

The Recreational Use of Forest Land

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Abstract

Forests are making an increasing contribution towards meeting the growing demand for outdoor recreation and this is compatible with timber production in the context of multiple use management. Development in the Republic of Ireland came late but there are now 9 forest parks and 350 other sites open to the public. The results of two surveys of visitor profiles, recreational use patterns and the opinions of users are presented, one relating to Lough Key Forest Park and the other to seven sites in Dublin and Wicklow. Use is mainly by family groups for walking in the forest environment and there is a high level of visitor satisfaction. The paper concludes with a consideration of topics relevant to forest recreation planning and development, including publicity and signposting, facility provision and the locational characteristics of sites.

Recreation and Forests

FOREST land is playing an increasingly important role in catering for the huge growth in demand for outdoor recreation. It is used mainly for walking, sightseeing, picnicking and camping but it also accommodates specialist activities such as hunting, fishing, swimming, orienteering, pony trekking, car rallying and nature study. Many people seek the seclusion, tranquillity and freedom to walk without traffic, which the forest environment affords. This paper focuses on the use of forest land for recreational activity but there is also the important related effect of forests on recreation scenery, their role as visual amenities in the landscape.

A great advantage of forest land as a recreational resource is its capacity to absorb large numbers of people, together with their cars and accommodation, because the trees provide visual and sound screening, so that its psychological carrying capacity is high. The physical carrying capacity can also be substantial without causing severe ecological damage, particularly where traffic is channelled along designated routes through the provision of trails. Forests provide sheltered conditions and their recreational usage is less dependent on season and weather conditions than alternatives such as the seaside or open country. The fact that there is usually a high proportion of state ownership of forest land facilitates public access and unified planning and control.

Forest land has always served multiple functions, such as wood production, food gathering, hunting, grazing, living space and watershed protection, but although some forests were reserved for royal hunting long ago, large scale recreational use is a very recent

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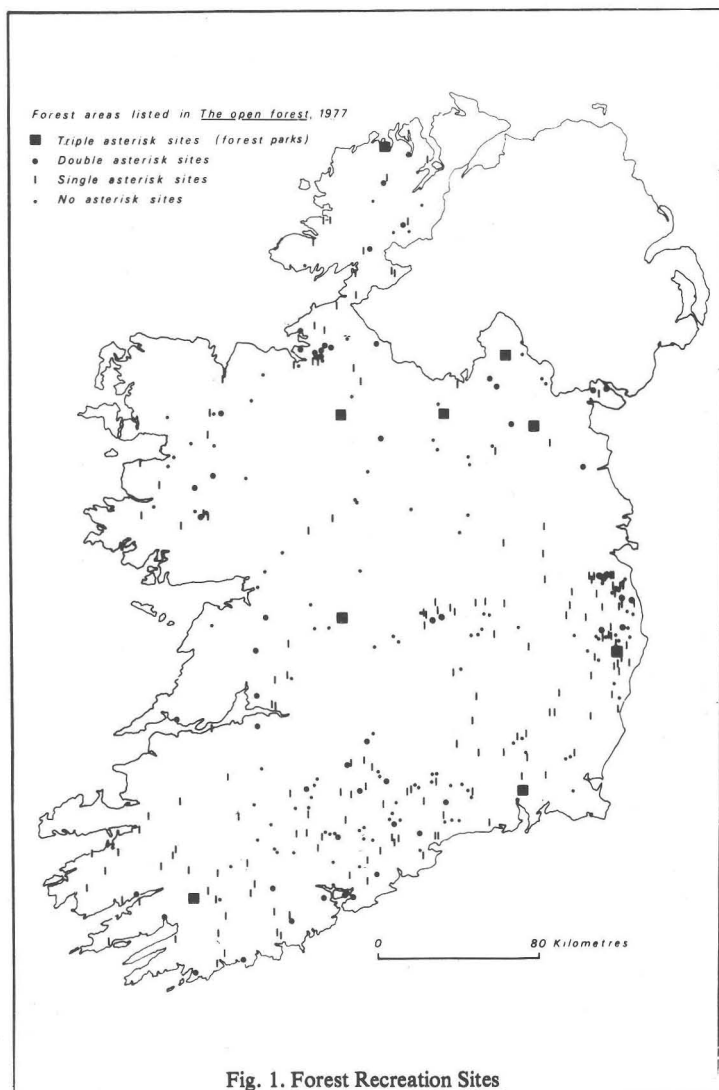
phenomenon. Many foresters, whose training and traditional attitudes had been oriented exclusively towards wood production, were slow to react to the increasing public demand for recreation. They feared widespread damage through fire and vandalism and severe impairment of the productive capacity of forests. Gradually a new outlook has developed, as the viewpoint of foresters is broadening and recreational provision becomes recognised as an essential part of integrated forest management. Through experience it became realised that the fire risk is not so great, with forest users often being an asset in the detection and extinguishing of fires, and that wood production and recreation are highly compatible uses provided that there is careful planning and that minor concessions are made on both sides. Intensive recreational use is limited to a very small proportion of forest land and over most of the forest there is minimal interference with wood production. Bordering car parks, picnic sites, trails and places of general interest, it is necessary to have some manipulation of planting and felling programmes, including elements of age and species diversification and of tree spacing. The main recreational use of forests is at weekends when forestry operations cease but this raises problems through the demand on foresters' leisure time for supervision. Advantageous side-effects of recreational use for forest interests are that evaluation of such non-market benefits strengthens the bargaining position of forestry relative to competing land uses and that favourable public attitudes towards forestry are promoted.

