Conference Program

2012 Intermountain GIS Conference

Kalispell, Montana · April 16-19, 2012

MAGIP
Montana Association of Geographic Information Professionals

2012 Intermountain GIS Conference
"Local Solutions to Global Issues"
Kalispell, Montana - April 16-19, 2012

On behalf of the Intermountain GIS Conference Planning Committee, I would like to welcome you to Kalispell for our 2012 Conference: "Local Solutions to Global Issues." The presentation tracks, workshops and keynote speaker of this year's conference were all built around this central idea of creating and finding solutions to issues that transcend multiple entities and domains, and how GIS can help do that.

From providing health services, to managing natural resources, to natural disaster prevention and mitigation, there is a myriad of local and global issues alike which can be managed by leveraging the power of GIS. Therefore, the 2012 conference has included a keynote speaker from health industry, as well as tracks on natural resources, emergency services, to focus on these types of solutions/issues.

Yet another track offered this year is on the Montana Spatial Data Infrastructure (MSDI). As Kris Larson (winner of the 2012 theme contest), stated "the whole concept of N[ational] SDI/MSDI was based upon the idea that the local people know their own areas better than centralized (often federal) programs and data should be pushed up from the small local communities." As you hear from the theme stewards, you will realize many of the MSDI themes are fed by data from local governments and communities: where local solutions are at work in a global level. Along those same lines, we will also hear from our local government GIS users at the local government track offered this year. And our societal GIS track focuses on engaging the local community in the creation of GIS services and products. Wow – talk about innovative local solutions to global issues related to creation of data, access to knowledge and technology transfer.

In the daily humdrum of office work, you may not even realize how the work you do is answering questions, solving problems. But I encourage you to take a moment while you are away from your emails, paperwork, deadlines, and servers, to ponder the work you do, and see how it fits this theme. I guarantee you are part of this movement - this really is an exciting time in the world of GIS, where each of us here today is involved with finding "Local Solutions to Global Issues." Thank you for coming, and being part of the solution.

Mindy Cochran,
Conference Co-Chair

MAGIP President's Address

On behalf of The Montana Association of Geographic Information Professionals (MAGIP), I would like to thank you for attending the 2012 Intermountain GIS Conference. We are privileged to have the conference in such a beautiful location as Kalispell this year! Kalispell, like many other towns in Montana, relies heavily on its local support to bring in business and boost the local economy. Being such a rural state, Montana is very unique in that local involvement is vital in the process of doing any kind of business. GIS in Montana is no exception. Our state and federal level GIS entities rely on local data to be successful. No one knows the geographic data of an area like a local.

While you are taking advantage of this wonderful opportunity, please take time to meet your MAGIP Board of Directors. You can see our pictures and names on the MAGIP Board page (4), and you can identify us by the dark green ribbons we have on our name tags. We, the Board, are trying our best to make GIS better for you by our involvement with the MAGIP membership, schools, information technology groups, Montana Spatial Data Infrastructure (MSDI), and the Montana Land Information Advisory Council (MLIAC). We are all volunteers and would love to hear your input and have your involvement.

Feel free to join the MAGIP Board meeting that is to take place on Friday morning or to sit in on the MLIAC meeting on Wednesday afternoon. The decisions made during these meetings could impact your career. You can be a part of the decision making process by running for a Board position, volunteering on a committee, and/or by being present and having your voice heard during meetings. We would love to see some new faces and hear some new ideas. You are part of the solution.

Thank you for coming to the 2012 Intermountain Conference. I look forward to talking to you and on behalf of MAGIP, WELCOME AND HAVE A WONDERFUL TIME!

Wendy Largent,
Conference Co-Chair,
MAGIP President,
MLIAC Board Member

MAGIP
Montana Association of Geographic Information Professionals

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2011-2012 MAGIP Board of Directors

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Operations and Business
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Michael Sweet
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Committee Chair

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Miles Wacker
Vice President

Not Pictured: Maya Daurio
Education Committee Chair

Not Pictured: Linda Vance
Past President

MAGIP
Montana Association of Geographic Information Professionals

Operations and Business Committee

Mission Statement: The purpose of the Operations & Business Committee is to oversee the basic needs and ongoing tasks needed to support the Association.

Report by: Eric Spangenberg, Chair
Operations & Business' Subcommittees and their respective chairs:

- Marketing Subcommittee – Chair
- Membership Subcommittee – Miles Wacker, Chair
- Web Subcommittee – Jason Danielson, Chair

Summary:

- Kept information pertinent and up to date on the website.
- Worked with the Education and Professional development committee to assist in researching a template to host web-based training for membership.
- Actively worked to keep membership aware of what MAGIP can provide them via the "Did you Know" email and web archive.
- Listened to membership needs and developed and updated associate membership bracket. This is something the association hopes will allow larger organizations to enroll staff as members.
- Actively reached out to other professional groups to promote the association.; NWGIS as well as a LinkedIn group page for active members.
- Web Subcommittee
- The Web Subcommittee continues to focus its efforts on the goals and objectives as stated in each annual MAGIP Work Plan. Work includes; help maintaining MAGIP's web pages, administering privileges, and research on web training opportunities for the organization. The Subcommittee also provides website support to all Committees, Subcommittees, and members when necessary.

New MAGIP Web Pages:

- Advanced Search Instructions
- Publications (MAGIP Publications)
- Did You Know?
- Resumes (members-only)
- 2012 Elections
- LinkedIn
- Mentoring (associated pages related to the program)
- Share (location for members to share projects/presentations/articles)

In early 2011 in collaboration with the MAGIP Mentoring Subcommittee, the Web Subcommittee implemented additional member profile settings. These 'optional' settings will provide extensive search capabilities for the Mentoring program. In May, the Web Subcommittee released an official "Website Policies and Procedures" document (located under the Members-Only page). This document serves to standardize the web content and design within each MAGIP web page. On October 31, the Web Subcommittee released its first biweekly "Did You Know?" email to MAGIP members. A subsequent "Did You Know" archive page was also created. In November, the Web Subcommittee designed a 2011 Survey Monkey survey for all MAGIP members. With 60 respondents, the survey provided valuable feedback concerning member awareness and expectations. In December (along with the help of our Administrator), a new embedded "Request for Assistance" form was implemented.

Google Analytics has also been added to the MAGIP website recently. Google Analytics will assist the Web Subcommittee and Board of Directors with analyzing traffic, viewing reports, and will help to verify our marketing effectiveness.

MAGIP Committee Reports

The Web Subcommittee continues to research and review potential online training options. Upon implementing web training software, the Web Subcommittee will continue to collaborate with the Professional Development Committee and Technical Committee for training content.

Marketing Subcommittee -The Association was an active participant in this years GIS Day held at the State Capitol building. At that event we had a fully staffed booth to answer questions about MAGIP. During the event MAGIP added about 20 new users to the email list-serve. MAGIP generously donated a number of pint glasses and pens marked with the MAGIP logo.
MAGIP members have also become more active in regional GIS groups, two MAGIP members have been elected to the NWGIS board. This involvement should bring attention to both of organizations.

Membership Subcommittee - This subcommittee has been working to address the retention, recruitment and maintenance of MAGIP membership. Working in tandem with the Marketing subcommittee to investigate what options might be of use to welcome new members. Ideas have included small swag type items that could be provided to a new member to keep their interest in MAGIP

One of the major key items this subcommittee approached was a request from the membership. In particular the design and implementation of the Associate membership, to-date we have:
1. Implemented Associate Membership.
2. Proposed new levels of Associate Membership, currently in a BOD vote.
3. Setup a webpage for the subcommittee.

Professional Development Committee

Report by: Michael Sweet, Interim Chair

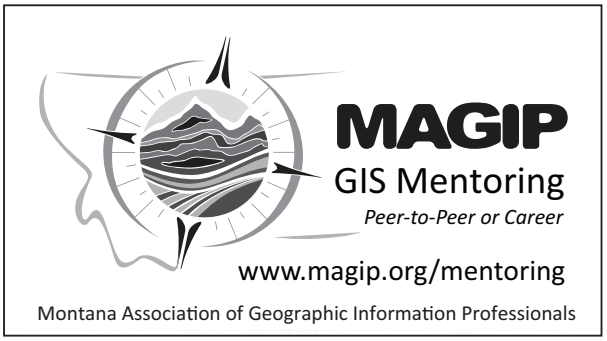
The Professional Development Committee faced a **change in leadership** shortly into its 2011 work plan. Ricki Ketterling was very enthusiastic about the possibilities ahead, but had to step aside in May. Mike Sweet, as workshop coordinator for the Intermountain GIS Conference Planning Committee, agreed to step in as interim Chair for the remainder of the year.

· In June a professional development survey of the GIS community in Montana was completed. The **survey results** were summarized and published to the MAGIP website. This survey guided the development of future workshop activities and provided feedback to the MAGIP Board of Directors on professional development needs.

· A major accomplishment was the completion of an outstanding mentoring

GIS Mentoring
Peer-to Peer or Career

The MAGIP GIS Mentoring program enables GIS practitioners to identify and contact colleagues who are willing to answer technical "how to" questions or offer GIS career guidance.



- Components are entirely web-based and self-guiding
- Participation is available to active MAGIP members
- Cost is simply the cost of annual MAGIP membership

magip.mt+mentor@gmail.com

framework for MAGIP under the **Mentoring Subcommittee**. This effort was led by the very capable Diane Papineau, GIS Analyst with the Montana State Library. The MAGIP GIS Mentoring program enables GIS practitioners to identify and contact colleagues who are willing to answer technical "how to" questions or offer GIS career development guidance. Complete information is available on the MAGIP website. Become a mentor or mentee today!

· **Professional Awards** were the third area of accomplishment for the Professional Development Committee. An Awards Committee was chaired by Duane Lund who is a GIS Analyst with the Montana State Library. Duane led a committee process to identify individuals within the Montana GIS Community that are to be recognized for either the MAGIP Distinguished Service Award or the GIS Professional Livability Award. Traditionally, these awards are given every two years at the Intermountain GIS Conference in Montana.

· Our final major accomplishment of this year is organizing and hosting the **Intermountain GIS Conference**. The conference planning committee operates under the auspices of the Professional Development Committee and is responsible for advancing the Intermountain GIS Conference on behalf of the MAGIP membership. It was through the capable leadership of Wendy Largent and Mindy Cochran that this committee strived to bring Montana the best it could offer in professional development opportunities at this year's conference.

· There were two areas of activity that did not advance this year. The first was **Professional Portfolios** and the second the **Web-based Training Initiative**. Professional electronic portfolios are becoming a mainstay of recruitment, and needs additional discussion within MAGIP. This function can be serviced through a number of low-cost commercial sites. MAGIP can likely assist members in developing competitive portfolios. The Web-based Training Initiative is still of great interest to the membership based on results from the Professional Development Survey. Lack of resources, both human-ware and funding, has constrained the advancement of this effort. Hopefully 2012 will bring a renewed interest in this topic and MAGIP can begin to identify avenues to leverage web-based platforms for professional development outside of fall and spring workshops.

· Finally, the successes of this committee are only due to the guidance and active participation of the MAGIP membership. MAGIP is a member-fueled organization and its successes are a reflection of that.

Technical Committee

Report by: Chris Stump, Chair

Review - Fall Technical Session 2011: The 2011 MAGIP Fall Technical Session held in Missoula was a success. Excellent presentations and discussion forums focused on a wide range of topics including GIS Enterprise architecture schemas, Montana Spatial Data Infrastructure (MSDI), ArcGIS online, mobile GIS solutions, an ESRI Hands-On learning lab, workflow automation in Model Builder, .Net, & Python, and GIS analysis using Oblique Imagery. Special thanks from the Technical Committee to the presenters and participants. You together make each Tech Session a great success.

Registration numbers for the 2011 Fall Technical Session were down slightly from the 2010 Fall Technical Session held in Helena. Reduced registration numbers and higher conference facility costs resulted in decreased net profit from budgeted projections (see table following). However, these

issues will be addressed in preparation for the 2012 Technical Session.

	Budgeted	Actual	
Income	$7,125.00	$6,100.00	*64 Member Registrations @ $75 & 13 Non-Member Registrations @ $100
PayPal Fees		$201.30	*approximation
Expenses	$3,165.47	$3,728.75	*does not include Lee's expenses - which were limited to "processing payments" only
Net Profit	$3,959.53	$2,169.95	*includes $306 refund from facility

Adapted from FY2011 Budget Report by Jon Henderson, MAGIP Treasurer, January 24th, 2012.

DRAFT MSDI Best Practices Document: During January of 2012, the MAGIP Technical Committee researched and reported a list of eight draft best practices focused on Montana Spatial Data Infrastructure (MSDI) datasets, focused mainly on data distribution and consistency. The MSDI Best practices are as follows:

1. All MSDI layers available in most current ArcGIS geodatabase (GDB) version, most current ArcGIS GDB version minus one, and an open source format.
2. All MSDI layers available with complete and embedded metadata along with a standalone metadata file in XML format.
3. All MSDI layers available for download at a statewide extent:
4. Create Web Mapping Services (WMS) or a Geoprocessing service for each MSDI layer.
5. Create defined symbology
6. Have a defined update schedule for each MSDI layer.
7. Create ONE download location for all MSDI layers and treat that location as the definitive download source.
8. Each MSDI download package includes ONLY its respective MSDI theme, and no MSDI theme download package includes any other MSDI theme or data.

To access the full MSDI Best Practices Report, navigate to 'http://www.magip.org/BestPractices', and click on the DRAFT MSDI Best Practices (Proposal) link. The MSDI Best Practices Report is still in draft from. Please review the document and associated best practices, and feel free to partake in the MSDI Best Practices Review discussion forum located at 'http://www.magip.org/MSDIForum?mode=MessageList&eid=870747'. Please post any concerns, comments, or questions related to the DRAFT MSDI Best Practices at this link as well.

Planning - Fall Technical Session 2012: In an effort to recruit additional MAGIP members and increase MAGIP outreach opportunities, the 2012 MAGIP Fall Technical Session is scheduled to be held in Great Falls during the week of September 11th. Specific Tech Session venues are currently being researched. To offset reduced Tech Session earnings from last year, the Technical Committee is considering moderately augmented attendance fees. If you are interested in presenting at the 2012 Fall Technical Session, or would like to assist in the planning and implementation of this year's Tech Session, or to serve on the Technical Committee, please contact Chris Stump at cstump@mt.gov or 406-444-0142.

2012 Intermountain Conference Committee

Special thanks to the 2012 Intermountain Conference Committee whose members contributed many hundreds of hours of effort toward the staging of this year's events. Working since Fall 2010, the committee has focused on developing a conference that will benefit our GIS community in multiple areas - training, education, networking, and inspiration. Committee Members are listed below along with their primary tasks. Thank you for all your efforts on behalf of the conference.

- **Gail Chvilicek**, *Flathead Electric Cooperative*, Posters and Judging, Exhibitor/Vendor Coordination, Silent Auction/Raffle
- **Mindy Cochran**, *Flathead County*, Conference Co-Chair, Public Night Coordination, Awards/Awards Banquet, Silent Auction/Raffle, Program and Packets, Publicity
- **DeAnn Dutton**, *USGS Montana Water Science Center*, Public Night Coordination, Silent Auction/Raffle, Program and Packets
- **Michael Fashoway**, *Montana State Library*, Site Coordination
- **Erin Fashoway**, *Montana State Library*, Keynote Speaker Coordination
- **Jon Henderson**, *City of Bozeman*, Treasurer
- **Wendy Largent**, *Lake County*, Conference Co-Chair, Exhibitor/Vendor Coordination, Plenary Session, Awards/Awards Banquet, Silent Auction/Raffle, Program and Packets
- **Kris Larson**, *CDM Smith*, Posters and Judging, Student Projects, Awards Committee Chair
- **Lee Macholz**, *Mountain Water Company*, Registration, Conference Schedule, Track Chair Coordination, Webmaster, Summit, Call for Papers and Posters, Program and Packets - Lead, Exhibitor/Vendor Coordination, Site Coordination, General Administration
- **Lorie Palm**, *On Sabbatical*, Publicity, Graphics, and Signs, Website Updates, Call for Papers and Posters, Program and Packets - Designer and Editor
- **Liz Patefield**, *Flathead County*, Site Coordination, Awards/Awards Banquet
- **Bryant Ralston**, *GCS Research*, Posters and Judging, Awards Banquet
- **Michael Rave**, *Lake County*, Swag
- **Eric Spangenberg**, *Lewis & Clark County*, Student Scholarships
- **Mike Sweet**, *University of Montana*, Workshops, Program Content
- **Miles Wacker**, *Montana Dept. of Transportation*, Student Scholarships, Swag
- **Martin Zobel**, *CSKT Water Management Division*, Swag

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Your participation helps make the conference possible.

Student Scholarship Recipients

At each Intermountain GIS Conference, MAGIP awards scholarships to student applicants. In return for their awards, students contribute their time to assist the conference committee in a variety of ways – serving at the registration desk, monitoring AV equipment and assisting presenters. Many also present posters and/or papers during the conference general sessions. This year's recipients are:

- **Butler, Amy**, *University of Montana, Geography (Bachelor's candidate)*
- **Cassel, Amy**, *Idaho State University, Geographic Information Science (Master's candidate)*
- **Connelley, Kaitlyn**, *Carroll College, (Bachelor's candidate)*
- **Fricke, Stephen**, *University of Idaho, (Master's candidate)*
- **Garcia, Neto**, *Montana State University, Range Sciences, (PhD candidate)*
- **Hammer, Samantha**, *University of Idaho, Environmental Science (Master's candidate)*
- **Hecht, Alice**, *Montana State University, Economics (Bachelor's candidate)*
- **Hedstrom, Jeff**, *Montana State University, Earth Sciences (Bachelor's candidate)*
- **Hoffman, Joe**, *Montana State University, Earth Sciences (Bachelor's candidate)*
- **Karki, Sita**, *Idaho State University, Geographic Information Science (Master's candidate)*
- **Thompson, Courtney**, *University of Idaho, (Master's Candidate)*
- **Webber, Bryson**, *Idaho State University, Geographic Information Science (Master's candidate)*
- **Wescott, Mace**, *University of Montana, Geography (Master's candidate)*

Presented by:

Miles Wacker, GISP, Montana Department of Transportation, MAGIP Vice President

Eric Spangenberg, GISP, Lewis & Clark County, MAGIP Board At-Large Member and Operations and Business Committee Chair

Track Chairs organize sessions by soliciting speakers to offer presentations. They coordinate with speakers to prepare the sessions and submit materials for the program. The conference committee wishes to recognize these volunteers for their efforts in developing outstanding program content.

Track	Chair
• Education	Maya Daurio
• Emergency Services	Allen Armstrong and Jenny Connelley
• Local Government	Doug Burreson
• Mobile Applications of GIS	Valentijn Hoff
• MSDI	Stu Kirkpatrick
• Natural Resources	Linda Vance
• Professional Development	Lee Macholz
• Societal GIS	Bryant Ralston and Miles Wacker
• Tribal	Pete Gillard
• Utilities	Carrie Shockley and Gail Chvilicek
• Vendor Track	Lee Macholz

MAGIP Awards

The 2012 MAGIP Awards committee is pleased to invite you to join us at the Wednesday evening dinner banquet for the 2012 MAGIP Awards. These awards recognize the outstanding contributions made to the GIS Community by our members. Over the past twelve years, we have been pleased to honor the following members at our Intermountain GIS Conferences:

• 2000	**Kris Larson**	**Mike Sweet**
• 2002	**Gretchen Baldus**	**Gerry Daumiller**
• 2004	**Margie Lubinski**	**Duane Anderson**
• 2006	**Paul Wilson**	**Bryant Ralston**
• 2008	**Ken Wall**	**Stu Kirkpatrick**
• 2010	**Duane Lund**	**Annette Cabrera**
• 2012	To Be Awarded - at the Banquet	

Thank you to the 2012 awards committee for you work reviewing submissions for nomination and selecting this year's honorees. Formed from previous winners, this year's award committee included: Duane Lund, Chair; Annette Cabrera, Stu Kirkpatrick, Kris Larson, and Ken Wall.

Tuesday Night - 5:30 p.m. to 9:00 p.m.

At the Fireplace Lobby

A Program for Everyone interested in Geographic Information Systems

Throughout the evening:

* Enjoy Hors d'oeuvres while visiting the Vendor Area
* View Poster Displays
* Bid on Silent Auction items
* Collect Passport Stamps
* Visit the Flathead Co.GIS Booth

The "New to GIS Mixer"

Lake McDonald Room
6:30-7:30 p.m.

A chance for persons new to GIS to meet colleagues, GIS veterans and other newbies. A chance for all GIS professionals to get to know each other better. everyone's invited!

Presentations

Hanging Gardens Room

Robert Kenning from CSKT on GIS basics and examples
5:30-6:00 P.M.

Bigfork High GIS Students
6:00-6:30 P.M.

Bigfork Cave Club
6:30-7:00 P.M.

USGS New US Topo Software
7:00-8:00 P.M.

Games for Kids!! – K-12

* Scavenger Hunt on Map
* Color Contest for K-5 - Winner decided by VOTE
* Latitude-Longitude Activity
* Compass Rose Activity
* Bean Bag Toss

Special Events and Social Activities

The Conference Committee is pleased to announce a variety of wonderful activities featured at this year's conference:

Monday

Esri Developer's Meet Up
5:30 - 8:30 p.m. Paddy's Touchdown Lounge and Restaurant, 153 N. Meridian, Kalispell, MT
This Dev Meet Up is a social gathering for developers to discuss geospatial technologies, complementary third-party tools, and development platforms (e.g., Silverlight, Java, Flex, JavaScript) that are supported by Esri. Presentations run the gamut of our community: from Web development to mobile location development for iOS, Android and Windows Phone 7 to automating tasks with Python.

Developers of all levels of expertise are welcome, from seasoned GIS professionals to those new to geospatial development. Food and beverages will be provided at the event! For more info visit: http://www.meetup.com/devmeetupnorthernrockies/events/54241202/

Tuesday

Montana Summit
1:00 - 2:30 p.m. Ballroom A
Give MAGIP feedback on how the organization can best serve YOU!

Plenary Session
3:00 - 5:00 p.m. Ballroom A
The Plenary will feature updates on the status of GIS in Montana.

Carl Kinkade, CDC Enterprise GIS Coordinator, delivers the **Plenary Keynote Address** "From the Pump Handle to Hajj and from Paper to Smartphones,Using GIS to Attack Global Public Health Problems." Carl will explain how GIS has taken him all over the world in the service of public health.

