Surface mining of coal and other resources has resulted in millions of hectares of drastically disturbed lands in the Appalachian Mountain region of the eastern United States. Many of these lands were originally covered by productive hardwood forests that provided a wide range of ecosystem services and products. The Appalachian Regional Reforestation Initiative (ARRI), a coalition of scientists, citizens, the coal industry, and government dedicated to restoring forests on coal mined lands in the eastern United States, has been involved with reforestation of mined lands in Appalachia since 2004. Through an adaptive learning process, research scientists have studied productive forests on older mine sites, used those conclusions to conduct research on how best to establish forest vegetation on recent mines, and identified mine reclamation practices that result in successful reforestation. The Forest Reclamation Approach (FRA) is the outcome of this research. Highly productive forestland can be created on reclaimed mine lands under existing laws and regulations by using the FRA. Scientists and mine regulators, working collaboratively, have communicated the FRA to the coal industry and to regulatory enforcement personnel. Today, the FRA is applied routinely by many coal mining firms, and thousands of hectares of mined lands have been reclaimed to restore productive mine soils and planted with native forest trees. This presentation will describe the FRA, and some of the success stories to date. In addition, now that the knowledge and practices exist and have been in practice for 10 years, we will discuss questions relating to successful mineland restoration over the longer term. What stand structure will these planted forests evolve into? What are the characteristics of a restored forest ecosystem? What ecosystem services are provided by reforested mine land? What management is needed to ensure that these planted mine sites become productive forests over the long term? Answers to these questions and others can help ARRI describe and plan for successful restoration of mined lands in the 21st Century.