Living in the urban wild woods- a case study of the ecological woodland approach to landscape planning and design at Birchwood, Warrington New Town

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Abstract

There is an ever-present demand for new housing in the UK, and current government policy dictates that this is to be built on both green and brown field sites. Ecological or naturalistic woodland can be used to integrate new housing into its surroundings, and as part of the process of reclamation of brown field sites, as well as being a means of regenerating existing urban green space. There are many potent arguments in favour of using green and natural landscapes as part of new developments in urban settings, including physical, social and health benefits to humans. The evidence also suggests that many types of urban green space can contribute to the creation of a more sustainable urban environment, and can constitute important wildlife habitats in their own right. However, naturalistic woodland is often regarded as unsafe by members of the public, and the agencies involved in shaping the urban environment, suggesting that such woodland may not be appropriate within the urban fabric. This research sought to evaluate the suitability of the ecological woodland housing model, as practised at Birchwood, Warrington New Town, by means of a case study. Using a mixture of quantitative and qualitative methods, the study examined a range of perceptual factors in relation to Birchwood's naturalistic woodland environment, including issues relating to aesthetic appreciation, place identity, safety and the suitability of Birchwood as an environment for children. The study found that most Birchwood residents value their woodland environment, which has a range of diverse meanings for them, though there are some significant safety issues. The findings confirmed previous research suggesting that wild-looking or naturalistic urban landscapes often evoke simultaneously positive and negative responses: these landscapes are greatly valued and feared at the same time. In general terms the ecological woodland approach to landscape planning and design used in Birchwood has been very successful, with some shortcomings relating to attempts to integrate naturalistic woodland too closely with housing within the fabric of the residential areas; the use of tall, dense vegetation in conjunction with children's play areas as part of the streetscape; a bland, undifferentiated treatment of the woodland as a setting for the expressway and access roads; and the absence of a clear footpath hierarchy that responds to user needs. There is also a need for vegetation management strategies to be reviewed. Ways in which these issues could be addressed in future are suggested. Subject to these refinements, the study concludes that the ecological woodland approach to landscape planning and design used in Birchwood is a viable option for urban landscapes of the future.

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Chapter 1 Introduction

In 1970 Nan Fairbrother's book, "New Lives, New Landscapes", was published, in which she described her new four-point plan for landscape. Central to that plan was a concept for using woodland as the main structural component in new urban areas around the edges of existing towns and cities. This was to be a radically different approach to using trees as ornamentation within a landscape dominated by built form. According to the new concept, the trees *were* the landscape, and the new development would take place within the spaces they created:

> "This is a conception completely different from present plans for planting trees to improve the urban scene. Such planting is excellent and essential, but the trees are added to existing landscapes and are there on urban terms. Tree belts as here suggested would be much more than urban decoration- continuous woodland screens planned and planted as a whole, flowing round our urban areas in irregular masses, sensitive to the land-use and the contours of the ground, and their outlines defined to harmonise with the open landscape. This would be vegetation used as mass in a composition- trees as landscape material as grasses are lawn material- and this can never be achieved by uncoordinated planting at the discretion of separate planters."

In 1977 the first ecological woodland plantings were made at Birchwood, part of Warrington New Town, in the UK. The planners and designers of Birchwood were influenced strongly by Fairbrother's vision, to which they brought an ecological emphasis with origins in Europe and the USA. Visually, these new woodland plantings were quite different from most existing urban tree planting. They were envisioned as part of an intricate nature-like landscape of woodland belts and glades, imitating the processes of natural succession. Thus, the woodland in Birchwood was composed of several layers, consisting of dominant tree species, understorey and woodland edge species of different heights, unlike existing trees in urban parks and green spaces, which were generally planted as specimens without any understorey or edge planting.

The planners and designers of Birchwood believed that this new kind of urban landscape would have many advantages for Birchwood's new residents: as a visually rich and diverse setting for housing and the activities of daily living; a varied recreational landscape for adults; a stimulating, adventurous, robust playscape for children; a way of re-establishing contact with nature; a haven for contemplation and a source of stress-relief and spiritual renewal.

At first, the Birchwood approach was widely imitated, particularly in other new towns, and in country parks, and passed into mainstream landscape architectural practice. It became known as "the ecological approach" or "the ecological style", and the type of planting used is often referred to as "woodland structure planting". In more recent years there has been a backlash against it, based on the belief that tall, dense vegetation is a haven for potential attackers and anti-social activities, and is therefore a safety hazard:

> "Fear of crime can be as disabling as crime itself. One of the most unfortunate results of this widespread apprehensiveness is that vegetation has come to be regarded with mistrust by many urban residents. It is seen as providing hiding places for potential assailants. Landscape architects have had to take account of this fear. Some local authorities have actually been taking shrubberies out of parks and residential areas, and when considering new plantings designers are urged to use low-growing shrubs and to keep shrub beds back from the edges of paths. This defensive approach is in many ways the antithesis of the ecological ideals which were being imported from Holland in the 1970's. These called for mass plantings, more relaxed plantings, and an altogether shaggier, more naturalistic style of landscape design." (Thompson, 2000)

Twenty-six years after the first plantings, Birchwood's woodland landscape is well established, and the time is right for an evaluation of the ecological woodland approach. Were the hopes and aspirations of the planners and designers justified, or is the tall dense vegetation associated with this approach considered too much of a safety risk in urban settings?

Rationale for the study

There are many good reasons for considering naturalistic woodland as an option for urban landscapes in Britain in the 21st century.

There is a growing awareness of the psychological, social and health benefits that humans experience when they come into contact with nature, wildlife and green spaces (Rohde and Kendle, 1994). Naturalistic urban woodland has the potential to provide many of these benefits.

Trees and woodland can also improve the quality of life in urban settings by creating favourable microclimates (Akbari and Taha, 1992; Akbari et al, 2001), filtering dust and particulates (Beckett et al, 1998 and 2000) and ameliorating noise (Fang and Ling, 2003). Trees also help reduce the greenhouse gases that cause global warming by carbon sequestration (Akbari, 2002; Broadmeadow and Matthews, 2003).

Financial pressures on local authorities and sustainability initiatives such as Local Agenda 21 dictate that we should be looking for new types of urban landscape that are cheaper to maintain than some traditional urban green spaces, and less demanding of resources. Naturalistic woodland plantings can fulfil these requirements and also have the potential to become durable, multi-functional landscapes, suitable for recreational use, as well as perpetuating ecosystems and forming part of wildlife corridors.

Many of these arguments are already well-rehearsed by the Urban or Community Forest movement, which has for some time advocated extensive woodland planting as part of urban landscape planning strategies (National Urban Forestry Unit ("NUFU"), undated). Simpson (2000) has also argued that urban forestry has much to offer as a means of structuring urban expansion.

In its latest policy document, "Sustainable Communities: Building for the Future", the government has set out its new approach to housing provision (Office of the Deputy Prime Minister, 2003). Based on the prediction that, in England alone, 155,000 new households will come into being each year, a major demand for new housing is identified. New house building has fallen from a total of 350,000 annually in the 1960's to a net figure of 120,000, taking account of demolitions and conversions, leaving a housing shortfall. This shortfall is to be met by the creation of "sustainable communities" in a number of different ways, including the regeneration of social housing, neighbourhood renewal and the construction of new homes. "Sustainable communities" are said to have a number of essential ingredients including:

- "A safe and healthy local environment with well-designed public and green space;"

- "Good quality local public services, including education and training opportunities, health care and community facilities, especially for leisure;"
- "A 'sense of place'".

Naturalistic woodland could play an important role in fulfilling these requirements as a setting for housing, a diverse form of green space, a leisure environment and as a means of creating strong local character.

