THE CATALYST

SLIPPERY ROCK WATERSHED COALITION MONTHLY ACTIVITIES UPDATE

NEXT MEETINGS: Tentatively planned for 7 PM on 5/11/23 at Jennings Environmental Education Center. Pizza/ pop provided. 4/13/23 attendance: C. Denholm, M. Dunn, D. Johnson, W. Taylor

A Visit to Grove City College's Limnology Class

On Thursday, April 20th, SRWC participant **Shaun Busler** visited the classroom of **Dr. Darren Wood**, Professor of Biology at Grove City College. Shaun was a guest speaker in Dr. Wood's Limnology class, where he spoke to about a dozen students. Limnology is the study of the biological, chemical, and physical features of inland aquatic ecosystems — freshwater systems like streams, rivers, lakes, ponds, and wetlands. Shaun presented a PowerPoint presentation focusing on mining and reclamation in the Slippery Rock Creek Watershed. Shaun explained to the class the importance of the history of mining in western Pennsylvania, information about how abandoned mine drainage forms, the differences between passive and active treatment systems to remediate the polluted water, potential opportunities for students to get involved with volunteering, research, and presenting, how abandoned mine drainage is a global problem affecting many countries around the world, water quality data used to determined a treatment system's success, and many photos of treatment systems in the Slippery Rock Creek Watershed. Shaun also showed the students maps detailing the locations of prior mining operations near the Grove City College campus. Students learned which pollutants create different colors in the streams (red = iron, black = manganese, white = aluminum), how many miles of stream are impacted by AMD in Pennsylvania (about 4000 miles!), the main goals of the Slippery Rock Watershed Coalition, stream recovery statistics about pH, alkalinity, acidity, iron, manganese, and aluminum, and how there is an improvement in macroinvertebrates and fish in the water. Students asked several thoughtful questions and Shaun enjoyed his time with the students.

As a follow-up activity, Dr. Wood and Shaun took the students on a tour of the Erico Bridge passive treatment system on April 25. Students sampled the water for pH and iron. Results showed 0.6 mg/L of iron and a pH of 7, suggesting the system is doing its job cleaning the water. An exciting memory for the students will no doubt be the giant black racer Shaun found, which several students held! Shaun looks forward to continuing an educational-outreach partnership with Dr. Wood and his students.

PHOTO OF THE MONTH

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Sludge removal from the Barkley Road Treatment System wetland (left) and cleaning and stabilizing the settling pond and wetland (right) were just two of several system rehabilitation components made possible through a grant from Abandoned Mine Land Economic Revitalization (AMLER). *See story below.* #

Barkley Road Passive Treatment System — Rehabilitation at Moraine State Park

Each year, more than one million boaters, picnickers, hikers, bikers, horseback riders, cabin renters, and swimmers visit the 16,725-acre Moraine State Park, yet never realize that many people helped restore the park from prior coal mining and oil and gas drilling practices. The gently rolling hills, lush forests, and sparkling waters disguise a land that has endured the effects of continental glaciers and massive mineral extraction. The central feature of the park is the 3,225-acre Lake Arthur with 42 miles of shoreline. Before the creation of Lake Arthur, an extensive abandoned mine land reclamation effort was completed within Moraine State Park under Operation Scarlift to ensure that water quality in the lake would be good. Work included reclaiming coal refuse, spoil piles, and highwalls, installing mine seals and planting trees and ground cover. While the reclamation effort had spectacular results, some AMD discharges did remain. The Barkley Road passive treatment system was originally constructed by the Butler County Conservation District around 1996 on Moraine State Park property to treat at least one, possibly more AMD discharges flowing directly into Lake Arthur. After many years of operation, it was recognized to be in need of some TLC. Iron sludge and debris had accumulated within the ponds, resulting in AMD overflowing the berm and bypassing treatment. This project included the construction of a sludge pond to contain the sludge and debris which was removed from the existing treatment system, installing new piping and baffles in the various ponds, repairing spillways, and revising the O&M plan to maintain the efficacy of the system.

The Barkley Road system was not functioning correctly before rehabilitation in autumn of 2022. Stream Restoration Incorporated administered the grant while BioMost, Inc. provided design, permitting, construction oversight, and other consulting services, as well as completed the as-built drawings and an O&M plan. Field & Technical Services, LLC (FTS) was selected to complete construction. FTS cleared the site of trees, removed leftover stumps, and installed E&S controls and a construction entrance. A new sludge pond was constructed, and existing collection ponds and the wetland area were cleaned of sludge and debris. An existing culvert between the flow ponds was cleared, rehabilitated, and additional stone was laid. Geotextile and stone were laid for the construction entrance, and paths were mowed along ponds for easier access and line of sight. The project was essentially completed as intended, with help from the SRWC, and the system should now function properly for another 20+ years. Based on available data, the system is expected to treat about 15 million gallons of mine drainage per year, preventing about 1,800 lb/year of iron from entering Lake Arthur!

