing and monitoring mitigation wetlands. He also designs and manages stream restoration projects. He holds an M.S. in Land Rehabilitation from Montana State University and a B.A. in Environmental Biology from University of Montana.

## Resources for Your Clients

### Printed Materials

<b>Title</b>	<b>Contents</b>	<b>Where to find it</b>
Landowners Guide to Montana Wetlands	General wetland information. Examples of how people have restored and used their wetlands. Wetland Regulation information and Wetland Conservation programs, Financial and technical assistance.	Order it from Montana Watercourse: 406-994-6671 or download it from the web at: <a href="http://www.mtwatercourse.org/Publications/RevisedWetlandGuide.pdf">http://www.mtwatercourse.org/Publications/RevisedWetlandGuide.pdf</a>
Guidebook for Montana Ponds	Information about potential consequences of poorly designed ponds and alternatives to pond construction. What issues need to be addressed before putting in a pond.	The Montana Watercourse <a href="http://www.mtwatercourse.org">www.mtwatercourse.org</a> 406-994-6671 Can also be downloaded from the publications page on the website.
Guide to Stream Permitting	Information on every regulation concerning riparian areas and wetlands in Montana. Includes who must apply under what circumstances and who to contact.	Department Natural Resource and Conservation 406-444-6601 <a href="http://www.dnrc.state.mt.us/cardd/strmpmt/stream.htm">http://www.dnrc.state.mt.us/cardd/strmpmt/stream.htm</a>
Wetland Fact Sheet	Brief introduction to wetland basics	EPA's website <a href="http://www.epa.gov/owow/wetlands">www.epa.gov/owow/wetlands</a>
Cows and Fish Program	Easy to ready and colorful educational materials on wetlands and riparian areas.	<a href="http://www.cowsandfish.org">www.cowsandfish.org</a>

### Local resources in the Gallatin Valley

<b>Name</b>	<b>Program Details</b>	<b>Where to find it</b>
Montana Wetlands Legacy	Coordinates conservation and restoration projects of Montana's wetlands and riparian areas.	Montana Wetlands Legacy <a href="http://www.wetlandslegacy.org">www.wetlandslegacy.org</a> 406-994-7889
Gallatin Local Water Quality District	Education and information concerning local water resources and water quality monitoring.	406-582-3148 <a href="http://www.co.gallatin.mt.us/GLWOD/">http://www.co.gallatin.mt.us/GLWOD/</a>
Greater Gallatin Watershed Council	Local watershed group working to conserve and restore the greater Gallatin watershed resources through focus action.	Tammy Crone 582-3145 <a href="mailto:Tammy.crone@gallatin.mt.gov">Tammy.crone@gallatin.mt.gov</a>
MT Wetlands Legacy	Coordinates restoration and protection projects of Montana's wetlands	Tom Hinz, 406-994-7889 <a href="mailto:thin@montana.edu">thin@montana.edu</a> , <a href="http://www.wetlandslegacy.org">www.wetlandslegacy.org</a>

Gallatin Open Lands Board	Manages open space program for Gallatin County. Seeks to preserve open space for enjoyment of present and future generations.	Mike Harris <a href="mailto:Mike.harris@gallatin.mt.gov">Mike.harris@gallatin.mt.gov</a> 406-582-3278
Gallatin Conservation District	Conservation and Management of soil, water, cropland, and grazing lands by providing leadership in conservation. Manages 310 permit system	406-522-4011 <a href="http://www.gallatincd.mt.nacdn.net">www.gallatincd.mt.nacdn.net</a>
Gallatin Valley Land Trust	Conservation of open space, agricultural land, wildlife habitat, and the creation of public trails in SW Montana.	406-587-8404 <a href="http://www.gvlt.org">www.gvlt.org</a>

#### Government Resources

Title	Contents	Where to find it
Montana Department of Environmental Quality	Information concerning laws, rules, permitting information, water quality programs, and water quality standards	<a href="http://deq.mt.gov/wqinfo/Index.asp">http://deq.mt.gov/wqinfo/Index.asp</a>
MDOT Wetland Mitigation Program	Information about financial support from the MDOT for private landowners who want to restore their wetlands	Montana Department of Transportation 406-444-7228
Montana Department of Natural Resources and Conservation Water Resources Division	Information on water rights, controlled ground water areas, water supply and management, floodplain management, dams, and canals.	406-586-3136 <a href="http://www.dnrc.state.mt.us/wrd/home.htm">http://www.dnrc.state.mt.us/wrd/home.htm</a>