Public Night and Vendor Reception
5:30 – 9:00 p.m. Fireplace Lobby
Join us for an evening of hors d'oeuvre, games, and activities including:

Presentations Hanging Gardens Room
5:30 - 6:00 p.m. Robert Kenning - Forestry and GIS Instructor from Salish Kootenai College introduces the general public to a session on "GIS explained".
6:00 - 6:30 p.m. Bigfork High School and Middle School students will overview projects they have completed in one of the school's 3 GIS classes.
6:30 - 7:00 p.m. Bigfork High School Cave Club use GIS to help conserve caves from Montana to Arizona.
7:00 – 8:00 p.m. USGS New US Topo – The United States Geological Survey (USGS) introduces this next generation of topographic maps "US Topo".

New to GIS Mixer
6:30 – 7:30 p.m. Lake McDonald Room
Sponsored by the MAGIP Mentoring Subcommittee. A chance for persons new to GIS to meet colleagues, GIS veterans and other newbies. A chance for ALL GIS professionals to get to know each other better.

Wednesday

Luncheon Buffet
12 noon – 1:30 p.m.
The 2012-2013 **MAGIP Board nominees** for Vice President and Members at Large will be introduced.

Flathead County's Planning and Zoning Director BJ Grieve gives luncheon address **"Preparing For A Flood (While Hoping It Doesn't Flood)."** The spring of 2011 was a nervous time for Floodplain Administrators across the state of Montana. Record and near-record snow pack in the mountains had public service providers watching the river gauges and weather reports. Flooding is a problem faced by local communities worldwide, and Flathead

County is no exception.

This presentation will review some flooding history in Flathead County, the unique conditions of 2011, and the work that was done locally to be prepared if flooding occurred. BJ Grieve has been with the Flathead County Planning and Zoning Office for just over 8 years. BJ has a BS in Geography from the University of Wisconsin-Whitewater and a MA in Geography from East Carolina University. BJ is AICP® and CFM® certified.

Also during the luncheon, Diane Papineau will introduce the **new MAGIP GIS Mentoring Program**.

Montana Land Information Advisory Council (MLIAC) Meeting
1:30 – 5:00 p.m. Hospitality Room
The purpose of the Montana Land Information Act is to develop a standardized, sustainable method to collect, maintain, and disseminate information in digital formats about the natural and artificial land characteristics of Montana.

Dinner, Awards, and Social
6:00 – 10:30 p.m. Ballroom A
Dinner Banquet & Awards Ceremony followed with dancing to music by Jameson and The Sordid Seeds. Jameson and the Sordid Seeds is a bumpin' original reggae rock and blues rock band based out of Northwest Montana.

The band formed in late 2009 and has gained national recognition quickly, becoming one of Relix magazine's 2010 artists on the rise. In 2010, the Sordid Seeds played throughout the Northwest U.S. in support of their debut album *Two Shoes in Mary's Basement*, at such venues as the Hard Rock Cafe & House of Blues in Las Vegas, Nevada; Quixote's True Blue in Denver, Colorado; and First Down & Stassney in Austin, Texas.

Thursday

Luncheon Buffet
12 noon – 1:30 p.m.
Enjoy the luncheon buffet and listen to **featured speaker Selita Ammondt**. Selita is a Restoration Ecologist and a GIS Specialist for River Design Group Inc., a river and wetland restoration consultation company based in Whitefish, MT.

For two consecutive years, River Design Group, Inc. has been voted one of the top 50 places to work in the U.S. by Outside Magazine. The ranking considers employees' ability to balance productivity with an active, eco-conscious lifestyle. Selita will speak on working in such an environment, where projects include a great balance of both office and field work, along with fitness benefits, community service, green initiatives, and employee recognition, which creates a desirable work and social environment.

Silent Auction winners will be announced.

Friday

MAGIP Board Meeting
8:00 a.m. – 12:00 p.m. Fireside Room
MAGIP is a non-profit 501 (c) (06) professional association that works to identify and support the strengths of individual members, find solutions to individual and collective problems, and address the needs of the Montana GIS community as a whole. MAGIP Board Meetings are open to the public.

Workshop Presenters

The conference is proud to offer a variety of workshops this year. There are seven traditional full day/ half day sessions available. In addition, the Esri Learning Lab sessions offered during presentation sessions Wednesday and Thursday, are available free to everyone for short (as little as 45 minute) topical instruction. ALL of these low cost training opportunities are available due to the **volunteer** teaching services of the presenters listed below. Thank you presenters for sharing your expertise.

Kyle Balke: *Understanding Esri Model Builder*
Kyle Balke has eight years of applied experience utilizing geographic information systems in the planning, consulting, and engineering fields. Highly skilled in GIS data maintenance and editing, project development, geodatabase design and implementation, CAD and GIS integration, spatial analysis, cartography, 3D modeling, rendering, and project management. He has used model builder extensively to automate workflow on several projects including the National Broadband Mapping Project in Montana.

Jackson Beighle : *ArcPad for Mobile GIS*
Jackson Beighle is a GPS-GIS Sales Specialist for Electronic Data Solutions. He graduated from the University of Montana in 1994 with a Geography degree and from Oregon State University in 1996 with a graduate degree in Geography and GIS. Jackson has 15 years of experience working with a wide range of customers in the GIS and GPS industry. He lives in Missoula with his wife Traci and three children, Sam, Finn and Cole.

Carol Dargatz: *The Esri Learning Lab*
Carol Dargatz is an Esri Training Specialist covering State and Local Government and Utilities for Olympia Region, California, Hawaii, Nevada. Carol has been with Esri 5 years. She began her career at Esri as an instructor and currently works to ensure our customers receive the GIS training they need to be successful. Carol was first introduced to GIS while mapping invasive plant species on National Forest Service lands in Washington State. She lives in Olympia, Washington, where, when it's not raining, she spends her spare time gardening.

Dave Highness: *ArcPy Essentials*
Dave Highness has a Master's degree in Geography from the University of Montana and 18 years' experience working as a professional in the geospatial industry as a cartographer, GIS analyst, application developer and project manager. Mr. Highness has been a project leader on many large projects including creation of the original digital Montana Highway Map, creation of the Montana DEQ Clean Water Act Information Center web site, developer of the USFS Generalization Tools and Fire Incident Mapping Tools, and currently the web sites built to support the Montana and North Dakota Broadband Mapping projects. Mr. Highness has been with Tetra Tech for 12 years but he previously worked at Montana NRIS and the University of Montana. Prior to getting his Masters' degree he worked for 10 years as a field archaeologist. He is married, has two kids and resides in Helena, Montana.

Kris Larson, GISP: *Flex Apps for Everyone*
Kris Larson graduated from the University of Montana with a degree in Geography, Cartographic emphasis. Ms. Larson has been active in the GIS community since 1989 and has served as the President of MAGIP, on the Montana Land Information Act Council (MLIAC), as a current Member of the GIS Certification Institute's Outreach Committee, and is currently on the board of the NW GIS Users Group. She is part of an international Information Management Solutions group at CDM Smith that works cooperatively to implement GIS and custom software solutions for clients. Ms. Larson began her career in the Natural Resource Information System (NRIS) at the Montana State Library, one of the first GIS clearinghouses in the nation. She then owned and operated KAL Consulting before being asked to come back to the State in 2002. She has been very happily employed at CDM

Smith since the Fall of 2006. In addition to her work at CDM Smith, Ms. Larson is an adjunct professor at Carroll College. In the last five years, she has become increasingly involved in Community Outreach efforts – something that dovetails perfectly with GIS! Her interests outside of work include doing ultra-marathons ("running" would be a gross exaggeration), whitewater kayaking, & telemark skiing.

Scott Moore: *Community Analyst – Better Communities through Geography, Learning Common GIS Workflows, Working with ArcGIS Online*
Scott Moore is a Solution Engineer with Esri and currently works in the Olympia regional office. He earned a bachelor's degree in Geography with a focus on GIS from the University of Washington in Seattle in 1998. Prior to joining Esri, he was a senior GIS analyst and GIS manager for the City of Chandler, Arizona. Scott specializes in GIS technology leveraged via the web using server and cloud technologies. Scott is an Esri Certified Enterprise Administration Associate as well as an Esri Certified Geodatabase Management Associate. In his spare time, he enjoys camping, skiing, fishing, hunting, and long walks on the beach.

Rob Parsons: *Flex Apps for Everyone*
Mr. Parsons is currently the CDM Smith West Region GIS Group Leader and has 22 years of experience applying GIS as a consultant within a multi-disciplinary environment. As a Group Leader over a Professional Services team his group provides support services for ArcSDE implementation, Geodatabase modeling, database management, 3D modeling, project management, and general GIS consulting services. He has used the free Flex application from ESRI as tool to allow clients to develop a simple solution to their web mapping needs.

Leah Saunders: *Community Analyst – Better Communities through Geography, Learning Common GIS Workflows, Working with ArcGIS Online*
Leah Saunders has been at Esri for over 10 years, starting as an Instructor in Redlands, CA and is currently part of the Solution Engineers group in the Olympia Regional office. Her areas of expertise include Public Safety, Land Management and Cadastral and general Local Government. Some of Leah's technology expertise includes; ArcGIS for Desktop and Server, Python, ArcObjects, ArcGIS Online, Business Analyst products, Fusion Core Solution and ArcGIS for SharePoint.

THANK YOU

On behalf of all workshop attendees, MAGIP offers a Big Sky "Thank You" to the **Montana State Library** (MSL) and **Esri** for providing computers for the 2012 Intermountain GIS workshops.

A special thank you goes to:

- **Cindy Phillips**, MSL Network Administrator, who keeps software and hardware current.
- **JoAnn Flick** at MSL who handles the scheduling and coordinates laptop delivery-pickup details.
- **Jennie Stapp** for fulfilling to role of a Sherpa and getting the MSL laptops to Kalispell.
- The very competent **employees at Esri** who make The Hands-on Learning Lab possible.

Notes

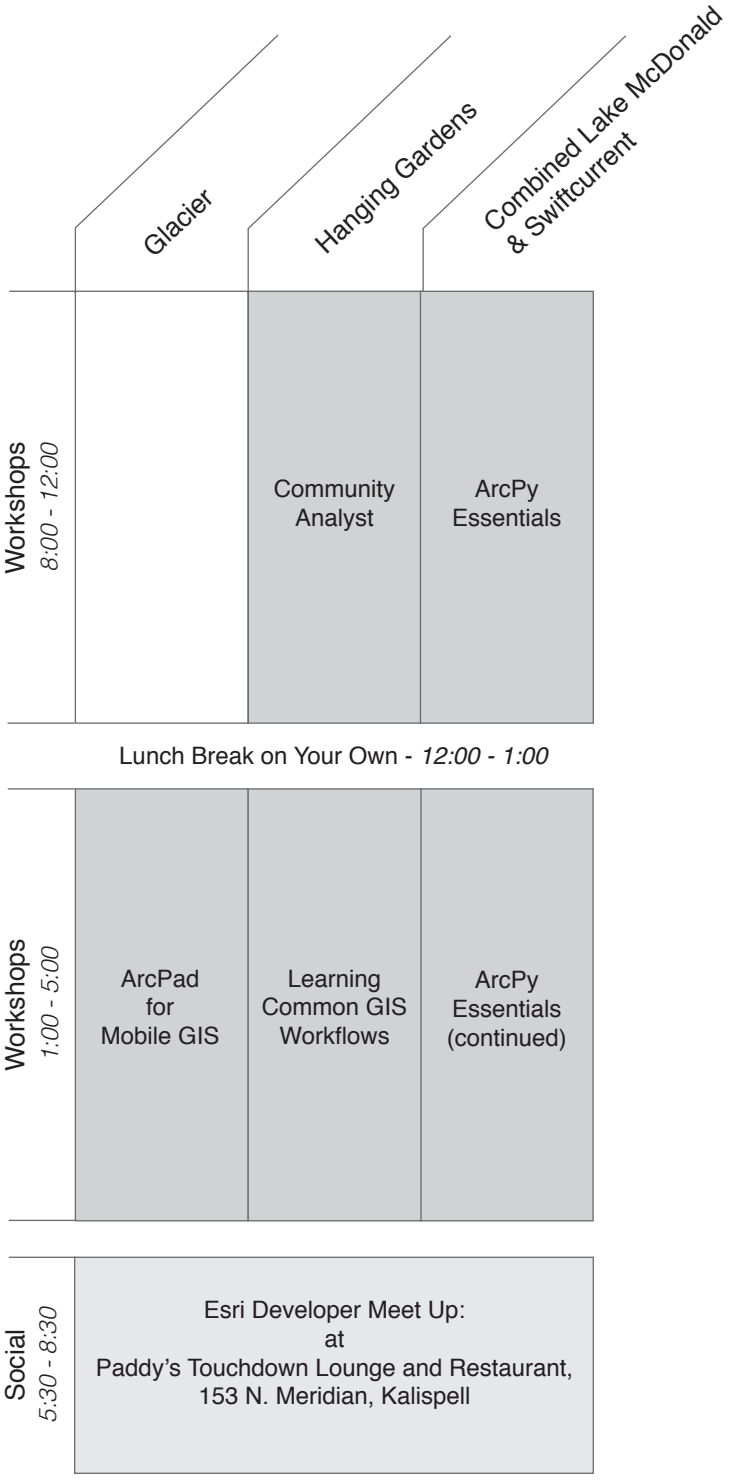
Presenters, Moderators, and Track Chairs - Wednesday and Thursday

You are invited to breakfast in the Fireside Room from 7:00 - 8:00 a.m. on the day you present. This is an opportunity for moderators to discuss session structure with participants. It is also a chance for conversations with others involved in similar work. Enjoy a complimentary breakfast and get to know your colleagues a little better.

Silent Auction

A silent auction for general and GIS related items is being held as a MAGIP fund-raiser. You can bid on items beginning Tuesday night - during Public Night and continuing until the Luncheon on Thursday. Winners will be declared at the Luncheon. The money raised goes toward the MAGIP Education Committee's GIS Higher Education Scholarship and the GIS K-12 Competitive Grant Program - so bid well.

Monday Overview



Workshops

Monday, 8:00 a.m. - 5:00 p.m.

Workshop: ArcPy Essentials
Location: Combined Lake McDonald & Swiftcurrent Rooms

Format: Lecture/demonstration
Instructor: Dave Highness, Senior GIS Programmer/Analyst, Tetra Tech, Inc.

Python is a vital skill for any ArcGIS professional interested in furthering their automation and analysis tasks. Python allows users to create custom data management or analysis tools ranging from single functions to complex multi-function processes with validation, which can be easily reused, shared, and even executed with little to no user interaction. This workshop includes a quick introduction to the Python scripting language and shows how it can be used to access ArcPy for automation of GeoProcessing tasks and map production.

Intended Audience:

- New to Python scripting and ArcPy
- Comfortable using ArcGIS geoprocessing tools, but want to become more efficient (make the software work for you)
- Moving to Python from other scripting language
- Interested in what's new in ArcGIS 10

Monday, 8:00 a.m. - 12:00 p.m.

Workshop: Community Analyst - Better Communities through Geography
Location: Hanging Gardens Room

Format: Hands-on lab
Instructors: Scott Moore, Solution Engineer, Esri
Leah Saunders, Solution Engineer, Esri

Community Analyst is a Software-as-a-Service (SaaS) mapping solution that allows users across your organization to quickly discover and explore important facts about any area to help develop the right policy strategies, convey important information to those who need it, and ultimately improve communities. Discover how combining thousands of demographic, health, economic, education, and business data variables with instant reports and interactive color-coded maps can help you make better policy decisions and recommendations.

Monday, 1:00 - 5:00 p.m.

Workshop: ArcPad for Mobile GIS
Location: Glacier Room

Format: Hands-on lab
Instructor: Jackson Beighle, GPS-GIS Sales Specialist, Electronic Data Solutions

This half-day workshop will focus on taking GIS from the office to the field using Trimble handhelds and ESRI software. The workshop will focus on ArcPad and using the ArcPad Data Manager Extension to manage the flow of GIS data to and from the field. Participants will learn about personal geodatabase domains and how they benefit the ArcPad user. The workshop will feature technologies from leading manufacturers such as Laser Technologies, Juniper Systems, and Ricoh. This workshop will include a short field session.

Workshop: Learning Common GIS Workflows
Location: Hanging Gardens Room

Format: Hands-on lab
Instructors: Scott Moore, Solution Engineer, Esri
Leah Saunders, Solution Engineer, Esri

At some point in time, when faced with a new task or project, all GIS users find themselves asking "How do I do this? How do I create a new map? How do I build a geodatabase? How do I set up editing, or perform analysis, or share maps and data with others? What workflow should I follow?" There are literally hundreds of GIS workflows; however there are several key workflows that are common to every GIS user. In this workshop, we will describe five of the most common workflows: building your geodatabase, setting up editing, performing analysis, creating maps, and working with online content. Participants will then have exercises for each of these workflows.

Monday, 5:30 - 8:30 p.m.

Social: Esri Developer's Meet Up
Location: Paddy's Touchdown Lounge and Restaurant
153 N. Meridian, Kalispell, MT

Sponsored by Esri - This Dev Meet Up is a social gathering for developers to discuss geospatial technologies, complementary third-party tools, and development platforms (e.g., Silverlight, Java, Flex, JavaScript) that are supported by Esri. Presentations run the gamut of our community: from Web development to mobile location development for iOS, Android and Windows Phone 7 to automating tasks with Python.

Developers of all levels of expertise are welcome, from seasoned GIS professionals to those new to geospatial development.

Are You a Member?

MAGIP

Montana Association of Geographic Information Professionals

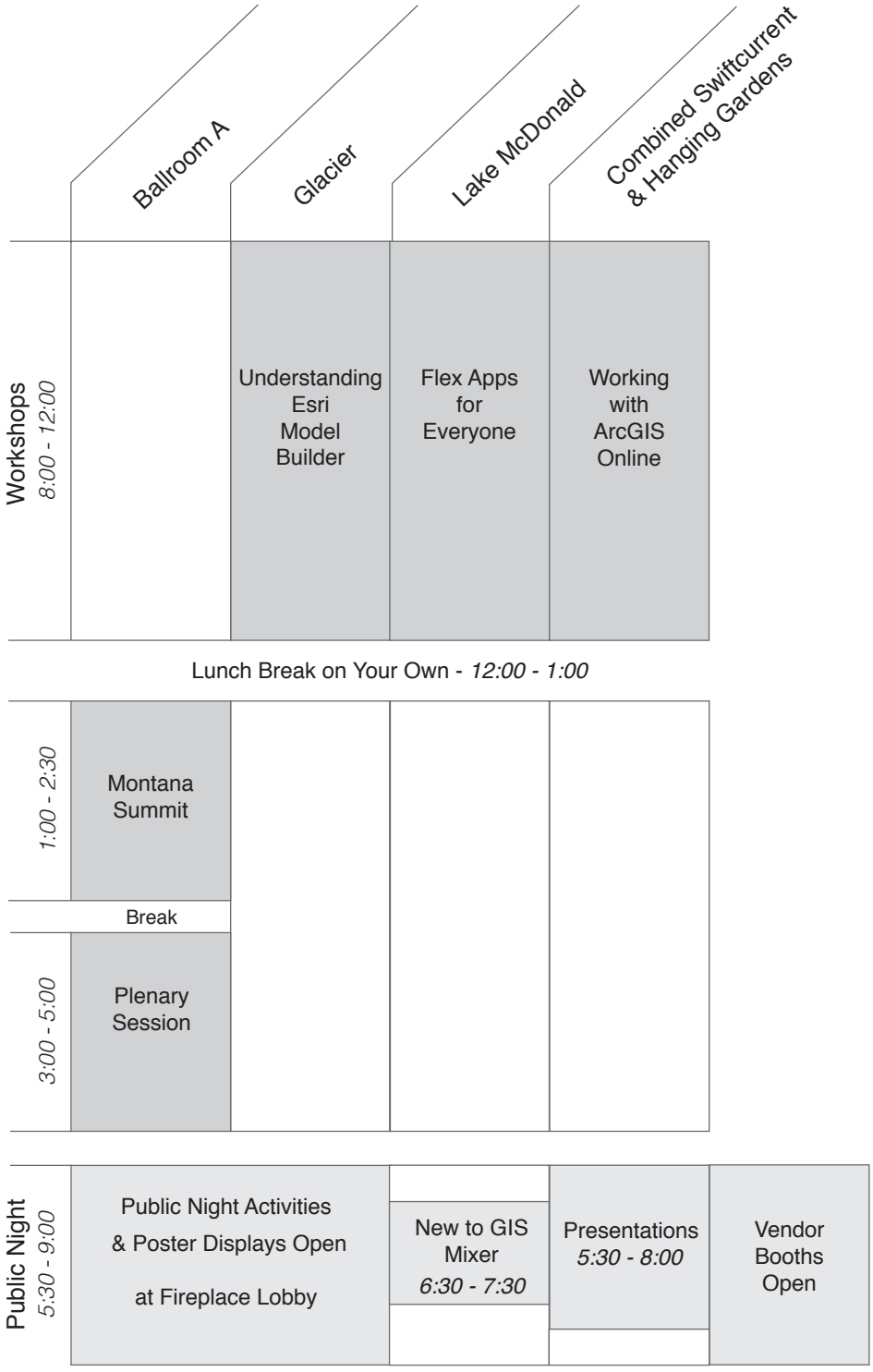
MAGIP is a non-profit 501 (c) (06) professional association that works to identify and support the strengths of individual members, find solutions to individual and collective problems, and address the needs of the Montana GIS community as a whole.

Membership Benefits:

- MAGIP GIS Mentoring Program
- MAGIP Assistance
- MAGIP Sponsored User Groups
- Conferences & Tech Sessions
- Low Price Seminars and Workshops
- Access to Online Webinar Account
- Access to Online Surveys
- GIS Networking
- MAGIP Listserv
- GISP Support
- Volunteer Opportunities
- ...and More

http://www.magip.org/Membership

TUESDAY OVERVIEW



Workshops

Tuesday, 8:00 a.m. - 12:00 p.m.

Workshop: Flex Apps for Everyone
Location: Lake McDonald Room

Format: Lecture/demonstration
Instructors: Robbie Parsons, GISP, GIS Specialist
Kris Larson, GISP, GIS Specialist, CDM Smith

Would you like to get your GIS data out on the internet but you don't have the resources to hire someone and/or your programming skills are a bit rusty (or maybe non-existent)? Flex Apps are the thing for you! In this 4-hour workshop, we'll look at some existing web apps that will inspire you and get you thinking about what you might be able to do with your own data. We will spend time running through the process and provide discussion and scenarios to post your data. We'll spend the last hour of the workshop covering some basic - and some apparently little known - cartography concepts so that you communicate as effectively as possible in cyberland. We'll do our best to help you walk out of this workshop feeling inspired, energized, and ready to put out an eye-catching application.