According to the above policy document, the government is also committed to ensuring that 60% of new house building should be on "previously developed land", as opposed to green field sites: 66,000 hectares of "previously developed land" is said to be available for development, with a further 1,100 hectares becoming available each year; whilst a further 30,000 hectares of greenbelt has been "designated or proposed" (Office of the Deputy Prime Minister, 2003). Whilst there is still considerable debate about whether new house building should take place on green or brown field sites, naturalistic woodland is a means of structuring the space within these new settlements wherever they occur. Mass tree planting has been used for some time as a land-reclamation technique, and has the capacity to transform post-industrial sites into attractive green environments quickly and economically (NUFU, 1998 and 1999). On green field sites, woodland containing native species is a means of mitigating the effect of new development by graduating the transition from rural to urban, concealing built structures and linking up with existing vegetation, thereby responding to the growing emphasis on conserving local landscape character in rural settings (Countryside Agency, 2002). Housing densities within many new developments are set to rise to 30 dwellings or more per hectare in line with the government's new density directive (Office of the Deputy Prime Minister, 2003); structuring new housing with woodland belts is also a means of minimising the visual impact of development at higher densities for local residents and other users.

The UK has less woodland than most European countries (11.6% of land cover), apart from Denmark (10.7%), Ireland (9.6%) and the Netherlands (11.1%) (Forestry Commission, 2002). Nevertheless it seems that woodland is a valued part of the landscape. The Forestry Commission (2003) found that 67% of UK adults had visited a woodland or forest in the last few years and 67% of UK adults wanted to see more woodland in their part of the UK. Further, 90% of UK respondents picked at least one reason why UK forestry should be supported with public money, and these reasons included:

- "To provide good places for wildlife to live";
- "To provide good places to visit and walk in ";
- "To make woods more accessible to all in the community";
- "To provide places to cycle or ride horses";
- "To restore former industrial land"; and
- "To create pleasant settings for developments around towns".

Yet if naturalistic woodland is to be considered as one of the principle means of structuring and integrating housing and new settlements it is essential to find out whether this would meet with public approval. In particular, it seems unlikely that naturalistic woodland would have the psychological,

social and health benefits for urban dwellers that are beginning to be associated with other forms of urban nature and green space if it were something that people dislike, or were afraid of.

Aim of the study

This study aims to evaluate the public perception of naturalistic woodland as a setting for housing and new settlements, by using Birchwood as a case study, focussing on aesthetic and safety issues.

Research questions

The principle research questions that this study sets out to answer are therefore:

- What impact does the presence of naturalistic woodland have on residents' perception of the aesthetic qualities of residential streets and their surroundings?
- What are the cultural values and meanings that residents of housing set in this type of landscape attach to naturalistic woodland?
- How does the presence of naturalistic woodland within a residential environment affect resident's perception of their own personal safety?
- What implications does a naturalistic woodland setting for housing have for the perception of children's safety, and how is such a setting regarded as a place to bring up children?

Thesis structure

This thesis has a conventional structure (literature review, methodology, results, discussion and conclusion) with some important departures from this. Firstly, the literature review is divided into two parts: Chapter 2 reviews the literature that informs the theoretical framework for the study, Chapter 4 examines the historical and philosophical context of the ecological woodland approach to landscape planning and design used at Birchwood. Secondly, instead of having a narrative or chronological structure, in which different phases of the research are dealt with separately, the thesis has a thematic organisation. Thus the results and discussion for the four research questions or themes are given in four chapters namely, Chapter 6- "Aesthetic factors", Chapter 7- "Place Identity", Chapter 8- "Safety", and Chapter 9- "Children"; and the conclusions in respect of all four chapters are brought together in Chapter 10- "Conclusions". To some extent the thematic chapters are independent of each other: each chapter can be read as a separate piece of research.

Definitions of key words and concepts

There are a number of key words and concepts that are used repeatedly throughout this thesis and the purpose of the definitions that follow is to promote a shared understanding of the way in which these expressions are used.

Birchwood's woodland landscapes are often referred to as both "ecological" and "nature-like", or "naturalistic" (Tregay and Gustavsson, 1983; Scott, 1995; Thompson, 2000). Used as an adjective about Birchwood the word "ecological" connotes the natural processes within the landscape, whereas "naturalistic" is most often used to describe its visual qualities.

The word "ecology" is a translation from "oekologie", a word conceived by Ernst Haeckel, a German scientist and politician, and first used in his "Generelle Morphologie" (1866) (Woudstra, in press A). According to Woudstra it denoted "the science of relations between organisms and their environment". The "Oxford English Dictionary" (2003) defines it as:

> "The science of the economy of animals and plants; that branch of biology which deals with the relations of living organisms to their surroundings, their habits and modes of life".

The Birchwood woodland approach was "ecological" because the whole manner of site planning, species selection, and the establishment and management of the vegetation was driven by an awareness of natural processes and plant communities, and dictated by the prevailing conditions on site (a more detailed analysis of what the Birchwood ecological woodland approach entailed is given in Chapter 4, "History and Context").

The meaning of "nature-like", or "naturalistic" is difficult to define, as these concepts beg the question of what "nature" is, and whose vision of nature is being imitated. The "Oxford English Dictionary" (2003) defines it as something "that aims at a faithful representation of nature" and reminds us that is an adjective that is often used in relation to visual art. Judging by the manner and context in which these expressions were used by Birchwood's planners and designers (Tregay and Gustavsson, 1983; Scott, 1995), and by the landscape itself, Birchwood's new landscape was "nature-like" or "naturalistic" because it was informal, with an organic structure, and made use of ecotones such as woodland edge as transitions between different plant communities and vegetation types; and because it resembled the spontaneously occurring existing woodland and open scrub on and around the site. Thus, whenever the word "naturalistic" is used to describe woodland or vegetation in Birchwood in this thesis, these are the characteristics that are implied.

The type of vegetation discussed in this thesis is variously described as "woodland" or "woody vegetation". "Woodland" is fairly self-evident, and in this instance means a plant community consisting of dominant trees species together with understorey and woodland edge shrub layers. However, there are many variations on this basic vegetation type to be found in urban settings, for example, shrub mass, scrub and hedges. "Woody vegetation" is therefore used as a generic term to include every conceivable type or combination of tree and shrub, including vegetation of a natural or semi-natural origin.

Chapter 2 Literature Review

Introduction

There is no single, clearly delineated, body of literature concerned with the perception of naturalistic woodland as a setting for housing and new settlements. Consequently, any study of this issue has to draw on the literature from a number of diverse, but sometimes overlapping, areas. Broadly speaking, these may be summarised as: studies of the benefits of urban nature, environmental psychology, conceptual frameworks of landscape aesthetics, cultural geography, the perception of naturalistic vegetation generally and in urban settings, and studies of residential satisfaction and quality of life in urban environments. These areas will be dealt with in this chapter. The literature relating to the origins, history and context of Birchwood, Warrington New Town will be dealt with in Chapter 4.

The benefits of urban nature

Chapter 1 has already alluded to the many benefits of urban nature as one justification for a study of the perception of naturalistic woodland as a setting for housing and new settlements. These benefits can be grouped roughly into four categories: physical benefits, health benefits, social benefits and cultural or aesthetic benefits.

Physical benefits

Urban vegetation can perform many important physical functions (Givoni, 1991); including improving microclimate, contributing to the mitigation of global warming by sequestering carbon and lowering carbon emissions, reducing air pollution, attenuating noise levels and flood control. Trees can improve urban microclimates by providing shade and shelter, and consequent reductions or increases in air temperature (Akbari and Taha, 1992; Akbari et all, 2001). Further, as well as mitigating global warming through the uptake of carbon, urban trees indirectly reduce the combustion of carbon in power plants and CO_2 emissions: by moderating air temperatures in buildings they reduce the amount of energy consumed by heating and air conditioning (Akbari, 2002). Clearly the use of air conditioning in domestic buildings in the UK is still unusual, but with the onset of global warming these issues are set to become far more important in this country.

Urban trees also have the capacity to improve urban air quality by capturing particulates and other airborne pollutants, thereby reducing the adverse effect of these pollutants on humans suffering from respiratory and vascular illnesses (Beckett et al, 1998 and 2000).