#### Online resources:

EPA Wetland Home Page: [www.epa.gov/owow/wetlands](http://www.epa.gov/owow/wetlands)  
 USDA's Wetland Reserve Program: [www.nrcs.usda.gov/programs/wrp](http://www.nrcs.usda.gov/programs/wrp)  
 National Wetlands Inventory Center: [www.nwi.fws.gov](http://www.nwi.fws.gov)  
 Izaak Walton League: [www.iwla.org](http://www.iwla.org)  
 U.S. Fish and Wildlife Service: [www.fws.gov](http://www.fws.gov)  
 USGS National Wetlands Resource Center: [www.nwrc.usgs.gov](http://www.nwrc.usgs.gov)

Wetlands Legacy - Tom  
Hines

Wetlands Review Board Ron LeCain

## What Kinds Of Wetlands Occur In Montana?

**Riverine wetlands** are associated with flowing water of rivers and streams. Examples: sloughs, abandoned meanders, and river and creek margins.

**Depressional wetlands** are low spots on the landscape. Examples: glacial and prairie potholes, saline basins, wet meadows, and ephemeral ponds.

**Artificial wetlands** are created by human-related activities. Examples: seeps along irrigation canals.



Jim Stutzman

Depressional wetlands



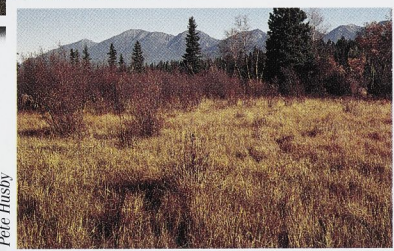
Pete Husby

Lacustrine fringe

**Lacustrine fringe wetlands** are associated with lakes or deep water habitats.

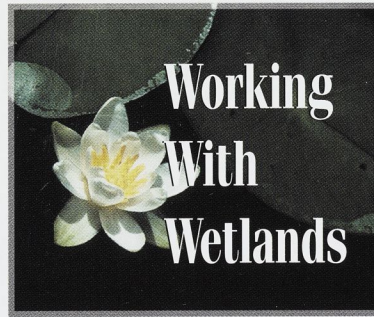
Examples: margins around mud flats, lakes, reservoirs and ponds.

**Slope wetlands** are groundwater discharge areas on a topographic gradient. Examples: sloping wet meadows, subalpine and montane areas of higher elevation, fens, springs and seeps.



Pete Husby

Slope wetlands



## Working With Wetlands


What can you do to protect and enhance Montana's wetlands?

- Learn even more about wetlands
- Preserve or, better yet, increase vegetative buffers around open waters
- Prevent invasion by noxious weeds and replace with native plants
- Place bird nesting boxes, snags, stumps, logs and brush piles to create habitat
- Fence to control over-used trails, livestock areas, and stream banks
- Prevent entry by off-road vehicles and other forms of heavy recreational use
- Exclude domestic pets from wetland areas
- Prevent pollutants from reaching storm drains
- Remove fill and prevent dumping
- Delay mowing or haying grassy areas until birds are done nesting

### For More Information

Or to request additional materials on wetlands and wetland-related programs available in the state, contact the Montana Watercourse at 406-994-6671.

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# MONTANA'S WETLANDS & YOU - A NATURAL PARTNERSHIP

## Montana Is Fortunate To Possess A Wealth And Variety Of Wetlands Within Its Borders

For many years though, wetlands were considered wastelands. The federal government even encouraged draining and filling them. It is estimated that about one-fourth of Montana's wetlands have been lost to agriculture and urbanization.

Today, the essential role wetlands play is recognized. These areas provide crucial wildlife habitat, improved water quality, and flood control. This new knowledge should lead us all to consider wetlands as our *natural partners* in the effort to

Sam Curtis

keep  
Montana  
the "last  
best  
place."

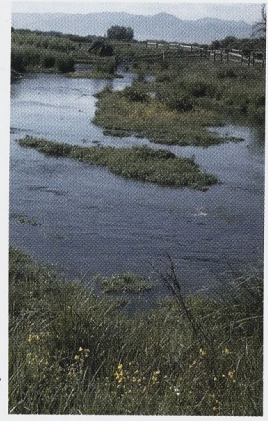
*Wetlands, ranching,  
and farming can  
successfully coexist.*

## Why Are Wetlands Important?

We now understand the importance of keeping natural wetland systems healthy. Montana's remaining wetlands comprise less than 1% of our total land area.