The need for information as a basis for planning forest recreation has prompted studies in several countries, including the Netherlands (Sidaway, 1974), Great Britain and the USA. Because of space limitations, references in the bibliography to this paper are confined to British studies, which include those by Mutch (1968), Countryside Commission (1970), Colenutt and Sidaway (1973), Hall (1974) and Collings and Grayson (1977). Many American studies are listed in the *Bibliography of Forest Service outdoor recreation research publications* covering the period 1942-66 and the eight supplements to the bibliography compiled by the US Department of Agriculture. During 1964 a study was made of visitors to Tollymore Forest Park in Northern Ireland (Kilpatrick, 1965).

Forest Recreation in the Republic of Ireland

The development of forest recreation in the Irish Republic has been very recent. The public was not encouraged to enter the state forests until the mid 1960s. Although wood production remains the primary objective of forestry policy, there has been a significant reappraisal of the function of forests. The Forest and Wildlife Service, as the largest landowner in the state, has become increasingly aware of the

recreational role which its properties can fulfil. The public is invited and encouraged to visit state forests on foot and, other than a prohibition on the lighting of fires, there are few restrictions on the recreational use of forest land by pedestrians. It is estimated by the Forest and Wildlife Service that there are now one and a half million visits to state forests annually.



The recreational use of forest land focuses on the 359 sites which are specifically designated as being open to the public through being listed in the current edition of the booklet *The Open Forest* (Forest and Wildlife Service, 1977). They are quite widely distributed but with a tendency towards concentration in coastal counties (Fig. 1). The numbers of sites in individual counties range from 54 in Cork, 45 in Wicklow, 33 in Waterford and 22 in Donegal to 4 in Louth, 3 in Meath and Westmeath and 2 in Longford. The distribution is necessarily related to the spatial pattern of state forests, which in turn are associated with land of low agricultural potential on uplands or bogs and with former estate woodlands. It is also affected by the age structure of forests and by their scenic and other interest characteristics.

A fourfold grading of sites based on the amenities provided is adopted in *The Open Forest*, though not all sites have been developed to the state indicated. The most developed sites are the nine forest parks, identified by a triple asterisk. They are, with estimated April-September 1976 visitor figures where appropriate: Lough Key, Co. Roscommon 264,000; John F. Kennedy, Co. Wexford, 80,000; Dún A' Rí, Co. Cavan, 61,000; Guagán Barra, Co. Cork, 58,000; Ards, Co. Donegal, 52,000; Avondale, Co. Wicklow, 36,000; Portumna, Co. Galway, 22,000; Rossmore, Co. Monaghan; Killykeen, Co. Cavan. The forest parks are the only sites at which a charge is made, a car park fee of 30p with a seasonal ticket available at £1.00 for individual parks. Park facilities include car parks, picnic places, nature trails and forest walks and at individual parks there are features such as water-based activities, historical remains, gardens, shops and restaurants. Forest sites with particular attractions such as nature trails are indicated in the booklet by a double asterisk, other developed places by a single asterisk and those at which there are only forest walks and viewing points have no asterisks. It has been necessary to introduce into the forest man-made features such as picnic tables, litter bins, seats, paths, signposts, gates, stiles and footbridges. The design of these artefacts has generally been of a very high standard and their rustic appearance harmonises with their surroundings.