Woodland belts can help to attenuate the noise from traffic and other urban noise sources. A recent study reported that shelter belts consisting of both trees and shrubs have the greatest capacity for noise reduction, and that there is a strong positive correlation between vegetation density and noise attenuation (Fang and Ling, 2003); further, the height, length and width of tree belts are the most effective factors in reducing noise, rather than leaf size and branching characteristics (Cook and Haverbeke, 1974). Admittedly, Fang and Ling's study was carried out using evergreen vegetation, which is likely to be more effective in reducing noise than deciduous vegetation, but presumably the

same principles apply. Certainly the type of woodland belts used to structure the development in Birchwood would seem to fit many of the criteria, and the effectiveness of these woodland belts in reducing the noise from Birchwood's traffic arteries would be an interesting and valuable topic for further research.

Vegetation, including woodland and woody vegetation generally is also known to have the capacity to contribute to urban flood control through its capacity to retain and absorb water, thereby reducing and delaying the discharge of storm water into drains and rivers (Hough, 1995).

Health benefits

Exposure to nature and green spaces has been found to have numerous psychological and physiological benefits. Views of natural scenes from hospital windows aided patients' recovery from gall bladder surgery (Ulrich, 1984). Prisoners with views of nature reported sick less often (Moore, 1982); and suffered fewer stress-related physical symptoms (West 1985). Grahn et al found that children from a kindergarten in a natural setting had fewer absences due to sickness than children from an urban kindergarten (1997).

Relatively small amounts of physical exercise or activity have a beneficial effect on health. Amongst the elderly, regular exercise is associated with a reduction in depression (Palleschi et al, 1998; McMurdo and Rennie, 1993; Weyerer and Kupfer, 1994; Ruuskaanen and Ruoppila, 1995), improvement of satisfaction with life (McAuley et al, 2000) and improved neuropsychological functioning (Satoh and Sakurai et al, 1995). Similar results have been reported in relation to adults from younger age groups (Paluska and Schwenk, 2000). Regular exercise is also known to have physiological benefits, including reducing the risk for osteoporosis (Klibanski et al, 2001) and cardiovascular heart disease (Francis, 1996). Diet and physical activity are said to be the two most important determinants of human health in the West: as a result of increased calorific intake, and lack of exercise, obesity is now one of the main Western health problems and the obese are more vulnerable to diabetes, cardiovascular disease, certain cancers and reduced life expectancy (Pretty et al, 2003). Hence residential environments that encourage people to interact with them by taking regular exercise as recreation, or as a means of travel, indirectly have significant psychological and physiological benefits (Jackson, in press).

Kaplan and Kaplan (1989) summarised the results of a decade of research into the effects of participation in outward-bound programmes. They found that the participants gained certain physical crafts and skills, as well as an improved self-image: feeling more self-confident and having a more positive outlook. They also found that after a fairly rapid period of acclimatisation, participants experienced a sense of self-discovery, wholeness, well being, renewal and restoration, as well as what Kaplan and Kaplan described as "the recovery of aspects of mental functioning that had become less effective through overuse." They concluded:

> "The role of the natural environment is inherent to these experiences. Not only did participants notice more aspects of that environment, but they came to realise that they lived differently and felt differently during their immersion in this setting. The coexistence with other creatures and growing things gave them a new perspective on themselves. The existence of the wilderness became a comforting thought."

For many years the Kaplans (1989) have worked on their theory of the restorative potential of the natural environment. According to them, Western cultures are overloaded with information. The continual need to process and deal with this information though "directed attention" results in "mental fatigue". Exposure to nature creates opportunities for passive or active fascination that relieve mental fatigue, because they absorb the mind without the need for "directed attention". Thus natural environments have the ability to relieve the "mental fatigue" and stress that is associated with living in rapidly-changing information rich societies in the 21st century. This theory has been confirmed by many others including Ulrich et al, 1991. Views of natural scenes from the road were found to aid recovery from stress and immunise against future stress (Parsons et al, 1998). This is likely to have long-term physiological health benefits, as medical evidence suggests that stress has an adverse effect on health by reducing immunocompetence or resistance to illness (Parsons, 1991).

Pretty et al (2003) take a more holistic view of the health benefits associated with exposure to nature. According to them, physical activity in "green places" has the potential to combine the psychological benefits of wilderness and nature experiences and physical exercise in one activity, which they call "green exercise". They see this as contributing to a model of human well being in which humans are connected to nature in a number of different ways.

Social benefits

The presence of trees and green spaces in urban settings has been found to have numerous social benefits. Park users have been found to experience positive mood alterations during visits to urban parks, consisting of feeling less stressed, calmer and more energetic (Hull, 1992). Ulrich and Addoms (1981) have suggested that the mere presence of a park in the locality may have stress-relieving properties and other psychological benefits, because residents of the locality know the park is there if they want to use it.

A series of American studies carried out in both high and low-rise public housing projects in Chicago made a number of findings. Spaces with trees in the Chicago public housing developments attracted larger groups of people, consisting of people from more diverse age groups, than spaces without trees. The findings suggested that the presence of trees aided social interaction and created opportunities for informal supervision of children and outdoor areas (Coley et al, 1997). The presence of trees in these Chicago public housing developments was also found to be connected with stronger neighbourhood ties and a sense of community amongst the elderly (Kweon et al, 1998). A survey using photo simulations found that the introduction of trees and grassed areas into hitherto hard urban landscapes in the courtyards of these Chicago public housing developments created environments that were considered safer and more attractive (Kuo et al, 1998a). In another study Kuo et al (1998b) also found that where trees and grass were already present within the external common spaces of the developments, use of these spaces increased, and residents reported closer social ties and felt safer and better adjusted than residents whose common spaces were devoid of vegetation. Children's play in the courtyards of the low-rise Chicago public housing developments was found to differ with the presence or absence of vegetation: children in spaces with vegetation played more, and played more

creatively than children in spaces with little or no vegetation (Faber Taylor et al, 1998). Furthermore, the children in the spaces with vegetation received twice as much supervision from adults than the children in the spaces without it. Residents of high-rise urban public housing adjacent to vegetation were significantly more able to cope with their major life issues than those who lived in identical housing without vegetation (Kuo, 2001).

Interaction with complex natural environments has many benefits for children. Scandinavian studies indicate that playing in nature has a positive impact on children's social play, concentration and motor ability (Bang et al, 1989; Grahn, 1991; Fjortoft, 1995, 1998, 1999; Grahn et al ,1997). Diversity in vegetation and topography enhances the ability of the natural playscape to improve motor ability (Fjortoft and Sageie, 2000). A recent American study found that children's directed attention capacity improved following a move to housing with more natural surroundings (Wells, 2000). Another American study confirmed that green play settings improved children's concentration: children with Attention Deficit Disorder were found to function better than usual after activities in green settings (Faber Taylor et al, 2001).

Views of natural elements from workplace windows were found to buffer the negative effect of job stress on intention to quit, and to have a similar, albeit marginal, impact on general well being (Leather et al, 1998).

Cultural or aesthetic benefits

In an American study most respondents mentioned parks, gardens, or trees when asked to identify a feature of special significance to them that had been damaged by Hurricane Hugo (Hull et al, 1994). Hence urban nature can be closely linked to people's sense of identity and personal history. Bussey's study explored the plurality of meanings that people hold for urban woodland, finding that such woodland is experienced as "woodland garden", "doorstep recreational area", "symbol of the pastoral idyll", "wildlife sanctuary" and "gateway to the natural world" (1996).

Recently, several commentators have begun to look at all of these benefits holistically. There is a growing tendency to see human well being and the preservation of natural ecosystems as twin goals that are inextricably interlinked, not just on a global level in terms of human survival, but as part of the circumstances of daily life (Pretty et al, 2003; Jackson, in press).

Thus, there is a growing body of evidence that humans derive very many benefits from nature and green space in urban settings. However, the question arises as to what "nature", "green space" and other similarly bland terms mean in practical terms to the planners, designers and users of urban landscapes. Will any kind of nature and green space do, in any location, or are particular types of nature and green space more suited to providing different benefits in diverse locations? What are the roles of human landscape preference and the safety implications of different types of green space? It seems unlikely that humans would derive benefits from urban landscapes that they actively dislike or find to be unsafe.

