

The Powell River Project Research and Education Center

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The Powell River Project (PRP) Research and Education Center was created in 1980, in direct response to coal mine reclamation challenges presented by the Surface Mine Control and Reclamation Act of 1977. The purpose of the PRP has been to identify reclamation practices and post-mine land uses most beneficial to communities in the coalfield region, particularly in the realm of reclaiming and reforesting mined lands with native hardwood species. However, agricultural and horticultural utilization of reclaimed areas has always been a focus of the PRP as well.

PRP has been an ongoing partnership among the Appalachian coal-mining industry, academia and the agricultural community. The PRP is a program of Virginia Polytechnic Institute and State University (Virginia Tech) that conducts research and education programs to enhance the restoration of coal-mined lands. Many of the PRP's activities are conducted on the Research and Education Center's areas that have been mined for coal and reclaimed, and on adjacent mined lands operated by cooperating mining firms. The Research and Education Center's 1100 acres were owned by PVR Partners, LLC, and its predecessor companies through March of 2014, when the ownership was transferred to Regency Energy Partners LP. PRP is governed by a board comprised of coal industry representatives, Virginia Polytechnic Institute and State University (Virginia Tech) and other stakeholders.

In terms of research efforts, one of the most tangible developments from PRP and associated research sites has been the Forestry Reclamation Approach, or FRA. The FRA has impacted the coal industry in enabling a series of steps to support reclamation of mined lands to valuable hardwood species. The steps of the Forestry Reclamation Approach include:

1. Create a suitable tree rooting medium that is no less than four feet deep, comprised of topsoil, weathered sandstone and/or the best available material.
2. Loosely grade this medium to create a non-compacted growing scenario.
3. Use ground covers compatible with tree growth.
4. Plant both commercially valuable crop trees and early succession species (for wildlife and soil stability).
5. Use proper tree planting techniques.

The Forestry Reclamation Approach is a win-win situation for the mining industry and the communities served, as it requires fewer passes over the reclaimed area with equipment, and it allows for the return of functioning, valuable forest types. The Forestry Reclamation Approach is based on research conducted at the PRP Research and Education Center in cooperation with the active mining industry. Other research conducted at the Center has addressed mine soil construction techniques, use and management of mined lands for livestock production, use of reclaimed mined lands by wildlife, water management in mined areas, and related topics.

Each year, hundreds of people visit the Center to learn about mining, reclamation, and environmental protection on Appalachian coal mines. Since Powell River Project's beginning, more than 50,000 visitors have participated in educational programs at the Center. These visitors have included K-12 school students and teachers, college students, natural resource agency and industry personnel, agriculturalists who work on mined land properties, political figures and

others. Educational programming has been conducted in cooperation with PVR and with the lessee, Red River Coal.

Two ongoing educational efforts in particular are the week-long Coal-to-Electricity Program, which happens every July and Natural Resources Awareness Days in September.

Coal-to-Electricity is a continuing education opportunity for teachers led by the Virginia Coal & Energy Alliance, Inc. and PRP personnel. From Sunday evening until Saturday morning, participants have the opportunity to engage a range of industry leaders, regulatory personnel and natural resource professionals. In addition to touring the Powell River Project, the teachers tour two active underground mines, an active surface mine and a coal-fired power plant. They also tour locations that fall within the “economic cluster” of coal mining, such as a mine equipment manufacturing facility, a rail yard and a chemical plant whose products are derived from coal.

Natural Resources Awareness Days (NRAD) is an effort to engage every sixth grader in Virginia’s Wise County, where the Research and Education Center, and educate them about the history, geology and economic opportunities dependent upon natural resources in the coalfield region. During the course of the two-day event, students rotate among ten educational stations and learn about geology, coal mining safety, surface mining, the chemistry of coal, reclamation, natural gas, forestry and wildlife, among other topics. The event is a collaborative effort of Powell River Project and the Wise County Chamber of Commerce and is sponsored by Alpha Natural Resources. As a follow-up to the NRAD event, students have the opportunity to participate in an arts or literature competition, expanding upon what they’ve learned during the field day via artwork, poetry or prose.

Activities at the Research and Education Center have also contributed to the education of more than 1000 Virginia Tech students who have visited with class field trips and to assist with research; many of those students have gone on to professional careers in natural resource fields. Virginia Tech has awarded nearly 100 graduate degrees to students who have completed graduate research concerning mine reclamation and environmental protection through Powell River Project.

American chestnut restoration work is a vein of research of particular interest to many in the surrounding communities. One-fourth of all mature trees in the Southwest Virginia forest were American chestnuts up until the early 1900s, until a blight introduced from Asia virtually eliminated them. The chestnut was important to the communities of Appalachia, both from economic and ecological standpoints, and its loss was far-reaching. The Powell River Project and other reclamation sites in the region are hosting research to study the plausibility of returning a more blight-tolerant chestnut to the landscape by coal-mining firms applying the FRA while reclaiming active mines.

As examples of how the PRP is utilized by Virginia Tech students, two classes include an annual trip to the site: Dr. Ozzie Abaye’s junior-level Plant Materials for Environmental Restoration class and Dr. Emily Sarver’s Mining and Minerals Engineering class. Dr. Abaye and her students have been monitoring the grasses and herbaceous plant composition in a series of research plots since the mid-1990s. During their field trip to the Research and Education Center, Dr. Sarver’s students are able to view and discuss results of reclamation practices that have been applied by industry, both for research purposes and operationally, on mined lands at the Center and on adjacent lands that are being mined commercially.

Furthermore, several statewide leadership programs for agency and industry natural-resource professionals, such as the Virginia Natural Resources Leadership Institute (VNRLI) and the Virginia Agricultural Leaders Obtaining Results (VALOR) program, include a Research and Education Center tour and mining-issues discussion each year

Other tours to the PRP Research and Education Center over the last twelve months have included

- Virginia Cooperative Extension's Trees-to-Products tour, a continuing education program for Virginia teachers modeled after Coal-to-Electricity.
- Representatives of the American Chestnut Foundation.
- The Upward Bound program, made up of high school students from Wise and Dickenson Counties, and operated by University of Virginia's College at Wise.
- Students from A. Linwood Holton Governor's School, a high school program for gifted students.

The Powell River Project Research and Education began its activities in 1980. Due to strong partnerships with the mining industry, local communities, and the university, activities at the Center continue today.

Acknowledgement:

The above text was submitted to the National Mining Hall of Fame in April, 2014, to support an application for that organization's Prazen Award. In October, 2015, Powell River Project Research and Education Center was designated as recipient of the Prazen Living Legend of Mining Award for its "on-going commitment to educate the public on the importance of the minerals and mining industry." The authors thank Vince Matthews, formerly with Penn Virginia Corporation and a former member of Powell River Project's Board of Directors, for his encouragement to submit an application for the award.

The National Mining Hall of Fame, <http://www.mininghalloffame.org/>, is located in Leadville, Colorado.