Studies elsewhere indicate that there are similarities between countries in the patterns of recreational use of forests, but it is important that investigations should be made in the Irish context. As no such studies in the Republic of Ireland have been published, the two surveys whose findings are summarised in this paper were undertaken as an initial contribution to a greater understanding of forest recreation in the state. The surveys focused on visitor profiles, recreational use patterns and the opinions of forest users. Interviewer-administered questionnaire surveying at the recreation sites was adopted as the means of obtaining uniform information with a very high response rate. Although the

surveys were conducted independently by different authors, the areas investigated were selected in order to represent different circumstances. One study (Bagnall, 1977) was of the use of Lough Key Forest Park, which is the most developed of the forest parks and accounted for 46% of their total visitors in 1976. The park is in a region with few urban centres and little tradition of outdoor recreational development. The other study (Phipps, 1977) was of a number of sites in Counties Dublin and Wicklow. This area is accessible to the major urban concentration in the country and forest site provision with respect to population is only half the national average.

Lough Key Forest Park

Lough Key Forest Park is situated in north Co. Roscommon, 110 miles from Dublin and 25 miles from Sligo. It is sited on the southern shore of Lough Key, in an area of considerable scenic, wildlife and historical interest. The park is within the former Rockingham estate, which was sold to the Department of Lands in 1959 following a disastrous fire in the mansion two years previously. In 1966 a joint development of the park by tourism and forestry interests was agreed; the Forest and Wildlife Service has had responsibility for timber production and park management, and amenity design, tourist information and promotion have been allocated to Bord Fáilte and the Midland Regional Tourism Organisation.

A design strategy in general accordance with the international concept of a recreational park was adopted. A threefold division of the park according to levels of recreational usage was assumed. A small area was allocated for high intensity use, comprising part of the lake shore, boating facilities, visitor centre, viewing tower, car park and surrounding open parkland, together with a detached camping and caravan area. Outside this zone is one of commercial forestry integrated with recreational development, which contains nature and tree identity trails, general forest walks, bog gardens and wildlife reserves. In addition to the 400 acres accessible to the public, there are 450 acres used only for commercial timber production. Particular problems faced in design planning were the extent to which elements of the original estate should be preserved and the introduction of new structures into the mature landscape. Estate features which were retained included the parkland and woodlands, church ruins, subterranean tunnels, ice house, gazebo, harbour, canals and stone bridges. The most controversial feature of development was removal of the mansion ruins and their replacement by the Moylurg viewing tower, a concrete structure of modern design and 70 feet height. Good design standards and low profile timber construction were adopted for the visitor centre, which comprises a restaurant, shop, toilets and seating, and the reception office of the

caravan park. The car and caravan parks were landscaped and camouflaged by using earthworks and tree planting.

The questionnaire survey of Lough Key Forest Park users was conducted during the first three weeks of August, 1976. Of the 253 interviews conducted, 174 were with day visitors, and the remainder were with resident visitors, of whom 65 were campers in the park and 14 were persons who had arrived by cabin cruiser. A constant daily rate of interviewing was adopted, although there was consequent undersampling on days of peak usage. The area of the visitor centre and harbour was selected as the interview point on the basis of its offering a wide cross section of park users.

A distance of less than 30 miles to the park had been travelled by 68% of day visitors. Counties Roscommon and Sligo were the sources of 61% of journeys, with the towns of Sligo and Boyle being the largest points of origin. With regard to place of home residence, there were distinct differences between day and resident visitors. Dublin was the home of 32% of all visitors, 21% of day visitors and 58% of resident visitors. Conversely, 39% of day visitors lived in the north-west of the country but only 4% of resident visitors; 28% of all visitors lived there. The significance of the park as a local amenity is indicated by the fact that residents of Co. Roscommon accounted for 20% of day visitors. Of all visitors, 8% were from Northern Ireland and 14% were overseas tourists, Britain being the major source. People holidaying in the area accounted for 58% of visitors to the park, 40% of the day visitors and all of the resident visitors.