Conceptual frameworks of landscape perception

There are two basic explanations for the way in which we react to different landscapes: firstly, that our responses to landscape are evolutionary or biological in origin; secondly, that these responses are determined by cultural origins and personal development. At the extremes of these polarities these two explanations are based on fundamentally different ways of looking at landscape. According to the first, landscape is an objective entity, to which humans respond in ways that can be predicted and measured. According to the second, landscapes are human constructs whose reality is entirely subjective. Thus landscapes

> "may be represented in a variety of materials and on many surfaces- in paint on canvas, in writing on paper, in earth, stone, water, and vegetation on the ground. A landscape park is more palpable but no more real, nor less imaginary, than a landscape painting or a poem." (Daniels and Cosgrove, 1988).

Evolutionary/biological approaches

Historically, many of the proponents of evolutionary/biological explanations have concentrated on landscape preference research in an attempt to discover what kind of landscape humans prefer. Although it is obviously useful to gauge public preference for different types of landscape, the nature of this type of research sometimes obscures the complexity of people's attitudes. These issues are particularly relevant to human responses to naturalistic landscapes, because such landscapes arouse particularly strong and sometimes conflicting responses. This may lead to conclusions that are incomplete, and in some cases, downright misleading.

Adherents of the view that attitudes to landscape are rooted in culture or personal experience believe that human aesthetic responses are not abstract or static constructs, but processes that are deeply embedded in changing cultural values and individual experience: thus any examination of public attitudes towards urban naturalistic landscapes must also examine these wider issues.

The evolutionary/biological theories propose that we derive our aesthetic responses to landscape from an earlier evolutionary phase of *Homo sapiens*. It is argued that evolution favoured individuals who had the ability to evaluate their environment successfully in terms of its capacity to fulfil their need for shelter, safety and nourishment, and because human civilisations have been in existence for only a fraction of the time that is has taken our species to evolve, we still retain a strong and instinctive inbuilt preference for landscapes that display the characteristics necessary to meet these needs. Orians and Heerwagen (1992) have claimed that we have an inbuilt preference for landscapes resembling the African savannah, because the crucial phase of human evolutionary development took place there. Ulrich (1993) has proposed that the English Landscape Style found in so many Western parks and open spaces is highly preferred because it resembles the savannah.

In his "Prospect/Refuge" theory (1975) Appleton also relies on an evolutionary or biological explanation, but goes on to develop a landscape typology based on this foundation. Appleton believes that during human evolution the overriding need favouring survival was the ability to see without being seen. He classifies landscape elements according to their ability to meet this need either as "prospects" or "refuges". Hence we retain a preference for landscapes that display features that bear the characteristics of prospects or refuges clearly.

Another evolutionary/biological approach that is sometimes described as "psycho-evolutionary", because of the strong psychological overlay to the evolutionary basis, is the Kaplan's "preference matrix" (Kaplan and Kaplan, 1989), though the Kaplans also went on to examine the impact of different cultural and personal factors.

Like Appleton, the Kaplans introduce a series of factors that explain our preference for certain landscapes. However, the Kaplan's factors are more abstract (Table 2.1).

	Understanding	**Exploration**
Immediate	Coherence	Complexity
Inferred/predicted	Legibility	Mystery

Table 2.1 The Kaplan's "preference matrix"

In the "preference matrix", the four critical factors of coherence, complexity, legibility and mystery are defined by reference to the different ways in which humans obtain information about their environment- "understanding" and "exploration"- and how accessible that information is: whether it is "immediate" or "inferred/predicted". Through extensive studies of human reactions to different landscapes, usually depicted in photographic representations, the Kaplans found that these four factors had the greatest explanatory power. Individually, coherence and mystery were found to be most significant but combinations of factors were also important. In terms of its practical application the Kaplans found that the preference matrix explained preference for natural scenes that contain views or vistas, plus elements such as curving sightlines that suggest that there is more to discover just around the corner.

Generally speaking, the evolutionary models have all found that there is a generalised preference for landscapes resembling the African savannah, and parkland in the English Landscape Style, across many cultures. Such models have also been used to evaluate public preference for different tree forms (Sommer and Summit, 1995, Summit and Sommer, 1999). In the latter study it was discovered that the preferred tree form has a broad canopy and a "relatively short branching trunk structure" similar to the form of species typically found in the savannah. Prospect/Refuge theory formed the conceptual basis of part of the study, and it was found that whereas larger canopies were perceived to provide more refuge, smaller canopies gave better prospect.

The human need for self-preservation is implicit in all the evolutionary models, as they are all based to some extent on the idea that humans have come to prefer landscapes that favour their survival. However, this idea is most explicit in "Prospect/refuge" theory, in which safety is the overriding imperative. The theory has been tested in contemporary urban contexts. In one study it was found to be an accurate predictor of urban landscape features that would contribute to personal safety, and of the perceived safety of urban environments containing these features (Loewen et al, 1993); but in other research women were found to be afraid of landscape features associated with the possibility of concealment or entrapment (Nasar and Jones, 1997). Similar findings were made in a study of the

public perception of urban fringe woodlands; women particularly were afraid of being in woodland locations characterised by dense vegetation and enclosure (Burgess, 1995). As well as gender issues, another problem with the theory is that landscape preference is equated with the absence of fear. Although Appleton does acknowledge that the controlled fear or awe associated with the contemplation of sublime landscapes (e.g. precipices or waterfalls) from a place of safety may contribute to the aesthetic experience, he does not allow that places may be considered simultaneously beautiful and unsafe.

The relationship between perceived security and aesthetic quality was explored by Schroeder and Anderson (1984) in the context of urban recreation sites. They found that scenes containing open views such as athletic fields were considered to be the safest but least attractive, whilst scenes of undeveloped forest landscapes were thought to be the most beautiful, but also the most unsafe. This led them to conclude that:

> "The correlation of perceived safety with scenic quality is low, indicating that the perceived safety ratings are tapping a dimension of landscape perception different from visual aesthetics."

An alternative conclusion would be that the conceptual framework for visual aesthetics referred to (a scenic beauty approach based on Daniel and Boster (1976)) is deficient. On any reading of the situation human perception of landscape would appear to be more complex than some of the evolutionary models suggest, suggesting that cultural and personal factors may also have an important role. In her study of the geography of women's fear Valentine (1989) found that the women in the study felt themselves most at risk in:

> "large open spaces which are frequently deserted: parks, woodland, wasteground, canals, rivers and countryside. Frequently local mythologies develop around such places...A woman's perception of her safety in her local neighbourhood is therefore strongly related to how well she knows and feels at ease with both her social and physical surroundings."

Here both cultural factors ("local mythologies") and personal ones (a woman's personal knowledge of and feeling about her social and physical surroundings) are said to influence women's perception of safety in urban areas. The following section goes on to show how cultural and personal factors influence many other aspects of landscape perception.

The impact of cultural factors

Cultural and personal interpretations of landscape perception tend not to have conceptual frameworks of the kind that have been developed for evolutionary and biological explanations. This is because they often take the form of either phenomenological explorations or philosophical discourses.

However, there are some exceptions. Coeterier (1996) has defined a set of landscape attributes that determine landscape perception and evaluation. These are: "the nature of the landscape as a whole (unity)", "its function (use)", "maintenance", "naturalness", "spaciousness", "development in time", "soil and water" and "sensory qualities such as colour and smell". Coeterier stresses that the model is very complex:

> "it has become apparent that there is no one to one relationship between outside elements and inside constructions, or perceived attributes."

Each of the eight attributes may inform the perception of different parts of the external landscape, and each attribute may have a number of different meanings or aspects. The research upon which these findings are based was carried out in the Netherlands, and the extent to which the model is generalisable to other cultures is therefore unknown.

Rohde and Kendle (1994) describe the different views of human relationships with nature held by Dutch, French and Japanese people. The French view of nature is said to be characterised by a desire for order and control, whereas Japanese people are said to view humankind and nature as part of an integrated whole. Clearly these are sweeping generalisations and all cultures contain sub-cultures and individuals who may hold entirely different views but nevertheless such overarching cultural influences clearly do play an important role in forming attitudes.

