

COAL-MINE SPOIL BANKS OFFER GOOD POTENTIAL FOR TIMBER AND WILDLIFE PRODUCTION

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More than 300,000 acres have been strip-mined for coal in the Anthracite and Bituminous Regions of Pennsylvania—most of this since World War II. And an additional 10,000 to 15,000 acres are strip-mined each year. Since 1945 coal operators have been required to revegetate the areas disturbed by mining. Although the primary purpose of revegetation is to provide permanent cover for stabilization and protection, the spoil areas are also potentially good for timber and wildlife production.

Timber Production

Strip-mined land is often better suited for growing timber products than is generally recognized. Planted trees survive and grow well over a wide range of spoil conditions. Areas cleared by mining operations can be planted to preferred species with assurance that competition from undesirable trees and other plants will be minimal. Another advantage of strip-mined land is that the roads constructed to haul out coal will later provide access to establish, manage, protect, and harvest trees.

Since most of the strip mines in the state are located in densely forested areas, approximately 80 percent of the spoil banks have been replanted to trees. Although some products can eventually be harvested from these areas, very few of the

early plantations were designed specifically for timber production.

At first, strip-mined land was thought to be unproductive wasteland incapable of producing anything valuable. Many species of trees were planted on these areas in the hope that some would grow well enough to provide adequate cover. However, studies of these first plantations soon dispelled the initial pessimism.

In 1961 a growth-and-yield study of older plantations indicated that good timber crops could be grown on some spoils. The study revealed that several plantations had produced more than 100 cubic feet per acre per year over the first 25 years. And some species of trees grew faster on spoils than on undisturbed sites. On favorable spoil sites, plantations that are properly managed

for timber production should produce pulpwood in 20 to 25 years and sawlogs in 30 to 40 years.

Although most spoils will produce timber products, only about one-quarter can be classed as really good sites; and about one-quarter of the spoils are too poor to be managed for timber.

Additional studies were conducted by the U.S. Forest Service in cooperation with other state and federal agencies and the Pennsylvania Coal Mining Association to determine the best species to plant on each type of spoil. These studies confirmed that conifers do especially well on the acid spoils commonly found in Pennsylvania. Conifers are particularly desirable because they are in low supply throughout the state. Also, bands of evergreens break up the continuity



Strip-mined lands offer almost unlimited opportunities to develop readily accessible sites for timber and wildlife production.

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of the natural hardwood vegetation, adding variety to the landscape and providing cover for wildlife.

On the basis of our studies to date Scotch pine, Japanese larch, white pine, and red pine offer the best prospects for sawtimber production. We recommend that most other conifers be planted only for pulpwood production.

Unfortunately, we have found that such valuable hardwoods as cherry, walnut, yellow-poplar and sugar maple usually do not grow well on Pennsylvania spoils. Black locust is planted widely on spoil banks for erosion control, but the trees are usually too crooked to market.



Autumn olive is one of the many shrubs capable of providing game food and cover on spoil banks.

The most promising hardwood is hybrid poplar. This remarkable species can grow almost 1 inch in diameter and 6 feet in height per year on the better spoils. Poplars need lots of growing room; but even at the comparatively close 8- by 8-foot spacing required for site protection short rotations can be anticipated. On good sites, managed poplar stands should reach pulpwood size in 10 to 15 years and small sawlog size in 15 to 20 years. In areas where there is a strong demand for pulp or chip material, hybrid poplars offer an attractive quick cash crop to timber growers.

Hybrid poplars and conifers have been planted in combination on some sites. Alternate rows of conifers and poplars are planted at 7- by 7-foot spacing. This arrangement should produce one or two relatively



This 20-year-old Japanese larch plantation, on a spoil bank in northern Pennsylvania, produced over 100 cubic feet per acre per year.

quick pulpwood crops from the hybrid poplars and a sawlog crop from the conifers later after the poplars have been removed. Such combination planting for integrated products are a far cry from the earlier, almost crude cover plantings.

Wildlife Production

Strip-mining is generally beneficial to wildlife. As mining progresses through a forest stand, a swath of timber is usually cut ahead of the operation. Because the continuous forest stands are broken up, light can reach the understory of the border trees, creating desirable edge effects.

Reclamation can be designed specifically for wildlife production. Areas intensively developed for this purpose often include small water impoundments; cultivated food strips; and complementary plantings of grasses, legumes, shrubs, and conifers in scattered clumps. A few strip-mined areas in Pennsylvania have been converted to public hunting grounds. Areas reclaimed for agricultural crops, pasture, or timber support a wide variety of plants that

provide food and cover for wildlife. And even areas too poor to develop for commercial uses are suitable for wildlife. Deer, turkey, grouse, rabbits, ducks, mourning dove, and other game birds and animals have been observed on reclaimed land.

Coal-haul roads constructed during mining operations open up vast areas that were previously inaccessible. These new road systems allow better distribution of hunters, and consequently, a more nearly optimum harvest of wildlife.

The sediment and chemical pollutants associated with strip-mining are often harmful to aquatic life in streams draining mined areas. However, in some strip-mined areas water has been impounded and successfully stocked with fish.

Obviously, land strip-mined for coal offers potential for timber and wildlife production. Such areas are generally accessible and will grow a wide variety of trees, shrubs, and herbaceous species. Since state laws require that these lands be reclaimed, owners should be encouraged to take full advantage of the opportunity to increase and improve Pennsylvania's timber and wildlife resources.