Workshop: Understanding Esri Model Builder
Location: Glacier Room

Format: Hands-on lab
Instructors: Kyle Balke, GIS Analyst, Geodata Services

Model Builder is an easy to use application built in to ArcGIS that allows a user to link together a sequence of geoprocessing tools, where the output of one tool can be used as the input to another. It can be “thought of as a visual programming language for building workflows.” This hands-on session will introduce the user to the world of model building as well as several intermediate and advanced techniques. Topics will include basic model elements and workflow, model parameters, running a model, filters, model only tools, iterators, in-line variable substitution, and preconditions. This session will be valuable to both the newbie and casual model builder user.

Workshop: Working with ArcGIS Online
Location: Combined Swiftcurrent and Hanging Gardens Rooms

Format: Hands-on lab,
Instructors: Scott Moore, Solution Engineer, Esri
Leah Saunders, Solution Engineer, Esri

This will be a hands-on workshop where you will learn how you can create communities, share and discover geospatial information, and make easy-to-use intelligent web maps and web mapping applications using ArcGIS Online. Participants will learn skills on how to:

Upload CSV, shapefile, and KML data sources into ArcGIS Online and publish them in an online map.
Mash up ArcGIS Server and ArcGIS Online hosted services, WMS services, and KML services into intelligent maps and applications that offer great performance, excellent cartography, and interactive query and reporting capability.
Embed your maps into your own personal or organizations website.
Create web mapping applications hosted by ArcGIS Online.
Deploy maps to mobile devices.

Tuesday, 1:00 - 2:30 p.m.

Event: Montana Summit
Location: Ballroom A

The Montana Association of Geographic Information Professionals (MAGIP) works hard to meet the needs of its members. In order to work for you, we need to hear from you. The MT Summit is one chance you, as MAGIP members, can add input that will help determine directions and priorities for the MAGIP Board of Directors for the coming year. The MAGIP Board uses the information that we receive at the MT Summit during conference years with the results of annual surveys of our members when developing the annual work plan and target activities for the GIS community in Montana. This year, we are particularly interested in speaking to you about the following topics:

- A financial overview of MAGIP
- The future of the Intermountain GIS Conference
- The role and implementation of Web-based training
- The concept of workflow scenarios
- Hear from the candidates for the 2012-2013 MAGIP Board of Directors

Please come join the discussion and help shape the future of MAGIP! If you are unable to join us for the Summit, please consider providing any input you may have to the MAGIP Board. You can reach the board at magip.mt@gmail.com or by contacting any individual board member or administrator.

Plenary Session

Tuesday, 3:00 - 5:00 p.m.

Event: Plenary Session
Location: Ballroom A

- Conference Welcome
  Conference Co-Chairs: Mindy Cochran and Wendy Largent.....*3:00 - 3:05*
- Conference Key Note
  Featured Speaker: Carl Kinkade.....*3:05 - 3:55*
- 2013 Intermountain Conference Invitation
  Dennis Hill.....*3:55 - 4:00*
- MAGIP News
  MAGIP President Wendy Largent and Vice-President Miles Wacker.....*4:00 - 4:10*
- Montana State Library and Montana Spatial Data Infrastructure Updates
  Jennie Stapp, Stu Kirkpatrick, Evan Hammer.....*4:10 - 4:30*
- Technical Sessions
  MAGIP Technical Committee Chair: Chris Stump.....*4:30 - 4:45*
- Summit Results
  Summit Facilitator: Lee Macholz.....*4:45 - 4:50*
- Conference Blessing
  Tony Incashola.....*4:50 - 5:00*
- Dismissal.....*5:00*

From the Pump Handle to Hajj and from Paper to Smartphones,Using GIS to Attack Global Public Health Problems

In 1854, John Snow mapped out the Cholera deaths in London and then during the 2009 Swine Flu Pandemic, the Saudi Arabian Ministry of Health identified disease cases using smartphones. The use of GIS has become a critical component of public health for planning, implementing interventions, evaluating, and follow-up. Carl will discuss how GIS is used at CDC and by other public health agencies. In addition, he will talk about how GIS has taken him all over the world from an outbreak in Kenya to the aftermath of the earthquake in Haiti and across 5 continents.

Carl Kinkade

Carl is the Enterprise GIS Coordinator for the Centers for Disease Control and Prevention (CDC) in the Division of Epidemiology and Analytic Methods in the Office of Surveillance, Epidemiology, and Laboratory Services. His undergraduate degree is in Architecture, master's degree is in Community and Regional Planning from the University of Nebraska, and is working toward his doctorate in Public Health.

Carl coordinates GIS activities across CDC, provides GIS training across the globe for CDC and partners, and represents Health and Human Services on the Federal Geographic Data Committee and other federal workgroups. He has been deployed to support humanitarian and public health events around the world including Katrina, Myanmar, Kenya, Saudi Arabia, and Haiti.

In addition to his response activities, he has traveled throughout Asia, Africa, the Middle East, Central and South America to assist public health partners in building surveillance, data collection, and analysis capacity. Currently he is working on the national disease surveillance system for Iraq and assisting Brazil to prepare for the Olympics and World Cup.

He is a Certified GIS Professional (GISP) from the GIS Certification Institute and sits on the national review committee to review applications. Prior to coming to CDC, he worked as the Team Lead for the GIS Practice at BearingPoint, as a Health Industry Manager for Esri, owned a consulting firm that specialized in GIS and Public Health working mainly with Nebraska Health and Human Services, and worked as the GIS Coordinator for the Lincoln-Lancaster County Health Department. In addition, he spent two years in the US Peace Corps in the Philippines as a local community development volunteer and twelve years in the US Army Reserves.

Public Night and Vendor Reception

Tuesday, 5:30 - 9:00 p.m.

Join us for an evening of hors d'oeuvres, games for all ages, and activities.

Come see the GIS Posters, K – 5 Coloring Contest, Silent Auction all on display in the Fireplace Lobby.

We also have presentations scheduled in Hanging Gardens Room

5:30 - 6:00 **Robert Kenning, Forestry and GIS Instructor from Salish Kootenai College** introduces the general public to a session on "GIS explained." This 30 minute presentation illustrates what GIS is and how they have used GIS in several local projects.

6:00 - 6:30 **Bigfork High School and Middle School students** will overview projects they have completed in one of the school's 3 GIS classes. Most of the projects were conducted in partnership with natural resource management agencies. Projects that will be overviewed include bathymetric mapping of small lakes, monitoring population changes of small carnivores using winter track surveys, comparing human caused changes to ecosystems using air photos and infrared imagery, mapping vegetation communities in wetlands, inventory of dispersed recreation sites in natural areas, mapping road kill densities along highways, 3-D geological maps, and mapping bird species densities during spring migration.

6:30 - 7:00 **Bigfork High School Cave Club** use GIS to help conserve caves from Montana to Arizona. Since 2007, the club has completed numerous cave conservation and monitoring projects in partnership with federal land managers. Club members will outline procedures for collecting and inputting monitoring data into GIS, demonstrate how GIS can be used to show distribution of visitor impacts and wildlife use, and overview a procedure which will link monitoring and GIS to direct management and develop conservation programs.

7:00 – 8:00 **USGS US Topo presentation –** The United States Geological Survey (USGS) has introduced this next generation of topographic maps "US Topo". Arranged in a familiar 7.5-minute quadrangle format, digital US Topo maps are designed to look and feel like the traditional paper topographic maps for which the USGS is so well known. The US Topo however provides modern technical advantages that support faster, wider public distribution and enable basic, on-screen geographic analysis for all users. The US Topo program reflects the USGS commitment to a modern national map series, and a belief in supporting an up-to-date standard map that is widely available to the public. Learn more about the US Topo at: http://nationalmap.gov/ustopo/index.html

6:30 – 7:30 **New to GIS Mixer – Lake McDonald Room**. Sponsored by the MAGIP Mentoring Subcommittee. Having a hard time networking with other GIS users? Is it overwhelming to be in a room full of knowledgeable GIS Professionals and not know anyone? Is it difficult to make valuable connections at times? Join us just before Public Night and connect with others who are new to the field (and many seasoned veterans). Enjoy refreshments and meet other folks just getting started in the field. Seasoned veterans: Please plan to join us and welcome your new colleagues.

Posters

On display in the Fireplace Lobby starting Tuesday at Public Night

The Conference is a supportive environment for both students and professionals to present posters of their work.

Categories:
Research Project (Student and Professional) - An illustrative presentation of research and/or analysis; includes an abstract, introduction, methodology, results, etc. along with maps and graphics.

Cartographic Design (Student and Professional) - A single map product presenting spatial data in a meaningful way; may include textual material and graphics however, the map is the main focus.

Category: Professional, Cartographic

Topographic Map of Gallatin County, Montana
Author: Allen Armstrong, Gallatin County GIS
Secondary Author: Frank L. Dougher

Abstract: The Topographic Map of Gallatin County, Montana is a topographic map created by the Gallatin County GIS Department to National Mapping Program Technical Publication Standards from the current best available local, state and national datasets; this in an effort to craft the most accurate land representation map of Gallatin County yet produced.
Topographic contours at 250' elevation intervals were generated seamlessly for the County from 1/3 arc-second (10m) National Elevation Dataset (NED) Digital Elevation Models (DEMs). Landform representation by shaded relief was also generated from 1/3 arc-second data, and filtered in post-processing by low-pass filter to remove DEM scan-line errors endemic in NED elevation data.

Like USGS Topographic Maps, map tinting is based upon tree cover. The source data for tree cover classification of Gallatin County is the MSDI Land Cover Framework 2010, published by the Montana Base Map Service Center.

Topographical feature water body names are derived from a combination of local name data and tradition, and national geographical name datasets.

Road and Trail representations were generated by combining field-based locally mapped data with available US Forest Service road and trail data.

The publication version of this map, presented here at ¾-scale, is published at 1:100,000 scale (36" x 80") by the Gallatin County GIS Department, Gallatin County, Montana.

Keywords: county, topographic, map

Gallatin Valley Parks and Trails Map
Author: Bryan Swindell, DTM Consulting, Inc.

Abstract: The Gallatin Valley Land Trust contracted DTM Consulting, Inc. to produce a map product featuring important recreation assets in the Bozeman area. The map includes dozens of miles of public trails and offers detailed information on sixteen popular hikes. The reverse side of the map includes information about recreation safety and etiquette, as well as details about the Land Trust. The map will be available at local retail outlets and outfitter shops. Software tools used to make the map include ArcGIS, QGIS, mapshaper.org, Adobe Kuler, Adobe Illustrator, and Adobe Photoshop.

Keywords: recreation, parks, trails, Gallatin Valley

City of Kalispell Utility Maps
Author: Steve Varro, City of Kalispell

Abstract: Between the years of 1990 to 2010, The City of Kalispell has had a Public Land Surveyor on the Public Works staff. It was during these years that the city's utilities were mapped and managed using AutoCAD software. In 2002, Leica 500 (survey grade) GPS System began being used to survey and map all of the city's utilities. In 2008, I, M. Steve Varro, began assisting our Surveyor in updating all of the city's utilities using AutoCAD Map 2005 and ESRI ArcMap GIS software. Each year since I have been drafting and updating the city's utilities due to Kalispell's rapid economic growth. I began attributing every city utility and transforming those utilities from AutoCAD format to GIS shapefile format. At the end of 2010 our Public Land Surveyor retired and I took over most of his duties. Since then I've been updating, plotting, and managing all of our utility map books for the Public Works Department. In addition, beginning spring 2010, the Montana Department of Natural Resources completed a flood mapping project for the entire Flathead Basin area. I began using their LIDAR data to generate contours and their aerial photography in all of our city utility maps using Montana State Plane NAD83 international feet coordinate system.

Category: Professional, Research

Does this Look Like a Safe Route to School? – Amsterdam/Churchill Community Planning Project
Author: Allen Armstrong, Gallatin County GIS
Secondary Author: Warren Vaughan

Abstract: This Project was a Community Planning Project for the community of Amsterdam/Churchill, Montana. Using GPS and GIS technology, a complete study will be accomplished through a school partnership between the 6th grade class at Amsterdam Public School and the 5th grade class at Manhattan Christian Private School. The approximately 45 students administered surveys, mapped field data with GPS, analyzed data with GIS technology through the County GIS Department, and will ultimately draft policies and present those findings to the community, the Gallatin County Commission, the Gallatin County Planning Board, and various other community planning organizations on the present and future needs for trails, safe routes to schools, sidewalks and crosswalks in this community. This poster will present the completed tasks and results to date on the project.
The community of Amsterdam/Churchill has been a focus of numerous large-scale development proposals over the years. This community is home to two independent schools with many school-age children that have little or no access to sidewalks, trails and safe paths to school. Before development drives the design, these students, with the assistance of the Gallatin County GIS Department and the Planning Department, have a unique opportunity to shape their community into what they feel is the future for paths and trails.

Keywords: county, schools, safe routes, analysis, community planning

Poster Abstracts

A GIS based vulnerability assessment of contamination to aquatic resources from oil and gas development in eastern Sheridan County, MT
Author: Tara Chesley-Preston, Montana Institute on Ecosystems at MSU
Secondary Author: Todd Preston, Parallel Inc.

Abstract: There is growing public concern over the environmental risks associated with saline water co-produced with oil during development and production in the Williston Basin in the Northern Great Plains. Superimposed over this landscape is the Prairie Pothole Region (PPR), characterized by glacial deposits and numerous wetlands and grasslands that are the major waterfowl production areas of North America. Previous studies have identified co-produced water contamination to wetlands and groundwater resources in the Williston Basin and PPR.
We conducted a GIS-based analysis in eastern Sheridan County, Montana to validate a previous vulnerability assessment that was conducted across the entire Williston Basin. This assessment is based on the age and density of oil wells, proximity of oil wells to wetlands and streams, and type of glacial deposits. We assigned a ranking value to all 780 sections in the study area. Ten sections were selected across the range of values, with two wetland and two groundwater samples collected from each section to determine the magnitude of co-produced water contamination in September 2011. Nineteen of the forty water samples indicated signs of contamination. Contamination generally increased with vulnerability assessment values, with this correlation being stronger for groundwater samples than surface water samples.

Keywords: Vulnerability assessment, oil and gas development, co-produced waters

Outside the Belfry - Using GIS to Find Bats in Wyoming
Author: Max Hjortsberg, OASIS Environmental Inc., an ERM Company

Abstract: This poster will highlight the process used in 2010 by OASIS Environmental Inc., an ERM Company on a project that surveyed the bat population along the lower Badwater creek bottom in Central Wyoming. GIS was used to create a blind random sampling location selection. The process involved heads up digitizing of cliffs and cut banks, the Badwater Creek channel centerline, and areas of deciduous tree habitat using 2009 USDA color ortho images. 300ft buffers were placed on the cliff lines and the tree areas. The intersecting areas of bat habitat were extracted. Study areas were established based on tributary confluences. Points were placed at 100ft intervals on the stream centerline. Points that fell inside the bat habitat areas were extracted. A random point generator was run, set to output 6 points per study area, with a minimum spacing between points of a quarter mile. Locations were ordered by their place on the final list. The points were loaded into a GPS unit that a field crew used for staking out. Mist nets and bat echolocation acoustic detectors were placed at the random sample locations, resulting in the capture of 5 different bat species and thousands of recorded bat calls.

Keywords (3-5): Habitat, Analysis, Wildlife, Bats

The NPS Integrated Resource Management Applications (IRMA) Information Portal
Author: Richard Menicke, National Park Service, Glacier National Park
Secondary Author: Brent Frakes, National Park Service

Abstract: The National Park Service (NPS) in 2011 released a public-facing version of the Integrated Resource Management Applications (IRMA) web portal. This service provides a gateway to discovery and retrieval of NPS reports, GIS data sets, park species lists, and much more that describe the natural resources of units of the NPS. In recent years, IRMA has been an effective data management tool within the NPS. Now, the public side of the site expands the capacity of NPS staff to broadly share a great variety of information with different audiences. The research community, in particular, has benefitted from easily searched and accessed NPS data sets.

Keywords: information retrieval, GIS data, gray literature, species lists

Category: Student, Cartographic

Fish Mercury Contamination in US
Author: Sita Karki, Idaho State University

Abstract: This is the web mapping application developed using the ArcGIS Server of GIS Center of Idaho State University. The map application gives the idea about how the fish are contaminated in different water bodies in US. Fish contamination level is one of the indicators of water resource contamination. As Methyl Mercury has been found to affect biological organisms because of its bioaccumulation and biomagnification through the food chain, this map tries to give information to the local citizens, policy makers and concerned bodies of the real and expected scenario of contamination risk. Because of the neurotoxicity of this metal, USEPA has also regarded this metal as contaminant of concern. The web mapping application shows the location of large quantity generators of hazardous waste in US and it displays the proximity of those sources of pollutant to the human population. Based on the database maintained by USEPA (National Survey of Mercury Concentration in Fish 1990-1995), fish Mercury contamination has been mapped. The Krigging Interpolation of the fish mercury contamination was done in other parts where there were no data available. Based on the interpolation results generated by Gaussian Model, the prediction layer was developed which acts as the background layer for the map of US. The map basically shows the higher Mercury contamination in the eastern US compared to western part and the capability of Krigging interpolation was limited because of the limited number of samples in some of the western and northern states.

The web map is available at <http://giscenter-rd.isu.edu/risk/>

Keywords: Fish, Mercury, Contamination

Category: Student, Research

Bat Sign in the Caves of Horseshoe Mesa
Author: Sandra Baker, Bigfork High School

Abstract: Last Chance Mine on Horseshoe Mesa in the grand Canyon was gated in 2009 to protect human visitors from hazards within the abandoned mine and limit disturbance to roosting Townsend's Big Eared Bats. There was concern that the gate might be interfering with bat use of the mine and bats might have started using natural caves in the area as substitute roosts. The Bigfork Cave Club of Northwestern Montana inventoried 9 caves on the mesa in April of 2011. Part of their work involved inventory and mapping bat sign, such as bat droppings, culled fragments of insects, and bat urine stains. The club's work indicates bats use most of the caves and have probably been using them before the mine was gated.

Keywords: Bat, Caves, Grand Canyon

A Tale of Two Caves
Author: Hans Bodenhamer, Bigfork High School
Secondary Author: Ernie Cottle

Abstract: Members of the Bigfork High School Cave Club in northwestern Montana developed resource monitoring for 13 caves in Glacier National Park. This poster compares data from two caves to overview the spectrum of resources in park caves.

Keywords: Cave Monitoring, Glacier National Park

Montana Deer Harvest 2010-2011
Author: Jackson Boese, Bigfork High School

Abstract: Total deer, buck, elk and bulls killed are shown in each district and are summarized geographically.

Keywords: Montana, Deer Harvest

Vegetation Map - Flathead Waterfowl Protection Area North Shore Flathead Lake, Map Unit 1, Flathead County, Montana
Author: Braden M. Davis, Bigfork High School

Abstract: The Bigfork High School AESOP class mapped vegetation classes for map unit one (150 acres) of the Flathead Waterfowl Protection Area which is on the north shore of Flathead Lake in northwestern Montana. This poster shows the vegetation classes, water depth, and the imagery for the map unit.

Keywords: vegetation, Flathead Lake, waterfowl, protection area

2010 Waterfowl Migration Data for Select Species
Author: Mandy Derber, Bigfork High School

Abstract: The Fish Wildlife and Parks inventory for migratory waterfowl for the Flathead valley for the spring of 2010. BHS Aesop class used the state's data to create density maps, graphs of total numbers per week, and bird use days. This poster represents the data for Northern Pintail, American Wigeon, and Mallard.

Keywords: waterfowl migration, Flathead Valley

Preliminary Vegetation Map, Flathead Waterfowl Protection Area, Map Unit 2
Author: Cody Dopps, Bigfork High School

Abstract: Bigfork High School AESOP students mapped vegetation communities on map unit 2 of the Flathead waterfowl protection area. This preliminary map shows vegetation communities for the area.

Keywords: vegetation map

Dispersed Recreation Sites Jewel Basin Hiking Area
Author: Jasmine Gannon, Bigfork High School

Abstract: Bigfork High School's AESOP class inventoried 72 dispersed recreation sites of both camping and day use. Inventory included photographing each site, measuring site length, assessing damage to vegetation, soil erosion, counting fire rings, and non-motorized routes. Using this information maps were created showing dispersed site density, number of dispersed sites near lakes, fire rings at dispersed sites, number of non-motorized routes, exiting sites and dispersed recreational site lengths.

Keywords: recreation sites, Jewel Basin

A Look at Montana's Caves and Cave Bats
Author: Abe Malley, Bigfork High School

Abstract: Bats are important components of many Montana ecosystems, but very little is known about bat use of caves in the state. There is concern that a fungal disease, called White Nose Syndrome (WNS), may soon spread to Montana and devastate cave bat populations. The disease has already killed millions of cave dwelling bats east of the Mississippi. Some basic information on the state's caves and bat use is provided as an introduction to the challenges faced in conserving Montana's cave bats.

Keywords: bats, cave, Montana, visitation, ownership

Poster Abstracts

2010 Waterfowl Migration Data for Select Species
Author: Jazzmyn Musser, Bigfork High School

Abstract: The Fish Wildlife and Parks inventory for migratory waterfowl for the Flathead valley for the spring of 2010. BHS Aesop class used the state's data to create density maps, graphs of total numbers per week, and bird use days. This poster represents the data for Cinnamon Teal, Tundra Swan, Redhead, Common Merganser, Greater Scaup, and Snow Goose.

Keywords: waterfowl migration, Flathead Valley

Diversity vs. Density, 2010 Waterfowl Migration Flathead Valley, MT
Author: Austin Peterson, Bigfork High School

Abstract: Montana Fish Wildlife and Parks inventoried waterfowl migration in 50 sections during the 2010 spring season. This poster contrasts waterfowl diversity and density within each section.

Keywords: waterfowl migration

Highway 83 Road Kill
Author: Emily R. Smith, AESOP, Bigfork High School

Abstract: The Montana Department of Transportation (MDOT) removes animals that are killed by motor vehicle collisions to reduce further risk to motorists and other wildlife that are attracted to the carcasses. Road kill is taken to isolated areas far away from the highways. Since the late 1990's MDOT has kept records of the location, species and date for most road kill in the state. Bigfork High School's AESOP class, working in partnership with MDOT and Northwest Connections, complied and analyzed 11 years of road kill data from Highway 83. This poster shows density, yearly changes, and monthly changes for all species of road kill.

Keywords: Highway 83, road kill

Pine Marten Winter Track Density, Swan Valley, MT
Author: Alexis Vanvliet, Bigfork High School

Abstract: Pine Martens are medium sized carnivores that prey on squirrels, mice, rabbits, and birds. Northwest connections has been monitoring Pine Marten populations in the Swan Valley with snowmobile winter track surveys for 11 years. Students from the Bigfork High School AESOP class used GIS to analyze the data. This poster shows Pine Marten winter track densities for each year of survey.

Keywords: marten, winter track density

Fish Shocking Inventory of Cold Watershed, Swan Valley, Montana
Author: Olivia Witt, Bigfork High School

Abstract: Northwest Connections inventoried fish species in the Cold Creek watershed of Swan Valley. The poster shows species detected in each drainage within the watershed.