In their account of the history and development of ecological landscape styles Forbes et al (1997) identify changes in human perception of nature as one of the key factors influencing the development of landscape styles such as the English Landscape Movement, the Open Space Movement and the Victorian Gardenesque.

It seems plausible that there is a relationship between individual perception of the appropriate human relationship with nature, and individual perception of different types of landscape: would individuals with an ecocentric view of the human-nature relationship be more attracted by natural or wild landscapes? Van den Born et al (2001) propose a model of human relationships with nature ranging from "man the technocrat adventurer" to "oneness with nature" (table 2.2).

Anthropocentric	Man the technocrat adventurer
	Man the manager-engineer
	Man the steward of nature
	Man the guardian of nature
	Man and nature as partners
	Man as participant with nature
Ecocentric	Oneness with nature ('unio mystica')

Table 2.2 Possible relationships between humans and nature (adapted from Van den Born et al, 2001)

Research suggests that the majority of Westerners now have a non-anthropocentric view of the human-nature relationship, when asked to express their views in the abstract (Catton and Dunlap, 1980; Van den Berg, 1999; Van den Born et al, 2001). In the latter study, in the Netherlands, 76% of respondents preferred the statement that "Humans are part of nature and hence should bear responsibility for it". It would clearly be unwise to assume that, because of the high prevalence of these ecocentric views, there is likely to be a generalised preference for more naturalistic landscapes. Whereas the majority of Westerners have broadly ecocentric views in the abstract, they may hold different views in concrete instances closer to home. Only two studies have looked at this issue. Kaltenborn and Bjerke (2002) found that respondents with ecocentric views preferred wilderness landscapes, whilst those with anthropocentric views preferred farm environments. Their sample was

drawn from the inhabitants of Røros, a sparsely populated mountain region in Norway, so it is difficult to generalise from their findings.

De Groot and Van den Born (2003) found that Dutch respondents' views of the appropriate human-nature relationship corresponded with their landscape preferences: those with anthropocentric views preferred man-made and park-like landscapes, whereas those with ecocentric views preferred landscapes "in which one may experience the greatness and forces of nature". Again it is not clear how far these findings represent generalised views of landscape preference in the West.

De Groot and Van den Born (2003) have written:

> "it may all be true that on the rungs of the ladder in people's cognitive and value schemata, the great blue whale should swim the ocean even if only for us to dream about, the wilderness should be there even if peak experiences of wilderness solitude are rare, the recreational landscapes should be there to admire their visual beauty, the picnic sites should be accessible, cosy and safe, and nature around the block should be our children's challenging playscape."

As this quotation emphasises, context has a crucial bearing on public acceptance of naturalistic landscapes. Even people who are supportive of nature conservation may have very different ideas about what measures are to be taken in their locality. A case in point is the recent bitter controversy over plans to restore prairie landscapes in Chicago. Despite the fact that the plans were drawn up by a broad network consisting of volunteer groups, public agencies and non-governmental organisations, implementation of the plans involving large-scale tree clearing met with vehement opposition from large and disparate sectors of the public, such that much of the programme came to a standstill. The controversy centred around whose vision of nature (prairie or woodland?) should prevail, and what constituted nature conservation expertise (Helford, 2000).

Some of these social and political issues were examined in a Dutch study of the impact of planned change context on landscape evaluations (Van den Berg and Vlek, 1998). Two groups of respondents were shown a set of five digitally manipulated images of an agrarian landscape, and four other landscapes showing lesser degrees of human influence. One group of respondents was told that the five images represented "five existing Dutch landscapes", whereas the other group were told that the images represented "one existing landscape and four plans for nature development from this landscape". Generally speaking, the four more natural landscapes were judged less beautiful when they were presented as planned changes, than when they were presented as existing landscapes. On closer investigation it was found that planned change context affected beauty ratings only if two conditions were met, firstly, when planned changes involved development into more natural landscapes with a low degree of human influence, and secondly, where planned changes were evaluated from a user, as opposed to non-user, perspective.

There are many possible explanations for this resistance by users to the development of more natural landscapes, and far more research is needed in this area (Van den Berg and Vlek, 1998). However, what seems clear is that the context of naturalistic landscapes in urban settings may have a crucial role in determining public attitudes.

As well as having their own ideas about the appropriate relationship between man and nature Westerners also use the concepts of "nature" and "naturalness" to classify landscape. The Kaplans were amongst the first to discover that humans spontaneously categorise visual images incorporating natural and built elements according to the degree of human influence (Kaplan and Kaplan, 1989).

In an Australian study people were also found to be able to discriminate between different vegetation types and densities, and to detect structural changes of a non-natural origin in vegetation, on the basis of "naturalness" alone (Lamb and Purcell, 1990). Respondents were asked to rate slides of a number of naturally occurring vegetation forms according to how natural they thought they were. Taller and denser vegetation was considered most natural. Lamb and Purcell concluded that expected vegetation structure was the main criterion of naturalness used by the respondents in the study. They also concluded that there is no straightforward relationship between perceived naturalness and preference in landscape.

A further complication is that people have different interpretations of naturalness and human influence in landscape. Lutz et al (1999) found that Canadian urban and rural dwellers' concept of wilderness differed significantly, with urban dwellers being far more ready to classify scenes as wilderness, despite clear evidence of human intervention in the form of agriculture or structures such as a hydro-electric dam. This has implications for our reactions to particular landscape types, but also for the question of what constitutes a natural or wilderness landscape, and the role and location of such landscapes. For urban dwellers the idea of having natural or semi-natural landscapes in public urban settings may well seem inappropriate if such landscapes have connotations of wilderness.

Our attitudes to certain landscapes have changed a great deal, illustrating how much the cultural constructs underpinning landscape perception can change (Thomas, 1983). An example that is often given is the change in Westerner's attitudes towards mountains. Until relatively recently mountains and mountain ranges were regarded literally with horror. Referring to the modest hills of the Yorkshire Dales at the beginning of the eighteenth century Daniel Defoe wrote:

> "Nor were these Hills high and formidable only, but they had a kind of an unhospitable Terror in them. Here were no rich pleasant Valleys between them, as among the *Alps;* no Lead mines and Veins of rich Oar, as in the *Peak*; no Coal pits, as in the Hills about *Hallifax*, much less Gold, as in the *Andes*, but all barren and wild, of no use or advantage either to man or beast." (Defoe, 1727)

What is striking about this extract is not only the "unhospitable terror" that these hills evidently inspired in Defoe, but also his palpable disgust for the fact that they cannot be used to human advantage: what amounts to a very anthropocentric view of the relationship between nature and humans. There is a marked contrast between the views expressed by Defoe and the fact that many millions of people now visit the Yorkshire Dales National Park for pleasure and recreation, attracted by the same landscape that Defoe found so repugnant. There has therefore been a major shift in our attitudes towards wilder natural landscapes, possibly because humans are now more capable of controlling nature, which is therefore seen as less threatening.

Thus, whilst views of the appropriate human/nature relationship may vary between different cultures, there is evidence to suggest that it is this cultural construct that underlies and informs our perception of different landscapes. Furthermore, far from being fixed and immutable, such constructs are susceptible to change. The evidence also indicates that although there is some disagreement about the meaning of "naturalness" and "human influence", these notions are used by humans to classify landscape, and to decide what kind of landscape may be appropriate in a given setting. Lastly, these concepts seem to be particularly pertinent in places that people are familiar with, and have a personal investment in.

