

**2010 Annual Joint Meeting of the
Montana Academy of Sciences and
Montana Sigma Xi
Program
Friday April 9, 2010**

4- 5:30 pm: MAS Board of Directors Meeting (Kelley-Steward Room, downstairs Student Union)

5:30-10 pm: MAS Annual Meeting: Registration, Reception, Poster Session, Dinner, Mershon Award & Keynote (Digger Den, downstairs Student Union).

5:30- 7 pm: Registration and put up posters

6-7 pm: Poster Session & Reception

- Refreshments sponsored by Dr. Frank Gilmore, Chancellor of Montana Tech and Rick Douglass, Chair, Department of Biological Sciences.

7-8 pm: Buffet Dinner

- Dinner is sponsored by Dr. Rich Bridges and The Department of Biomedical and Pharmaceutical Sciences at The University of Montana.

8 pm: MAS Awards Presentation (Presenter: Jim Barron, President, MAS)

8:15 - 9 pm: Keynote Speaker: "Fluvial Arctic Grayling habitat restoration and assessment, upper Big Hole River drainage, southwest Montana" Dr. Rob Thomas, University of Montana Western

9-10 pm: Poster Session & Reception

Saturday April 10, 2010

7:30- 8:30 am: Breakfast Buffet (Digger Den, downstairs Student Union)

- *Breakfast is sponsored by The College of Letters, Sciences and Professional Studies (Dean Doug Coe) at Montana Tech, Butte MT.*

8:30 am- 12:30 pm: Platform Session (MAS sections combined) Library Auditorium

8:30 – 8:50: **Myocardial Inflammation in Young Adults Exposed to Air Pollution.** Rodolfo Villarreal-Calderon, Big Sky High School, Missoula, MT.

8:50 – 9:10: **Effectiveness of Flow Management and Rainbow Trout Harvest on Long-term Viability of Native Yellowstone Cutthroat Trout in the South Fork Snake River.** Robert W. Van Kirk¹, Laurie Battle², William C. Schrader³,
¹Department of Mathematics, Idaho State University, Pocatello, ID; ² Montana Tech, Dept. of Mathematical Sciences, Butte, MT; ³ Idaho Dept. of Fish and Game, Nampa, ID.

9:10 – 9:30: **Can Commercially Made Fish Feeds Have Pathogens?**
Joshua Beaulaurier, Paul Hershberger, and Nate Bickford. USGS and University of Great Falls, Great Falls, MT.

9:30 – 9:50: **The Streaming Velocities of Pulsating Auroras in Relation to the Precipitation of Charged Particles into the Ionosphere.** Derek Parrott, Sentinel High School, Missoula, MT.

Break 9:50 – 10:00

10:00 – 10:20: **Effects of Road and Culvert Removal to Total Suspended Solids in Headwater Streams.** Erin Fenger¹, Nate Bickford¹, and Stan Van Sickle²,
¹Biology Department, University of Great Falls, Great Falls, MT; ²United States Forest Service, Lewis and Clark National Forest Service.

10:20 – 10:40: **Unsymmetrical 3-aryl isoxazoles exhibit axial chirality.**
Nicholas R. Natale,¹ Mariusz P. Gajewski,¹ Kevin C. Rider,^{1,2} Alexander Blumenfeld,² Richard Vaughan Williams². ¹ Department of Biomedical & Pharmaceutical Sciences, The University of Montana, Missoula, MT; ² Chemistry Department, University of Idaho, Moscow, ID.

10:40 – 11:00: **Microwave Accelerated Synthesis of isoxazole inhibitors of the System Xc- transporter.** Lilly Matti, Nicholas R. Natale, The University of Montana, Biomedical & Pharmaceutical Sciences, Missoula, MT.

11:00 – 11:20: **Identification of Sculpin Species in the Columbian River Basin of Western Montana: Are multiple species sympatric within a river?** Morgan Squires, Big Sky High School, Missoula, MT

Break 11:20 – 11:30

Breakout Sessions in Library Auditorium (I) and in ELC 202 (II)

11:30 am - 12:30 pm Breakout Session I (Library Auditorium)

11:30 – 11:50: **Design and synthesis of neutral amino-acid transport inhibitors and the CNS.** Brent Lyda, Ben Seaver, C. Sean Esslinger. Department of Biomedical & Pharmaceutical Sciences, The University of Montana, Missoula, MT.

11:50 – 12:10: **The Effect of Iron Nanoparticles on Bacteriophage Infections.** Amy L. Nickel¹, Marisa L. Pedulla¹ and Rajendra K. Kasinath². ¹Department of Biological Sciences and ²Environmental Engineering, Montana Tech of the University of Montana, Butte, MT.

12:10 – 12:30: **Graphs and the Fundamental Morphism Theorem.** Demitri Plessas. Department of Mathematical Sciences, The University of Montana, Missoula, MT.