Keywords: fish

Portland Connections
Author: Amy Butler, University of Montana

Abstract: A project analyzing patterns for commuting and modes of transportation in the Portland metropolitan area. By comparing locations for residence and place of work, it can be determined how interdependent these five counties are to each other. Thinking of that interdependence and the associated high amount of commuters, planners may want to increase public transit options between the regions.

Keywords: transportation, commuting, public transit

Assessing the Use of Existing Geomorphological Mapping Systems for High Mountain Environments in the United States
Author: Mitchell Fyock, The University of Montana
Secondary Author: Ulrich Kamp

Abstract: Geomorphological mapping provides a detailed illustration of the surface of the landscape and the processes that have formed it. It has been performed in many different regions for many applications and uses; however, there is little continuity in the production of these maps. The development of a "unified key" in 1968 by the International Geographic Union was an attempt to create a standard geomorphological mapping system for all types of landforms and landsurfaces; however, this system is not universally accepted or used. The proposed study utilizes two existing geomorphological mapping systems developed in Europe. It aims to assess each systems' ability for small-scale (1:10,000) and mesoscale (1:50,000) geomorphological mapping in high mountain environments of the United States. To accomplish this, geomorphologic units will be identified within the boundaries of Rocky Mountain National Park, Colorado by conducting a visual analysis using a Geographic Information System. Groundtruth validation will be conducted to verify the visual analysis' accuracy. Multiple geomorphological maps will be produced utilizing the existing systems and will be assessed based upon readability and effective portrayal of relevant information. The result of the proposed study is an assessment of the use of two existing geomorphologic mapping systems in high mountain environments.

Keywords: geomorphological mapping, GIS, remote sensing, geomorphology

Comparing Two Sources of Slope in Bison Habitat Assessment at National Bison Range, Moiese, MT
Author: Narciso Garcia Neto, Montana State University

Abstract: Herd production at NBR has decreased since 1982. A possible reason for lower cow weights and correlated low calf recruitment rates would be reduced nutrient density through change in the plant community due to overgrazing in preferred zones. Using Geographic Information System (GIS) approach we will be able to assess landforms and identify which features are leading bison to prefer these zones. Slope is an important landform component that could drive grazing preference. The most common way to analyze slope is deriving from digital elevation models (DEM). Using spatial analysis, I compared slope from DEM against "dominant slope" from Soil Survey Geographic database (SSURGO). In 4 pastures of the refuge I assessed slope classes within the preferred grazed zones and outside of them (less preferred). GIS summarization of herd locations from on-going behavioral studies indicates bison have been grazing 15% to 50% of pastures. Understanding landforms related to grazing preference improves the possibility that land management achieves sustainability.

Keywords: slope, spatial analysis, bison, grazing

Effect of Medical Marijuana Dispensaries on Crime Rates
Author: Alice Hecht, Montana State University

Abstract: In 2004 Montana voters approved a medical marijuana initiative. In 2009 several storefront dispensaries set up shop under the impression that the Obama administration intended to interfere with state laws concerning medical marijuana. In 2011 the Montana state legislature voted to repeal the voter passed initiative. This allows us a unique opportunity to investigate whether or not marijuana dispensaries have any impact on crime rate, using GIS to analyze proximity of crime to dispensaries before, during and after the law.

Keywords: crime rates, medical marijuana

Agriculture Land Suitability for Cropland on the Hedstrom Farm and Ranch near Malta, Montana
Author: Jeffrey Hedstrom, Montana State University

Abstract: Land suitability analysis has become an important tool for evaluating land and its potential capabilities and restrictions. In this research, many different sources of information were compiled to create a suitability analysis in a geographic information system (GIS). The Hedstrom Farm and Ranch is located in northeastern Montana, 7 miles southeast of Malta. The property consists of over 2,000 acres of agricultural land that has been farmed and/or grazed for many years. The project objectives were to (1) highlight areas that are suitable for crops, (2) identify current land uses that could be modified to maximize the benefit from the land. The cropland suitability analysis used a weighted sum overlay to determine the area's suitability for crops using five variables: pH, soil texture, land capability, slope, and organic matter. The results indicate the location and amount of cropland at different suitability levels: 12.25% of the total study area is most suitable, 15.08% is moderately suitable, 5.69% is marginally suitable, 1.74% is least suitable, and 65.24% is permanently not suitable. These results show that there is a significant amount of land suitable for growing crops that is currently not farmland and therefore the client should develop those areas in the future.

Keywords: cropland development, suitability analysis, GIS, agriculture

Spatial Change in Peatlands Along the Rocky Mountain Front through Aerial Photography, 1937-2011

Author: Joseph Milbrath, University of Montana

Abstract: This project analyzes the spatial change of peatlands along Montana's Rocky Mountain Front through remote sensing techniques. Seven peatland sites were chosen along the RMF spanning a latitudinal gradient and include relatively large and small areas. Aerial photographs dating back to 1937 were orthorectified and compared with the latest imagery, along with semi-decadal images to bridge gaps. Spatial analysis includes overall change in peatland area, expansion or contraction, percent of open water, and broad vegetational change. The observed spatial change will be compared to recent trends in climatic activity including warming temperatures and changes in regional water supply.

Keywords: peatland, aerial photography, Rocky Mountain front

Inventory of Mongolia Glaciers for the Global Land Ice Measurements (GLIMS) Program

Author: Caleb G. Pan, The University of Montana - Department of Geography

Abstract: As part of the Global Land Ice Measurement from Space (GLIMS) project, this project will report observations in glacier length, number, and area, in the Altai Mountains of Mongolia, based on multi-spectral analysis of Landsat Thematic Mapper (TM) and Advanced Spaceborne Thermal Emission and Reflection Radiometer (ASTER) imagery. Knowledge of the complex glacier-climate dynamic and history of glacier mass is essential to the long-term management of water resources and climatology in Mongolia. The primary objectives of this research are to:
1. Use GIS and remote sensing technologies to come up with a conclusive number and area of glaciers in the Altai Mountains of Mongolia.
2. Analyze the developed glacier parameters (aspect, slope, elevation, and size) for each glacier and massif to better understand glacier spatial variability and climate dynamics.
3. Develop an intuitive, robust, and inexpensive methodology for delineating glaciers. In cooperation with the GLIMS program, it is also important to critique and assess GLIMS protocols.

Keywords: GIS, remote sensing, glaciers, Mongolia

Development of a Probabilistic Coastal Hazards Model that Couples Storm Surge and Runoff from Inland Precipitation: A Case Study for Sarasota County, Florida
Author: Courtney Thompson, University of Idaho
Secondary Author: Dr. Tim G. Frazier

Abstract: Community vulnerability to coastal hazards can be difficult to analyze at a local level without proper modeling techniques. Many existing deterministic models are used for hazard planning and mitigation, but they are created for state or regional scale analysis, and do not provide sufficient detail for a local scale hazard analysis. Therefore, development of probabilistic models is necessary if the goal is enhancing local hazard mitigation. Probabilistic models can provide more complete vulnerability assessments models that facilitate targeting mitigation resources for more efficient vulnerability reduction.
Presented here is a case study in Sarasota County, Florida where a probabilistic coastal hazards model that couples the effects of storm surge, inland precipitation, flooding and the effects of sea level rise was created and tested. This model was developed by expanding and manipulating the deterministic storm surge SLOSH model (including adding climate change enhanced sea level rise) and an inland precipitation flood model so that they were probabilistic in nature and customizable for local scale analysis. The resulting probabilistic outputs were then overlayed with socioeconomic data from Sarasota County, Florida to determine exposure of societal assets. Results indicate utilizing probabilistic modeling techniques can help create more accurate local hazard mitigation planning and policies.

Keywords: coastal hazards, probabilistic modeling, inundation

Lone Peak Avalanche Atlas
Author: Tanner Tompkins, Montana State University
Secondary Author: Amanda Cox

Abstract: Traditional hardcopy avalanche atlas' are cumbersome, difficult to share, and expensive to maintain or contribute new data. A digital avalanche atlas is faster and easier to update, accessible, and is able to quickly obtain information for given slopes in avalanche areas. The goal of this project was to start the process of creating a digital avalanche atlas for Lone Peak at Big Sky, Montana. With data acquired from historical hardcopy avalanche reports and first hand knowledge provided by active ski patrollers at Big Sky Ski Resort, the average and maximum runouts for avalanche slide paths of two areas of opposing aspect were digitized into polygons, as well as their typical propagation zones. These polygons can then be related to the original hardcopy avalanche report, digital photographs displaying the path as viewed from a skiers perspective, or snow pit and weather data. Avalanche polygons are also used in finding average slope, max/min slope, average aspect, and curvature, which help in identifying potential trigger zones and in checking the accuracies reported by ski patrol in the current atlas.

Keywords: avalanche, atlas, snow, digital

Flathead County Montana An Evaluation and Comparison of its Economy and Demography
Author: Mace Wescott, The University of Montana

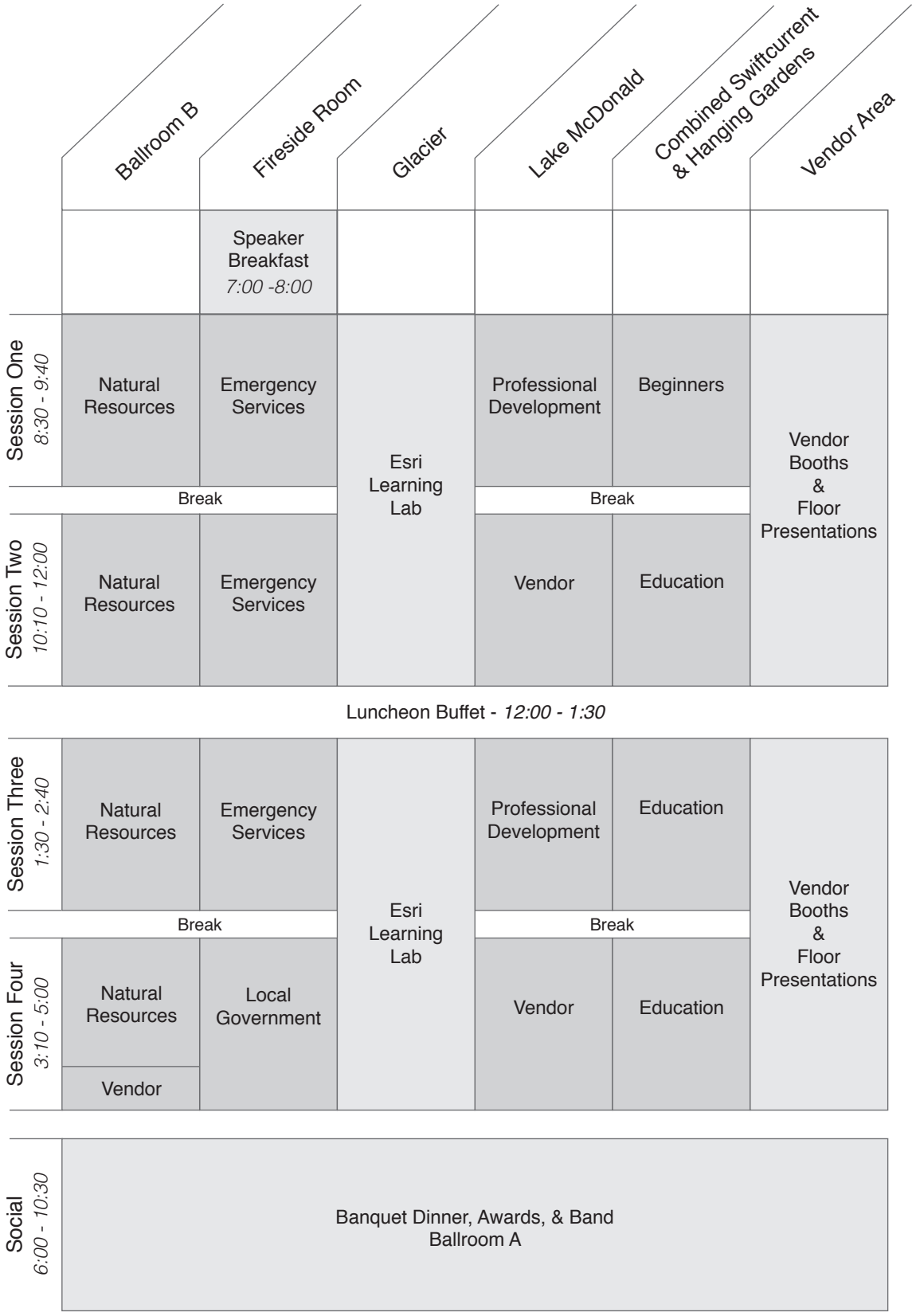
Abstract: Demographic and economic research and analysis needs to be accomplished in order to assist community planners in conducting appropriate planning options for their community of operation. It is critical to examine demography and economy simultaneously to show trends in socio-demographic change over time. In autumn 2010, an evaluation and comparison of Flathead County Montana's economy and demography was completed for the University of Montana's Community Planning and Regional Analysis course. The original study specifically examined: household income, economic structure, economic base, employment sectors, population estimates, and population changes. This poster incorporates what was learned in the original evaluation and updates county demography and economy categories where available. Geographic Information Systems (GIS) were used to show how Flathead County compared to other counties in the U.S. and Montana. The results of this study show how population gains have trended downward due to the high unemployment rate. This study also indicates warnings for future housing problems and the need for expanded retirement options, medical facilities, and entry-level employment options. Flathead County has been strong in promoting self-employment and as long as this continues and the county is able to diversify its employment sectors, Flathead County will be better prepared in maintaining itself in the economy today and into the future.

Keywords: Flathead County, economy, demography

VOTE

Prizes will be awarded to top posters in each of four categories:
professional cartographic, professional research, student cartographic, and student research.
Submit your votes for your favorites to the Registration Desk.
Public votes will contribute 30% of the award scoring.
Awards will be presented at the Wednesday Evening Banquet.

Wednesday Overview



Presentation Abstracts

Abstracts are listed in chronological order, by day, by track

Wednesday, 8:30-9:40 a.m. - Session One

Track: Beginners
Location: Combined Swiftcurrent and Hanging Gardens Rooms

GIS Explained: Basic Concepts, Terminology, and Montana's Shared GIS Resources
Presenter: Diane Papineau

Abstract: If you are a new GIS practitioner, a subject matter expert exploring GIS, or a manager needing an upper level understanding of the field, this session may be for you. GIS is a powerful, computerized tool used for investigating geographic issues and solving problems. GIS has evolved in the last two decades to be a highly-valued tool used in many disciplines because the software has become more user-friendly and understandable to the average computer user.

This illustrated talk will introduce the basic principles of GIS, starting with its roots in cartography (map projection, map scale) and progressing to expose the technical landscape that today's GIS practitioners work within, including spatial data types, data sources, attributes, spatial analysis, GIS products, online map applications, and Montana's shared GIS resources.

Bio: Diane is a GIS Analyst at the Montana State Library. Her work involves natural resource data collection and dissemination, geographic literacy, spatial analysis and mapping, as well as planning, documenting, testing, and outreach related to GIS data management systems and online GIS tools like the Montana GIS Portal.

Diane holds an MS degree in Earth Sciences from Montana State University in Bozeman, emphasizing GIS, remote sensing, historical geography and cultural geography, and GIS education. Diane earned her Bachelor of Science degree in Cinema and Photography from Ithaca College in New York. A native of New Hampshire, Diane has worked in state, local, and federal government as well as the private sector in the Rocky Mountain West since 1988.

Track: Emergency Services
Location: Fireside Room

Maps and Apps for Everyone – an In-Depth look at ArcGIS Online
Presenter: Scott Moore, ESRI

Abstract: With ArcGIS Online you can create, store, and manage maps, apps, and data, and share them with others. You also get access to content shared by Esri and GIS users around the world. You can manage and organize your maps, apps, and data through an easy-to-use catalog using folders and groups. Your items are stored in Esri›s secure cloud environment.

ArcGIS Online enables anyone to make rich, interactive, intelligent maps that can be leveraged in many different ways. This includes GIS professionals who may want to make their work more widely available using the web, knowledge workers wanting to visualize and analyze business data, or someone who just wants to create a simple map and share it. ArcGIS Online provides tens of thousands of online authoritative datasets and services created by Esri and the GIS community. Examples include emergency responders who can share event status in a crisis situation, land-use planners

who can collaborate on geodesign, and citizen science volunteers who can share observational data (e.g., animal sightings). ArcGIS Online makes this collaboration possible. It also promotes efficiency by allowing users to make a map once and leverage it in many different ways.

Bio: Scott Moore is a Solution Engineer with Esri and currently works in the Olympia regional office. He earned a bachelor's degree in Geography with a focus on GIS from the University of Washington in Seattle in 1998. Prior to joining Esri, he was a senior GIS analyst and GIS manager for the City of Chandler, Arizona. Scott specializes in GIS technology leveraged via the web using server and cloud technologies. Scott is an Esri Certified Enterprise Administration Associate as well as an Esri Certified Geodatabase Management Associate. In his spare time, he enjoys camping, skiing, fishing, hunting, and long walks on the beach.

Using ArcGIS Online to create a Common Operating Picture in the EOC
Presenter: Doug Burreson, Missoula County

Abstract: Local governments will activate their Emergency Operations Center (EOC) when an emergency exists for an extended period of time. Spring floods or a wildland fire season threatening homes are two times when this occurs in Montana. EOC activation brings players from many disciplines. Law enforcement, fire response, public works, weather, and 911 are just a few of those disciplines. With the variety of map/GIS systems, Google Earth, Yahoo Maps etc., it is becoming exceedingly difficult to keep all agencies "on the same page" so to speak. This presentation will explore the notion of using a cloud service (Arc Explorer Online) to try and create a common operating picture in an EOC.

Bio: Doug has been the GIS Manager in the Missoula County Public Works Department for over 25 years. He has helped foster GIS implementation in local government in Montana all of that time. He served as MAGIP President in 2007. He has experience providing map and GIS services to the Missoula County Emergency Operations Center in support emergency response for floods, hazardous material spills and wildland fires.

Workshop: Esri Hands-On Learning Lab
Location: Glacier Room

Instructor: Carol Dargatz, Training Specialist, Esri

The Esri Hands-On Learning Lab offers free training for conference attendees who want to experience areas of Esri software that may be new to them. Attendees will receive approximately 45 minutes of individual self-paced training consisting of a recorded lecture followed by a hands-on software exercise. Esri staff will be available for help or questions. No registration required. First-come, first-served.

Lesson topics available in the Hands-On Learning Lab (all for ArcGIS 10) are:

• Editing with ArcGIS Desktop	• What's New at Version 10.0
• Getting Started with Animation	• Introduction to ArcGIS Server
• Basics of the Geodatabase Model	• Creating a Map in ArcGIS
• Geocoding With ArcGIS	• Spatial Statistics for Public Health

• Working with CAD in ArcGIS	• Introduction to ArcGIS Desktop
• Introduction to Network Analyst	• Introduction to Linear Referencing
• Introduction to Geoprocessing Using Python	• Introduction to ArcGIS Data Reviewer
• Introduction to Versioned Editing	• Introduction to Spatial Analyst
• Introduction to Geometric Networks for Utilities	
• Designing Effective Web Applications using ArcGIS Server	

Track: Natural Resources
Location: Ballroom B

Kootenai River Habitat Restoration Project: Fish Habitat Analysis Using GIS
Presenter: Selita Ammondt, Restoration Ecologist, GIS Specialist, River Design Group, Inc.

Abstract: The Kootenai Tribe of Idaho, in cooperation with federal, state, and private stakeholders, is implementing the Kootenai River Habitat Restoration Project, a collaborative effort aimed at restoring and enhancing aquatic habitat impacted by Libby Dam, levees, and floodplain agriculture. A GIS-based approach was used to analyze existing and proposed conditions predicted by multi-dimensional hydraulic model output for various flows. GIS was used to evaluate the spatial distribution and availability of specific combinations of depth and velocity believed to represent preferred habitat conditions for critical life stages of focal aquatic species, including threatened Kootenai River white sturgeon (Acipenser transmontanus). The workflow included conversion of modeling output from point files to rasters, extraction of varying in-channel parameters, modification of habitat scenario parameters, and applying combinations of raster and vector-based analysis tools. Results highlight area-specific changes in habitat from existing to proposed river conditions, and stress the importance of adaptive GIS workflow planning.

Bio: Selita Ammondt is a Restoration Ecologist and a GIS Specialist for River Design Group, a river and wetland restoration company based in Whitefish, MT, where she develops restoration plans, performs remote sensing analyses, organizes and manages geographic databases, and creates cartographic products. She has a B.S. in Earth Sciences-Geography from Montana State University, and an M.S. in Natural Resources and Environmental Management from University of Hawaii at Manoa.

Using a Spatially Explicit Stream Temperature Model to Assess Potential Effects of Climate Warming on Bull Trout Habitats
Presenters: Leslie A. Jones1,2, Clint C. Muhlfeld1, Lucy A. Marshall2, Brian L. McGlynn2 and Jeffrey L. Kershner3
1 - U.S. Geological Survey, Northern Rocky Mountain Science Center, Glacier National Park, West Glacier, Montana 59936
2 - Montana State University, Department of Land Resources and Environmental Science, Bozeman, Montana 59715
3 - U.S. Geological Survey, Northern Rocky Mountain Science Center, Bozeman, Montana 59715

Abstract: Understanding how species and habitats are likely to respond to climate warming is critical in developing effective conservation and management strategies for freshwater systems. We compiled stream temperature records from 199 sites in the Flathead River Basin (FRB), Montana, USA, and parameterized non-spatial and spatial statistical models to predict temperatures at a 22 meter resolution along the stream network. A spatially explicit hierarchical model was used to predict

summer thermal regimes for bull trout spawning and rearing (SR; <13°C) and foraging, migrating and overwintering (FMO; <14°C) habitats. Model results indicate that stream temperatures were strongly related to geomorphic (elevation and slope), climatic (air temperature), and lake warming covariates. These covariates explained 82% of the variation in August mean stream temperatures. Climate change simulations were used to quantify potential exceedance of thermal regimes associated with increasing air temperature trends. Analysis of a conservative climate change simulation (ECHAM A2 GCM) suggests that approximately 47% of suitable bull trout summer habitat could be thermally exceeded by 2059 and 83% could become thermally unsuitable by 2099. Model predictions suggest that a warming climate will result in warmer water temperatures and a significant loss of thermally suitable bull trout habitats. These results illustrate the importance of using fine-scale spatially explicit stream temperature models to explain the local variations of thermal regimes in guiding conservation and management actions.