The modes of travel of visitors were: motor car 87%, boat 6%, tour bus 3%, public transport 2%, other modes 2%. The dominance of the private car was less amongst resident visitors, of whom 18% arrived by boat and 6% by public transport but no day visitors used these means of travel. Family groups comprised 75% of those interviewed, 13% travelled with friends and 3% alone. The average party size was 4.8 people. As two-thirds of parties contained children, with an average of 3.1 per group, the typical party consisted of two adults and three children. Persons under 19 years old comprised 47% of the members of respondent parties and only 6% were aged over 55 years. The most common adult age category was 35-44 years. Head of household occupations may be classified according to socio-economic groups: AB (upper middle and middle) 20%; C1 (lower middle) 30%; C2 (skilled working) 26%; DE (other working etc.) 13%; F (farmers) 10%.

The most common means of visitors first hearing about the park were through the recommendations of friends 42% and local information 26%, with 6-7% for each of newspapers/magazines, guide books, signposting and tourist offices. Local information was

particularly important for people from the adjacent area and guide books ranked second as a source of information for resident visitors. This was the first visit to the park for 40% of all visitors, 35% of day visitors and 49% of resident visitors, with 25% of each category making their second visit. Repeat visits were most common amongst local people, 51% of Co. Roscommon residents having been to the park at least seven times previously, as compared with 17% of both all visitors and Dublin residents.

The average length of stay in the park by day visitors was 3.8 hours, with most parties staying 2-4 hours. Afternoon use predominated, most people arriving at 2-3 p.m. and leaving by 6 o'clock. The activities or visits in which people engaged while in the park were: general walking 87%, shop 73%, sitting outside 70%, viewing tower 50%, restaurant 45%, boat trip 44%, bog garden 40%, historic sites 38%, nature trail 30%, sitting in car 15%, tree identity trail 14%, fishing 10% and other pursuits 30%, which included boating, swimming, picnicking and visiting the wildlife reserve. Day visitors engaged in an average of 4.8 activities and resident visitors in 6.6 activities. The main reason for visiting the park was given as general relaxation and enjoyment by 41% of visitors, followed by sightseeing 20%, the attraction of the lake 12% and the desire to see the park 11%. Camping and caravanning was the principal attraction for resident visitors. When asked what they would have done on the day in question if they had not come to the park, 25% felt that they would have stayed at home, 21% would have visited the seaside and 15% would have gone for a drive.

A high level of visitor enjoyment of the park was expressed, 93% enjoying their visit very much, 6% fairly well and 1% not very much or not at all. The most attractive aspect of the park for 38% of visitors was its general atmosphere, which was described as peaceful, relaxing and non-commercialised. Other features which appealed to people included the layout of the park, walks, general upkeep, lake, boats, lack of cars and suitability for children and family groups. The car entrance fee was considered low by 45% of respondents, particularly the seasonal rate, and reasonable by 55%, with only one person assessing it as too high. With regard to adverse criticisms, signposting to the park on the Dublin-Sligo road was the weakest feature, 34% of visitors evaluating it as only fair or worse. Signposting within the park was the second most criticised aspect, 15% of visitors considering it to be fair or worse, though 44% assessed it as very good. The park guide book had been seen by 49% of visitors, almost all of whom thought it good or very good. The walks and the campground received particularly favourable comment. When asked for suggestions concerning changes or

improvements in the park, 64% of interviewees responded. The most common proposals related to the provision of sporting facilities, especially for swimming, to general development and to the provision of amusement and childrens' play facilities, together with recommendations concerning the restaurant, park maintenance, viewing tower, boating and walks.

