



# MOSHANNON GROUP NEWS

SIERRA CLUB MOSHANNON GROUP

February 2010

Issue 1



--March 25<sup>th</sup> Presentation

## MARCELLUS SHALE *-the environmental costs*

By Tom Au and Barbara Benson

### What is the Marcellus Shale?

The Marcellus Shale is a rock formation 5000 to 9000 feet below the earth's surface, which has the potential of holding large gas reserves. The Marcellus Shale is similar to the Barnett Shale formation in Texas where gas production has reached 1 trillion cubic feet per year (out of a total US production of 30 trillion cubic feet from all sources). The Marcellus Shale is a very large formation that underlies parts of NY, PA, OH and WV, and which may hold a total of 16 to 50 trillion feet of recoverable gas.

--April 13<sup>th</sup> and 14<sup>th</sup>

### 7<sup>th</sup> ANNUAL BANFF MNT FILM FESTIVAL WORLD TOUR

The Banff Mountain Film Festival World Tour comes to State College on April 13<sup>th</sup> and 14<sup>th</sup>--different films each night. The big news this year is the change of venue. This year's event will be held at the State Theatre in downtown State College, a fantastic venue to experience the best films that capture the spirit of mountain culture and of mountain sports.

Hot on the heels of the largest, and one of the most prestigious, mountain festivals in the world, the Banff Mountain Film

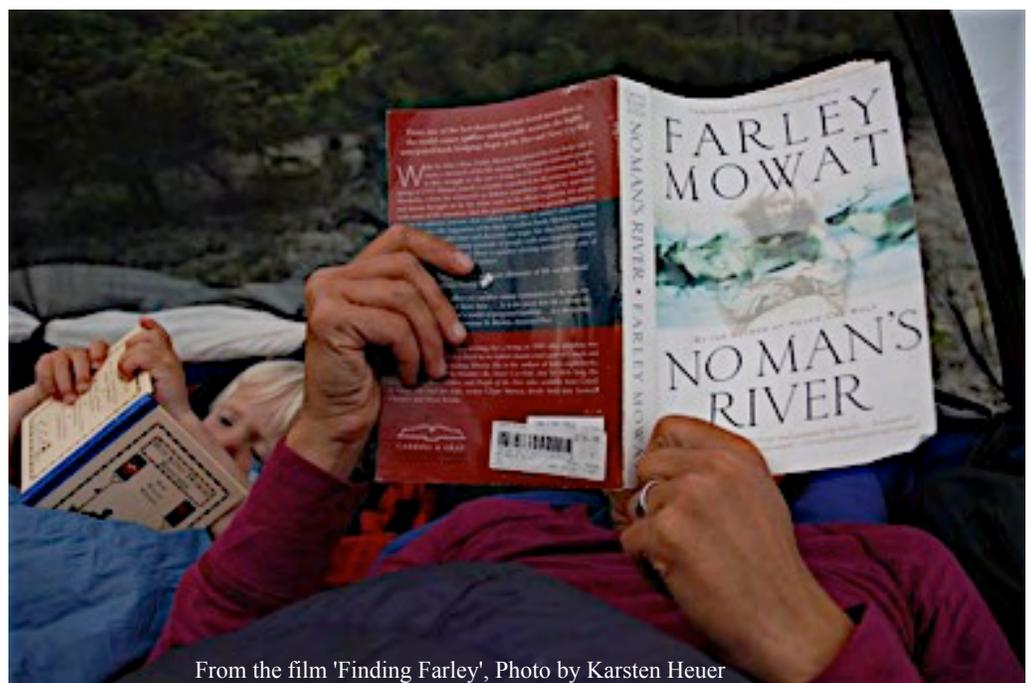
*(Continued on Page 5)*

### How does one drill for gas so deep?

Recent advances in deep well drilling, horizontal drilling and hydraulic fracturing have made gas extraction from deep wells practical and economical for gas companies.

Hydraulic fracturing, or hydrofracturing, is a technique that creates long fractures in rock and coal to release gas from the shale formation to wells to be collected. In order to create these fractures, a mixture of water, "proppants" particles (sand or ceramic beads) and

*Continued on page 3)*



From the film 'Finding Farley', Photo by Karsten Heuer

# MOSHANNON MUSINGS

GARY THORNBLOOM

January 28<sup>th</sup> may have been the last of many public meetings concerning the fate of Spring Creek Canyon, the parcel of Rockview Penitentiary land that we have been fighting to have protected as Public Land for the past three years.