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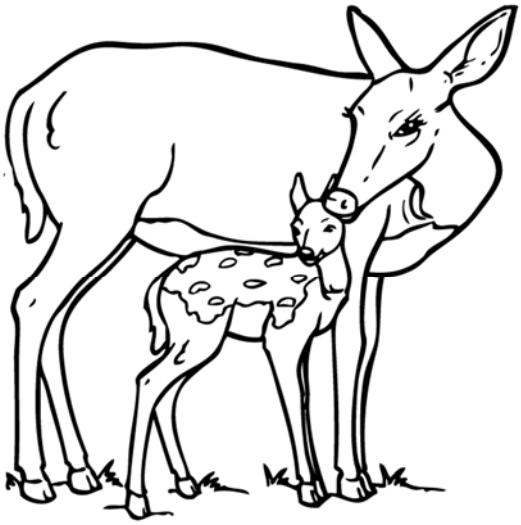
The KIDS Catalyst

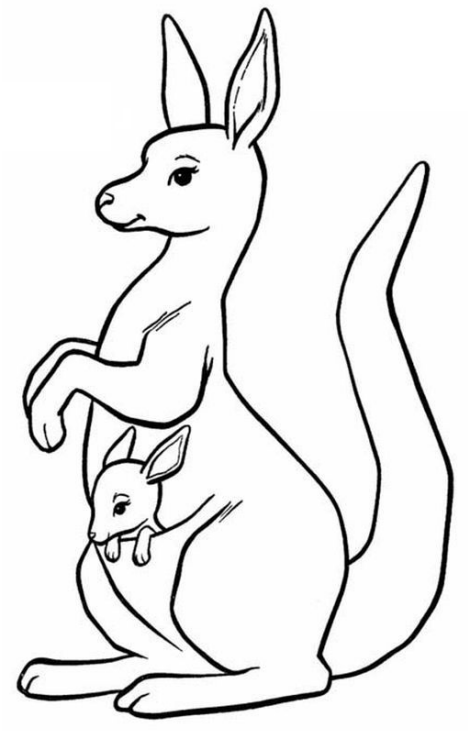
SLIPPERY ROCK WATERSHED COALITION FUN ACTIVITY

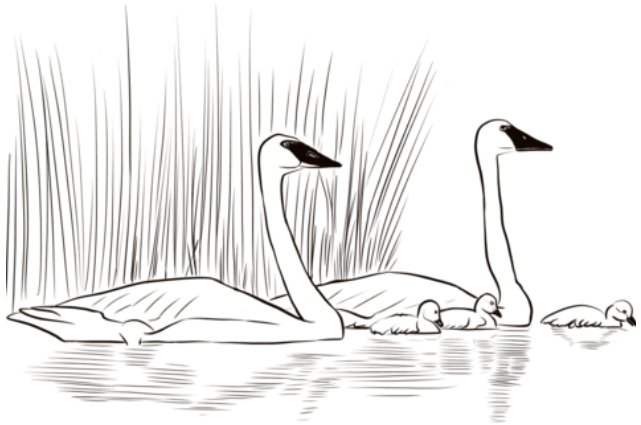
Match the Mom and Baby Animals!

In honor of Mother's Day, which is May 14th, we have a matching activity for you to try: matching up the Mommy and Baby animal names! The names of 16 adult animals are on the left, while the common names for those babies are on the right. Draw a line to show the match. If you send us your completed paper, we'll email you a $1 Amazon credit through a parent's email address! You can save up your credits to buy something extra special!

1. kangaroo	kit
2. mosquito	hoglet
3. oyster	cygnet
4. fox	spat
5. otter	fry
6. rhinoceros	fawn
7. bat	joey
8. hedgehog	cria
9. pig	cub
10. swan	whelp
11. alpaca	foal
12. deer	hatchling
13. horse	pup
14. salmon	piglet
15. lion	wriggler
16. alligator	calf







Name _____ Age ___ Parent email address: _____

Slippery Rock Watershed Coalition c/o Stream Restoration Incorporated
A PA Non-Profit Organization
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Thanks to The William & Frances Aloe Charitable Foundation, Environmentally Innovative Solutions, LLC, Dominion Peoples, Amerikohl Mining, Inc., Quality Aggregates Inc., Drs. Ron & Kathy Falk Family, BioMost, Inc., Allegheny Mineral Corporation and PA DEP for their support. For more information contact: Slippery Rock Watershed Coalition, c/o Stream Restoration Incorporated (PA non-profit), 434 Spring Street Ext., Mars, PA 16046 (724)776-0161, fax (724)776-0166, sri@streamrestorationinc.org, www.srwc.org. April distribution: 240 copies