Key words: stream temperature, spatial statistical model, climate change, bull trout, Salvelinus confluentus, thermal habitat, habitat loss, Flathead River drainage, Montana, USA, British Columbia, Canada

Bio: Leslie is currently a Master's student in the Land Resources and Environmental Science Department at Montana State University. She earned two undergraduate degrees from North Carolina State University in Statistics and Environmental Science and has spent the past 11 years working in a variety of sectors including, carbon sequestration research at Montana State University, river restoration and design at Trout Headwaters, and she also worked as a Ecological Statistician for the Yellowstone Ecological Research Center conducting studies in Yellowstone National Park. She currently works for the USGS Northern Rocky Mountain Science Center based out of West Glacier, MT, where she is developing geostatistical models used to predict climate related changes in stream temperatures for the Crown of the Continent Ecosystem. These models will be used as a tool to quantify and explore potential changes to ecosystem process, habitat distributions and to assess species vulnerabilities.

Track: Professional Development
Location: Lake McDonald Room

Ergonomics
Presenter: Dan Arnold

Abstract: Not Provided

Special Demonstration during BREAK 9:40-10:10 a.m.
Red Lion Hotel Parking Lot

Flathead County NOMAD Incident Command Vehicle Live Demonstration
Paul Schauble, Flathead Co. OES

Wednesday, 10:10 a.m.-12:00 p.m. - Session Two

Track: Education
Location: Combined Swiftcurrent and Hanging Gardens Rooms

Using GIS to help conserve caves from Montana to Arizona
Presenter: Bigfork High School Cave Club

Abstract: Since 2007, the Bigfork High School Cave Club has completed numerous cave conservation and monitoring projects in partnership with federal land managers. Club members have worked in Glacier National Park, Flathead National Forest, Lincoln National Forest, and Grand Canyon National Park. Cave Monitoring in the Flathead National Forest, Glacier National Park, and Grand Canyon National Park.

Cave club members Sandi Baker, Emily Smith, Brennen Shaw, and Mandy Derber will highlight cave conservation and monitoring projects completed by the club in the last 5 years. Presentation will include many slides and a live GIS demonstration showing the scope of the club's work and their monitoring methods.

Bio: Not Applicable

Bigfork Public Schools' GIS classes partner with land managing agencies to complete projects that benefit students, agencies, and natural resources
Presenter: Bigfork Public Schools GIS Classes

Abstract: 7th Grade Adventures in GIS – Austin Curtis (high school senior/teacher aide) and four 7th grader students will present the 7th grade classes' projects in bathymetric mapping, survey of local businesses, and inventory of aquatic life in the local golf course ponds.

Dispersed Recreation Site Inventory, Jewell Basin Hiking Area – Sandi Baker (high school junior) will present the AESOP classes' inventory and assessment of human impact to natural resources in the Jewell Basin Hiking area. Impacts were caused by camping, day use, and other recreational activities. Students worked on the project in partnership with the US Forest Service and collected field data at 72 sites. The analysis will be presented in ArcGlobe.

Then and Now - Braden Davis, Ronnie Laudermilk, and Jasmine Gannon will present an analysis of human caused changes, which occurred between 1937 and 2010, to the landscape of Sommers, Bigfork, and the Flathead River Delta. The analysis compares air photos from both years. Changes in houses, roads, docks, trees, and agricultural lands, and other features are delineated and quantified in ArcMap.

Mapping Vegetation Communities on the Flathead Waterfowl Production Area – Olivia Witt (junior) and Cody Dopps (senior) will present maps of vegetation communities the AESOP class created based on 2 years of student data collection. The project was conducted in partnership with the US Fish and Wildlife Service. Students will explain their map and the evolution of their mapping methods using ArcMap.

3D Geology Map for the Heart of the Bob Marshal Wilderness – Shane Parks (senior) will present and explain his methods for creating a 3D geological map of the Continental Divide Syncline of the Bob Marshal Wilderness. He will also give some background information on the area's geology. Shane's map was created and will be presented in ArcGlobe.

Waterfowl Migration though the Flathead Valley – Jazmyn Musser and Mandy Derber (both juniors) will present a project in which they entered ad analyzed waterfowl migration data collected by Montana Fish Wildlife and Parks. Data analysis shows densities, weekly numbers, and total bird use days for select species. It also shows highest diversity and total bird use days within the valley-wide study area. This is a power point presentation with many maps created using ArcMap and Photoshop.

Winter Tracking and Road Kill – Emily Smith and Abe Malley (both juniors) will present their analysis of 11 years of winter track surveys and road kill statistics for the Swan Valley of northwestern, Montana. Winter Tracking data was provided by Northwest Connections and road kill data was provided by the Montana Department of Transportation. Track data shows distribution and population trends for wolverine, Canada lynx, and pine marten. Road kill data shows highest concentrations of road kill and more. Analysis is presented in ArcMap.

Track: Emergency Services
Location: Fireside Room

ArcGIS Server-SDE Advantages for 911 CAD in the Flathead OES
Presenter: Jason Singleton

Abstract: The Flathead County Dispatch and Emergency Communication Center represents a change that went live in June 2010 to a consolidated 911 center of personnel and technology. NewWorld Systems provided software that creates 'integrated' CAD for mobile applications of law and fire, records management, field reporting and dispatch mapping. ArcGIS Server-SDE has advantages for 911 CAD including 'Common Name' location identification, multi mapping per dispatch station, live resource management for county wide response and RunCard dispatching with predefined back up scenarios. The transition to NewWord System CAD from the previous ESN standard method is now 100% reliant on point-over-polygon analysis through GIS to provide 911 response. Managing multiple databases from the Telco to the PSAP for response definitions of ALS, BLS, Fire and Law have been eliminated. NewWorld System CAD and SDE environment has increased workflow efficiency by decreasing workloads for 911-GIS editing. Even though the 911 Center still relies on the ANI/ALI information from the Telco, this places the 911 Flathead County Dispatch Center and the Responders in full control of defining 911 services.

Bio: Jason Singleton graduated from Western Michigan University in 2001 with a Bachelor of Science in Geographic Information Processing. He began working for the Flathead County GIS Department in 2008 and transitioned to the Office of Emergency Services in 2009 under the 911 Technology Department as a GIS-MSAG Coordinator. He serves as a GIS Analyst for the Type III Northwest Montana Incident Management Team and provides gis services through GeoControl, LLC.

Wednesday, Session Two

Using Mobile GIS applications for Apple products (iPad, iPhone, and iPod)
Presenter: Mark Slaten, DNRC - Kalispell

Abstract: With the recent ability to go "off-line" and perform disconnected editing, the Apple iOS has become a useful platform to collect and view field data. This platform provides users an intuitive tool which requires almost no training. The demo apps were originally written by ESRI, but were modified (sometimes quite heavily) to work with DNRC data and needs. These applications require ArcGIS server data. The first application is built around the concept of inspecting a feature that already exists (such as a tax parcel, an oil well, a grazing lease, etc.). The second application is built to allow field collection of new data (creating new features). Both of these applications store map tiles of the base data (NAIP images, USGS quad maps, etc) and take a "snapshot" of the server data before going offline. When the user comes back into 3G or wifi range, he/she can synchronize the edited/stored data to the server.

Bio: Mark Slaten is currently a GIS Analyst for the Montana Department of Natural Resources in Kalispell, Montana. Previously a field forester, he took an interest in GIS during a knee rehabilitation stint requiring desk work. He graduated from the University of Montana and has worked for Plum Creek Timber Company, Oregon Department of Forestry and Montana DNRC. He is a GIS lead on a Type 1 Northern Rockies Incident Management Team. In his downtime, he dabbles in developing mobile applications for Apple products (iOS).

Emergency Incident Response Experiences from the Flathead County Search & Rescue
Presenter: Brian Heino, Flathead Co. Search and Rescue

Abstract: Whether looking for a lost hunter in the dark or evacuating victims in a fire's path, a good map, including topos and terrain views, is imperative to the Search and Rescue work that Brian Heino does for the Flathead County Sheriff's office. He will share some of his experiences and teach us some things that we can all do to help our Search and Rescue members do their work more safely and efficiently.

Bio: Cpl. Brian Heino, Flathead County Sheriff's Office, SAR Coordinator, SWAT Team Leader, Posse Liaison - Brian Heino grew up in Flathead County and worked for US Forest Service while getting his degree in Police Science. He worked as a Jewel Basin Ranger, with the Wilderness Trail Crew, and as a Firefighter during his time with US Forest Service. He got his start in Law Enforcement with the Sheridan, Wyoming Police Department. In 2003, Brian moved back to the Valley to be closer to family. His extensive experience includes working his way up with SWAT, from entry level to Sniper/Observer and now as Team Leader. He's served as a Narcotics Agent for the Northwest Drug Task Force. Brian's worked as a Field Training Officer, done Bike Patrol, worked with the Major Crimes Unit and managed the Marine Division. With certifications in Montana and Wyoming POST, training in Search Management, Drug Interdiction, LEMOS and other Law Enforcement courses, he manages search operations and does training for Search and Rescue, Posse, and SWAT. In his spare time, Brian supports his large family of five.

Workshop: Esri Hands-On Learning Lab
Location: Glacier Room

Instructor: Carol Dargatz, Training Specialist, Esri
See Description under Wednesday, Session One

Track: Natural Resources
Location: Ballroom B

GIS Applications in River Management
Presenter: Bryan Swindell, GIS Analyst, DTM Consulting, Inc., Bozeman, Montana

Abstract: The study of rivers has always been aided by geospatial technology, from high-precision GPS for surveying cross sections to bathymetric mapping with echosounders. Today, fluvial scientists and land managers have a wealth of data sources to choose from when studying river processes and change over time. My talk will review the most common geospatial data sources used in river study, their applications, and their limitations. I will demonstrate the steps involved in acquiring and applying these data sources, using examples from projects around Montana. Information from this talk can be used to better plan and manage land use in and around floodplains, in turn increasing the safety of life and property.

Bio: Bryan has been working in the GIS field for over a decade, first with the BLM, then the Forest Service and USGS. He now works for DTM Consulting in Bozeman on a variety of watershed investigations, as well as assorted GIS and cartography projects. He has a Bachelor's degree in Environmental Studies and a Master's in Earth Sciences from Montana State University.

Yellowstone River Cumulative Effects Assessment
Presenter: Jim Robinson

Abstract: Since the 100-year floods of 1996 and 1997, the Yellowstone River has been the subject of resource investigations aimed at understanding the effects of human interaction with the riverine ecosystem. The Yellowstone River Conservation District Council has pursued a strategy of baseline data development and analysis for purposes of informed resource management and restoration planning. As a result, there now exists a variety of datasets and value-added map products that encompass the entire river corridor – from Gardiner, Montana to the Missouri River confluence. These products include:

1. physical feature inventories, including detailed mapping of historic channel and floodplain modifications;
2. geomorphic channel classification and study reach characterization;
3. high resolution orthophotography and LiDAR-generated digital elevation data;
4. planimetric features such as roads, bridges, and building footprints extracted from the high resolution orthophotograpy;
5. river-wide air photo coverage for 1950, 1976, 1995, and 2001;
6. digitized banklines and flowlines from the historic air photo coverages;
7. reach-specific geomorphic parameters (channel length, sinuosity, braiding, displacement, complexity, and bank migration rates) derived from historic air photos; and
8. value-added planning products such as floodplain and channel migration zone maps.

The datasets are foundational elements of an interdisciplinary work plan designed to address cumulative effects on the Yellowstone River corridor.

Bio: Jim Robinson is a Water Resource Specialist with the Montana Department of Natural Resources and Conservation (DNRC). Jim received his AB in geology from the University of California at Berkeley in 1983, his MS in geology from the University of California at Santa Cruz in 1988, and California geologist registration in 1994. He has worked for the State of Montana for the past 18 years; most recently serving as a technical advisor to the Yellowstone River Conservation Districts Council regarding geospatial data acquisition and management. His presentation today will focus on using GIS to understand the cumulative effects of human development on Yellowstone River geomorphic processes.

Mapping Larger River Valley Bottoms in Montana
Presenters: Claudine Tobalske, Ute Langner, and Linda Vance

Abstract: Because riparian areas have critical ecological significance, knowing their location, composition, and quality is paramount to conservation efforts. In Montana, riparian corridors along major rivers are being manually mapped by trained photointerpreters, but many rivers are still awaiting completion. A broad-scale (1:100,000 scale) map of ecological systems has recently been released, but the coarseness and date of the data source (30m pixel Landsat ETM+ scenes, ca. 2000) lead to poor mapping of riparian areas. To improve the MSDI Landcover layer in a timely manner, we developed an automated approach based on image segmentation with the eCognition software to map valley bottoms using the fine-scale (1m pixel), 2009 NAIP imagery. Valley bottoms around 32 large Montana rivers were delineated using 1m contours and 2009 NAIP imagery and mapped into 16 classes (Water, Sand Bars, Upland Emergent, Riparian Emergent, Shrub-Scrub, Upland Shrub-Scrub, Open Forest, Closed Forest, Russian Olive, Disturbed, Roads, Structures, and four agricultural classes). Resulting grids were crosswalked to ecological systems, resampled to 30m, and used to update the current Landcover layer. In addition, valley bottoms were segmented into reaches which composition was analyzed to identify those in more pristine conditions.

Bio: Dr Claudine Tobalske has 20 years of combined GIS experience in the field of natural resources conservation and management, starting as a Ph.D. student working for the Wildlife Spatial Analysis Lab at the University of Montana, then as a GIS analyst and ecologist for the Oregon Natural Heritage Information Center, on to her current position at the Spatial Analysis Lab of the Montana Natural Heritage Program. Dr Tobalske has also applied remote sensing to vegetation mapping at different scales, from 30m Landsat ETM+ to 1m NAIP imagery. She has extensive experience with the full suite of ESRI products and image analysis software such as Erdas Imagine and eCognition.

Track: Vendor
Location: Lake McDonald Room

Sentinel™ GIS Product Updates and Enhancements
Presenter: Jackson Beighle, Electronic Data Solutions

Abstract: Sentinel™ GIS software, designed for Mosquito Control operations, provides field and office software tools to record mosquito control activities, create associated maps, and generate standard reports. Built upon industry-standard Esri® GIS technology, these tools meet many of the new NPDES record-keeping and reporting requirements. This presentation will provide information about Sentinel™ GIS software product enhancements and updates that have been completed, or are nearing completion. This presentation will also discuss the future plans for Sentinel™ GIS software

technology for mosquito control applications.

Keywords: Sentinel™, Field software, GIS reporting, GIS software, Mosquito control, Esri® GIS technology, NPDES

Bio: Jackson Beighle is a GIS-GPS Sales Specialist for Electronic Data Solutions. He graduated from the University of Montana in 1994 with a Geography degree and from Oregon State University in 1996 with a graduate degree in Geography and GIS. Jackson has over 15 years of experience working with a wide range of customers in the GIS and GPS industry. He lives in Missoula with his wife Traci and three children, Sam, Finn and Cole.

Oblique Imagery in GIS
Presenter: Brian Kienle, GISP, Pictometry International

Abstract: This presentation will cover how and why a GIS professional would use oblique imagery in various GIS packages, including ESRI's ArcGIS. The session will focus on the fundamental differences between Nadir (vertical) imagery and Oblique (angled) imagery including the science of how a dynamic grid and varying GSD's (ground sample distance) work, including examples of the highest resolution intelligent oblique imagery available (3").

One topic covered will be an exciting new technology that will allow GIS users to consume oblique imagery as native content in ArcGIS 10 Desktop. Another new technology will be demonstrated that allows a website to consume both WMS and WFS web services in conjunction with web optimized oblique and ortho imagery. The session will also highlight some of the other benefits of using intelligent oblique imagery like being able to acquire height measurements or creating photo- realistic 3D models. The session will end with examples of oblique and ortho imagery from various natural disasters over the last few years including Hurricane Ike, the 2010 Nashville floods, 2008 tornadoes that struck Suffolk County Virginia, earthquake in Haiti, and finally imagery from the recent Tornado in Joplin Missouri.

Bio: Brian Kienle has extensive knowledge of PSAP mapping utilizing GIS and GPS technologies through education and hands-on experience. This includes designing, installing, and training dispatchers, Police, Fire, and EMS workers over the last 10 years. Brian has a GIS/GPS associate degree from Hocking College in Ohio, a Business Management degree from Franklin University in Ohio. Brian has A+ and N+ CompTIA certifications. He has also been a registered and certified GISP since 2009.

Prior to joining Pictometry in November of 2007, Brian worked with an E911 Base Map and Software Mapping Provider for 7+ years. Brian was a Project Manager for the GIS Base Mapping division for several years, before being promoted to Product Implementation and Support Manager for the E911 software group. In this role he was responsible for gathering and creating a visually appealing Map with GIS data. Brian compared the GIS information against ANI/ALI data to ensure E911 mapping accuracy. He would then install every component of the system in the PSAP, as well as train and support the users on an ongoing basis.

Brian's first position with Pictometry was as a Regional Technical Manager for 4 years. In this role Brian was the technical support for the sales team for 6 States in the West. He also worked closely with Customer Technical Services to help with new installations, follow up training sessions for current and new users, and specialized in integrations with our numerous GIS, CAD, and CAMA providers. Brian currently is the District Manager for Pictometry for Idaho, Utah, Wyoming, and Montana.

Wednesday, Luncheon

TerraGo® V6 Geospatial Collaboration and GeoPDF®
Presenter: Kevin E. Coles , TerraGo Technologies

Abstract: TerraGo® continues its innovative product and market momentum with Version 6 of its Publisher™, Composer™ and Toolbar™ solutions, as well as the all-new Toolbar Pro product. The new generation of software will offer the most expansive improvements in collaborative functionality in the company's history to further empower geospatial collaboration within the enterprise, between organizations and disparate systems, to the field, peer-to-peer and back.

Join TerraGo Technical Sales Engineer Kevin E. Coles for an informative session highlighting the enhanced geospatial collaboration workflow of TerraGo V6 software solutions. Whether you are an advanced user or new to geospatial PDF, this webcast will offer insight on how the next generation of TerraGo GeoPDF® solutions can help your organization better leverage its geospatial assets and meet program requirements involving geospatial technology.

Bio: I have been in the GIS/Geospatial industry for almost 11 years, and I love it! I love it so much that my license plate says "GIS DUDE." Most of my career has been in the Federal Government/DoD arena. I was able to spend some time working overseas in Kuwait and Qatar. I also spent 2 years with a commercial company as a Project Manager for their web mapping application.

I started with TerraGo Technologies in December 2009. Currently, I'm the Technical Sales Engineer and I support all of TerraGo's pre/post sales. I really do love working for TerraGo. It's a small but established GIS company and every single employee is focused and understands what the company is trying to accomplish. The great thing is that everyone still knows how to have fun.

I currently live in Charlottesville, VA with my wife Erin, 7 month old daughter Arden and two dogs, Bella and Jackson. I love all outdoor activities, touring breweries and spending time with my family. The other great thing about my job is that it gives me the opportunity to travel.

Wednesday, 12:00 - 1:30 p.m. - Luncheon Buffet

The 2012-2013 MAGIP Board nominees for Vice President and Members at Large will be introduced.

Flathead County's Planning and Zoning Director BJ Grieve gives luncheon address on "Preparing for a Flood (While Hoping It Doesn't Flood)." The spring of 2011 was a nervous time for Floodplain Administrators across the state of Montana. Record and near-record snowpack in the mountains had public service providers watching the river gauges and weather reports. Flooding is a problem faced by local communities worldwide, and Flathead County is no exception.

This presentation will review some flooding history in Flathead County, the unique conditions of 2011, and the work that was done locally to be prepared if flooding occurred. BJ Grieve has been with the Flathead County Planning and Zoning Office for just over 8 years. BJ has a BS in Geography from the University of Wisconsin-Whitewater and a MA in Geography from East Carolina University. BJ is AICP® and CFM® certified.

Introducing the new MAGIP GIS Mentoring Program – Diane Papineau

Wednesday, 1:30-2:40 p.m. - Session Three

Track: Education
Location: Combined Swiftcurrent and Hanging Gardens Rooms

The Fort Peck PlaceNames Project: Exploring Assiniboine and Sioux Worldviews Using Traditional Cultures and Google Earth
Presenter: Lisa Blank

Abstract: This presentation will explore the Fort Peck PlaceNames curriculum, a bi-cultural curriculum development project with the Fort Peck Tribal Executive Board and the Fort Peck Community College. Using Google Earth and Giga Pans, high school students explore the traditional and current lands and culture of the Assiniboine and Sioux; examine the critical role that land-friendly bison play in tribal life and prairie ecosystems; and consider current conservation efforts to sustain Echinacea plant communities. Finally, students examine their own worldviews and identify actions they can take to contribute to an ecologically sustainable future for the people, flora, and fauna of the Fort Peck Reservation.

Bio: Lisa is a science education professor at The University of Montana and Co-PI on the CE3 Project. She is a former middle and high school science teacher and elementary science specialist. She completed her Ph. D. in Science Education and Environmental Education at Indiana University. Her teaching and scholarship reflect her interests in curriculum development, scientific inquiry, geospatial technology, and teacher professional development. Currently, she is focused on developing exemplary science curriculum that promotes the role of argumentation in science knowledge and the use of geospatial technologies as transformative data collection and analysis tools.

GIS4MT – A Statewide K-12 Site License: Past, Present, and Future
Presenter: Jeffrey W. Crews

Abstract: The GIS 4 Montana initiative is a State-wide K-12 license for ArcGIS, made available free of charge to Montana's public schools through an agreement between the SpatialSci Project, The University of Montana, GeoEssentials, and ESRI. Every K-12 public school in the state of Montana has the option to capitalize on this program that includes the latest ESRI GIS software. The State-wide K-12 site license, the first of its kind, has been in effect for the past 11 years and originated from the NASA Earth Observation System Education Project at The University of Montana.

In the past 11 years several projects have been developed by participating school districts across the state of Montana. These projects span curriculum content areas and participating students span grades kindergarten through seniors in high school. Hundreds of schools have been participated in the past and sample projects will be showcased demonstrating the variability in project topics and complexity. To learn more about this exciting project and how you can become involved come to the session.

Bio: Jeff Crews currently owns and operates his own company, SpatialSci, Inc. that works to provide educators with a sustained environment for the integration of geo-technologies into classroom instruction. Previously he served as Instructional Technology Coordinator for The Office of Public Instruction. He also serves as an adjunct professor for Lesley University. Jeff has also served as Assistant Director of Science and Technology Projects for The Division of Educational Research and

Service and also as Assistant Director of the NASA Earth Observing System Education Project at The University of Montana. Jeff has over 14 years K-12 teaching experience as a science educator, technology coordinator, and director of technology in Montana schools. His classroom experiences coupled with his current research interests give him a unique insight into the application of geospatial technologies into k-12 classroom instruction.