So far this section has dealt with cultural constructs as the philosophical basis for landscape preference, but cultural values are much more than the foundation for landscape aesthetics. They are the meanings that people attach to all aspects of their lives, including the way that they perceive their environment. Further, as Bourassa (1991) has suggested, these meanings are often highly complex fusions of cultural and personal values and experience. Tartaglia-Kershaw (1980) found that woodland adjacent to housing in Sheffield was regarded by residents as a "picturesque" version of the countryside, as well as an "integral part of daily life". Even the view of the woodland from windows was said by residents to be a form of "daily contact with nature". Further, the woods provided "historical continuity, based on memory" such that they had become identified with the place, and with the community. In consequence residents felt secure, and had a sense of rootedness in the area. As we have already seen, Bussey (1996) has confirmed that, as well as having restorative benefits, urban woodlands are rich in cultural and symbolic meanings for urban-dwellers. Burgess (1992) found the emotive arguments in support of the preservation of Rainham marshes to be:

- "full of wildlife and birdsong",
- "a unique remnant of a world that has long since vanished",
- "a haven of peace and tranquillity",
- "endless opportunities for people to wonder at the beauties of the natural world",
- "atmospheric marshes with their flowers and bird song",
- "quiet enjoyment for years to come",
- "it was unthinkable that this reality should be destroyed",
- "a powerful sense of real and potential loss",
- "the natural side of life is here forever if we preserve it",
- "once you have destroyed all the wildlife it is gone for good".

These arguments were used as the basis for a study by Trudgill (2001) about the values held by members of the public attending a meeting about the eroding shoreline at Slapton National Nature Reserve. He found that the five values most frequently cited were:

- "a haven of peace and tranquillity",
- "quiet enjoyment for years to come",
- "endless opportunities for people to wonder at the beauties of the natural world",
- "a feeling of being with nature, naturalness",
- "atmospheric marshes with their flowers and bird song".

Whilst the meanings that humans attach to nature clearly have the potential to be endlessly diverse, there are certain themes that keep reappearing in these studies. These are to do with stress relief, access to the natural world and natural cycles, oneness with nature, the desire to conserve nature and wildlife and the otherness of nature. However, according to Solnit (2001), these themes are all part of a Western cultural tradition that originated in the re-evaluation of nature that took place in the eighteenth century and was further refined and popularised by the romantic poets, and especially William Wordsworth. Thus, these interpretations of nature are not timeless, nor are they universally applicable. Western cultures themselves are now extremely diverse and there are likely to be many sub-cultures within them for whom the romantic tradition of nature appreciation is irrelevant.

Needless to say the values and meanings that humans attach to nature and landscapes can be negative as well as positive. In their study of the values that Londoners attached to urban green spaces Burgess et al (1988) were amongst the first to articulate that the most valued places were also the ones that were most feared. In a later study of the perception of urban fringe woodlands, Burgess (1995) also found that fear was the main factor constraining people's use of such woodlands.

The impact of personal factors

Education, income and occupation

Although in the early 1970's research reported that environmental agendas were primarily supported by the affluent and educated, this notion was rebutted by Buttel and Flinn (1978) who found that age and place of residence were better predictors of awareness of environmental problems and support for environmental programmes than education, income and occupation: what they called "the three major indicators of social class". However, of these three, education was the most significant.

De Groot and Van den Born (2003) found that people with higher education in the Netherlands had a more ecocentric vision of the appropriate human nature relationship, and ascribed higher levels of naturalness to "elementary nature" (e.g. "the sea") and "penetrative nature" (e.g. "weeds in the garden") as opposed to "arcadian nature" (e.g. "lambs in the meadow"), when compared to people without this form of education. Further, they expressed higher preferences for wilder landscapes.

One of the main factors accounting for differences in landscape perception is occupation and expertise. Farmers have been found to react differently to nature development plans, compared to other residents of an area, and visitors to that area (Van den Berg et al, 1998). In this study respondents were presented with a photograph of an existing agrarian landscape, and five digitally manipulated versions of the same landscape incorporating changes that represented different kinds of nature restoration (rough field, open swamp, half-open swamp, forest and stretch of water). The farmers differed significantly from both the residents and the visitors in rating the existing agrarian landscape as the most beautiful. Interestingly, the six images were also rated for biodiversity by a panel of experts. The expert ratings of biodiversity were positively related to the beauty ratings of the residents and the visitors; but not to the farmers' beauty ratings. Thus, it would be reasonable to assume that farmers (certainly in the Netherlands and possibly elsewhere) might also react less

favourably to naturalistic landscapes in public urban settings, given their apparent preference for ordered landscapes.

Not surprisingly there is also evidence indicating that members of environmental groups particularly value and enjoy wild landscapes (Dearden, 1984; Kaplan and Herbert, 1987).

However, the relationship between expertise and preference for particular types of landscape is not always straightforward. In his recent study of the values held by British landscape architects Ian Thompson (2000) found that most of the practitioners he interviewed thought that ecological values in the practice of landscape architecture were no more important than aesthetic or social ones, and some thought they were less important. Furthermore, Thompson encountered a number of critiques of an ecological approach to design including accusations of superficiality and tokenism, and the belief that ecology is anti-design. This may well be part of a backlash against the ecological woodland approach pioneered at Birchwood in the 1970's, which forms the subject of this study.

Age

Lyons' study confirmed that age was an important factor in landscape perception (1983). This study found that young children expressed the highest landscape preferences, and elderly people expressed the lowest. However there was also a significant dip in preference around the teenage years. Similar findings were reported by Herzog et al (2000). Interestingly, they also found that although the adults had lower preference than the young children (but higher than the teenagers), the adult scores were more variable, suggesting that by the time people reach adulthood they have been exposed to a wide range of cultural factors and personal experience. They also suggested that young children display higher landscape preference because of their tendency to view landscape as a good playscape, whereas teenagers are more preoccupied with social and other concerns. Balling and Falk found that young children had a preference for savannah scenes, even though they were not familiar with them (1982). However, there is a dearth of evidence about how children and young people view landscapes generally and this is certainly an interesting area for further research.

It is difficult to know how age would influence preference for naturalistic landscapes. De Groot and Van den Born (2003) have found that older people (aged over 55) have a more anthropocentric view of the human nature relationship, but the effect of age on the perception of naturalness and landscape preference was somewhat inconclusive.

Familiarity

Research has also confirmed that residence or familiarity can have a significant effect on landscape preference. "Residence" is really just another way of evaluating familiarity, because living in a particular environment means that we become familiar with it. Broadly speaking, the findings suggest that familiarity increases preference (Kaplan and Kaplan, 1989; Herzog et al, 2000). The latter study compared Australians' and Americans' preference for Australian natural landscapes. The Australians gave their own landscape higher preference scores than the Americans. Within the Australian group

the Aboriginal respondents showed the highest overall preference for Australian natural landscapes, a finding perhaps explained by their historic cultural links with the landscapes in question.

The research into familiarity also suggests how this issue might influence the perception of naturalistic landscapes. An early study by Rachel Kaplan (1977a) compared preference and familiarity in relation to different views of a storm water drain, ranging from very natural to highly engineered. An interesting finding emerged in relation to one very natural view of the drain: this view was low in preference for all, except those respondents who indicated that it was similar to their own view of the drain. In Lyons' study (1983) respondents showed higher preference for their own home "biomes" (climatic zones with their own distinctive vegetation, for example northern coniferous forest). Thus all respondents from the deciduous forest biome preferred this one to all others. Desert dwellers did not prefer the desert biome overall, but exhibited a higher preference for it than any other group. Dearden found that residents of low-density predominantly natural housing developments expressed higher preference for more natural scenes and vice versa (1984). So it seems that familiarity with more natural landscapes does enhance preference for these landscapes.

However, a word of warning should be sounded here. Not all the research into the effects of familiarity has produced straightforward or consistent results. Another early study by Kaplan (1977b) found that local people displayed lower preferences for roadside scenes from their region than visitors. The locals also preferred open forest to dense forest, whereas the visitors preferred forest to flat farmland without discriminating on the grounds of forest density. These findings may not necessarily contradict those suggesting a positive relationship between familiarity and preference. It may simply be that the relationship is more complex than first appears. There are a number of possible explanations for the findings but these are outside the scope of this chapter.

Gender

Lyons' study (1983) did not find gender to be significant. However, gender has been found to be very significant in studies of perception of safety in urban landscapes, with women being far more fearful than men (Valentine, 1989; Madge, 1997; Jorgensen et al, 2002). It seems that gender does play a significant role in landscape perception, but this may well be far more complex than a simple correlation between gender and preference for particular views or types of landscape (Rohde and Kendle, 1994). However, given that women have been found to be more fearful in urban public landscapes it seems likely that they would be more resistant than men to the introduction of naturalistic landscapes including dense woody vegetation. De Groot and Van den Born (2003) found that women ascribed higher levels of naturalness to "arcadian nature" as opposed to "penetrative" or "elementary" nature (see page 17 for examples of these typologies) but found no corresponding relationship between gender and landscape preference.

