

RELATIVE AREAS OF FOREST LANDS, AUSTRALIA AND OTHER COUNTRIES, 1910.

Country.	Total Forest Area.	Percentage of Total Area.	Country.	Total Forest Area.	Percentage of Total Area.
	Sq. Miles.	%		Sq. Miles.	%
Commonwealth ...	159,375	5.35	Rumania ...	10,836	21.36
New Zealand ...	26,678	25.65	Sweden ...	90,241	52.20
United Kingdom ...	4,800	3.96	Norway ...	26,685	21.50
France ...	36,005	17.58	Russia in Europe	859,375	43.04
Algeria ...	10,249	2.98	United States ...	860,000	24.08
Germany ...	54,015	25.90	Canada ...	836,000	22.33
Switzerland ...	3,290	20.60	Cape Colony ...	537	0.19
Italy ...	15,796	14.29	British India ...	126,858	11.55
Austria ...	37,700	31.66	Japan ...	29,003	19.64
Hungary ...	34,750	29.30			

2. **Characteristics of State Forest Areas.**—(i.) *New South Wales.* Great diversity exists in the more dense distribution of timber trees in the coastal region, between the Great Dividing Range and the Pacific Ocean. The areas of natural forest, however, are found in nearly every part of the State except the wide plains of the Murrumbidgee, Lachlan, and Darling districts, the level surface of which is chiefly covered with salt bush, scrub, and indigenous grasses, while the tree-growth is, as a rule, confined to belts of red gum, box, sheoak, and myall along the courses of the rivers and their tributaries, and to groves of cypress pine at intervals. The tree-clad regions of the State may be divided into open, brush, and scrub forests. The first class has the widest distribution, being found in every geological formation, and including some of the finest timbers, such as many species of eucalyptus, angophora, and other genera of the natural order of myrtles. Among the hardwoods, red gum usually marks the courses of streams, while on the rough and stony mountain and hill ridges, with their sheltered gorges, are found several varieties of ironbark, blackbutt, tallowwood, spotted gum, grey box, red mahogany, forest red gum, Sydney blue gum, and turpentine. The brush or jungle forests occupy a considerable tract of country between the Dividing Range and the coast. In this region, interspersed occasionally with large Moreton Bay and other figs, fern trees, cabbage trees, and palms, grow some of the most beautiful timbers known for cabinet work and veneers, such as the red cedar, rosewood, silky oak, beech, red bean, beefwood, tulipwood, and coachwood. In addition to these, there are considerable supplies of the colonial or hoop pine, and the brown or berry pine. The scrub forests are represented by the red or black and white varieties of the cypress pine, and many species of acacia and eucalyptus. These are chiefly situated in the western portion of the State, and although the pines and some of the eucalypts are useful for local building and fencing, the bulk of the timber is of little commercial value.

(ii.) *Victoria.* The mountain ranges, principal of which are the Dividing Range and the Australian Alps, constitute the true forest regions of the country, the trees attaining considerable height and girth, and the brush or scrub growth great luxuriance. The lower elevations of the ranges, remote from settlement, are densely wooded to their summits, but the peaks above the winter snow-line are either bare or covered only with dwarfed vegetation. Dense and luxuriant forests characterise the Otway Ranges and Gippsland, south of the Main Divide. The tree-growth in the Grampians consists chiefly of stringy-bark, white gum, grey and yellow box, and white ironbark, with some red gum and wattle. In the Pyrenees there are more valuable hardwoods, chiefly blue gum and messmate, with stringy-bark, grey and yellow box, red and white ironbark on the lower levels. In Wombat Forest, extending along both sides of the Dividing Range

