The Use of Worked-Out Peatlands for Forestry.

Review of A. F. Timofeev and P. A. Lesnov, 'Lesokhozyaistvennoe osvoenie zemel posle torforazrabotok', Publ. by Lesnaya Promyshlennost, Moscow. 1967. pp. 74 (in Russian).

This booklet deserves wider recognition outside the U.S.S.R. than it is likely to get due to the unfortunate language barrier, and it is for this reason that a fairly full review may be of interest.

The peatlands of the U.S.S.R. (defined as areas having a depth of peat of over 0.5m.) cover 71.5 million hectares, which is about 70% of the total world area of peatlands. Peat working is now being carried out on about 1.2 million ha. in the U.S.S.R., and official statistics gave the area of worked-out peatlands as about 300,000 ha. on 1st January, 1963. These lands are mainly located near the heavily populated big industrial centres of European Russia, and only 8.5% of the worked-out peatlands have been reclaimed for agriculture or forestry. The rest of them lie derelict. Policy now is to develop these lands in an integrated manner: richer areas with better drainage are reclaimed for agriculture, the lower areas for fish-raising, and other areas for forestry.

The booklet itself is divided into two parts. Part I deals with the pedological and hydrological characteristics of worked-out peatland, and other aspects affecting reclamation. Most of the peatland in the U.S.S.R. is worked by the rotary-cutter milling method, and

the depth of peat left after working is variable, but is usually from 0 to 1 m. or more. Peat types are distinguished according to the usual Russian classification: fen, transitional, and bog; the actual composition of each of these types may be mossy, herbaceous, or woody. Some examples of typical profiles are given, and also details on the soil chemistry, soil water and soil temperature regimes on worked-out peatlands. The last chapters of Part I deal with the natural colonization of worked-out peatlands by herbaceous vegetation and by forest tree species. Birch is the main pioneer tree species, but is found only rarely — the dense herbaceous vegetation usually prevents natural regeneration by tree species for some years. Sufficient seed trees, a residual layer of peat, and adequate drainage are the prerequisites for birch regeneration.

Part II of the booklet deals with the establishment and performance of forest plantations on worked-out peatlands, opening with a review of Russian experience. Then, detailed case-histories are given of afforestation trials on worked-out areas of peatland in three districts of European Russia: Kirov, Gorky and Yaroslavl. Soil preparation, method of establishment, and choice of planting spot are described, and details given on the survival, root systems and growth of coniferous and broad-leaved tree species. The main species dealt with is *Pinus sylvestris;* other species tried include *Picea abies, Pinus sibirica, Larix sibirica, Quercus robur,* and Poplars (especially *Populus suaveolens*). Analysis of costs for soil preparation, planting, and subsequent tending indicate that actual plantation establishment on worked-out peatland tends to be no more expensive than on other categories of land.

Some general conclusions are drawn at the end of the booklet. The salient conclusions are that the areas most suitable for afforestation are those that have been worked by rotary peat-cutters. The main factors affecting the growth of plantations of Scots pine (the main species considered) are the soil water regime and the depth of the residual peat layer. It will often be necessary to repair or improve the drainage system of the area before afforestation, and the best depth of residual peat has been found to be 10 to 50 cm., or best of all, 20 to 40 cm. Spring planting is best; on the lower-lying areas, planting should always be on the upturned turf, but on drained areas planting can be done on the turf or in the furrow. Frost heave, drought, excess moisture, and competition are particular hazards on worked-out peatlands, and cause heavy losses in the early years, so beating up and careful weeding are necessary.

The Russians are confident that productive plantations can be raised on worked-out derelict peatlands around industrial towns and cities and so simultaneously provide much-needed amenity and green-belt forests.

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