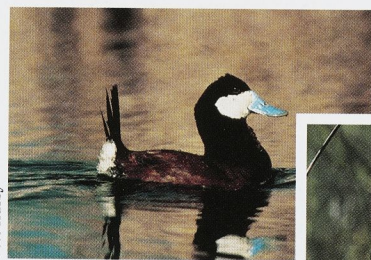
Though they are small in number, their benefits are many. Wetlands:

- ✦ Soak up large volumes of water and gradually release it to adjacent streams or water bodies during low flow periods
- ✦ Recharge wells and aquifers by holding water long enough to allow it to percolate into underlying soil
- ✦ Support vegetation that acts as a flood buffer and stabilizes the shoreline



Terry Lonner

- ✦ Enhance water quality by absorbing sediments, toxins and nutrients
- ✦ Decompose organic matter and incorporate nutrients back into the food chain
- ✦ Provide habitat for millions of birds, mammals, reptiles, fish and amphibians



Pete Husby

ruddy duck



Pete Husby

Ute ladies tresses

- ✦ Protect habitat for threatened and endangered species (in Montana, 39 percent of endangered species are found in or are dependent on wetlands)

## Do You Have A Wetland?

Do you have a place on your land where you watch ducks or where your tractor seems to always get stuck? If so, you could have a wetland! In wetlands, water is often on or near the surface all or part of the year; the soil is poorly drained and may look gray; and water-tolerant plants such as cottonwoods, willows, cattails, rushes, and sedges may be present. Still, identifying wetlands can be challenging.

### What To Look For...?

Generally, three clues are present:



Pete Husby

- 💧 **hydric soils:** "wet" soils that are poorly drained and develop certain soil characteristics

- 💧 **wetland hydrology:** water at or near the land surface, all or part of the year



Pete Husby



Art Today

- 💧 **hydrophytes:** "water-loving" plants adapted to life in wet soils

## If It's A Wetland, It's Wet - Right? Well, Not Exactly.

As you can see, the amount of moisture in a wetland can greatly vary over the course of a year. During some seasons, a wetland may actually be dry.



Temporarily flooded pothole wetlands fill in the spring...

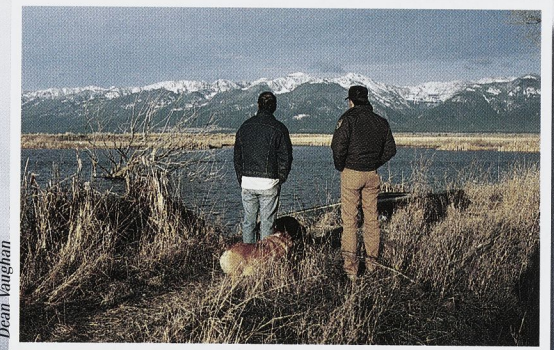


Ducks Unlimited, Inc. photos

By fall, the wetland may no longer be wet.

## How Can You Be Sure You Have A Wetland?

If you think your land contains a wetland, check with a wetland specialist. These folks work for agencies like the Natural Resources Conservation Service (NRCS) and the Army Corps of Engineers (ACOE) while others are private consultants. Be sure to accompany this person so you can understand exactly where the wetland is and what its characteristics are. The specialist can also give you the names of people you need to contact about projects that might affect the wetland. Most land management practices, building projects, and other actions that occur in or near wetlands require state and/or federal permits.



Dean Vaughan

# Water Quality and Riparian Areas



## Riparian Areas Improve Water Quality

Healthy riparian areas improve and maintain water quality because they:

### Trap sediment

The lush growth around lakes, wetlands, streams and rivers catches sediment, nutrients, and contaminants. During runoff, especially when the soil is frozen, upright plants help to maximize this trapping function.

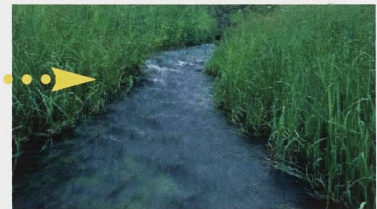


### Reduce erosion

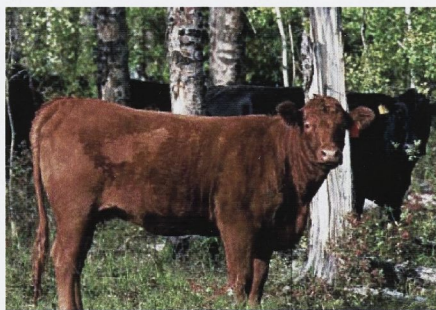
Riparian vegetation buffers the effects of soil erosion caused by runoff or flooding. The roots of trees, shrubs, sedges and other riparian plants bind and hold soil, shorelines and streambanks in place and slow runoff or flood waters. Reduced erosion means less sediment in lakes and streams. Less sediment equals cleaner water.