Dublin and Wicklow Forest Sites

In the 1974 edition of *The Open Forest* 9 sites were listed as being open to the public in Co. Dublin, all in the south of the county, and 34 in Wicklow, mainly in the east. The sample of sites for survey was not selected randomly because of the small total number of sites and a desire to investigate forests of different grades widely distributed over the area of study. Those sites surveyed were: Curtlestown and Kilmurray as examples of no asterisk forests, Knocksink and Trooperstown as single asterisk forests, Cruagh and Devil's Glen as double asterisk sites and the only triple asterisk site in the area, Avondale Forest Park. For each of the categories except Avondale, one of the sites was selected as being comparatively near to Dublin and the other further away. The survey was conducted between mid July and early September, 1976. Interviewing was done in the vicinity of the car park at each site on one weekday, one Saturday and one Sunday. There was a complete response by those approached, the 461 questionnaires representing 69% of the parties who visited the sites on the days concerned. The numbers of interviews conducted at each site were: Curtlestown 8, Kilmurray 11, Knocksink 65, Trooperstown 59, Cruagh 100, Devil's Glen 69 and Avondale 149.

The number of parties visiting the forests increased with the range of facilities available, from an average of 9 for the three-day period at each of the no asterisk sites, through 62 and 108, to 312 at the triple asterisk site. Only at the double asterisk sites was there a substantial difference with distance from Dublin, the number of parties visiting Cruagh, 9 miles from Dublin, being more than double that at Devil's Glen which is 30 miles from the city. The daily distribution of total party visits was: Sunday 406, Saturday 153 and weekday 113. Afternoon use predominated, with 55% of parties arriving between 2 and 5 p.m., though there was an indication of proportionately greater morning and evening usage near to Dublin.

Family groups comprised 74% of parties interviewed, 11% of people coming with friends, 10% with family and friends and 4% alone. The average party consisted of 3.9 people, including 2.6 children. Children were present in 59% of parties, two being the most common number. The age structure of party members was: under 15

years, 39%, 15-24, 7%, 25-44, 32%, 45-64, 18% and 65 and over, 4%. There was a tendency for young adults to visit the forests with their children and for middle aged adults to come in pairs or with friends of their own age. The occupational structure of respondents was: professional and semi-professional 21%, sales and commerce, 19%, administrative 19%, skilled and semi-skilled 19%, unskilled 8%, farmers 2%, others 12%.

Counties Dublin and Wicklow were the place of residence of 88% of forest visitors, 71% from Dublin and 17% from Wicklow, together with 6% from other parts of the Irish Republic, 1% from Northern Ireland and 5% from overseas. Only 20% of Dublin visitors came from north of the River Liffey, despite the lack of access to forest sites on the north side of the city. Wicklow residents comprised 38% of visitors at Devil's Glen but only 1% at Cruagh. The tourist attraction of Avondale was reflected in the fact that 21% of its visitors were not residents of Dublin or Wicklow. Only 4% of visitors travelled more than 40 miles to the forest site, 40% travelling 10 miles or less. The tendency at each site was for the predominant travel distance to be that from Dublin. Motor cars were the mode of transport for 94% of visitors, with 2% travelling on foot, 1% by motor cycle and 1% by public bus. Knocksink was the only survey site located on a bus route and there 8% of the visitors used public transport.

People on day excursions from their homes comprised 87% of forest visitors. Those on holiday away from home were proportionately more significant at sites further from Dublin and at higher grade sites, accounting for 0% of visitors at no asterisk sites, 6% at single asterisk sites, 10% at double asterisk sites and 24% at the triple asterisk site. When commencing their journeys on the interview day, 72% of parties had intended to visit the forest site concerned, the intention to visit increasing from 47% at the no asterisk forests to 80% at Avondale. No previous visit to the interview site had been made by 31% of respondents, with 15% having been there once before, 12% 2-5 times, 9% 6-10 times and 33% had been there on more than 10 visits. The frequency of previous visits was highest at sites near to Dublin, at Cruagh and Knocksink combined the first-time visitors comprising only 18% of the total and 55% being on more than their tenth visit. There was an inverse relationship between frequency of visit and distance travelled, people tending to visit more often those forests which are located convenient to them. With respect to all forest sites in Dublin and Wicklow which are visited frequently, Cruagh and Bellevue received the highest scores for amount of usage, followed by Tibbradden, Avondale, Djouce, Devil's Glen, Glendalough, Knocksink,

Trooperstown, Hell Fire Club and Three Rock Mountain. The frequency of visits increased with the grade of site and with proximity to Dublin.

