

surface, the *shisham* (*Dalbergia Sissoo*) often becomes gregarious, and is of some importance, and many other species, such as acacias and the black mulberry, are found. The avenues of *shisham* and other trees planted along roads and canals are an important feature in the scenery of the Province.

The *sāl* tree (*Shorea robusta*) is found in the small submontane forest of Kalesar in Ambāla, in the adjoining State of Sirmūr, and in a few scattered areas in Kāngra District. This is, however, the extreme western limit of its growth, and it can never be expected to attain any great dimensions. The rocky hills of the Salt Range and Kālā-Chitta are in parts covered with an open forest, in which the olive (*Olea cuspidata*) and the *phulāhā* (*Acacia modesta*) are the principal trees.

The hill forests fall into groups classified by their elevation. Below 3,000 feet they are composed of scrub and bamboo (*Dendrocalamus strictus*). The bamboo forests are most important in Kāngra, where they cover an area of 14,000 acres; the scrub forests survive in good condition only in places where they have been protected by closure from grazing. Between 2,500 and 5,000 feet of elevation the *chil* pine (*Pinus longifolia*) is the principal tree. Forests of this tree are found throughout Kāngra proper, in the Murree and Kahūta *tahsils* of Rāwalpindi, and in the lower portions of the valleys of Kulū, Bashahr, and Sirmūr. Between 5,000 and 8,000 feet occurs the true zone of the valuable *deodār* (*Cedrus Deodara*), which grows either in pure forests or mixed with the blue pine (*Pinus excelsa*), the silver fir (*Abies Webbiana*), the spruce (*Picea Morinda*), and trees of various deciduous species. The principal *deodār* forests are found in the Pārhati valley, and around the head-waters and side streams running into the Beās in Kulū, on either side of the Rāvi in Chamba and the Chenāb in Pāngi, in the valleys of the Sutlej and the tributaries of the Jumna in Bashahr, and in Jubbal. In this zone extensive forests of blue pine, pure or mixed with *deodār*, also occur, principally in Kulū and Bashahr. Above 8,000 feet, extensive areas, especially in the zone between 9,500 and 12,500 feet, are covered with silver fir, spruce, and trees of various deciduous species. Approaching 12,500 feet, which is about the limit of tree growth, rhododendron, birch, and juniper are found. The grassy slopes which extend from the limit of tree growth to the line of perpetual snow afford pasturage, and shepherds and herdsmen migrate thither annually with their flocks and cattle.

The administration of all the more important forests is <sup>Management.</sup>

controlled by the Forest department, under a Conservator. There are twelve Forest divisions, including those of the Bashahr and Chamba States, the forests of which are leased by the Punjab Government. The forests of the Simla Hill States are under the general care of the Simla Forest officer, who advises the chiefs. In 1904 the land under the Forest department amounted to 9,278 square miles, of which 1,916 were completely 'reserved,' 4,909 'protected,' 1,914 'unclassified,' or given over with some restrictions to the use of the public, and 539 'leased.' There were also 112 square miles of 'reserved' forest, and square miles of 'unclassified,' under the Military department; and other civil departments had charge of 4 miles of 'reserved,' 10 acres of 'protected,' and 7,033 square miles of 'unclassified' forests, the last being chiefly waste land in the charge of Deputy-Commissioners.

All *deodār* forests of commercial importance are worked in accordance with working plans, prepared by the Forest department and sanctioned by the Local Government. Under their prescriptions 7,140 *deodār* trees are allowed to be cut annually, and the annual yield of *deodār* timber from the forests under the control of the department is estimated at 659,000 cubic feet. This timber, together with a certain amount of blue pine and *chil*, is floated down the various rivers to the plains, where it is sold to railways for sleepers, or to the public. Efforts are now being made to introduce exploitation by private enterprise. The *chil* forests of Murree and Kahūta are also under a working plan, and for those of Kāngra a plan is in preparation. In the Kāngra forests the *chil* trees are systematically tapped for resin. The spruce and fir forests are for the present principally of value as grazing-grounds, and for supplying local requirements in forest produce. They hold, however, enormous stocks of timber, which may eventually become of commercial value. The scrub forests below 2,500 feet and much of the plains forests are managed as grazing-grounds. The bamboo forests of Kāngra form a valuable property, yielding an annual surplus revenue of about Rs. 20,000.

Fuel and  
fodder  
reserves.

All closed forest areas in the lower hills and in the plains may be regarded as fuel and fodder reserves. In times of drought such areas are opened to grazing, and if necessary to lopping, so as to enable the people to keep their cattle alive until the occurrence of more favourable seasons. The area of forest land in the plains is rapidly decreasing as colonization schemes are extended, and the consequent contraction of fuel and fodder-producing areas may be felt in the future.