Cultural background and ethnicity

Cultural background and ethnicity have been found to play a similarly complex role in landscape perception. Cross-cultural comparisons within the landscape preference literature have consistently shown that differences in landscape preference, at least between the inhabitants of different western

and "westernised" cultures, are surprisingly small (Bourassa, 1991; Van den Berg, 1999; Herzog et al, 2000). Research on the question of whether people prefer their own familiar landscapes as opposed to exotic, unfamiliar landscapes seems fairly evenly divided (Rishbeth, 2001). However, research does suggest that some ethnic minorities in the USA and in Britain prefer public urban landscapes characterised by openness and visibility (Rohde and Kendle, 1984; Rishbeth, in press). There is also evidence to suggest that members of ethnic minorities use public open spaces less than their white British counterparts, and that people with different cultural and ethnic backgrounds use open spaces in different ways, and value them for different reasons (Rishbeth, 2001). Personal safety has been found to be a major factor restraining the use of public open spaces by members of some ethnic minorities (Madge, 1997). Research on the impact of ethnicity in landscape perception is still fairly limited, and it may in fact be the case that some aspects of landscape perception that appear to relate to ethnicity are actually associated with other factors such as the impact on an individual of recent immigration or displacement (Rohde and Kendle, 1984; Rishbeth, 2001).

Thus it appears that some personal factors, including gender, age, ethnicity, education, expertise, personal interest and familiarity can affect landscape perception, including attitudes towards ecological plantings and naturalistic landscapes in urban settings. However, not enough is known about the effect of these factors and more research needs to be done to determine the nature of the variation in attitudes with which they are associated.

Implications of the evolutionary/biological versus cultural/personal debate

There is still considerable debate as to the relative importance of evolutionary, cultural and personal factors in determining responses to landscape. Parsons and Daniel (2002) argue that Balling and Falk's (1982) study (see page 18) supports an evolutionary basis to landscape preference because, out of all the age groups in the study, children had the highest preference for savannah landscapes. Arguably they were expressing the views they were born with, unlike older participants in the study, who were expressing their culturally acquired or personal preferences. Further, Parsons believes that because a number of studies (e.g. Herzog et al, 2000) have consistently shown that cross-cultural similarities are greater than inter-cultural differences this confirms that evolution is more influential than culture. He goes on to cite a study by Yi (1992) that explored the roles of evolution and culture by asking Koreans and Texans to give their scenic beauty, picnic and living preferences in relation to landscapes with and without strong cultural connotations pertaining to both Korea and Texas. The preferences were remarkably uniform across both cultures, regardless of the cultural associations of the landscapes. Expert ratings of scenic beauty based on the Kaplan's (1989) psycho-evolutionary model accounted for 27-40% of the variance, whilst other factors including culture accounted for less than 10%.

Table 2.3 summarises the differences between evolutionary/biological and cultural/personal approaches to landscape perception, and their implications in terms of research methods (explored further in Chapter 3, "Methodology"). The main difference between the two extremes is that evolutionary/biological approaches aim to construct and prove one explanation or model, whereas cultural/personal approaches are exploratory and discursive, and have a phenomenological basis:

there is no single explanation, rather a set of occurrences that may not be replicable elsewhere. The "evolutionary/biological" and "cultural/personal" categories are not closed or fixed, rather there is a continuum from one extreme to another. Further, they are not mutually exclusive, it is not unusual for one study to adopt positions at various points along the continuum. As shown in the table, historically certain academic disciplines have tended to opt for particular positions on the continuum, but there is no reason why any academic discipline should be confined to one approach.

Landscape perception research ←——————————→

	Evolutionary/biological	**Cultural/personal**
Approach	Concentration on physical properties of landscape; One meaning or explanation.	Landscape as social or personal construct; Multiple meanings; Visions of nature.
Methods	Quantitative; Preoccupation with landscape preference and aesthetics; Emphasis on visual evaluation of landscape views or scenes; Use of visual stimuli; Questionnaires.	Qualitative; Explores values and meanings; Looks at the whole experience of a place; Interviews, focus groups, action research.
Explanation/model	Evolutionary; Biological; Psychological; Physiological.	Cultural; Personal; Phenomenological.
Discipline	Environmental psychology; Environmental science; Forestry; Landscape Architecture; Landscape Ecology; Sociology.	Ethnography; Cultural geography; Landscape Architecture; Landscape Ecology; Sociology.

Table 2.3 Comparison of evolutionary/biological and cultural/personal conceptual frameworks of landscape perception

The implications of the differences between these two conceptual extremes are far reaching, in the sense that they have each become allied with a particular landscape aesthetic. Evolutionary/biological explanations have been used to justify and support preference for landscapes resembling the classic exemplars of the English Landscape Style, what is sometimes known as a "scenic aesthetic" (Gobster, 1999), whilst proponents of an ecological aesthetic have used cultural or personal models as their theoretical underpinning. This debate is being vigorously articulated, with commentators such as Gobster (1999) and Nassauer (1992 and 1997) putting forward the ecological position, and Parsons and Daniel mounting a strongly worded defence of the scenic aesthetic (2002).

This debate highlights a dilemma for anyone seeking to advance an ecological aesthetic, which is that for some time mainstream landscape preference research has found that most humans prefer landscapes that resemble English Landscape Style parkland. This landscape was adopted wholesale

by the designers and planners of many towns and cities in the twentieth century: in particular by the designers of post-war, high-rise, high density housing in open parkland, based upon the "Radiant City" of Le Corbusier (1923). Yet this type of landscape has been criticised by many commentators for its uniformity, lack of human scale and inadequacy as a setting for a variety of human activity (Newman, 1972; Coleman, 1985; Jacobs, 1994); and as Chapter 4 explains, it was partly as a result of dissatisfaction with this landscape approach that the planners and designers at Warrington decided to adopt a more ecological, naturalistic alternative.

One explanation for this apparent contradiction is that the style of the English Landscape Movement has been adopted as a generalised solution and has become over-simplified in the process; many urban landscapes that seek to imitate this style lack the subtlety of the historic landscapes, with their manipulation of landform, variations in vegetation type and structure, water bodies, associated water's edge vegetation and far more sophisticated management techniques and regimes.

A further explanation is that the 'urban savannah' style is essentially a paradigm for large-scale landscapes that has been monotonously applied without differentiation to both large and small-scale landscapes. Rather than being seen as a universal solution this approach could be seen as a way of creating a larger-scale landscape framework, with potential for introducing greater complexity and ecological richness into the elements of that structure – open space, glades, woodland, woodland edge, landform, water and water's edge.

There may also be some limitations inherent in the landscape preference research. To date most of this research has concentrated on visual preference. Whilst this may be a perfectly valid way of evaluating preference for the kinds of landscapes people want to look at, it may not tell us anything about the suitability of landscapes for other activities, for example, playing games, exploring, socialising, or just being alone in. Nor does it tell us anything about the different types of landscape that people might prefer in different settings, say on their way to the shops, to sit out in close to home, or to visit at the weekends together with their families. Further, the landscape preference research tends to look for simple responses to landscape (like/dislike, safe/unsafe or suitable/unsuitable) rather than complex responses (ambivalent or conflicting feelings and complex meanings). Such limitations are more fully explored by Gobster (1999) in his paper advocating an ecological aesthetic.

The theoretical basis of this study is closely modelled on Bourassa's (1991) model, which suggests that responses to landscape have biological, cultural and personal components. In terms of the biological component, the Kaplans' (1989) model is preferred. This is because their four explanatory factors of coherence, legibility, complexity and mystery are abstractions that are not tied to particular landscape elements or types, and because these fours factors imply that responses to landscape are themselves complex and potentially ambiguous (coherence *and* complexity, legibility *and* mystery). This study also embraces the idea of an ecological aesthetic and seeks to overcome the limitations of a purely preference-based approach.