All prior forums have had the assumption that Penn State and Benner Township would get this land. This was also the bias of the Master Plan. We have objected to that bias. Our position has been, and continues to be, that the land would be best protected as Public Land, and specifically, that the land should go to the Pennsylvania Game Commission as the only public agency with the expertise, resources and willingness necessary to protect that land forever.

January 28<sup>th</sup> was the first public forum that the Pennsylvania Game Commission was invited to. This was the first time the PGC was given a chance to make its case for ownership to the community. They were there because of our efforts, along with the alliance of hunters and anglers that we have worked closely with for the past three years. They were there because of the efforts of Representative Kerry Benninghoff, and of the willingness of Representatives Benninghoff and Hanna to work together and to listen to the entire community. They were there because Senator Corman listened to the hundreds of postcards that you signed and mailed to him.

Both Representatives along with Senator Corman addressed the packed auditorium. These lawmakers, who control the fate of Spring Creek Canyon, saw that people care about this land. They saw support for public ownership, support for the PGC, and opposition to Penn State getting any of this land.

Penn State is likely to get some portion of the land. Why? Because the conservation and local community were divided by the "plan first, then divest" crowd. The Master Plan was never presented for what it actually was, a plan for PSU to own most of that land. Even if you buy the PSU claim that they want the land for agricultural use, their position has moved from "industrial agricultural" to "conservation agricultural", to "organic agricultural." PSU has tried to make their claim more palatable in face of public opposition.

The Pennsylvania Game Commission is likely to get a large portion of the land. The PGC mission *To manage Pennsylvania's wild birds, wild mammals, and their habitats for current and future generations* will protect this land forever, and we should be proud of the Moshannon Group efforts to protect this land.

## MOSHANNON GROUP ELECTION

Ronn Brouman, Stan Kotala and Gary Thornbloom were elected to two year terms. Lynne Heritage was elected to a one year term.

Moshannon Group officers for 2010 are:

Gary Thornbloom, Chair; Steve Lachman, Vice Chair; Judy Tanner, Secretary; Ron Johnson, Treasurer.

## CALENDAR *(Continued from back page)*

### 7th Annual Banff Mountain Film Festival World Tour,

Tuesday/Wednesday April 13<sup>th</sup> and 14<sup>th</sup> Doors open at 6PM---Films begin at 7PM. State Theatre-downtown State College. Tickets available at Local Presenting Sponsor, Appalachian Outdoors and at the State Theatre Box Office or online. Details and description of films on our website.

## OUTINGS

Please check our website [www.sierramsh.org](http://www.sierramsh.org) for the current list of outings. or contact our Outings Chair.

## EXECUTIVE COMMITTEE MEETINGS

All members welcome. **First Tuesday** of the month, 7PM at ClearWater Conservancy. Call an Excom Member to confirm the next meeting location and date.

## WINTER SALE



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# MARCELLUS SHALE *(Continued from Page 1)*

chemicals is pumped into the rock at high pressures. The pressure causes the rock to fracture and the proppants hold open the fracture to allow the gas to flow.

Hydrofracturing requires a large quantity of water. Typical projects use 1 to 3 million gallons of water and .5 million pounds of sand. Large projects may require up to 5 million gallons of water. The water must be pumped into the well from surface sources or from underground aquifers or brought in by tank trucks.

Hydrofracturing also pumps process fluid called "flow-back" to be reused or disposed of. Fracking and treatment fluids do not come back all at one time. At first, the flowback is primarily treatment/fracking fluids, but this is diluted by brine water. Flowback of fracking fluids and water can continue over a period of years. The fluid is often contaminated with chloride or other chemicals. A large percentage (20-40%) of the injected fluid remains underground.

Pennsylvania currently has several wastewater treatment plants which treat brine water produced by the oil and gas industry. However, these brine treatment facilities are not currently equipped to deal effectively with quantity of flow-back water produced by the Marcellus gas extraction process. DEP is allowing some municipal sewage plants to accept limited quantities of gas industry wastewater at their

plant. However, the brine water is not treated at these plants, only diluted.

## What is the Sierra Club's position on gas drilling?

The Sierra Club views natural gas as a transitional fuel as the US transitions to a clean energy economy. However, the Sierra Club is concerned about the environmental effects of drilling. Deep well drilling on such a large scale is relatively new to Pennsylvania; the environmental effects have not been fully evaluated. The media recently has reported several environmental problems associated with Marcellus Shale gas drilling, including the de-watering from headwater streams, contamination of drinking water wells, the lack of treatment of brine water, and deteriorating water quality in major rivers. We seek measures to ensure that drilling be done in a manner that does not damage our natural resources.

