

# Scots Pine — The Forgotten Species of Irish Forestry?

O. V. Mooney

6 Brewery Road, Stillorgan, Co. Dublin

## HISTORICAL BACKGROUND

Scots pine (*Pinus sylvestris* L), otherwise but less frequently known as Scotch pine, Scots fir, fir deal and other variants, is the most widely distributed of the pines. Its natural distribution ranges from Scotland through the Northern European countries and south by occasional occurrences as far as Spain, France, Italy, Yugoslavia to Northern Turkey and on north-eastwards through Russia to the Sea of Okhotsk, a distance of some 8,000 kilometers. The Gaelic name for pine in Ireland is gíus (Dineen), while octac is also mentioned (Henry & Elwes). These names may possibly stem from the time when Scots pine may have survived in Ireland as an indigenous tree and variants of gíus are used to describe bog deal and so in that sense apply to the native tree rather than any of the introduced pine species. The name gíus or octac are of rare occurrence in Irish place names, while the equivalents are quite frequent in Scotland.

While vast areas of Ireland, both mountain and lowland, were covered by Scots pine forests in pre-historic times and, possibly, survivors continued into comparatively recent times, it is generally accepted that there is no provable survivor of the native species today. In 1908 Henry and Elwes in mentioning records of possible native pine forests at Killarney, Nephin and Crossmolina stated “there is very scanty evidence of its existence as an indigenous tree in modern times”, while Lloyd-Praeger writing in 1936 said “the recent complete disappearance of the pine as a native is the most notable event in the history of Irish trees”. In a recent Faunistic study Martin C. D. Speight in the Irish Naturalists Journal concludes “there would then be virtually no faunal basis for arguing that indigenous *Pinus sylvestris* had survived in Ireland until the tree was re-introduced to the Irish flora by man”.

Nevertheless, while the weight of opinion is that the native pine has not survived as a tree into the present time, the intriguing question remains as to what might be the reasons for the disappearance of a species which covered vast areas of Ireland up to

circa 1,500 B.C., and may well have survived in a minor way into early Christian times and later. The effects of over two thousand years of agricultural development, of shifting cultivation and, probably, extensive forest fires, the utility of the timber and so on, may offer the most reasonable explanation for the assumed extinction of the native species but perhaps to the wishful if not objective thinker there remains a grain of doubt. A surmise that "it may have survived as a native tree long enough to have been propagated in nurseries" (Forbes, 1933) would seem a possibility as would likewise the perpetuation of the genes by isolated survivors to the time of the early introduction of the species and continuance by inheritance in that way.

#### INTRODUCTION OF THE SPECIES

With the establishment and development of the estates and demesnes in Ireland came the tree planting vogue — mainly and increasingly from the beginning of the 18th century and with it earlier the introduction of Scots pine about the middle of the 17th century. Fitzpatrick records that the first genuine 'Scots' pine in Ireland may possibly have been one planted about 1652. Subsequently, it came to be used extensively in private demesnes and was, with larch, the main conifer species planted. These early introductions, and indeed later ones too, must have come mainly from seed sources of the indigenous forests of Scotland. The use of the species continued until the decline in estate planting about 1900, but survivors of the later plantings are still to be seen in some private woodlands and are valuable in providing proof of the tree's capability.

Following the establishment of the State Forestry Service in Ireland in 1903, the popularity of Scots pine as the main conifer species was maintained in a rapidly increasing annual planting programme until about 1950 when a dramatic decline took place. In 1933-34 Scots pine made up 31% of the total State planting programme in that year, in 1949-50 it was 20%, in 1952-53 it had dropped to 6%, and by 1956-57 it had faded to 3.4%, declining further to 1.1% in 1970, and to 0.4% in 1980, and to further insignificance at the present time. In terms of area the decline has been from 3036 ha planted in 1936-40 to 679 ha in 1966-68, and some 20 ha or less annually for the last few years.