Track: Emergency Services
Location: Fireside Room

Wildland Urban Interface Parcel Mapping for Montana Counties
Presenters: Liz Hertz and Karen Shelly, DNRC - Missoula

Abstract: The 2009 Montana State Legislature passed MCA 76-13-145 (Senate Bill 131) requiring the Department of Natural Resources and Conservation to designate the Wildland Urban Interface (WUI) parcels in each county. This presentation will discuss DNRC's role in accomplishing the law's intent. Wildland Urban Interface (WUI) parcels have been delineated for all 56 counties. We will describe the diversity of the counties' methods of Community Wildfire Protection Plan (CWPP) completion and associated WUI delineation. County WUI maps are available and will be reviewed on the Montana DNRC Fire and Aviation Bureau website and WUI parcel mapping approaches will be discussed. Audience members will have a chance to view and comment on their counties WUI boundaries. Exploration of the potential significance of this map layer to Montanans will be attempted.

Bio: Elizabeth Hertz, GIS Specialist, MT DNRC, Fire and Aviation Bureau - Elizabeth Hertz Graduated from the University of Montana in 2008 with a Master's of Art in Geography with an emphasis in GIS and Cartography. She has been working for the Department of Natural Resources and Conservations, Fire and Aviation Management Bureau for 5 ½ years. She is presently on CAT Fire Incident Management Team as a GIS Specialist.

Karen Shelly, GIS Intern, University of Montana, MT DNRC, Fire and Aviation Bureau - Karen Shelly is a graduate student in Geography. She is finishing up her thesis, which is to map the historic vegetation and land conditions of portions of the Bitterroot Valley using General Land Office field notes. Prior to moving to Montana, she was the Natural Areas Coordinator and Land Acquisition person for the Wildlife Division of the Missouri Department of Conservation.

Mobile Data Terminals, GPS and Technical Advances for the Field
Presenter: Tom Kennelly, Whitefish Fire Dept

Abstract: The mission of the Fire Service is to protect the lives, property, and environment of our communities through education, fire code compliance, and emergency incident response. The demanding and complex nature of this mission along with increasing requests from the public to deliver services with greater efficiency and economy has led to a new breed of fire manager.

Historically, fire managers have relied on experience, equipment, communication, and training to provide essential services. For today's Fire Service manager understanding the relationship between risk and resources has become critical to the community›s safety, economic vitality, and quality of life. Decisions such as these require managers gather, process, and analyze data quickly with a high clarity and certainty. Technological advancements are providing emerging analytic tools to assist with these mission critical decisions.

GIS is one of the advancements that have emerged as a vital tool in the decision making arsenal of today's Fire Service manager. Utilizing GIS as an analytic tool has provided managers with the ability to collect data from a wide variety of sources. This data then can be analyzed, defined, and displayed in different arrangements to allow patterns and trends to emerge. These types of analyses have shown that they can provide the information needed to make quality decisions that save time, money, and lives.

Bio: Tom Kennelly is the Chief of the Whitefish Fire Department. As Chief he is responsible for the daily operations, planning, budget, supervision, training, personal development, and response readiness of personnel and equipment assigned to the fire department. Chief Kennelly has 33 years fire service experience. During his career, he has held the position of Fire Chief at two suburban Chicago and one suburban Denver fire department. Chief Kennelly started his career as a volunteer paramedic/firefighter with a suburban Chicago fire department. Prior to becoming a career paramedic/firefighter, Chief Kennelly held various corporate financial executive positions.

He earned a B. S. in Accounting in 1973 from Southern Illinois University. He holds a Certified Public Accountant certificate from the State of Illinois. Chief Kennelly also earned a B.S. in Fire Science Management from Southern Illinois University in 1993.

Chief Kennelly served in the United States Army, Medical Corp and served a tour of duty in Vietnam during 1968. The Chief and his wife of 41 years have 3 daughters.

Workshop: Esri Hands-On Learning Lab
Location: Glacier Room

Instructor: Carol Dargatz, Training Specialist, Esri
See Description under Wednesday, Session One

Track: Natural Resources
Location: Ballroom B

The Montana Land Management Database: Looking Back and Moving Ahead
Presenters: Karen Coleman, Biological Data Systems Coordinator and Allan Cox, Systems & Services Manager, Montana Natural Heritage Program

Abstract: The Montana Land Management Database (formerly known as the Montana Stewardship Database) has undergone several changes over the last few years. This popular dataset offered by the Montana Natural Heritage Program is frequently used for analysis and as a base layer for map products. This presentation will provide an brief overview of the early development of the database and then focus on more recent changes including: a data model conversion to a multiple feature class geodatabase, integration into the state Cadastral (parcel) database, state legislation governing the management and mapping of Conservation Easement data, and a MTNHP web map application for display and summarization of the data. We will also provide opportunity for feedback on how others are using the data and suggestions for database improvements.

Bio: Karen Coleman - Karen earned a B.A. in Environmental Studies at Oberlin College before launching her GIS career as a "dendrocartographer" (tree mapper) in the Department of Ecology, Evolution, and Behavior at the University of Minnesota, and eventually earning an M.S. in Forestry (still

mapping trees) at UMN. Though sorry to leave behind the trees and lakes of Minnesota, she nevertheless accepted new challenges and a new landscape at the Montana Natural Heritage Program in 2004, where she designs and manages databases for a variety Heritage-related data.

Allan Cox - Allan is the Systems and Services Manager for the Montana Natural Heritage Program where he manages the Program's information services—databases, web services and geographic information systems. Allan has more than 20 years of GIS, natural resource program, and project management experience. Prior to coming to the Natural Heritage Program in 2001, Allan was the Program Manager for the Montana Census and Economic Information Center (CEIC) at the Montana Department of Commerce. From 1998 to 2000, Allan provided private GIS consulting and contracting services. From 1992 to 1998 Allan was Director of the Natural Resource Information System (NRIS), at the Montana State Library. In 1987, Allan joined the Natural Resource Information System and was responsible for the establishment of its GIS Program and served as its GIS Coordinator until 1992. Prior to moving to Montana, Allan worked for the Virginia GIS Project (VIRGIS). Allan has a BA in Communications and an MS in Geography from Virginia Tech.

Track: Professional Development
Location: Lake McDonald Room

Lost in the Vector: Finding Help/Finding Data
Presenter: MAGIP GIS Mentoring Subcommittee

Abstract: GIS tasks can be challenging—do you know where to find assistance when you need it, whether you are new to GIS or an experienced GIS professional? In this session, we will explore different avenues to get assistance, including the MAGIP GIS Mentoring program. We will also discuss different approaches to finding spatial data (beyond the Montana GIS Portal) as well as assessing that data for your particular use. Hunting for spatial data is a great way to network—use this session as an opportunity to build relationships with colleagues from across the state. Sponsored by the MAGIP Mentoring Subcommittee).

Bio: Diane Papineau - Diane is a GIS Analyst at the Montana State Library. Her work involves natural resource data collection and dissemination, geographic literacy, spatial analysis and mapping, as well as planning, documenting, testing, and outreach related to GIS data management systems and online GIS tools like the Montana GIS Portal.

Diane holds an MS degree in Earth Sciences from Montana State University in Bozeman, emphasizing GIS, remote sensing, historical geography and cultural geography, and GIS education. Diane earned her Bachelor of Science degree in Cinema and Photography from Ithaca College in New York. A native of New Hampshire, Diane has worked in state, local, and federal government as well as the private sector in the Rocky Mountain West since 1988.

Wednesday, 3:10-5:00 p.m. - Session Four

Track: Education
Location: Combined Swiftcurrent and Hanging Gardens Rooms

GIS Across the Curriculum and Into the Community
Presenter: Suzie Flentie

Abstract: This presentation will focus on our applications of GIS technologies in the Lewistown schools across the curriculum and in the 8th grade GIS club. The GIS club has produced interpretive trail maps and historical tour maps for the community. Their current projects include an environmental study of the geographic impacts of the central Montana flooding last spring. We have geo referenced photography and video interviews with state and federal officials at various sites. We are also planning to compare the geographical changes with new imagery that we requested from the UMAC pilot this summer. Students will perform a geospatial analysis by comparing the old imagery to the new imagery after the flooding. We are also working in cooperation with BLM and the Lewistown "Friends of the Trails" organization to map the noxious weeds along the trail which was developed through the "Rails to Trails" grant. Montana State University was recently awarded an EPSCoR grant and we are working with the extended university to build opportunities for other teachers to gain the skills necessary to do similar GIS projects in their communities in an effort to address one of the critical scientific and social issues facing the nation: the effects of climate change in sustaining healthy ecosystems and economic growth.

Bio: Suzie Flentie teaches science in Lewistown, Montana, where she has been teaching for 32 years. She also works as a teacher researcher and outreach consultant for Montana State University. She received her initial GIS training seven years ago and later participated in the Montana GTEC teacher training project through University of Montana which was developed to encourage effective use of emerging geospatial technology in the teaching of science in grades 5-12. Suzie teamed with Van Schelhamer to provide GIS training for Central Montana teachers and administrators. In June of 2011, she participated in the third annual Esri T3G Institute which was developed for individuals who are helping other educators use GIS effectively. In addition to Esri, T3G is supported by the GeoTech Center, a nation-wide collaborative effort between colleges, universities, and industry to expand the geospatial workforce. Suzie's GIS club has worked with the Lewistown Watershed Committee, the Friends of the Trails Committee, the Bureau of Land Management, the Rocky Mountain Elk Foundation and the Chamber of Commerce on various community projects that help her students to become proficient in GIS technologies while serving the community.

GIS in Education Roundtable
Presenter: MAGIP Education Committee

Abstract: Come discuss the use of and potential for GIS in Montana›s K-12 schools. How can MAGIP work to advance the use of GIS in the schools?

Bio: Not Applicable

Wednesday, Session Four

Workshop: Esri Hands-On Learning Lab
Location: Glacier Room

Instructor: Carol Dargatz, Training Specialist, Esri
See Description under Wednesday, Session One

Track: Local Government
Location: Fireside Room

Transceivers, Ping Pong Balls, Bailing Twine and Other Unconventional Mapping Tools
Presenters: Alan Armstrong, GIS Manager, Gallatin County GIS Department, Frank Dougher, GIS Analyst, Gallatin County GIS Department, Jenny Connelley, GIS Program Assistant, Gallatin County GIS Department

Abstract: The network of agricultural irrigation canals throughout the Gallatin Valley, MT, often traverses subdivisions, golf courses, urban neighborhoods or is buried under municipal developments. Researching the location and responsibility of these waterways has revealed a serious deficiency in records and documentation on the actual location of the routes. GIS receives questions concerning where flowing water originates or who is in charge of the water passing nearby or under their property.

Gallatin County GIS, together with the Association of Gallatin Agricultural Irrigators (AGAI), formed a partnership with the MSU Department of Land Resources and Environmental Sciences to bring together the historical perspective, technical expertise and manpower necessary to collect waterway features. Utilizing the student assistance from upper level GPS/GIS classes, there is now a process established to collect previously unmapped waterway features and build a comprehensive and accurate GIS database.

This layer of waterways and features, specifically the canals and ditches managed by AGAI, will result in better management of their resources for all water right holders. By providing city and county offices with an accurate data layer of active waterways, the continued, uninterrupted distribution of agricultural water is not a forgotten component to development.

This presentation will discuss: Unconventional underground and unknown waterway collection methods developed by our GIS Department; Partnership specifics between the parties involved; Further development regarding mapping technologies; and Public access of the data.

Keeping Track of Linear Tangible Capital Asset Infrastructure
Presenter: Darvin Elliot

Abstract: The focus of my presentation will be on linear infrastructure and providing clients access to spatial and tabular data via the internet. In illustrating two web sites, data was processed using GIS and data is held within a spatial database. These sites allow clients to view and track their tangible capital assets. Municipalities have to associate a cost for their assets within asset registers. These asset registers and web sites are used as a tool to educate Council on the level of infrastructure reinvestment needed or where to set targets. In addition, asset value can be used in utility rate models to calculate a specified rate of return.

One example will be based on a town in Southern Alberta where infrastructure encompassing storm, water, sanitary, roads, sidewalks and electrical can be viewed spatially. The spatial assets reside in SQL Server 2008 r2. The end-user can query the data, run reports on selected assets and do minor desktop functions such as measure, buffer and plotting. The assets have attribute information dealing with asset properties (material, diameter, in-service date) and financial information (amortization, future cost, net book value, etc).

Another example will showcase a city in Southeast Alberta and sidewalk assets along with sidewalk defects. This project entailed a GPS survey of sidewalks and sidewalk defects.

Bio: Darwin Elliott, B.Sc., CST, GIS/Asset Management Project Manager and Practice Lead, B.Sc. in Geography – University of Regina 1998, EMPLOYMENT: 2008 – present: Associated Engineering, 2002 – 2008: d.e. Mapping Ltd.

Darwin Elliott provides technical expertise in geospatial software and Geographic Information Systems combined with spatial database knowledge. With over twelve years of experience, Darwin has a diverse background in geospatial and CADD projects and has given back to the growing GIS discipline with instructional positions within SAIT (Southern Alberta Institute of Technology).

As a GIS/Asset Management Project Manager and Practice Lead, Darwin provides technical expertise on various engineering and asset management projects utilizing GIS, advanced spatial analysis and relational databases. Darwin manages projects dealing with asset management, condition based analysis and tangible capital asset inventories and financial reporting. Project work has involved dual-drainage models (storm), condition based inventories for sidewalks and facility condition inspections.

Darwin was instrumental in setting up an Opensource GIS web-based system using MapGuide Opensource. This system allows clients to access spatial and tabular information, run queries and edit attribute information. Client data is stored within SQL Server 2008 r2, allowing for a central data repository.

Track: Natural Resources
Location: Ballroom B

Agriculture Suitability for Cropland on the Hedstrom Farm and Ranch near Malta, Montana
Presenter: Jeff Hedstrom, Montana State University, Earth Science Major-GIS/Planning Option

Abstract: This study aimed to locate the areas that were suitable for growing wheat crops. The study area was the Hedstrom Farm and Ranch, located northeastern Montana, about 3 miles southeast of Malta, Montana which the property consists of approximately 2,500 acres. GIS is an effective tool for analyzing agriculture suitability because of its ability to model the necessary spatial components and combine agriculture and soil related variables to determine areas that are suitable for future cropland development.

The variables were classified using a scale of 1 (most suitable) to 4 (least suitable) and were weighted in order of importance to growing wheat. The results indicated that is a significant amount of land suitable for growing crops and therefore the landowner should develop those areas in the future.

Some of the property has been enrolled in the Conservation Reserve Program and in the future may be enrolled in the Conservation Stewardship Program. The client stresses the importance of preserv-

ing wildlife habitats, protecting valuable resources on the property, and efficiently managing proper agricultural practices. This study provided three important things to the client, (1) highlighted areas that are suitable for cropland development, (2) identified current land uses that could be modified to maximize the benefit from the land, and (3) enhanced the current maps to create a more complete inventory of farm and ranch features for the surrounding area.

Bio: Hey, I am Jeff Hedstrom, a Senior at Montana State University majoring in Earth Science with a GIS/Planning Option. I intend to graduate this spring and I already have my job lined up for a career after graduation. I have received a scholarship to the Intermountain GIS conference now for two years (2011 in Pocatello, ID and 2010 in Bozeman, MT) and I really love going to these GIS Conferences, they are very informative. I grew up along the Hi-Line of Montana, just south of Havre, Montana and went to school there until after high school. In my spare time, you›d most likely see me running, I am currently in training for two more half-marathons coming up this summer/fall. I also enjoy various outdoor activities such as hiking, skiing, biking, participating/watching all sorts of sports, and traveling when I got time.

Wild GIS in Afghanistan: Remote Agricultural Planning and Designing Counter-Insurgency for the U. S. Army
Presenter: Henry Shovic

Abstract: Over the last 7 years I completed a whole sequence of unusual and interesting projects in Afghanistan, from pistachio conservation to water resources assessment to field recon planning. After two details in-country I discovered that GIS and remote sensing based projects are a lot more efficient (and safer). I currently work for the U. S. Army planning and designing everything from flood control, groundwater assessments, road reconditioning, dam site evaluations, irrigation planning, infrastructure improvement, monitoring of project completion, water resource improvement, reforestation, mission planning, and even base defense! All with GIS and remote sensing from my home office, since the wife said «no more field trips». This presentation will give you a feel for some of the wilder sides of GIS and applied geography. For as the Army says, «If its crazy but it works, it ain›t crazy».

Bio: Henry Shovic received his PhD in soil science from Washington State University in 1979. He retired from the U. S. Forest Service in 2008 stationed in three National Forests and Yellowstone National Park. He completed three large-scale resource inventories and worked in applied soil science, project services, and GIS. He is now a consultant to the National Park Service, Army Corps of Engineers, USDA, and the U. S. Army.

Track: Vendor
Location: Lake McDonald Room

PGIS, Precision GIS with Carlson Software and Hardware
Presenter: H. James Reinbold, Carlson Software

Abstract: For years there has been a chasm between surveying and GIS. GIS has focused on data and information. Survey has focused on positional accuracy and location repeatability. Over the past 5-10 years we have seen a convergence between survey and GIS. The cost of high accuracy GPS has dropped. GPS networks have sprung up allowing GIS professionals to not only collect and maintain the data for many infrastructures, but do so at reduced cost using network rovers. Survey professionals are being asked for more information, attributes and interoperability to GIS programs like esri.

As GIS moves toward higher positional accuracy and Survey adds more information to the locations they collect the lines between GIS and Survey begin to blur.

We are not reviewing the licensing and liability issues that abound with this convergence. What is being considered is the change in hardware and software available to both groups and how it can assist the the mutual advance in locational precision and information gathering tasks to benefit not only the GIS and Survey professionals but also their clients. New technology allows for greater accuracy in GIS locations and easier data recording and acquisition.

Carlson is at the forefront of this transition with a partnership with Esri and new hardware and software tools to enable both survey and GIS users to provide both high accuracy position and detailed data.

Bio: Jim is the Regional Sales Director for Carlson Software. His education includes: Oregon State University - 1982, Bachelor of Science. His certifications include: Microsoft Certified Systems Engineer - (Window NT 4.0).

Jim has over 20 years experience in the AEC industry. For 10 years he worked with a consulting engineering firm completing a variety of civil and structural projects. For the past 13 years Jim has worked for software companies providing training, demonstrations and technical support. In addition to surveying and civil engineering applications Jim has experience with a variety of GPS and field surveying software.

NEXTMap, IFSAR 3D GIS Data. A Cost Effective Source For High Resolution Digital Elevation Data
Presenter: Keith Metzger, Rational Technology, Inc

Abstract: NEXTMap digital elevation models provide seamless, wide area and current terrain data so you can perform more efficient geospatial analyses.

Hydro-enforced DEMS – structures over water bodies (such as bridges and culverts) are removed, water surfaces are flat, and watercourses flow downstream – making them ideal for water resource and floodplain management applications.

Digital surface model (DSM) – a first-reflective-surface model that contains elevations of natural terrain features in addition to vegetation and cultural features such as buildings. The key benefit of the surface model is that it provides heights of features above the ground, enabling line-of-sight and viewshed analyses for industries such as telecommunications and forestry.

Digital terrain model (DTM) – a bare-earth elevation model that contains heights of natural terrain features, such as barren ridge tops and river valleys. Elevations of vegetation and cultural features, such as buildings and roads, are digitally removed. The key benefit of the terrain model is that is provides a surface for contour generation for applications such as base, geologic, and topographic mapping.

Bio: Keith Metzger has been involved in the procurement and implementation of tools and technology used by the AEC Industry since 1982. In 1998 Metzger went to work for a GIS firm in Anchorage AK. coordinating the development and implementation of GIS applications for Civil Engineering, Utilities, Telco›s and Federal, State and Local government entities using a variety of GIS tools and data sources. Metzger formed a partnership and established Rational Technology in Boise ID. in 2003. In 2010 Rational Technology added Intermaps IfSAR data to the technology offered to and used for, and by they›re clients.

GCS Research
Presenter: Bryant Ralston

Abstract: GCS Research is the leading geographic information technology company in Montana with a proven track record with Montana state agencies, cities and counties in the Intermountain West, and several large enterprise GIS implementations. We maintain close strategic partnerships with industry leaders such as Microsoft, IBM, and Esri and can provide your organization with a variety of GIS professional services to help meet your goals. This could include custom software development for automating a task common in your GIS workflows, conducting a GIS consulting session customized to help your organization more fully leverage the investment in GIS technology, or explore an advanced geospatial related research and development problem you currently face. Come and learn what interesting and challenging GIS projects and solutions GCS Research has been working on and how we might be able to assist you.

Bio: Bryant Ralston is the Director of Sales at GCS Research and is a long-time member of the Montana GIS community and has served in various capacities with the MAGIP organization including the Board of Directors. Bryant has two degrees in geography from Kansas State University and an MBA certificate from the University of Montana.

The Integration of LIDAR Data into Existing Elevation Models
Presenter: David Ward, Northern Regional Manager, Intermap Technologies

Abstract: Presentation will include an explanation of the process and a discussion of the results. Emphasis on IRSAR elevation models but the techniques apply to other data sets.

Bio: Mr. Ward has over 25 years of experience in the geospatial industry in operations, management, and sales. He has extensive experience in LIDAR, satellite imagery, aerial photography, and IFSAR. He lives in western Washington with his wife and two hairy bird dogs.

Wednesday, 6:00 - 10:30 p.m.

Banquet - A Night to Celebrate
Location: Ballroom A

Please join us for our dinner banquet and awards ceremony,
to be followed by live music and dancing!

- No-Host Bar
  In the Pre-function Area.....*6:00 - 6:30*

- Blessing
  Louis Adams.....*6:30*
  Salish Elder Louis Adams was born December 14, 1933 at Sam (Resurrection) Kaltomee's home at Schley, eight miles south of Arlee. He later moved to Valley Creek. Louis joined the Navy in 1951, and served as a "Gunner" on a destroyer during the Korean Conflict. Upon discharge Louis worked for Diamond Match Co. in Superior for five years, Van Evans Co. in Missoula for three years, and the BIA and Tribal Forestry for 42 years. Louis also served on the Confederated Salish and Kootenai Tribal Council for 14 years. Louis retired on his 70th birthday in 2003.

- Dinner
  Plated Dinner Selections Served.....*6:30 - 7:15*

- Awards Ceremony.....*7:15 - 8:00*
  Presentation of MAGIP Distinguished Services and Livability Awards.
  Poster winners and scholarship recipients will also be honored.

- Live Music and Dancing
  Jameson & The Sordid Seeds.....*8:00 - 10:30*
  See the band description on the next page.