from Creswick to Mount Macedon, the timber is almost wholly young messmate of good quality, with peppermint and swamp gum. Further eastward along the range messmate and stringy-bark prevail, with grey and yellow box and ironbark on the low country. In Delatite, and in the lower ranges of the Australian Alps generally, the timber increases in height and girth, and includes blue gum, messmate, and peppermint of fine quality, with ribbon gum, woollybutt and silvertop on the higher levels, and grey and yellow box with stringy bark along the lower slopes and valleys. The northern plains, extending westward from Wodonga to the Grampians, are thinly covered with open forests, the limits of the prevailing trees being defined in clearly-marked belts. Thus the main belt of red gum follows the course of the Murray and extends along the valleys of its tributaries, but is interspersed at intervals near the river with sand ridges bearing grey box and cypress pine. Southward of this belt, and between the streams, the prevailing trees are grey or yellow box, with red and white gum and stringy-bark on the low ridges. From Chiltern a line drawn westward through Rushworth, Heathcote, Bendigo, Dunolly, and St. Arnaud marks a long belt of ironbark, of both red and white varieties, interspersed with stringy-bark and grey or yellow box. In the north-west, between the Wimmera Plains and the Murray, the dwarf eucalypt known as the mallee scrub covers the plains, with belts of cypress pine at intervals, and red gum and box along the courses of streams and lakes. The south-west is poorly timbered, the prevailing trees being stringy-bark, with red gum along the streams, and white gum, box, lightwood, and honeysuckle on the plains and undulating country. In the Otway district are valuable timber forests; over 280 square miles are covered with blue gum, spotted gum, messmate, and mountain ash or blackbutt of fine quality, with some stringy-bark and white gum, while the valleys between the ridges bear valuable timber of fine grain such as blackwood, beech, satin box, olive, sycamore, and pencil cedar. Eastward of Melbourne, and on the watershed of the Yarra, there is another fine forest region, the trees consisting of spotted gum, mountain ash, messmate, and white gum, with blackwood, beech, sassafras, and silver wattle in the valleys. The ranges of Southern Gippsland bear blue gum, spotted gum, mountain ash, and yellow stringy-bark, while in the western and northern portions of the same district grow the mountain stringy-bark, spotted gum, blackbutt, and the Gippsland mountain ash or silvertop, with woollybutt and ribbon gum on the higher elevations of the Main Divide. In the eastern part of the district, stretching from the Lakes towards the Genoa River, are found the Bairnsdale grey box, the Gippsland mountain ash or silvertop, white and yellow stringy-bark, red ironbark and bloodwood. The prevailing timber in this part of Gippsland is the white stringy-bark, which forms large forests from the foothills of the Divide to the sea-coast.

(iii.) *Queensland.* The extensive forests of Queensland yield a great variety of woods, esteemed for their strength, durability, and beauty. The principal merchantable timbers lie between the eastern seaboard and the Great Dividing Range, which runs roughly parallel to, and about 200 miles from, the coast. At about the 21st parallel of south latitude, a spur runs westward nearly to the South Australian border, and bears on its crests and slopes much valuable timber. Forests are also found on the Denham, Johnstone, and Gilbert Ranges. The principal eucalypts are ironbark, grey, spotted, and red gum, blackbutt and turpentine; Moreton Bay, brown, and Bunya Bunya pines represent the conifers; and red cedar, beech, tulipwood, rosewood, red bean, and black bean are among the brush timbers of fine grain. On the extensive plateaux west of the Divide there is but little timber; and towards the vast basin of the interior, the low ridges and banks of the short water-courses bear a growth of stunted eucalypts such as the gimlet gum, the desert sheoak, acacias, and mallee.

The chief supply of mill timber (eucalypts, Moreton Bay pine, etc.) is in the southern coastal region, from the New South Wales border as far north as Gladstone. In the regions between Rockhampton and Ingham the supply is not so plentiful; but northward of the latter town, the red cedar, kauri pine, and black bean are luxuriant. Large

supplies of these valuable trees are found on the Barron Valley reserves, and in other localities between Ingham and Port Douglas. Inland from this zone of heavy forest is another, less densely timbered, bearing cypress and other pines, ironbarks and acacias. In the south-western regions of the State the cypress pine flourishes.

(iv.) *South Australia.* The principal forest districts of South Australia proper are restricted largely to the hill ranges in the neighbourhood of Adelaide and Spencer Gulf. The trees, however, have not the fulness and lofty growth of those of the eastern and south-western borders of Australia. Red gum is widely distributed, though never far from water; and there are belts of timber where, from the general appearance of the surrounding country, they would hardly be expected. The stringy bark has its habitat principally in the hills, and is but rarely seen on the plains; other useful hardwoods are the white and blue gum and peppermint. Blackwood (in demand for cabinet work) is common in the south-east and along the eastern border, but is rare near Adelaide. Wattle also is cultivated for its gum and bark. Sheoak appears in districts less thickly forest-clad, and ti-trees inhabit low, damp situations. The sandalwood trees grow luxuriantly in Yorke Peninsula. On the great plains of the interior there is little vegetation, patches of forest country being occasionally found, while here and there fertile spots of grass land, but generally not of large extent, are met with. Groups of stunted shrubs, and small scattered trees—sheoak, eucalyptus, and wattle—mostly of limited extent, rise from the plains like islands.