The causes of this decline may, briefly, be attributed to the failure of the species to give satisfactory results over substantial areas and the growing evidence that better results could be obtained by lodgepole pine (*Pinus contorta*, Dougl. Fr. Laud), coastal provenance, on poor mountain sites for which Scots pine had

generally been selected until the early 1950s. It might be added that the essential economic considerations, the motive of early return on capital investment, dominant in forestry thinking over the last three decades or so have favoured the selection of faster growing species in preference to Scots pine on good sheltered soil, sites for which the latter was often selected in earlier times when economic consideration did not take precedence. Indeed, in circumstances where the now known silviculturally appropriate species Douglas fir, and even Sitka spruce in certain cases, can produce a timber crop from 35 years on, with Scots pine at its top yield class,(14), there is a further wait of 15 years or more for saw log dimensions. It is difficult to foresee a time when Scots pine will find more than a minor role on these good sheltered mineral soil site types. There are many on-ground examples of this contrast still extant in Counties Wicklow, Tipperary and other places.

#### SILVICULTURAL CONSIDERATIONS

The reasons for the decline and near rejection of Scots pine in Irish forestry may be attributed to a number of factors acting singly or in combination. Substantial areas of high-lying and exposed mountain podsoles and other heather site types, notably midland peats, were planted but due to exposure, soil infertility, adverse competition by heather or other vegetation, or a combination of some or all of these factors, the plantations failed to produce satisfactory growth. In pre 1950 times silviculture here was very much influenced by Continental and Scottish thinking in which Scots pine was held in high regard as the elite quality tree. Indeed, it is perhaps fair to say that Scots pine in these early days was regarded as the ultimate in perfection and one can recall the somewhat contemptuous term of “yard a year trees” in regard to Sitka spruce and other fast growing species, implying inferiority to the more refined and high quality ideal. Prof. M. L. Anderson, an internationally distinguished Forester and one time Director of the State Forestry Service in Ireland, in his recommendations for choice of species designates grass-heath, calluna-heath, vaccinium, calluna-lichen communities as suitable for Scots pine.

Neither can the question of seed provenance unsuitability be disregarded as an occasional adverse factor. This consideration of provenance is perhaps emphasised by the fact that while some very good stands have been grown on more fertile sheltered sites, notably bracken, vaccinium, luzula and calluna-briar types, unhealthy crops of very poor form appear on these sites also. Although it is probable that most pre 1900 private estate crops came from Scottish sources, supplies of seed for the State Forest

Nurseries in pre 1930s came not only from Scotland but also in some quantity from Northern European sources, from Hessen, and other places of unknown origin. While the importance of suitable seed sources was generally understood in the early times of State forestry, the stage had not been reached when favoured seed sources could be specified and provenance research was yet to come. Indeed, not seldom, considerations of cost gained preference in the purchase of seed lots when no positive provenance knowledge was available to justify rejection. It can be said, however, that some very fine stands survive still, both from estate and State plantings, and in the latter these have been identified and studies on the potential of their progeny to produce crops of vigour and fine form are underway. In particular, the progeny of one such stand at Clogheen Forest is proving equal to or superior to other known select provenances from Scotland in comparative trials. Recent successes with home and select Scottish provenances on midland peats, both raised and cut-over, open up new and very hopeful prospects for the effective and competitive use of the species in these areas.

The influence of Continental silviculture is again in evidence in the close spacings of the earlier State plantations where spacing from 3ft x 3ft (.91m) to 4.5ft x 4.5ft (1.37m) were used frequently. Conservative thinning practices in well growing stands, together with the difficulty of marketing thinning produce, has in many cases delayed first and subsequent thinnings leading ultimately to diameter dimensions below the potential of their particular yield class. The practice of selective exploitation of poles for transmission has also contributed abnormality in some stands. In the private sector, with some exceptions, silviculturally managed pure stands are infrequent, but substantial evidence of the potential to grow high quality timber exists in surviving stands and groups of trees, some of them emanating from larch or broadleaf mixtures. The European larch (*Larix decidua*, Miller) and Scots pine mixture was much favoured in estate planting, and in the early days of State forestry and, with the early removal of the larch for pit props, fencing, and other small produce, led ideally to a final crop of Scots pine.