The original sources of information about the interview sites being open to the public were: family and friends 48%, chance 36%, newspapers and magazines 7%, *The Open Forest* 5%, information centres 3% and books 1%. Only 13% of visitors to Avondale discovered it by chance but 19% read about it in newspapers, magazines and books. The principal means of finding the route to the forest on the day of the interview was given as prior knowledge by 71% of visitors, chance by 13%, maps 5%, told in advance 4%, enquiries on the way 3% and *The Open Forest* 2%. The main reasons given for visiting the forest sites were an interest in nature and trees, for peace and quiet, for physical exercise, for the scenery and for fresh air; these together accounted for 64% of the reasons given. At Avondale, historical interest, the pleasant facilities and the purpose of showing family or friends were significant motives, accounting for 39% of the reasons given there.

The average duration of forest visit was 2.5 hours, the proportions being: less than 1 hour 18%, 1-2 hours 34%, 2-4 hours 31% and over 4 hours 17%. The duration of stay increased with the grade of forest, the proportion of visitors remaining for 2 hours or longer being 5% at no asterisk sites, 31% at single asterisk sites, 41% at double asterisk sites and 75% at the triple asterisk site. Walking was the most common activity, engaged in by most people during their forest visit. Of all activities recorded, forest walks accounted for 35% of the total, walking a nature trail 8% and taking a dog for a walk 5%. The role of the forest walk declined from 63% of all activities at the no asterisk sites to 30% at the triple asterisk site. Picnicking ranked as the second activity, 23% of the total, though the wide range of interpretation of the term which is possible must be borne in mind. Sitting and watching accounted for 9% of stated activities, its incidence being highest at those sites with a good view. Visiting the house was an important activity at Avondale and the rivers at Trooperstown and Knocksink had minor attractions for swimming and fishing.

The opinions of visitors on a variety of site characteristics were sought. Advance signposting at the only two sites at which it was present was considered to be bad by 61% of visitors to Devil's Glen and 44% at Avondale, with an additional 16% and 28% assessing it as only reasonable. The evaluation of car parking facilities was: excellent 26%, good 47%, reasonable 21% and bad 4%. Curtlestown, Kilmurray and Knocksink received the lowest assessment and the most highly rated was Avondale, where 65% of

visitors considered the parking facilities excellent. Litter bins were provided at sites with one or more asterisks and were evaluated excellent by 7% of visitors, good by 45%, reasonable by 24% and bad by 18%, 5% having no opinion. Knocksink and Cruagh combined were considered bad by 45% of their users in this respect and Avondale had the highest rating. The assessment of picnic table provision at sites with one or more asterisks was: excellent 9%, good 51%, reasonable 27%, bad 6%, no opinion 7%. Again Knocksink and Cruagh were rated lowest, 12% and 23% considering them good or excellent, compared with 97% at Avondale. No opinions on the nature trails and pamphlets were held by 27% of the visitors at the three sites where they occur but they were evaluated as excellent by 9%, good by 60%, reasonable by 5% and bad by nobody. Directions within these forests were considered good or excellent by 64% of visitors but only 36% at Devil's Glen.

When asked about what additional facilities they would like to see provided in the forest, 38% of visitors did not indicate any desired further development. Toilets were the facility most often mentioned, accounting for 30% of the suggestions at sites other than Avondale, where toilets have been provided. The other most desired facilities were water points, educational displays, restaurant, shelter huts and more litter bins and picnic tables.

When visitors were asked what they had particularly enjoyed in the forest, no feature was listed in 89 instances. There were 162 references to the peace and quiet and this constituted the major attraction. Other references were to scenery 105, trees 77, scope for walking without cars 57, river 53, fresh air 47, naturalness 39, house and grounds (Avondale) 28, relaxation 26 and safety for children 21. There were few aspects of the forests which people particularly disliked, 87% of visitors indicating that there was no such feature. Of the small number of dislikes, the most general was litter with 24 references, followed by bad forest roads 16 and the allowance of cars into Trooperstown and Knocksink 10.