Sierra Club Chapter Conservation Chair Thomas Au will be presenting an overview of natural gas exploration in the Marcellus Shale. The talk will cover the technology associated with drilling and the environmental problems that have been identified.

**Thursday March 25<sup>th</sup> 7PM**  
**Bellefonte**  
**Court House Annex**

## What are potential environmental problems?

- Well drilling and fracturing consume large quantities of water that will not be replaced since large quantities of drilling water will remain underground.
- Drinking water supplies (surface waters and underground aquifers) and fisheries and streams can be damaged by intentional or accidental discharges of contaminated water from the well head site.

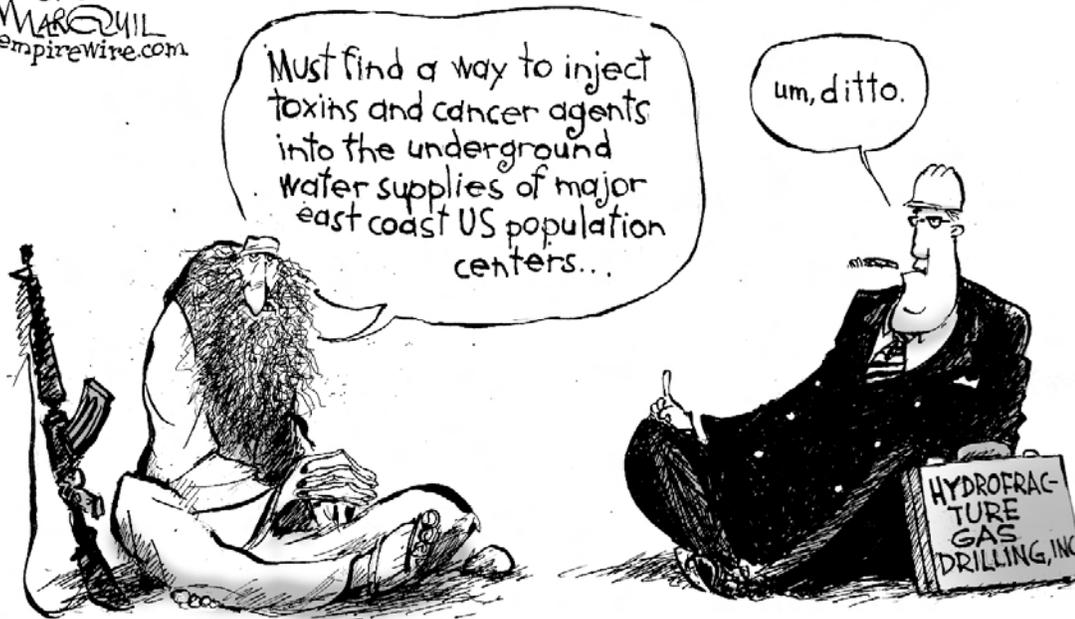
• Drilling and fracturing can affect water quality in water wells and aquifers in the area.

• The gas drilling industry has not yet developed advanced technology for brine treatment or disposal that does not harm the water quality of streams.

• Operations of diesel generators and trucks can affect local air quality.

• Land clearing for the well sites, haul roads, and gas pipelines can affect environmentally sensitive lands, can disrupt wildlife, and can introduce invasive species.

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# FOREST ROADS FACILITATE SPREAD OF INVASIVE PLANTS

*Penn State's College of Agricultural Sciences*

University Park, Pa. -- Invasive plants are advancing into Eastern forests at an alarming rate, and the rapid spread has been linked by researchers in Penn State's College of Agricultural Sciences to forest road maintenance and the type of dirt and stone used on roads.

Perhaps predictably, according to David Mortensen, a professor of weed ecology who has been studying the spread of invasive plants for nearly two decades, humans are unwittingly accelerating the relentless march of invasives into even isolated forests. The findings are especially significant in the face of the massive forest road-building efforts expected to support greatly expanded natural-gas drilling operations into the Marcellus shale formation. Hundreds or even thousands of gas wells could be established in Eastern forests in the next few years, depending on the market price of gas.

In a paper titled "Forest Roads Facilitate the Spread of Invasive Plants," published in the August 2009 issue of *Invasive Plant Science and Management*, Mortensen detailed some eye-opening revelations about the process by which invasive plants advance so quickly.