The Band

Jameson & The Sordid Seeds

Band Members:

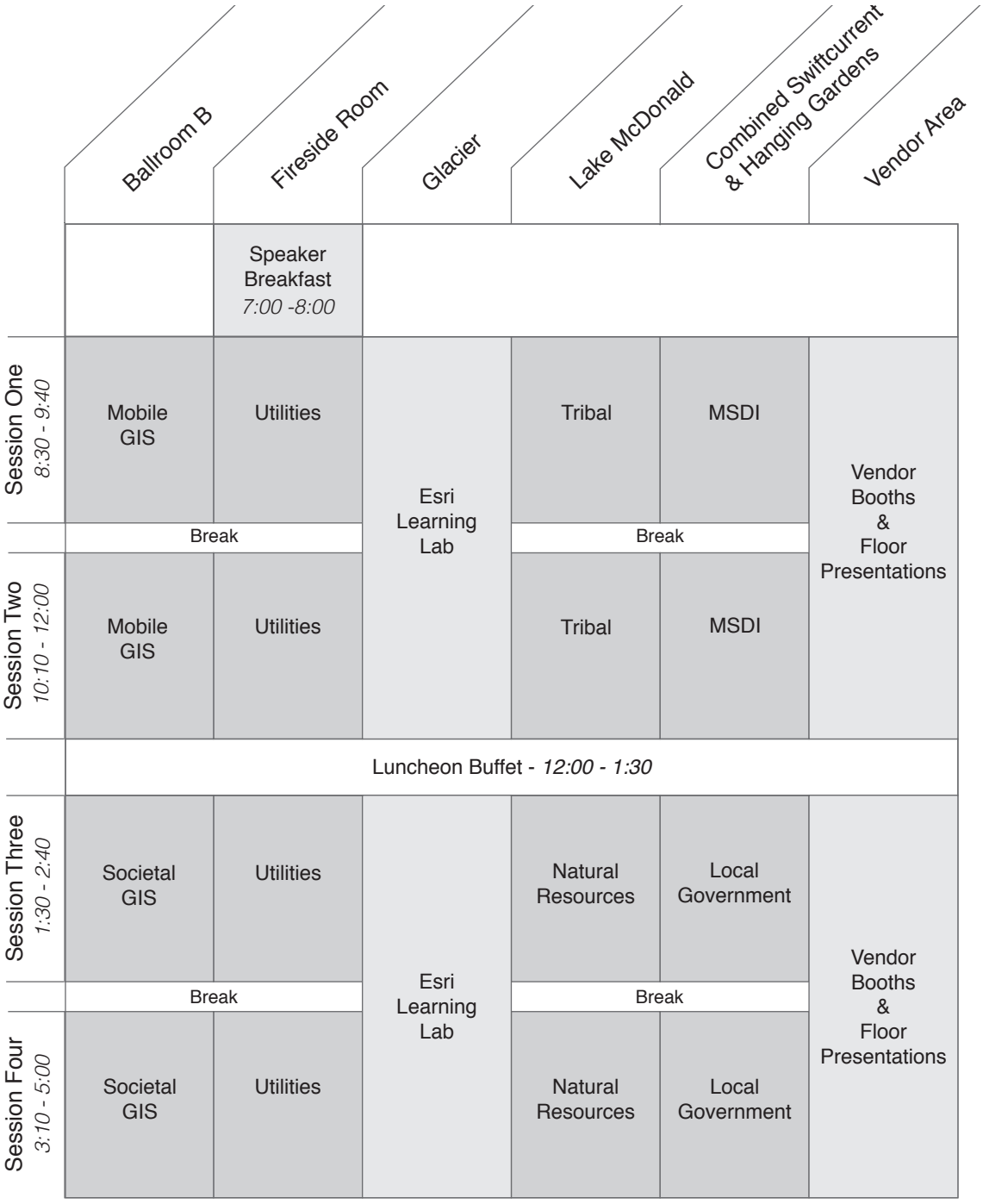
Brent Jameson – Guitar/Vocals
Sean Cooksey – Bass
Graeme Pletscher – Sax/Keyboard
Lucas Mace – Drums/Vocals

Jameson and the Sordid Seeds is a bumpin' original reggae rock and blues rock band based out of Northwest Montana. The band formed in late 2009 and has gained national recognition quickly, becoming one of Relix magazine's 2010 artists on the rise. In 2010, the Sordid Seeds played throughout the Northwest U.S. in support of their debut album "Two Shoes in Mary's Basement", developing a strong reputation for putting on an amazing show and not holding anything back on stage.

Often described as a cross between the Black Keys and Sublime with a hint of Dave Matthews, Jameson and the Sordid Seeds blends heavy blues guitar with reggae-rock beats and strong hooks that you'll be singing when you wake up the morning after. The band's single "I Got Soul" fits perfectly as you can hear the passion in the vocals of front-man Brent Jameson throughout the album. They just wrapped up their 3 month national tour, leaving a great buzz everywhere they played, and are now in the process of booking for the winter and spring. They have a great live energy, making for a great show you won't want to miss. When you see the band live, it is evident these kids love playing music, creating an energy that translates very well into the crowd.

The band has played such venues as:
Hard Rock Cafe – Las Vegas, NV
Palms Casino – Las Vegas, NV
House of Blues – Las Vegas, NV
WOW Hall – Eugene, OR
The Hut – Tucson, AZ
The Riot Room – Kansas City, MO
Quixote's True Blue – Denver, CO
Canal St. Tavern – Dayton, OH
The Elbo Room – Chicago, IL
First Down & Stassney – Austin, TX
The Top Hat – Missoula, MT
The Filling Station – Bozeman, MT

Thursday Overview



Presentation Abstracts

Abstracts are listed in chronological order, by day, by track

Thursday, 8:30-9:40 a.m. - Session ONE

Track: Mobile GIS
Location: Ballroom B

Android Application Development and Use for Mobile GIS Data Collection
Presenter: Fred Gifford, Tetra Tech Inc.

Abstract: Mobile computing is fast in ascendancy and will be significantly affecting the development and consumption of GIS data and services in the coming years. This talk will cover issues related to GIS development for mobile platforms in general and Android application development specifically. The methods used and issues encountered during development of an Android application for collecting mobile wireless signal strength and data speeds for the Montana Broadband Mapping Project will be presented as a case example.

Bio: Mr. Gifford is a professional geographer with over 23 years of experience managing data intensive, multidisciplinary environmental studies and computer application development projects that utilize geospatial technology. His expertise includes project management, requirements analysis, system design, programming, and system implementation. Mr. Gifford has implemented multi-agency, multi-application GIS projects; large GIS data conversion projects; and focused single application systems. Mr. Gifford also has extensive expertise with Internet technologies and their integration with GIS.

Using Mobile GIS applications for Apple products (iPad, iPhone, and iPod)
Presenter: Mark Slaten, Montana Department of Natural Resources and Conservation, Kalispell

Abstract: With the recent ability to go "off-line" and perform disconnected editing, the Apple iOS has become a useful platform to collect and view field data. This platform provides users an intuitive tool which requires almost no training. The demo apps were originally written by ESRI, but were modified (sometimes quite heavily) to work with DNRC data and needs. These applications require ArcGIS server data. The first application is built around the concept of inspecting a feature that already exists (such as a tax parcel, an oil well, a grazing lease, etc.). The second application is built to allow field collection of new data (creating new features). Both of these applications store map tiles of the base data (NAIP images, USGS quad maps, etc) and take a "snapshot" of the server data before going offline. When the user comes back into 3G or wifi range, he/she can synchronize the edited/stored data to the server.

Bio: Mark Slaten is currently a GIS Analyst for the Montana Department of Natural Resources in Kalispell, Montana. Previously a field forester, he took an interest in GIS during a knee rehabilitation stint requiring desk work. He graduated from the University of Montana and has worked for Plum Creek Timber Company, Oregon Department of Forestry and Montana DNRC. He is a GIS lead on a Type 1 Northern Rockies Incident Management Team. In his downtime, he dabbles in developing mobile applications for Apple products (iOS).

Workshop: Esri Hands-On Learning Lab
Location: Glacier Room

Instructor: Carol Dargatz, Training Specialist, Esri

The Esri Hands-On Learning Lab offers free training for conference attendees who want to experience areas of Esri software that may be new to them. Attendees will receive approximately 45 minutes of individual self-paced training consisting of a recorded lecture followed by a hands-on software exercise. Esri staff will be available for help or questions. No registration required. First-come, first-served.

Lesson topics available in the Hands-On Learning Lab (all for ArcGIS 10) are:

• Editing with ArcGIS Desktop	• What's New at Version 10.0
• Getting Started with Animation	• Introduction to ArcGIS Server
• Basics of the Geodatabase Model	• Creating a Map in ArcGIS
• Geocoding With ArcGIS	• Spatial Statistics for Public Health
• Working with CAD in ArcGIS	• Introduction to ArcGIS Desktop
• Introduction to Network Analyst	• Introduction to Linear Referencing
• Introduction to Geoprocessing Using Python	• Introduction to ArcGIS Data Reviewer
• Introduction to Versioned Editing	• Introduction to Spatial Analyst
• Introduction to Geometric Networks for Utilities	
• Designing Effective Web Applications using ArcGIS Server	

Track: Montanta Spatial Data Infrastructure (MSDI)
Location: Combined Swiftcurrent and Hanging Gardens Rooms
Time: 8:30 a.m.-12:00 p.m.

MSDI Session
Moderator: Stu Kirkpatrick

Abstract: The Montana Spatial Data Infrastructure session at the 2012 Intermountain GIS Conference will focus of the FY13 (July 2012 through June 2013 MSDI work plan. The session will cover a variety of topics related to the work plan including:

1. An explanation of the process the Montana State Library, working with the various theme stewards and leads, used, to develop work plan priorities.

2. A review of theme lead estimates of hours and tasks for FY2013.

3. How the work plan will embrace and test MAGIP draft best practices for data accessibility.

4. Individual presentations on major maintenance and enhancement projects that have been prioritized for FY13. These projects have not been finalized at the time of writing this abstract. An example might be to discuss a rather major adjustment that will be required for cadastral and boundary themes, and potential impacts to users, because of the CadNSDI version 2 (GCDB) that will be available April, 2012.

5. Time to answer MSDI questions and to take additional suggestions that may be included in the work plan.

Depending on audience participation this session should take approximately three to four hours with a break in the middle. The session will be facilitated by State GIS Coordinator Stu Kirkpatrick with the participation of the appropriate theme stewards and leads according to work plan priorities.

Proposed Schedule:

8:30 - 8:35: Introduction and acknowledgements – Stu Kirkpatrick
8:35 - 8:45: Developing the FY13 MSDI work plan – the process – Stu Kirkpatrick
8:45 - 9:00: Base maintenance – Stu Kirkpatrick
9:00 - 9:20: MAGIP data distribution best practices & MSDI – Chris Stump
9:20 - 9:40: MSDI web presence, marketing and other common projects
9:40 - 10:10: Conference break
10:10 -10:30: Hydrography – the state water plan and NHD implications
10:30 - 10:50: Imagery – the future of statewide web services
10:50 - 11:10: Cadastral/Administrative Boundaries – GCDB adjustments
11:10 - 11:30: Geographic Names, Transportation and Elevation, other projects
11:30 – 11:50: Audience questions and comments

Track: Tribal
Location: Lake McDonald Room

GIS for CSKT
Presenter: Peter Gillard, GIS Program Manager, Confederated Salish & Kootenai Tribes

Abstract: The Confederated Salish & Kootenai Tribes (CSKT) have been working with GIS since the late 1980s. Building on a core set of base layers, the Tribes' GIS personnel have greatly expanded the GIS data sets available to the the numerous Departments and Programs on the Reservation, for a variety of projects. This discussion will describe some of the projects currently being worked on or supported by the Tribal GIS program. The topics will include natural resources, wetlands and wildlife issues, Tribal Lands mapping, water rights, environmental protection and cultural preservation.

Bio: Pete has been the GIS Program manager on the Flathead Indian Reservation for the last 12.5 years. He has a master's degree in geography from the University of Wyoming and has been working with GIS in natural resources for the last 18 years. Pete has developed GIS training workshops, taught at the Salish Kootenai College in Pablo, MT, and worked with the BIA, the FGDC and NOAA in developing GIS training throughout Indian Country.

Depicting the past at Confederated Salish & Kootenai Tribes with GIS for CSKT Cultural Preservation Program
Presenters: Kevin Askan and Martin Zobel- Confederated Salish & Kootenai Tribes

Abstract: Confederated Salish & Kootenai Tribes(CSKT) GIS Program & CSKT Cultural Preservation Program explore the historical travels of David Paul via digital mapping. Through exchange of information with elders, examining place names, discussing the travels and stories left behind, GIS is used to develop and preserve historical data in regions of the Salish & Kootenai Tribes' homelands.

Bio: Kevin Askan works as a Contract Manager for the CSKT Preservation Department. Serving this function for the CSKT Preservation has yielded opportunities to utilize GIS to help with management decisions and also aid in creation of educational products to help put into perspective the types of travel people of the Confederated Salish and Kootenai had to do thousands of years past. GIS is mainly used in the CSKT Preservation as a spatial analysis tool to measure undertakings distance from cultural sites.

Martin Zobel holds a Bachelors in Geography and previously worked in Cartography and GIS on the National Wetlands Inventory. Upon starting at Confederated Salish and Kootenai Tribes, Martin was a command line ARC-INFO user and developed Arc Macro Language skills. Today, with ARCGIS 10 he updates the annual Tribal Land Status Map which is sold to the public and provided to government offices. He works on data manipulation and mapping for the Tribal Lands Department, EPA, DFWRC, Mitigation, Fisheries, Cultural Presevation, Water Rights, and other tribal programs.

Track: Utilities
Location: Fireside Room

Integrating GIS and Utility Planning/Modeling to Maximize Municipal Resources
Presenters: Tina Whitfield, HDR Engineering and Rebecah Klesh, City of Helena

Abstract: In recent years, there has been an increased use of GIS for utility planning and modeling including network construction, wastewater flow and water demand assignment and projections, including some hydraulic modeling platforms that operate within GIS. In some instances, models were constructed during or before GIS updates, may or may not have been based on unique identifiers, and reflect more accurate attribute information than the GIS. In others, updated GIS information more accurately reflects locations and attributes of physical networks, and may now tie in with a comprehensive asset management system. In every instance, substantial investments have been made to GIS networks and hydraulic models to accurately reflect distribution and collection systems and with the increasing value of the dollar, these systems need to communicate with one another.

We will discuss what to do if you're starting from the beginning – lessons learned from a wide range of modeling and planning projects. This includes refinement of the Enterprise GIS schema, including constructing the physical system and knowing what attributes hydraulic modeling applications require.

But what do you do if you're somewhere in between? We give you "The Helena Story." We'll talk about the specifics of the City of Helena's water distribution system model and Enterprise GIS. We'll discuss the workflow being used to bring the two closer together. The results of integrating the Enterprise GIS, asset management and hydraulic modeling systems together are a more seamless environment for utility, GIS and engineering staff to work and an overall better investment for the utility.

Bio: Tina is a project manager with HDR Engineering. In her 12 years of industry experience, she has worked with a large number Montana utilities in the development of hydraulic water, wastewater and stormwater models using GIS infrastructure. She's a graduate of Georgia Tech in Atlanta, Georgia. After calling Billings, Montana home for almost 9 years, she has recently relocated to Raleigh, NC.

Rebecah is currently an Engineering Technician for the City of Helena focusing on the City›s water, sewer, and stormwater GIS data and modeling. She has a B.S. in Geography from the University of New Mexico and has previously worked for the Montana State DNRC as a GIS Specialist for the Water Resources Division. Rebecah has also worked as a GIS Specialist

Show & Tell
Presenter: Hosted by the Utility Tract Chairs –Gail Chvilicek, Carrie Shockley, and Steve Varro

Abstract: Come join us for a unique opportunity to network with other GIS and Utility professionals! We'd like to invite everyone to attend and take a few minutes during this time to give a brief overview of your use of GIS in your organization or projects you have done.

Bio: Not Provided

Thursday, 10:10 a.m.-12:00 p.m. - Session Two

Track: Mobile GIS
Location: Ballroom B

Mobile Data Applications with Android and Public Apps for the Apple App Store and Android Market
Presenter: Miles Wacker

Abstract: The presentation will cover two related topics: The Montana Department of Transportation is utilizing Android devices for field data collection. The availability, price points, GPS capabilities and ease of use have generated a strong business case for using Android based devices. MDT is currently utilizing Open Data Kit to build collection forms, collect data, and aggregate the results, this data collection app is being coupled with a ArcGIS 4 Android SDK based application for producing capable offline maps where users can see their current location relative to locations of interest. Initial testing of the workflow has proven successful and the next steps include combining the two applications as well as adding modules that can pull information from the Oracle Database for offline use and push that information back to the database.

The MDT Traveler Information site is visited over 2 million times annually and has been successful at distributing road conditions and weather information for over fifteen years. The department is now developing modern, free mobile apps for the Android Market and Apple App Store. Concerns about publishing applications as well as design strategies the leverage modern web technologies and open source software will be discussed.

Bio: Miles is a Geospatial Systems Analyst for the Montana Department of Transportation. Miles recently earned his GISP and has over seven years of GIS experience in the public and private sector. His experience includes database management, application development, data development, cartography, GPS and remote sensing. Miles is also the Vice President of the Montana Association of Geographic Information Professionals, serving on the conference subcommittee, technical committee and chairing the membership subcommittee.

Evaluating mobile technologies in Wildland Fire Management.
Presenter: Jim Riddering

Abstract: Smartphones and other portable devices are revolutionizing the way we interact with information and each other. A near-constant network connection, multiple means of communicating, and the ability to collect and share data will continue to change the way we work, play, and go about

our daily lives. As a result, many people in fire management are investigating the role mobile devices may play in incident management. This talk will describe past University/Agency studies using mobile devices and will discuss future directions and deployments of mobile devices.

Bio: Jim Riddering is an Adjunct Research Professor at the University of Montana's College of Forestry and Conservation and a Program Manager in the National Center for Landscape Fire Analysis. He is interested in the role technology plays in incident management and is active in developing and researching appropriate technologies to enhance decision making in all aspects of Wildland Fire Management.

How Wildland Firefighters Can Easily Collect and Distribute Spatially Enabled Data
Presenter: Valentijn Hoff

Abstract: Data collection and distribution on wildland fire incidents is a challenge. Firefighters must balance their operational duties with the sometimes cumbersome task of taking and recording data such as weather, fire behavior observations, etc. Open Data Kit is a free tool for Android devices that users can customize for spatial data collection. The data can then be aggregated, analyzed and distributed using several free applications. The timely availability of these data can help fire managers make better decisions, without the collection process getting in the way of firefighting operations.

Bio: Valentijn Hoff is a GIS analyst at the National Center for Landscape Fire Analysis, at the University of Montana. He got his start in GIS at a county government in South Carolina. He currently helps wildland fire managers and researchers with data collection, spatial analysis and database development. Valentijn serves on the MAGIP technical committee and on the mentoring sub-committee.

Workshop: Esri Hands-On Learning Lab
Location: Glacier Room

Instructor: Carol Dargatz, Training Specialist, Esri
See Description under Thursday, Session One

Track: Montanta Spatial Data Infrastructure (MSDI)
Location: Combined Swiftcurrent and Hanging Gardens Rooms
Time: 8:30 a.m.-12:00 p.m. - Continued

MSDI Session
Moderator: Stu Kirkpatrick
See description under Thursday, Session One

Thursday, Session Two

Track: Tribal
Location: Lake McDonald Room

Ilustrating the Montana Reservation Economic Analysis Project using ArcGIS Online
Presenter: Leslie Zolman, Montana Department of Commerce, Census & Economic Information Center

Abstract: Understanding the economic structure of Montana's Native American Reservations (Blackfeet, Crow, Flathead, Fort Belknap, Fort Peck, and Rocky Boy's) and the Little Shell Band is integral in determining the surrounding non-tribal economies and the greater Montana state economy. This project is aimed at quantifying Montana's Tribal Communities' economic makeup along with their contributions to the greater Montana economy though complex analysis of government to government expenditures, private sector employment reports, and novel consumer expenditure data in Tribal areas within Montana.

To complement static tables and graphs, ArcGIS Online will be used to diversify the overall presentation style of the information this study will provide about Montana's Native American Communities' economies and their contributions to Montana's economy. A cloud-based content management system, ArcGIS Online has the ability to illustrate Tribal Community funding flows and economic spillovers into the surrounding economic areas within Montana using pop-up windows, statistical charts, and web links.

Bio: GIS Coordinator for the Montana Department of Commerce, Census and Economic Information Center. Penn State graduate with a master's degree in GIS.

ArcGIS for Local Government
Presenter: Leah Saunders, ESRI

Abstract: This session will provide an introduction to Esri's ArcGIS Resource Center including the Local Government Resource Center with demonstrations of downloadable maps and applications.

Bio: Leah Saunders has been at Esri for over 10 years, starting as an Instructor in Redlands, CA and is currently part of the Solution Engineers group in the Olympia Regional office. Her areas of expertise include Public Safety, Land Management and Cadastral and general Local Government. Some of Leah's technology expertise includes; ArcGIS for Desktop and Server, Python, ArcObjects, ArcGIS Online, Business Analyst products, Fusion Core Solution and ArcGIS for SharePoint.

Tribal GIS Roundtable
Presenters: Multiple

Abstract: Not Provided

Track: Utilities
Location: Fireside Room

Azteca Systems, Inc
Presenter: Matt Harman, Account Manager – Azteca Systems, Inc.

Abstract: Not Provided

Bio: Matt has been with Azteca Systems since 2006 fulfilling roles in client support, project management, product design and development, and sales. His primary focus has been helping local government achieve greater coordination, accountability and efficiency through implementing Cityworks as the GIS-Centric Asset Management and Permitting solution.

Matt graduated from the University of Utah with a degree in Civil Engineering. Prior to working at Azteca Systems, he was the engineering inspector at the City of North Salt Lake.

Power Line Vexations- A Global Issue , Our Local Solution: Right-of-Way Vegetation Management
Presenter: Gayle Chvilicek, GIS/Engineering Dept/GIS Tech/Mapping, Flathead Electric Coop

Abstract: Good inter-department relationships and communications were the impetus of the collaboration of ideas, which resulted in the research and the development of a new procedure. This new procedure recognized the application of GIS functionality to be the perfect solution to many of the daily, weekly, monthly, and yearly challenges. This Geographic Information System, along with the integration of a different system of routing data, became the beginning of the daily use of many valuable tools which the Right-of-Way Vegetation Department has come to depend on and find it the “go to” for tracking patterns , analysis, developing strategies, and the viewing and sharing of data.

This presentation will give a brief overview of how years of carefully compiled data from one department became the foundation for the GIS Department to use as part of the development of an effective and functional Right-of-Way GIS Program.

Bio: Gayle Chvilicek accredits her enthusiasm for GIS to the unusual interest she has in others and what they do. This interest has had a great impact on the ability to be cognizant to the views and needs of many and how those needs correlate with other needs, be it a department or an entirely different business or agency. The preoccupation with this “birds-eye-view” can be an advantageous viewpoint for asking the questions that are necessary for challenging the GIS to perform to the level it is so brilliantly capable of searching out. Gayle currently is one of the GIS Techs who is responsible for the maintenance of the electrical model, digitizing easements, the mapping of vegetation which is problematic to the electrical system’s reliability, and researching and recommending GIS solutions for local challenges. Gayle is a member of the Montana Association of GIS Professionals (MAGIP).