The high degree of satisfaction among visitors is further reflected in the fact that 92% intended to visit the forest again. Only 2%, mainly tourists, indicated that they would not return and most of the 5% who were uncertain stressed that they enjoy visiting and exploring different forests. The strong intention to return combined with the fact that almost one-third of people were visiting the forest for the first time suggest high rates of recruitment and growth in forest recreation. Furthermore, a very favourable attitude towards the landscape impact of state forestry is indicated by 91% of the visitors feeling that it added to the appearance of the landscape and

5% being of the opinion that it added in some areas and detracted in others, with 3% feeling that the overall effect was detraction.

Conclusion

There are major difficulties in the design of sampling schemes and the execution of surveys for the investigation of the recreational use of forest land. These include the distribution of sampling by the day of the week, the season, the weather conditions and the type of site and also the location, intensity and technique of surveying visitors at the specific sites. The surveys reported in this paper were of limited scope and their results are valid only for the sites, days and nature of the surveys concerned; they were conducted in the summer months during uniformly fine weather conditions. It cannot be said to what extent the results are indicative of the total situation in the Republic of Ireland, but it is obvious that surveying should be done at other types of sites, during other seasons and under different weather conditions. There is a need for much information on different aspects of forest recreation, including the numbers and characteristics of visitors and of foresters, the ecological effects of recreational use, the carrying capacities of sites and appropriate resource management practices. More general recreation surveys of the whole population or sectors of it are needed also, so that forest recreation and its users can be compared with other recreational activities and the total population.

The two surveys have demonstrated something of the extent and nature of the large recreational demand in the Republic of Ireland for which forest land is now catering and they have shown that there is a high degree of satisfaction amongst visitors. The Forest and Wildlife Service is to be very highly commended for the way in which it has adapted and responded to the need for recreational facilities, for the amount of provision which has been achieved in a short period and for the high quality of the development which has been done. Some users feel that there might be changes and improvements, there are locational aspects which need consideration, and, as in any such development, it is important that there should be consultation and forward planning.

The users surveys and inspection of sites indicate that there are deficiencies in publicity and signposting. Most people discovered the forest sites through the recommendations of friends, local information and chance, with publicity and signposting playing very minor roles. *The Open Forest* is in many ways an admirable booklet but most visitors did not know of its existence and many had difficulty in using it; it seems likely that the inclusion of a map or maps and clearer direction descriptions would be of assistance. More effective publicity

and signposting would lead to greater public participation in forest recreation but it must be recognised that this would not always be an unmitigated desirability. The peace and quiet which the forest environment affords is one of the major attractions for present users and their recreational enjoyment would be likely to lessen as participation levels increase. At some sites overloading of facilities already exists and in such instances a deliberate policy of not promoting additional usage might be adopted. Access to the forests would be facilitated by greater use of display maps and printed maps, with scales, and by more signposting of walks with indications of their length.

Some visitors felt that improved facilities and additional developments should be provided. One aspect of this is the problem of peak loadings which is experienced at many recreational sites. Some criticism was prompted by maximum Sunday usage levels, raising the question of whether the provision of facilities should be geared to the demand on a few fine Sunday afternoons in summer or whether some congestion should be tolerated. Also present usage patterns suggest that the provision of extra facilities at sites which already tend to be overloaded would promote a further increase in the number of visitors. With regard to additional developments, there was a strong user appreciation of the non-commercial atmosphere of the forest sites and a desire that this should not be altered. Some visitors sought sporting and amusement opportunities and wet weather facilities; the provision of such in specific sites might be considered or alternatively, developments located outside but convenient to major forest sites might be encouraged. The educational role of forest properties could be exploited more fully through the provision of interpretation and information centres. The allocation of space for camping and caravanning has proved to be a very successful component of the facilities at Lough Key Forest Park but this has not been done elsewhere. The forest is a very pleasant camping environment and the trees afford shelter from winds and visual screening of the site. The popularity of forest camping is evident in North America and on a smaller scale at 27 Forestry Commission campsites in Britain, the latter also providing cabins and holiday houses in 12 forests. Scenic forest drives have also proved popular elsewhere. Most forest users do not favour increased car accessibility and almost all of the forest land should be kept free from motor traffic but the possibility of developing some scenic drives at a few specific sites in addition to the existing car trail in Guagán Barra Forest Park should be investigated. Forests in Dublin, Wicklow and Cork are used for competitive orienteering but the potential of the forests has not been exploited for the related activity of wayfaring,