"Roads can play a profound role in the spread and growth of invasive species by serving as corridors for movement and by providing prime habitat for establishment," Mortensen explained. "For example, forest managers have reported that the borders of hundreds of miles of forest roads have been invaded by Japanese stiltgrass in a period of less than 10 years."

As part of his research, Mortensen -- who was assisted by post-doctoral researcher Emily Rauschert and doctoral candidate Andrea Nord -- performed a large-scale survey of the presence and abundance of 13 invasive plants and found that the most abundant species, *Microstegium* (Japanese stiltgrass) is strongly associated with proximity to roads. He

then focused his attention on trying to determine the reasons and devise a strategy to slow the spread.

The researchers discovered, to their amazement, that Japanese stiltgrass on its own does not spread quickly. To better understand why the invasive plant is achieving such a high rate of spread in Eastern forests, they deliberately introduced *Microstegium* patches in a forested site similar to the one in which the survey was conducted and allowed patches to naturally expand over four years before controlling all patches.

"Through this multi-year study, we found the natural spread rate was surprisingly slow, several orders of magnitude slower than that observed by the forest managers we work with," Mortensen said. "We also found that spread was greatest in habitats adjacent to forest roads.

"It is clear that the rates of spread occurring in forests throughout the study region are aided by management practices such as road grading, which is employed frequently to maintain the dirt and gravel roads."

Japanese stiltgrass seed becomes mixed with the dirt and gravel and then is carried along as graders push the crushed stone to fill holes and smooth road surfaces. Mortensen also suspects invasive plant seeds may be picked up and transported by equipment, so he suggests spread could be limited by carefully cleaning the undersides of construction vehicles and other machines before they travel from one road job to another.

"Management of this troublesome invasive can be enhanced with a multifaceted, integrated approach," he said. "Particular attention should be paid to infestations that serve as sources for seed dispersal into uninvaded or environmentally sensitive areas. The primary vectors of long-

distance dispersal, such as road maintenance activities or vehicle traffic, should be identified and mitigating steps taken. Finally, it is important to minimize road-edge disturbance to the extent possible, as such disturbance provides an ideal seedbed for the newly dispersed *Microstegium* seed."

Perhaps the most startling finding of Mortensen's research relates to the nature of dirt and gravel on forest roads that enables invasive plants such as Japanese stiltgrass to thrive.

"The crushed limestone used to surface many forest roads and to line culverts and drains along those roads are creating ideal conditions for the invasives to spread rapidly," he said. "The high alkalinity sediment from the stone, mixed with water running off the roads during storms, eventually spills out into the forests, carrying invasive plant seeds and creating areas for them to grow quickly. The high alkalinity prevents native plants that have become adapted to acidic forest soils from growing, and invasives such as Japanese stiltgrass fill the void."

Ironically, the crushed limestone is being used on many forest roads and in ditches and drains that parallel mountain streams precisely because the material leaches a high-alkalinity slurry that improves the productivity and water chemistry of the streams. That benefits the wild trout and other aquatic organisms that have suffered in many mountain streams after decades of acidic atmospheric deposition (acid rain).

"That only complicates the battle against the spread of invasive plants into Eastern forests and shows the interconnected nature of ecosystems," Mortensen said. "But measures need to be taken to slow the spread of invasive plants such as *Microstegium*, because over the long run they will change the nature of our plant communities by outcompeting native plants."

# NATIONAL CLUB ELECTION

The annual election for the Club's Board of Directors is now underway. Those eligible to vote in the national Sierra Club election will receive in the mail (or by Internet for those who chose the electronic delivery option) your national Sierra Club ballot. This will include information on the candidates and where you can find additional information on the Club's website.

The Sierra Club is a democratically structured organization at all levels. The Club requires the regular flow of views on policy and priorities from its grassroots membership in order to function well. Yearly participation in elections at all Club levels is a major membership obligation. Your Board of Directors is required to stand for election by the membership. This Board sets Club policy and budgets at the national level and works closely with the Executive Director and staff to operate the Club. Voting for candidates who express your views on how the Club should grow and change is both a privilege and responsibility of membership.

Members frequently state that they don't know the candidates and find it difficult to vote without learning more. You can learn more by asking questions of your group and chapter leadership and other experienced members you know. Visit the Club's election website:

<http://www.sierraclub.org/bod/2010election/default.aspx>

This site provides links to additional information about candidates, and their views on a variety of issues facing the Club and the environment.