Younger stands planted in a limited and experimental way in the last 20 years show great promise on a variety of raised and cut-over midland peats. Yield class levels are consistently between 12 and 14, and occasionally 14+, and tree form is excellent. These stands have been established with modern techniques of ploughing, fertilising, and from select seed sources. The stability of Scots pine on peatland media and the absence of 'basal sweep' is a very evident advantage

over lodgepole pine, whilst its frost hardiness might find favour also over other species in certain midland situations.

Cases have been observed on raised bogs where Scots pine crops of over 10 years and with similar establishment treatment have grown better and look better than Sitka spruce in juxtaposition and showing down in growth and with symptoms of nutrient deficiency. In this context it is suggested that more intensive silvicultural attention to spacing, thinning and pruning with Scots pine would be rewarding. Better techniques of establishment and improved seed provenance giving faster earlier growth may justify wider spacings with early pruning of select final crop stems aimed at producing high quality timber and avoidance, to some extent, of unsaleable early thinnings thereby also modifying difficulty with pine shoot beetle.

Nursery techniques for raising Scots pine are well known and uncomplicated, and the main pest Needle cast (*Lophodermium pinastri*) can now be easily controlled. Other main pests during the life of the species are Pine weevil (*Hylobius spp*), Pine sawfly (*Diprion pini* and *Neodiprion sertifer*), Pine bark beetle (*Tomicus piniperda*), Pine shoot-moth (*Rhyacionia bouliana*) and to a lesser degree the fungi Butt rot (*Fomes annosus*) and Honey fungus (*Armillaria mellea*). Although some of these pests can be very damaging to crops from time to time, none are a major deterrent. Periodic out-bursts of activity of Red squirrel (*Sciurus vulgaris* (Linn)) are associated with serious damage to the upper main stem. One such out-break, notably in midland and southern areas, in the early 1970s, devastated some stands of Scots pine. The damage is deforming and permanent, resulting from internodal debarking of the upper stem and no effective measures of control have been devised.

Specimens of fine free standing trees are still to be found in many of the estates. Mitchell records a tree at Curraghmore planted in 1770 which was 120ft (36.5m) in height and 9ft 9ins (3m) in circumference in 1968. The 1966 and 1968 Mitchell-Hanan surveys mention other fine specimens, notably at Mt. Usher, Castle Forbes and Adare Manor, and there are many others. As to longevity, Mitchell (1972) mentions a tree at Inverary blown down in 1951 which was 128ft (39m) tall, dating from about 1620. The now seldom visited Scots pine plot at Avondale planted in 1905, while abnormal, is of interest. Rough measurements in this stand, which was under-planted with *Tsuga heterophylla* circa 1950, indicate as follows, Yield Class 10, Av. diameter 43.2cms, S.P.H. 330. Individual trees contain 2m<sup>3</sup> and boles of some trees have been cleaned up to 15m or thereabouts by the effect of the underplanted *Tsuga*.

## CONTEMPORARY CONSIDERATIONS AND CONCLUDING COMMENT

There has been and still is ample evidence that Scots pine crops of high yield class and of good timber quality can be grown in this country. It is estimated that there is some 9,000 ha of pure Scots pine crops both in State and private ownership in the Republic. It can be assumed that the vast majority of these crops stand on good mineral soil sites where the optimum yield class compares unfavourably with species such as Douglas fir (*Pseudotsuga menziessii* (Mirb)), Sitka spruce (*Picea sitchensis* (Bong) Carr) and other conifer species whose growth potential meet the demands of contemporary economic forestry practice by the earlier production of saw log material, the greater utilisability of the thinning produce, and substantially shorter crop rotation. Faced with these facts, Scots pine is certain to be replaced by other species on the better sites in following rotations. The species, therefore, can only fill a very minor role, if any, in future, as a forest crop on mineral soils, though it will have its uses as an amenity tree in many situations and is highly regarded for that purpose.