11:30 am - 12:30 pm Breakout Session II – Junior Academy (ELC 202)

11:30 – 11:42: **The Removal of Barriers in Burnt Fork Creek with Regard to Water Temperature Suitable for Native Trout.** Jordan Costello, Sentinel High School, Missoula, MT.

11:42 – 11:54: **Projectile Configuration vs. Precision of .375 Caliber Hand-loaded Ammunition.** Mackenzie Enich, Big Sky High School, Missoula, MT.

11:54 – 12:06: **The Impact of Wolf Reintroduction on Elk Calf to Cow Ratios in the Bitterroot Valley.** Nick Clark, Sentinel High School, Missoula, MT.

12:06 – 12:18: **CuCl₂ + Al: The Real Reaction.** Doua Vang, Big Sky High School, Missoula, MT.

12:18 – 12:30: **Adverse Effects of Spotted Knapweed on Garden Variety Plants,** Sam Johnson, Sentinel High School, Missoula, MT.

12:30- 1:15 pm Deli Lunch (Library Auditorium Foyer)

Lunch is sponsored by Dean Tasneem Khaleel and the College of Arts and Sciences, Montana State University – Billings.

Breakout Sessions in Library Auditorium (I) and in ELC 202 (II)

1:20- 3:00 pm Breakout Session I (Library Auditorium)

1:20 – 1:40: **Reproductive Rate of Semi-Free Ranging Bison (*Bison bison*) at the National Bison Range.** Michael J. Borgreen^{1,2}, Thomas J. Roffe², Eli M. Berry¹, Richard B. McCosh¹, James G. Berardinelli¹. ¹ Montana State University, Bozeman, MT; ²U.S. Fish and Wildlife Service, Bozeman, MT.

1:40 – 2:00: **Temporal Characteristics of Cortisol and LH Concentration Patterns in Ewes Exposed to Rams During the Transition into the Breeding Season.** Richard B. McCosh, Eli M. Berry, Michael E. Wehrmen, R. Reid Redden, Rodney W. Knott, and James G. Berardinelli, Montana State University, Bozeman MT.

2:00 – 2:20: **Temporal Patterns of Progesterone and Metabolic Hormones Concentrations in Virgin Targhee Ewes of Varied RFI score Exposed to Rams During the Transition into the Breeding Season.** Rachael Spangelo¹, Richard B. McCosh¹, Eli Berry¹, R. Reid Redden¹, Rodney W. Knott¹, Michael E. Wehrman¹, Dennis Hallford², Duane Kiesler³, James G. Berardinelli¹. ¹Montana State University, Bozeman, MT; ²New Mexico State University, Las Cruces, NM; ³University of Missouri, Columbia, MO.

2:20 – 2:40: **Microhabitat Structure Affects Small Mammal Abundance and Prevalence Of Sin Nombre Virus Among Deer Mice.** Kyle Richardson, Scott Carver, Richard Douglass, Amy Kuenzi. Department of Biology, Montana Tech of the University of Montana, Butte, MT

2:40 – 3:00: **Delayed Density-Dependent Transmission of Sin Nombre Virus in Deer Mice *Peromyscus maniculatus* in Western Montana.** Jeremy T. Trueax¹, Scott Carver¹, James Mills², Richard Douglass¹, Amy Kuenzi¹. ¹ Department of Biology, Montana Tech of the University of Montana, Butte, MT; ² Special Pathogens Branch, Division of Viral and Rickettsial Diseases, Centers for Disease Control and Prevention, Atlanta, GA.

3:00 – 3:20: **Scientific Discovery and Characterization of *Mycobacteriophages that Infect Mycobacterium smegmatis*.** Cory Sonnemann, Marisa Pedulla. Department of Biology, Montana Tech of the University of Montana, Butte, MT

3:20 – 3:40: **Bird Population Densities of Cheatgrass Influenced Prairie Habitat.** Daniel Morris, Nate Bickford. Biology Department, University of Great Falls, Great Falls, MT

1:30- 2:30 pm Breakout Session I I – Junior Academy (ELC 202)

1:30 – 1:42: ***The Distribution of Trout Species Along Burnt Fork Creek in Western Montana.*** Justin Spore and Eric Wulf, Sentinel High School, Missoula, MT.

1:42 – 1:54: ***Human Random Number Generation.*** Shaun Bummer, Big Sky High School, Missoula, MT.

1:54 – 2:06: ***Predicting Temperature Inversions with an Artificial Neural Network (ANN) in Order to Predict Air Quality.*** Brandon Shannon, Sentinel High School, Missoula, MT.

2:06 – 2:18: ***Reassessing the Faunal Community of Fossilized Crustaceans of the Bear Gulch Limestone in Central Montana after 30 Years.*** Stacia Hill, Big Sky High School, Missoula, MT.

2:18 – 2:30: ***The Effects of Polyethylene Terephthalate Plastic on Goldfish.*** Jessica Stevens and Emilee Williams, Sentinel High School, Missoula, MT.