Thursday, 12:00 - 1:30 p.m. - Luncheon Buffet

Enjoy the luncheon buffet and listen to **featured speaker Selita Ammondt**. Selita is a Restoration Ecologist and a GIS Specialist for River Design Group Inc., a river and wetland restoration consultation company based in Whitefish, MT.

For two consecutive years, River Design Group, Inc. has been voted one of the top 50 places to work in the U.S. by Outside Magazine. The ranking considers employees' ability to balance productivity with an active, eco-conscious lifestyle. Selita will speak on working in such an environment, where projects include a great balance of both office and field work, along with fitness benefits, community service, green initiatives, and employee recognition, which creates a desirable work and social environment.

Silent Auction winners will be announced.

Thursday, 1:30-2:40 p.m. - Session Three

Workshop: Esri Hands-On Learning Lab
Location: Glacier Room

Instructor: Carol Dargatz, Training Specialist, Esri
See Description under Thursday, Session One

Track: Local Government
Location: Combined Swiftcurrent and Hanging Gardens Rooms

The Idaho-Montana Geopositioning Cooperative
Presenters: Keith T. Weber and Stu Kirkpatrick

Abstract: As the result of a recently completed Federal Geographic Data Committee (FGDC) Cooperative Agreements Program (CAP) project, the development of an Idaho-Montana Geopositioning Cooperative (GC) was planned. The GC has two components; 1) the enhancement and expansion of the existing Montana Control Point Database into the Idaho/Montana Multi-state Control Point Database (MCPD) and 2) establishment of a global navigation satellite system (GNSS) real-time network (RTN). This presentation describes the business plan for each component of the GC

with emphasis on changes made to the MCPD web interface/application as well as plans for deployment of a real-time network and its anticipated benefits to the GIS community.

Bio: Mr. Weber is the GIS Director at Idaho State University (ISU) and has held this position since the inception of the GIS Training and Research Center (GIS TReC) in 1998. He has been involved in the Geotechnology industry since 1989, is a Certified GIS Professional and recipient of ESRI's Special Achievements in GIS award (2000).

Mr. Weber has a MS in Wildlife Biology from the University of Montana has authored/coauthored nearly 40 peer-reviewed journal papers. Mr. Weber serves on the Geographic Information Science certification committee and was the chair of its recertification sub-committee. Mr. Weber was instrumental in obtaining Idaho State University›s membership into the University Consortium for Geographic Information Science (UCGIS) and serves as ISU›s principal delegate for UCGIS. He is also a standing member of the Idaho Geospatial Council- Executing Committee.

East Helena Institutional Controls Program and Interactive Mapping Application
Presenter: Jason Danielson – Lewis and Clark County/City of Helena GIS Services

Abstract: According to the US EPA; Institutional Controls (ICs) are administrative or legal controls that help minimize the potential for human exposure to contamination (summary)

http://www.epa.gov/superfund/policy/ic/index.htm. Lewis and Clark County/City of Helena's GIS Services was approached by the Lewis and Clark County Environmental Health and Lead Education Program for assistance in a collaborative effort to create an application to spatially represent the property status (ICs) of parcels within the East Helena Superfund Area. Respective data was created, attributed, and implemented within an ArcGIS Server SDE Enterprise geodatabase to highlight site code boundaries and a pre-defined property status. An East Helena Institutional Control mapping application has been created and will help to educate the public, as well as provide important property information to interested parties. The presentation will include a brief overview of the Lead Education Program and its collaborative effort with multiple agencies and GIS Services. The presentation will also review the project processes and our anticipated involvement and expectations with the project in the future.

Bio: Jason Danielson is the GIS Database Analyst for City of Helena/Lewis and Clark County GIS Services. His duties include maintaining the City/County SDE Enterprise data, assisting in data analysis and map production, and providing GIS support for any City/County Department utilizing GIS. His previous GIS experiences include working for Montana's Department of Revenue, Bullberry Systems,Incorporated, and AgriData, Incorporated. He holds a Bachelor of Science degree in geography from the University of North Dakota (2000).

Track: Natural Resources
Location: Lake McDonald Room

Creating a Value-Added Wetlands Layer: Enhancing the Utility of Montana's Wetlands Framework Theme
Presenter: Karen Newlon, Ecologist/Project Manager, Montana Natural Heritage Program

Abstract: The Montana Natural Heritage Program (MTNHP) is the theme steward for the Montana Spatial Data Infrastructure Wetlands Framework Theme. The MTNHP creates the Wetlands Theme following the Wetland Mapping Standard endorsed by the Federal Geographic Data Committee. A key recommendation in this standard is to enhance the current wetland classification by incorporating descriptors that describe wetland characteristics not currently addressed under the existing classification. These descriptors are added to each wetland polygon to describe the landscape position, landform, water flow path, and waterbody type (LLWW) associated with each wetland. The addition of these descriptors can provide a more comprehensive picture of wetland type and potential wetland function. Wetland functional information can then be summarized across watersheds, counties, or other geographic areas, providing essential information to natural resource managers, city and county planning offices, and watershed councils. The MTNHP has developed spatial and attribute queries within a GIS to create a semi-automated procedure for the assignment of LLWW descriptors to wetland data within the MSDI Framework, which are subsequently incorporated into the National Wetlands Inventory of the U.S. Fish and Wildlife Service. We will discuss the background, challenges, recommendations, and future directions of this approach.

Bio: Karen Newlon has been an Ecologist with the Montana Natural Heritage Program since May 2008. She and other ecologists with the Natural Heritage Program are working to create a statewide digital wetlands layer. They are also developing GIS-based wetland assessments techniques and field-based wetland assessment methodologies with the goal of establishing a statewide wetland assessment and monitoring program.

Arc-based Tool for Calculating Snow-Covered Area from MODIS Imagery
Presenters: Stephen Fricke (Master's Student) and Karen Humes (Professor), University of Idaho, Department of Geography

Abstract: Snow-covered area (SCA) is the proportion of ground that is covered with snow in a specified area. SCA, as well as the Snow Water Equivalent (SWE) are key variables controlling runoff in snow-dominated watersheds during snowmelt season and models use one or both of these variables to forecast runoff. Unlike most meteorological data which can easily be found in archives on the internet, SCA must be derived from imagery acquired in satellite or aircraft sensors. Currently the most common products for snow cover are derived from the MODIS sensor. My objective was to develop a tool which would run in ArcGIS and automate the process of deriving SCA at a specified spatial extent using MODIS snow product rasters. The tool will clip each raster to this spatial extent, reclassify the rasters using set thresholds to determine snow, and calculate the SCA for each raster. The tool also allows the division of spatial extents into a specified number of elevation zones for SCA calculations. The manual calculation of SCA values for individual MODIS rasters is very tedious and unrealistic for large datasets. The SCA tool automates nearly the entire process and allows for quick and easy calculations of SCA values.

Bio: Stephen Fricke is currently a Master's Student at the University of Idaho's Department of Geography. He completed his undergraduate studies at the University of Florida in Gainesville, receiving a Bachelor of Arts in Geography. He is interested in the application of GIS to natural resource management, and various environmental issues.

Track: Societal GIS
Location: Ballroom B

iPad Applications…Beyond Angry Birds
Presenter: Kris Larson, CDM Smith

Abstract: Recent rapid advancements in mobile technology have opened-up a whole new realm of information management and GIS mobile application capabilities that can benefit all levels of an organization and be made available to users at virtually any location. Whether you are in field operations, Planning/Engineering, or at the management level, new GIS and mobile technologies can provide customized access to the critical information you and your staff require on a daily basis. During this presentation, new trends in GIS and mobile technology will be highlighted. Several topics including data collection, asset inspection and real-time data feeds via Telemetry will be covered. Discover the ways to use the iPad to help you get your job done faster….so you have more time to play Angry Birds.

Bio: Kris Larson graduated from the University of Montana with a degree in Geography, Cartographic emphasis. Ms. Larson has been active in the GIS community since 1989 and has served as the President of MAGIP, on the Montana Land Information Act Council (MLIAC), as a current Member of the GIS Certification Institute's Outreach Committee, and is currently on the board of the NW GIS Users Group.

Local Government Experience with Esri Community Maps Program
Presenter: Eric Spangenberg, GIS Coordinator, Lewis & Clark County / City of Helena

Abstract: Lewis & Clark County recently completed the process of submitting local data for incorporation to Esri's Community Maps program. That data went live in Esri's World Topographic base map service in late December, 2011. Users of that service will now see Lewis & Clark County / City of Helena data when zoomed to the street level scales (1:9,000 to 1:1,100), as per Bing/Google Maps tiling scheme. This presentation will share with the audience the steps followed by the county, along with the 'highs and lows' of preparing data for submission. From identifying what features to share, migrating data, authoring map, to the final submittal and review of cached map(s). Future steps involve working with Esri to establish the update process for keeping the data relevant to the service.

Bio: Eric joined the Lewis & Clark County / City of Helena GIS team as a GIS Database Analyst in May 2005, approximately one year later, April 2006; he was offered the job as GIS Coordinator.

In his various roles with Lewis & Clark County he has been responsible for the maintenance of core Enterprise GIS features as well as enterprise databases utilizing ArcSDE and SQL Server. His current role has him managing and supervising the GIS program, and coordinating the development, implementation, maintenance, support, and use of spatial information throughout the city and county enterprise. One of the on-going projects he is most excited about includes the development and deployment of the local government GIS Web services. This has become a powerful tool in providing information to people who need and can use it.

Eric holds a Bachelor of Science (BS) in Urban Forestry/Resource Management from the University of Wisconsin-Stevens Point and a Masters in Landscape Architecture (MLA) from Ball State University.

Eric's other work experience in GIS includes: 1.5 years as the GIS Coordinator for the City of Marshfield, Wisconsin; 6.5 years as the GIS Manager for Cascade County, Montana; and 1 year as a GIS Specialist for South Carolina Parks, Rec. & Tourism

Track: Utilities
Location: Fireside Room

Risky Business: How to Understand Risk in your Water & Sewer Systems
Presenters: Killian Tobin, PE and Erin Breen , Innovyze

Abstract: Not Provided

Bio: Killian Tobin has a BS in Civil Engineering from Bradley University and a Masters in Computer Science from DePaul University in Illinois. He is the North Region Client Service Manager for Innovyze and he has been working with GIS and hydraulic modeling since 1998. He has worked as a regional Client Service Manager with Innovyze (formerly MWH Soft) since 2004.

Erin Breen has a BS in Civil Engineering from the University in Illinois at Urbana -Champaign. She is the West Regional Client Service Manager for Innovyze and has been working with ArcGIS and hydraulic modeling since 2005. She is also a product specialist for Innovyze's newest asset management and real-time water distribution forecasting system tools. Erin has been a member of the Innovyze team since 2009. Erin hit a pair while shooting clays for the first time.

Thursday, 3:10-5:00 p.m. - Session Four

Workshop: Esri Hands-On Learning Lab
Location: Glacier Room

Instructor: Carol Dargatz,
Training Specialist, Esri
See Description under Thursday, Session One

Track: Local Government
Location: Combined Swiftcurrent and Hanging Gardens Room

GIS in the Aftermath of the Exxon Oil Spill on the Yellowstone River
Presenter: Janelle Luppen

Abstract: On July 5th, 2011 an oil pipeline leak under the Yellowstone River near Laurel, MT spilled 63,000 gallons of oil into the Yellowstone River. The fact that the Yellowstone River was at near flood stage created some additional challenges in determining how far downstream the oil traveled, and causing more lands adjacent

to the river to become coated in oil as the waters receded.

Within a couple of days, federal and state agencies arrived to oversee Exxon's response and remediation activities, and GIS information was one of the key components to such planning. This presentation will review the data acquisition and map production efforts of the County GIS Dept. to assist with the aftermath of the oil spill.

Bio: A graduate of Metropolitan State College of Denver with a BA in Land Use (GIS Emphasis), Janelle spent the early years of her GIS career working with the USGS Geologic Mapping Team, the Colorado State Department of Health, and three years with a private environmental consulting firm in Denver. Upon relocation to Billings, MT in 2003, she has fulfilled the role of Address Coordinator in the Yellowstone County GIS Dept.

GIS in Local Government Roundtable
Presenters: Multiple

Abstract: Open discussion of the use of GIS in Local Government in Montana.

Track: Natural Resources
Location: Lake McDonald Room

Slope related to grazing preference by semi-wild bison (Bison bison) herd at National Bison Range, Moiese, MT
Presenter: Narciso Garcia Neto, Research Assistant, Animal & Range Science Department, Montana State University

Abstract: Under natural conditions a landscape should retain representative climax vegetation. At the National Bison Range (NBR) in Moiese, MT, bison stocking rates have been calculated based on production for the entire pasture, ignoring herd preference for certain landforms. Using spatial analysis, I compared the slopes available in 5 pastures of the refuge to the preferred grazed area within each pasture. GIS summarization of herd locations from on-going behavioral studies indicates bison have been grazing 15% to 50% of pastures. Understanding landforms related to grazing preference improves the possibility that land management achieves sustainability.

Bio: I am Brazilian agronomic engineer, graduated in 1985 from Universidade de Sao Paulo, Brazil, 20 years of field experience in beef production, Environmental Analysis specialist by Universidade Estadual de Londrina, Brazil. Currently I am a research assistant in Animal and Range Sciences Department at Montana State University. In spring of 2011, I received the MAGIP research grant to develop this project.

Wildlife Corridors
Presenter: Brent Bock

Abstract: The ability of animals to move between discreet patches of habitat is essential for restoration and long term persistence of wildlife species, and for maintaining natural phenomena such as long distance migrations. Habitat connectivity models provide efficient methods for assessing habitat linkage networks across broad landscapes and at multiple scales to focus conservation and man-

agement activities where they are likely to have the most impact in meeting conservation objectives. The Craighead Institute has developed tools to assist GIS practitioners in using advanced methods in least-cost corridor models for predicting important linkage areas as regional scale, and to evaluate wildlife movement pathways and set conservation priorities at watershed to parcel level scales. Examples of applying these methods to map habitat connectivity in the Northern Rocky Mountains and Morongo Basin California are presented.

Bio: Brent holds a BS in Wildlife Biology and MSc. in Rangeland Ecology from Kansas State University. He was the Data Manager at the Konza Prairie Biological Station studying bison grazing ecology before joining the Wildlife Conservation Society where he conducted a landscape level wildlife conservation assessment of the Madison Valley in Montana. His emphasis at Craighead Institute is in incorporating the theories of landscape ecology into the conservation of large complex ecosystems and their linkages. For the past several years he has worked to develop GIS-based tools and new strategies to evaluate wildlife habitat connectivity and improve land use planning and landowner stewardship in the Northern Rockies.

Using GPS to Analyze Behavior of Domestic Sheep
Presenters: Bryson L Webber, Keith T Weber, Daniel P Ames, and John G Kie

Abstract: The use of livestock guardian dogs (LGDs) reduces predation and mitigates the need to remove predators from ecosystems. The purpose of this study was to determine if the presence of LGDs also changes the grazing behavior of domestic sheep in an environment where predators are common. To address this question, GPS and GIS technology were used. Collars with attached GPS receivers collected point locations of sheep at one second intervals. These data were then processed with GIS. Data were analyzed using a linear mixed modeling procedure where daily distance traveled by sheep was the dependent variable, and LGD presence, day of trial were considered fixed effects. A difference in distance traveled by sheep was found relative to LGD presence ($P<0.05$). Sheep in the presence of LGDs traveled farther (X = 7 864 m, SE=434) than those without LGDs present (X = 7 157 m, SE=451). This study represents an incremental step toward better understanding livestock behavior, and their interactions with LGDs as well as an insight on how to analyze high frequency GPS data.

Bio: Not Provided

Track: Societal GIS
Location: Ballroom B

Just tap the map- The Montana Parcel App Experience
Presenter: Mike Beltz

Abstract: In 2010 GCS Research released a series of geospatial applications into the Android mobile marketplace. Available for free, the Montana Parcel App allows users to identify their current location on a high-resolution imagery basemap. By simply tapping the map on the phone, the outline of the parcel boundary is displayed and associated attribute information is available including, owner name, property address, acreage, taxable market value, and legal descriptions. Self funded as an exercise in consuming Esri ArcGIS Server web services into a smartphone, the Montana Parcel App provides mainstream society with the kind of detailed property information that has been traditionally reserved for users of Computer Assisted Mass Appraisal (CAMA) systems, analog county court house visits, or traditional cadastral GIS viewers.This presentation will summarize this experience and the “lesson learned” by this first-of-its-kind endeavor.

Bio: Mike Beltz has over 15 years of professional GIS experience. While a graduate student at the University of Montana he began his GIS career as an intern for the City of Missoula Office of Planning and Grants. He now serves as the President of GCS Research, a geospatial information technology company located in Missoula. In between, Mike also served as the GIS Program Director for the Bicycle Federation of America in Washington DC and worked throughout the Russian Far East and Siberia building GIS capacity for conservationists as the International Program Director for The Ecology Center, Inc.

Panel on Societal GIS
Moderator: Bryant Ralston, Director of Sales, GCS Research

Abstract: The use and awareness of geospatial technologies by society at large continues to grow. New sources of data, such as Volunteered Geographic Information (VGI) and "citizen submitted" reports, along with methodologies such as "crowdsourcing" and the use of open data sharing portals like OpenStreetMap and ArcGIS Online, are evolving the role of GIS professionals in a "web 2.0" world. This professional panel discussion will introduce and explore emerging concepts and trends of a "Societal GIS" and include comments from the panelists on how their respective organizations are adapting. An opportunity for interactive audience participation will also be part of this session.

Panelists:

Jackson Beighle, GPS-GIS Sales Specialist, Electronic Data Solutions
Lance Clampitt, USGS Geospatial Liaison to Montana, United States Geological Service
Fred Gifford, GIS Technical Manager, Tetra Tech EC
Eric Spangenberg, GIS Coordinator, City of Helena and Lewis & Clark County, Montana
Miles Wacker, Geospatial Systems Analyst, Montana Department of Transportation

Track: Utilities
Location: Fireside Room

Web Enabled Enterprise Integration
Presenters: Dennis Hill, GISP, City of Pocatello, GIS Manager, Pocatello ID and Jason Scovill, Senior Applications Developer, The EMS Consulting Group

Abstract: Not Provided

Bio: Dennis Hill - I am a lifelong resident of the Gem State, more particular South East Idaho. I attended Idaho State University and acquired a few credentials, chuckle. I have a BS in Engineering, AAS in Surveying and a smattering of life experiences, and that is an understatement. I have worked so many jobs it makes my head hurt, but the important ones were for the Forest Service as a surveyor, a title company, and the City of Pocatello for 23 years as the GIS Manager. I have been involved in the GIS community for long enough to have some great stories to tell, don't worry I won't. Currently I am the President of the Northern Rockies Chapter of URISA. I live on the Portneuf River on 13 acres which I consider paradise; although it is a lot of work it's very rewarding.

Jason Scovill - Senior Application Developer – Engineering Mapping Solutions, Phoenix, Arizona AutoCAD Custom Programming, ArcGIS Custom Programming, Utility Infrastructure Mapping Asset Management, Geographic Information Systems (GIS), .NET Application Development, SQL Server Administration and Programming, Associates Degree/ITT Technical Institute/1996, Visual Basic Programming/Mesa Community College/1998, Advanced Programming/Mesa Community College/1999, SQL Server Administration/Interface Technical Institute/2000, .NET Application

Development/Interface Technical Institute/2001

Engineer Mapping Solutions: June 1996 – Present - Engineering Mapping Solutions, Inc. (EMS) is a professional services corporation located in Phoenix, Arizona, specializing in enterprise-wide Geographical Information System (GIS) consulting, utility conversion, digital engineering solutions, and custom mapping applications.

The company principals, Martin Shaeffer, P.E. (President) and Phil Ponce, P.E. (Vice President), have over 30 years of combined expertise in Engineering design, GIS, CAD, database design, and engineering solutions.

Founded in 1995, EMS offers a unique mix of engineering solutions based on: GIS database design and data conversion, facility management, custom data capture, and conversion applications

Our production/development software includes ESRI ArcMap with SDE (SQLServer), ESRI Silverlight API, AutoCAD Map, and Microsoft .NET. EMS provides a thorough solution to the engineering issues involved in creating cadastral parcel databases and GIS development. We provide custom GIS solutions in ArcGIS and CAD using state-of-the-art Visual Studio .NET technology solutions for distribution of GIS data.

Means, Motive, and Opportunity: IFP's Road to a Better Mapping System
Presenter: Trent Galbraith

Abstract: Not Provided

Bio: BA in Geology and Minor in Geotechnologies from ISU

Worked Construction for a year while looking for a job after college. Worked for Idaho Department of Water Resources for 2 years as a Senior Water Agent in the Snake River Basin Adjudication. Hired by Idaho Falls Power in October of 2007 as a GIS Analyst. Married for 12 years, 2 kids Khylee 6 and Tayven 4, and one due in September.

From Desktop, to Laptop, to iPad and Everything in Between
Presenters: Doug Ray, Manager of Special Projects, Glacier Electric Coop. and Casey Saxton, GEONAV Group International

Abstract: This presentation will be an over view of Glacier Electrics GIS system from Desk top to laptop to I Pad and everything in between. This system is used by our 911 system including fire and EMS. With the help of GEONAV Group International and Casey Saxton this system has become an intricate part of our daily business.

Bio: I have been with Glacier Electric for the last 31 years the last 21 in Engineering and GIS. Before that I was a lineman for 10 years. I attended the University of Montana from '78 to '81. Glacier has been developing the GIS system since 1996. I have been a part of the GIS system since it's conception and have helped in the development. I have been a part of the North West Public Power Association for 20 years and I am a past chairman of the Engineering and Operations Conference.

Index by Author or Presenter

Mark Your Calendar

Upcoming GIS Events

2012 GeoAlberta Conference..... May 7-9, 2012
Calgary, Alberta, Canada
www.geoalberta.com

2012 Esri International Users Conference..... July 23-27, 2012
San Diego, California
http://www.esri.com/UC

2012 MAGIP Fall Technical..... Week of September 11, 2012
Great Falls, Montana
www.magip.org

2012 URISA GIS-Pro Conference
& NorthWest GIS User Conference..... Sept. 30 - October 4, 2012
Portland, Oregon
http://www.gis-pro.org/

GIS Day..... November 14, 2012

2013 Intermountain GIS Conference..... March 11-13, 2013
Theme: Maps, Apps, and Bridging Gaps
Riverside Hotel, Boise, Idaho
http://www.intermountaingis.org/conferences.html