### Store nutrients and contaminants

Plants and soil in riparian areas take up, use and store nutrients and contaminants from runoff and floods, keeping them out of the water. Cattails and other riparian plants are good at removing nutrients from water.



## The Benefits of Improved Water Quality include...



### Healthy Livestock

Cattle and other livestock are healthier and make greater weight gains when they have access to clean water.

### Clean Drinking Water

High water quality means safety for consumers and reduced water treatment costs.



### Good Wildlife Habitat

Less sediment in the water means better habitat for aquatic animals such as fish and amphibians.

### Safer Water

Clean water poses fewer risks for the people who use it.





## How Do Riparian Areas Vary in their Effectiveness to Improve Water Quality?

- ◆ The effectiveness of riparian areas varies because of different soil types, slopes, and how water moves underground. Riparian areas are more effective at improving water quality where slopes are gentle and where water flows through the plant's root zone in the riparian area.
- ◆ Healthy, well vegetated riparian areas can be good at removing sediments, as well as microbes, nutrients, and pesticides attached to those sediments, but are less effective at trapping or filtering dissolved nutrients and pesticides.
- ◆ The more runoff (or flooding) that occurs in a relatively short time, the less effective riparian areas are at filtering sediments, nutrients, and pesticides because the area becomes saturated with moisture and sediments. Effectiveness is reduced as the ratio of healthy, well-vegetated riparian area to unvegetated area decreases. Extensive clearing and intensive land use in the watershed may contribute more sediment and contaminants to riparian areas.

## How Can I Promote Healthy Riparian Areas?

### Promote Healthy Vegetation in Riparian Areas

Diverse herbaceous and woody plants of various sizes and ages will create the structure needed to trap sediment and contaminants as well as uptake some nutrients.



### Increase the Width of Buffers

Maintain a well-vegetated buffer area alongside riparian areas. Buffers minimize impacts from cultivated fields, wintering sites or other intensively used areas. The wider the buffer outside of the riparian area, the more effective it is at improving water quality.

### Encourage the Principles of Range and Pasture Management

Provide effective rest to maintain plant vigour. Aim for evenly distributed livestock use, avoid vulnerable periods (wet soils and periods when shrubs can be overused), and balance forage supply with livestock needs.



### Try a Variety of Management Techniques

Consider alternate water sources for livestock. Place supplemental feed and mineral supplement away from riparian areas, control timing of use, and reduce manure build up in riparian areas. Manure builds up where cattle linger for shade or shelter. Riparian areas are often favorite lingering spots, but manure build up can be a concern if nearby waterbodies are affected.

Photo Credits: Lorne Fitch



Working with producers and communities on riparian awareness

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North/Central Alberta Coordinator 780-679-1289  
Southern Alberta Coordinator 403-381-5377  
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[www.cowsandfish.org](http://www.cowsandfish.org)

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### Cows and Fish Partners

Producers & Community Groups, Alberta Cattle Commission, Trout Unlimited Canada, Canadian Cattlemen's Association, Alberta Agriculture, Food & Rural Development, Alberta Sustainable Resource Development, Alberta Environment, Department of Fisheries & Oceans, Prairie Farm Rehabilitation Administration, Alberta Conservation Association

Funding Associates include **Canada**<sup>100</sup>  
AESAs, CARDF, CABIDF, Habitat Stewardship Program