One of the big problems of land utilisation in the future is the apparently as yet undecided role of the present and eventual cut-over Bord na Mona midland bogs. The area of these cut-over peats is variously estimated but is likely to be of the order of 151,000 acres (60,728 ha). With commendable foresight and on cut-over midland peat made available by Bord na Mona, the Forest and Wildlife Service established species x fertiliser trial plots at Clonsast in 1955 and, with the provision of further adjoining ground, has expanded these studies. The results are highly informative and promising for a number of species, including Scots pine, on the basis of which the case for forestry to play a major part in the ultimate utilisation of these peats is irrefutable. It is contended that Scots pine should have a substantial part to play on these cut-over peats with the aim of growing a specially high quality timber product. Another advantage that might accrue would be the part it could fill, because of its longer rotation, in an intermingled Shelterwood system with other species, and perhaps indeed with agricultural or horticultural crops. Overall, it could be argued that Scots pine could have a place and perhaps an ecological niche on certain peat types of the variable cut-over peats.

It can be expected that with the modernisation and refinement of the timber industry to meet the increasing produce of the forest that in the future high quality products will attract better price distinction than it seems to do in present circumstances. As is well known, Scots pine, as Red deal, is being imported from the Baltic States as one of the main timbers used in constructional work and

house building. It is a versatile timber, being suitable not only as a building timber but also for transmission poles, for chip and fibre board, and paper pulp. Besides it is very acceptable for indoor decorative panelling and for furniture. It may be remembered that kiln dried Scots pine was used as exterior weather boarding in a number of foresters' houses built by the Forestry Service in the mid 1950s and it apparently has survived the test of time since then.

Problems of marketing, availability, and inadequate treatment have more often than not militated against the timber emerging from the mill in optimum condition, but there is ample evidence that the quality product can be produced if properly handled. There is no reason why we should not accept the statement that, "given fair treatment, home-grown Pine wood (Scots pine) is as good as, or better than, the imported timber" (Edlin) and work towards that aim in our silviculture and our sawmill practices.

#### ACKNOWLEDGEMENTS

I am indebted to former colleagues in the Forest and Wildlife Service who have been very helpful in providing information as requested. The on-ground access allowed to various State Forests was an essential basis for the article and is also much appreciated. Both the foregoing sources have provided useful background for the formation of any views — which are my own — expressed in the article. I am grateful too to Lord Ardee for permission to visit his woods at Kilruddery and to Dr. Ted Farrell (former Editor S.I.F.) for reading the first draft and making some useful suggestions.

#### REFERENCES

- ANDERSON, M. L., 1932. *The Natural Woodlands of Britain and Ireland*. Holywell Press, Oxford.
- ANON., 1970. *Forest Research Review, 1964-70*. Stationery Office, Dublin.
- CRITCHFIELD, W. B. and E. L. LITTLE, 1966. *Geographic Distribution of the Pines of the World*. U.S.D.A., Forest Service Misc. Publication, No.991.
- EDLIN, H. L., 1944. *British Woodland Trees*. Batsford Ltd., London.
- FITZPATRICK, H. M., (Ed.), 1965. *The Forests of Ireland*. Society of Irish Foresters.
- FORBES, A. C., 1933. *Tree Planting in Ireland during Four Centuries*. Proc. R.I.A., XLI, No. 6.
- HENRY, A. and E. Elwes, 1908. *The Trees of Great Britain and Ireland*. Printed Privately.
- LLOYD-PRAEGER, R., 1937. *The Way That I Went*. Methuen & Co. Ltd., London.
- MCCRACKEN, E., 1970. *Irish Woods Since Tudor Times*. Queens University, Belfast.
- MITCHELL, A. F., 1970. *The Irish Landscape*. Collins, London.
- MITCHELL, A. F., 1972. *Conifers in the British Isles. A Descriptive Handbook*. Forestry Commission Booklet, 33. H.M.S.O.

- MOONEY, O. V., 1957. *Pinus contorta* in Irish Forestry. Irish Forestry 14, No. 2.
- PURCELL, T. J., 1979. Inventory of Private Woodlands, 1973. Dept. of Fisheries and Forestry, Forest and Wildlife Service.
- SPEIGHT, M. C., 1982. Extinction of *Pinus sylvestris* in Ireland: Relevant Faunal Data. Ir. Nat. Jour. 20, No. 9.
- WEBB, D. A. and A. SCANNELL, 1983. Flora of Connemara and the Burren. Cambridge Univ. Press.