(v.) *Northern Territory.* In Central and Northern Australia there is little forest, until the hills where the waters of the northern river system take their rise are encountered. On the plains to the north of the McDonnell Ranges there is a thin clothing of mulga scrub, with gum trees marking the water-courses. Occasionally patches of heavier gum forests are met with. Stirling Creek is lined with the bean tree. The mulga scrub thickens, and with stunted and mallee gums furnishes a uniform vegetation as far north as Powell's Creek. Here, with red gum still lining the water-courses and flooded gums on the flats, the vegetation becomes more varied. On the ranges pines, fig trees, and orange trees (*Capparis*) occur. Heavy timber clothes the uplands about the Roper River, and the tableland which stretches across the territory at a distance from the coast of from 30 to 100 miles bears large paperbark trees, Leichhardt pines, and palms. On the higher steppes there is also abundance of bloodwood and other varieties of eucalyptus, besides other kinds of trees. Many prominent fibre plants are native to the territory.

(vi.) *Western Australia.* The coastal timber belt runs along the western shore from the Murchison River to the Leeuwin, and along the southern shore from that point to beyond Albany, clothing with trees the Victoria, Herschel, Darling, and Stirling Ranges. Pre-eminent among the trees of this State for strength and durability are the jarrah and karri. A great belt of the former stretches eastward of the Darling Range to upwards of 100 miles in breadth, with a length of 350 miles. Between this region and the coast are two well-marked belts of tuart and red gum. In the extreme south-west of the State the main karri belt stretches from Augusta to Albany. Eastward of the jarrah belt a strip of white gum encloses a narrow belt of York gum, its southern extremity almost reaching the coast, while its northern limit extends even beyond that of the jarrah tract. Still further east the forest thins, a poorer growth of white gum giving place to brushes, scrub, and dwarf trees. Along the shores of the Great Australian Bight there are stunted eucalypts, with casuarinas and wattle. In the north-west, on the King Leopold and St. George's Ranges, there are forest areas, but from Dampier Land to below Shark Bay there is no coastal forest, and in many cases the stunted bush and scrub lands infringe on the sea-coast.

(vii.) *Tasmania*. The Tasmanian forest consists chiefly of eucalypts, widely distributed over the island; and of conifers, such as the Huon, the King William, and the celery-top pines, flourishing in the western and southern parts. The principal hardwoods of the eucalypt family are the blue gum, stringy bark, peppermint, and silvertop iron-bark, while among woods of fine grain are the blackwood, beech or myrtle, sassafras, native cherry, and sheoak. Black and white wattles also flourish in various parts of Tasmania.

3. Distribution of Timber in the Commonwealth generally.—The more conspicuous timber regions of Australia as a whole are the eastern and southern portions, including Tasmania, and, again, the south-western portion northwards and eastwards from Cape Leeuwin. In regard to distribution, on the eastern side of the continent the largest timber is found on the crests and coastal slopes of the mountain ranges, but in the south-west, in addition to the vegetation between mountains and sea, a large area of forest stretches inland from the coastal ranges. The hills encircling Adelaide and Yorke and Eyre Peninsulas also bear good forest. The Kimberley district is timbered, and in the Northern Territory and round the shores of the Gulf of Carpentaria there are considerable forest areas. But the coastal regions of West and North-West Australia, except in the case of the districts named, and the shores of the Great Australian Bight and Encounter Bay, are devoid alike of mountains and forests. The interior of the continent is thinly timbered, or almost destitute of vegetation, an occasional limited area of forest, generally in connection with mountain systems though these themselves are scarce), acting as a relief in the landscape.

§ 2. Forestry.

1. Objects.—Economic forestry, aiming at the conservation of forestal wealth by safeguarding forests against inconsiderate destruction, and by the suitable re-forestation of denuded areas, is essential to the preservation of industries dependent upon an adequate supply of timber, and to the perpetuation of a necessary form of national wealth. Though in Australia large areas of virgin forests still remain, the inroads made by timber-getters, by agriculturists, and by pastoralists—who have destroyed large areas by “ring-barking”—are considerable; and it is not unlikely that climatological changes are caused thereby. It is asserted that variations in climate, and alternating periods of drought and flood, desiccation and erosion of soil, with loss or diminution of fertility, have resulted from forest denudation in countries bordering the Mediterranean. In many of the States of America diminished rainfall is said to have followed the destruction of large forest areas, and in Mauritius, timber-clearing in the hills destroyed the even distribution of rainfall, causing floods and soil denudation. Moreover, beneficial consequences appeared to have followed on the planting of trees on denuded lands, or along eroding coasts, and it is obvious that a forest covering tends to beneficially regulate the effects of rainfall.

Successful planting of exotics in various parts of the Commonwealth has demonstrated that the Australian climate is suitable for the cultivation of a large number of the most valuable and beautiful of the world's timber trees.

2. Forestry Departments.—Each State of the Commonwealth, excepting Tasmania, has organised a separate forestry department or branch of service specially charged with forestal matters. Forest improvement work is carried on, areas of young forest being cleaned up by the felling and removal of stunted, diseased and suppressed growth, the