# Looking at my Streambank

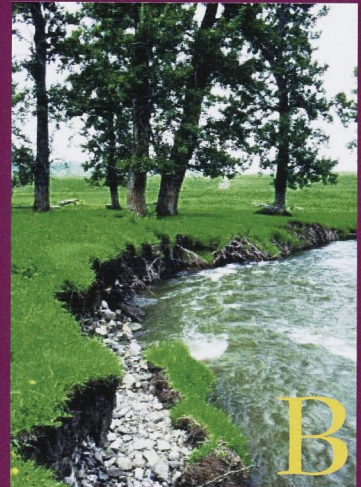
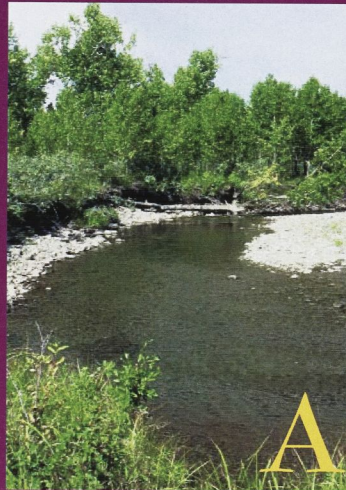
## riparian health checklist



### Riparian Areas

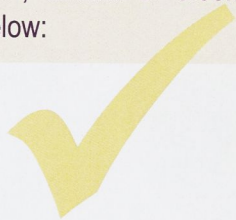
Riparian areas are moist areas of water-loving vegetation that border a stream, river, lake or wetland. They are very important ecologically, socially and economically. A healthy riparian area helps reduce bank erosion, trap sediments, filter pollutants, improve water quality and provide livestock forage and excellent fish and wildlife habitat.

How do you know if the riparian area along your streambank is healthy? Take a look at the photos at the right. Does your riparian area look like one of these or does it lie somewhere in between? To better assess the health of the riparian area along your river, stream or creek, fill in the checklist below:



*Which picture best resembles the riparian area along your streambank? A or B or somewhere in between?*

Cows and Fish Fact Sheet



## Streambank Riparian Health CHECKLIST

Answer the thirteen questions below to find out how healthy your streambank is. If you are unsure about an answer, leave it blank.



1 85% or more of the riparian area is covered with vegetation (of any kind). Yes  No



2 More than 50% of the riparian plants are taller than knee height. Yes  No

3 Shrubs such as willow, dogwood and silverberry are growing along or near the stream edge, and grow without a mushroom or hedged appearance. Yes  No



4 There are young trees and shrubs that will replace the older ones over time. Yes  No

5 Plants such as Kentucky bluegrass (lawn grass), clovers, dandelion and creeping red fescue represent less than 15% of all the plants growing in the riparian area. Native plants dominate the riparian area. Yes  No



6 Noxious weeds make up less than 15% of the plants growing in the riparian area (e.g. thistles, scentless chamomile, knapweed and leafy spurge). Yes  No



*Continued on the other side . . .*



# Streambank Riparian Health CHECKLIST



- 7 The bank is **NOT** damaged by recreational activities or livestock. There are no exposed and eroding soils or slumping banks due to these activities. Yes  No
- 8 The stream channel is narrow and deep (versus shallow and wide). Yes  No
- 9 The stream does **NOT** appear ditched or entrenched and is able to overflow its banks most years. Yes  No
- 10 Water in the stream is clear and **NOT** cloudy or full of sediment. Yes  No
- 11 There are **NO** retaining walls, rip-rap or other bank stabilizing structures. Yes  No
- 12 Wildlife are often seen in the riparian area and fish live in the stream. Yes  No
- 13 Plants are vigorous, there is carryover of plant litter and forage production is stable. Yes  No

## Checklist Summary

How many of these questions did you answer **YES**?  and how many did you answer **NO**?

## Interpreting Your Checklist

If you answered **YES** to 10 or more of the questions and the riparian area looks like the riparian area in picture A, it is likely that the riparian area is **healthy and functioning well**, which means it is performing key riparian functions such as trapping sediment, buffering the impact of flooding, providing primary productivity and providing fish and wildlife habitat.

If you answered **NO** to 10 or more of the questions and the riparian area looks like the riparian area in picture B, it is likely that the riparian area is **unhealthy and not functioning properly**. Such a riparian area can show signs of erosion, absence of fish and wildlife, increased pollutants entering the water, lack of primary productivity and reduced water quality.

If you answered **NO** to 5 or more of these questions and the riparian area resembles a combination of pictures A and B, the riparian area could be **healthy but with problems**. Some riparian functions may be impaired.

If you would like more detailed information, contact us (see below):

*Checklist summaries that indicate the riparian area is healthy, but with problems or unhealthy can often be corrected by changing what you do. For example, producers can provide off-stream waterers that help to reduce trampling and erosion along streambanks and in the riparian area. Evaluate your riparian area again in two to three years - you should see some improvements.*

Photo Credits: Lorne Fitch, Liz Saunders, Michael Gerrard



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Oxford

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