whereby people use a map to find their way around a route marked by fixed control points and for which permanent courses could be established. In all matters of facilities and development some consideration should be given to provision for minority as well as majority interests and a diversity of treatment is desirable. Also there is the question as to what extent the views of those who do not use the forests should be determined and accommodated; reasons for non-participation may not be solely ignorance of the attractions which the forests afford but also the knowledge that the forest sites do not provide for the recreational experiences desired.

The spatial distribution of forest recreation sites has major implications for the planning of facility and new site provision. Although much visitor data would be necessary in order to establish a typology of forest sites, it is evident that sites in some areas are used very largely by the local resident population and that in other areas there is proportionately greater use by people on holiday away from home. The spatial distribution of forests is better suited to meet the recreational demands of tourists, as there has been much afforestation in the upland areas and other localities of low agricultural productivity which have major tourist attraction. The accessibility of sites to the main tourist routes and resorts should be considered in planning. Forest sites can also alter tourist patterns, as has been clearly demonstrated in the extent to which Lough Key Forest Park has promoted tourism in its area, so that they can be used to enhance the attraction of a region.

In many countries the major forests are distant from the main urban centres which tend to be located in productive lowland areas, so that their distribution is not suited to providing for the daily recreational needs of the bulk of the population. This is true to some extent in the Republic of Ireland, though all of the urban centres have some forest sites within the 30-40 miles which people are prepared to travel on daytrips. It is particularly fortunate that there is extensive forest and 56 open sites in south Dublin and Wicklow accessible to the one-third of the national population in the Dublin region concentration, though there is gross underprovision relative to the remainder of the country and very strong pressure on sites near to the city. The north Leinster area in general has fewer sites relative to its population, the eight counties in the state having less than one site per 10,000 population being Dublin, Meath, Louth, Westmeath, Longford, Limerick, Kildare and Offaly. Total population is not the only consideration, as it seems likely that the forest recreation demand would be greater amongst urban people given equal accessibility and they have more need for outdoor recreation space. Priority in planning should be given to the provision of forest

recreation opportunities within easy reach of the major urban centres; the emphasis in management in some forests near to cities might be on recreation and the possibility of planting forests specifically for this purpose might be considered.

There are locational aspects other than distance from resident and tourist populations. The fact that most forest sites are in rural areas poorly served by public transport renders them inaccessible to most people who do not own motor cars, particularly the populations of inner city areas. While something might be done to organise transport to forests for such people, the access of sites to public transport routes should be considered in planning. General road accessibility and conditions affect site selection. The availability of alternative recreational opportunities might be a consideration. Thus in midland areas distant from the coast the need for forest recreation might seem all the greater and unfortunately some of these areas are poorly served by existing sites. Conversely, in areas near to beaches which are very heavily used it might be desirable to provide forest recreation as a counter-attraction in an attempt to relieve pressure on the coast.

Forests vary in their inherent recreational potential, depending in particular on the age, spacing and nature of the trees and on the topography of the site. As young forests are not suited to recreational use and as the emphasis in afforestation has shifted towards the west, an increasing proportion of the maturing forests which could be developed will be in western counties. The scenic quality of the potential sites and the presence of specific attractions are important considerations. Water is a great attraction, as can be seen in the extent to which water frontages have acted as focal points in some of the forest parks. The possibility of incorporating the coast, lakes and rivers should be an important element in site selection and development. The inclusion of some open areas has proved a considerable attraction for people, as in Lough Key and John F. Kennedy Parks. Features of historical and other human interest can add greatly to the recreational and educational value of a site, a factor which might influence selection and should be given adequate recognition in development.

The demand for forest recreation in the Republic of Ireland is certain to expand greatly in the future. It is most desirable that there should be research, consultation and systematic planning for this development. Such planning could best be done with reference to national surveys, policies and plans relating to resource management, land use and recreation. It is unfortunate that no such national guidelines and framework exist.

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