You should use your own judgment by taking several minutes to read the ballot statement of each candidate. Then make your choice and cast your vote. Even if you receive your election materials in the mail, please go to the user-friendly Internet voting site to save time and postage. Alternatively, you will find the ballot is quite straightforward and easy to mark and mail.

# BANFF WORLD TOUR

*(Continued from Page 1)*

Festival World Tour has hit the road, with stops planned in about 285 communities and 30 countries across the globe.

This year's tour features a collection of the most inspiring and thought-provoking action, environmental, and adventure mountain films. Traveling from remote landscapes and cultures to up close and personal with adrenaline-packed action sports, the 2009/2010 World Tour is an exhilarating and provocative exploration of the mountain world.

The Banff Mountain Film Festival World Tour is produced by Mountain Culture at The Banff Centre, and features award-winning films and audience favorites from approximately 300 films entered in the annual festival in Banff.

Come early and visit with our local sponsors and local community groups that will have displays and information available.

Join Sierra Club Moshannon Group when the Banff Mountain Film Festival World Tour brings the spirit of outdoor adventure to State College.



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Contributions, gifts and dues to Sierra Club are not tax deductible; they support our effective, citizen-based advocacy and lobbying efforts. Your dues include \$7.50 for a subscription to *Sierra* magazine and \$1 for your Chapter newsletters.

Enclose a check and mail to Sierra Club, P.O. Box 52968, Boulder, CO 80322-2968 or visit our website [www.sierraclub.org](http://www.sierraclub.org)

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**April 13<sup>th</sup> and 14<sup>th</sup>**  
**Different films each night!**  
**State Theatre-downtown State College**

**Doors open at 6PM**

**Films begin at 7PM**

**Tickets**

**\$12 advance sale**

**\$15 at the door**

**\$20 for both nights**

**Available at Local Presenting Sponsor**

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**Also available at the**

**State Theatre Box Office or online**

## Moshannon Group Directory

*\*Executive Committee members*

Chair, Newsletter	*Gary Thornbloom	353-3466	<a href="mailto:bearknob@verizon.net">bearknob@verizon.net</a>
Vice Chair, Membership	*Steve Lachman		<a href="mailto:stevelachman@gmail.com">stevelachman@gmail.com</a>
Treasurer, Conservation, Global Warming	Ron Johnson	355-5434	<a href="mailto:greenbowl@verizon.net">greenbowl@verizon.net</a>
Secretary, Political, Chapter Delegate	*Judy Tanner	542-8519	<a href="mailto:billtann@verizon.net">billtann@verizon.net</a>
Website	*Michele Barbin	387-4509	<a href="mailto:mlb10@verizon.net">mlb10@verizon.net</a>
Banff Coordinator	*Ronn Brouman	867-0624	<a href="mailto:ronnb@comcast.net">ronnb@comcast.net</a>
Tabling Coordinator Alternate Chapter Delegate	*Lynne Heritage	355-8323	<a href="mailto:llheritage@comcast.net">llheritage@comcast.net</a>
Endangered Species/ Wildlife, Outings	*Stan Kotala	946-8840	<a href="mailto:ccwiba@keyconn.net">ccwiba@keyconn.net</a>
Outings	Helena Kotala	502-7967	<a href="mailto:h_kotala@yahoo.com">h_kotala@yahoo.com</a>
Fundraising, Calendars	Paula Thornbloom	353-3466	<a href="mailto:pthornbloom@cdfc.org">pthornbloom@cdfc.org</a>
Publicity	Dee Vogelsong		<a href="mailto:vogelsong100@yahoo.com">vogelsong100@yahoo.com</a>
Programs	Kat Alden	349-5830	<a href="mailto:mrskatalden@yahoo.com">mrskatalden@yahoo.com</a>
Programs	Bill Torretti	349-5830	<a href="mailto:btorretti@yahoo.com">btorretti@yahoo.com</a>

## Calendar

**ALL ARE WELCOME!**

### Presentations

**Thursday, March 25, 7PM:** Sierra Club Chapter Conservation Chair **Thomas Au** will present a talk "The Marcellus Shale natural Gas boom: What Are the Environmental Costs?" This will be held at the Bellefonte Courthouse Annex in Bellefonte. Details on page 1 and on our website.

**Thursday, April 29, 7PM:** Moshannon Group Wildlife Chair **Dr. Stan Kotala** will present a PowerPoint presentation "Gardening For Wildlife". This will be held at the Schlow Public Library Community Room in downtown State College. Details on our website.

*(Continued on Page 2)*

**[www.sierramsh.org](http://www.sierramsh.org)**



Moshannon Group

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