The perception of naturalistic woodland

Given that the theoretical basis of this study is that responses to landscape have a biological, cultural and personal component, how do these elements inform the issue that is at the core of this study, namely human attitudes towards naturalistic woodland in public urban settings? The key distinguishing feature of naturalistic plantings of trees and other woody species is the presence of one or more layers of understorey vegetation. Conversely, conventional urban parkland in the English Landscape Style consists of mature trees limbed up to several metres above ground level in a setting of mown grass.

From the 1960's onwards there have been a number of lines of research that have found that images depicting multi-layered woody vegetation of the kind one would expect to find within ancient woodland, or along a woodland edge in a state of natural succession, attract lower preference scores than images of parkland in the English Landscape Style (Ulrich, 1977; Kaplan, 1985). An assumption that multi-layered woody vegetation is itself lower in preference than mature trees set in mown grass has developed, based on such studies (Parsons, 1995).

Some of these studies are open to criticism. For example, it can be argued that that the images depicted simply do not compare like with like: a close-up of a woodland edge is quite different from a long view of an open woodland glade- one is an image of the structure of the vegetation itself, the second is an image of the spaces defined by vegetation. This is the case in the study by Ulrich, cited above (1977). In a later paper (1986) Ulrich refers to two sample images from the high and low preference groups in the earlier study. The first is a typical parkland landscape in the English Landscape Style. The second example is a much closer view of roadside scrubland. In the first image the vegetation consists of mature trees limbed up to several metres from the ground, combined with what appears to be mown grass; in the second the vegetation consists of young trees with a dense understorey of scrub and herbs. In the first image the vegetation appears healthy but in the second there are several leafless trees or shrubs that appear to be dead or dying. The topology in the two images is also completely different. In the first image the ground is predominantly level, whereas in the second the ground rises markedly away from the viewer thus further reducing the visual permeability of the scene. There are in fact a number of variables that differ between the two scenes, variables that are not controlled for in the study.

In terms of aesthetic preference for the two different landscapes it is arguable that most people would prefer the long view for the simple reason that it is more interesting, because the image itself contains more variation. It is rather like comparing a photograph of a strip of wallpaper with a photograph of an entire room, papered with different wallpaper. Whilst people may prefer scenes that contain long view distances over close views when comparing visual images of landscapes, such studies certainly do not support the hypothesis that certain kinds of vegetation are inherently lower in preference.

In one study focussing exclusively on near-view forest scenes, the degree of visual penetration was found to be a significant predictor of scenic beauty (Ruddell et al, 1989). However, visual penetration is not associated exclusively with certain kinds of vegetation. Visual penetration is also dependent on the spatial arrangement of vegetation and view distance. The relationship between view distance and

vegetation density was explored by Purcell and Lamb who found an interesting interaction (1998). They found that whereas sparser vegetation was preferred to denser vegetation in close views, the reverse applied in wide views. Here preference was related to view distance and not solely to the qualities of the vegetation itself.

Further, the bulk of the research relied upon by commentators such as Parsons (1995) was carried out in American forests, many of which were planted and managed for commercial purposes. The levels of tree density encountered during some of these studies (in excess of 1000 trees per acre) (Hull, 1987) are far higher than one would normally expect to encounter in an urban public situation. Hence, when considering public reaction to woodland in an urban setting, the research carried out in American forests has to be viewed with some caution. Schroeder and Green (1985) investigated public perception of optimum tree density in public parks. Sixty to 65 mature trees per acre was considered the ideal density against an open background, but the number dropped to 40-50 where the background was dense.

Further, many of the findings from this research relate to coniferous rather than deciduous forests. In at least one of the studies relied upon by Parsons in support of his contention that "thick undergrowth and dense stands of trees detract from the scenic beauty of forested environments" there was no significant relationship either way between understorey vegetation density and perception of scenic beauty, although the impact of this variable may have been represented by other stand characteristics in the study (Hull, 1987).

To some extent however these studies miss the point, because as we have already seen landscape aesthetics should not focus solely on preference for different views of landscapes, but should embrace a whole gamut of different approaches ranging from how we perceive landscapes in terms of their utility, to the feelings they evoke in us. Further, we do not experience landscape solely from a series of static viewpoints. A great deal of our experience of landscape is dynamic: we get to know landscapes as we move through and interact with them, seeing them from different perspectives and experiencing them in different ways at different times.

From the 1960's onwards there has been a large tranche of research into forest landscapes, particularly in Scandinavia and the USA. This research has generally taken the form of collecting public responses to photographs depicting different forest conditions. Partipicants are shown a series of photographs of different forest scenes and then asked to rate them for scenic beauty. The ratings are then compared to the content of the photographs to determine relative preference for different factors: an approach known as the "psychophysical" approach. A review by Ribe (1989) made the following findings. Comparisons of preference for managed as opposed to un-managed or natural forests have yielded contradictory results (presumably because these definitions are fairly loose: managed and natural forests come in many different forms). High tree density, particularly of young trees, is considered less attractive than medium densities (though one study found the optimum number of trees per acre to be 1150 (Buyhoff et al, 1986). Vegetation structures that permit visual penetration are preferred to those that do not. The presence of a shrub or sapling understorey has

been found both to enhance and detract from a scene (again, this may be because of the many different characteristics woodland understorey can have in terms of variation in vegetation type and structure). A variety of species is preferred to a monoculture where it gives rise to visual diversity. The presence of large trees enhances preference, as does a ground cover of grasses, ferns, forbs or seedlings. Slash (the stumps and off cuts that are the aftermath of tree-felling) is strongly disliked.

Thus it would appear that multi-layered woody vegetation is not disliked *per se* but that public perception of it depends largely on other factors such as view distance and visual penetration. Schroeder and Anderson (1984) found that view distance was the most important predictor of perceived security in urban recreation sites.

The perception of naturalistic woodland in urban settings

The presence of trees and limited quantities of well-maintained shrubby vegetation has been found to be an asset in urban settings. In a small-scale urban context well-maintained vegetation that clearly appears to have been "designed" has been found to enhance the security and attractiveness of urban parking lots in the United States of America, though characteristics of the vegetation such as vegetation type, structure and species selection were not defined in the study (Shaffer and Anderson, 1983). Another American study looked at preference for different treatments of people's front yards. The preferred option was a hedge along the front walk, followed by an ornamental tree with foundation shrubs. Options that were disliked included an open lawn at ground level, a very dense two-tree canopy, and overgrown shrubs along the front walk (Smardon, 1988).

The introduction of street trees and other vegetation had a positive affect on respondents' emotional and cognitive experiences of streets in the United States of America (Sheets and Manzer, 1991). Respondents were shown drawings and photographs of particular streets with and without vegetation. When depicted with vegetation the streets were thought to be better, safer and cleaner places in which to live, and easier places in which to make a living. However, in South West Scotland, trees were not thought to improve the quality of the street (Hitchmough and Bonugli, 1997). Cultural and climatic variations are presumably responsible for these differences in perception.

A survey in Detroit, United States of America, found that residents wanted tax revenue spent on "park and street trees" in preference to any other municipal service, second only to "education programs", and wanted more tree planting above any other tree management activity (Getz et al, 1982). Further, they favoured government provision of "tree lined streets" above "open park areas" and "wooded areas". Eighty per cent indicated that the presence of trees would influence their choice of a place to live (presumably positively) and 90% thought that trees increased property values. A later study by Schroeder and Cannon (1987) found that both street and yard or garden trees contribute significantly to the scenic value of residential streets. However, in a Dutch study of actual property transactions, water bodies (lakes and canals) were found to attract a premium on house prices more consistently than all types of urban green space including woodland (Luttik, 2000). This latter finding is probably very culturally specific, being related to the unique relationship that Dutch people have with water in their landscape.

As mentioned above, in the context of public housing, Kuo et al (1998a) have found that photo simulations of the introduction of trees and mown grass within the courtyards of high-rise dwellings in Chicago were considered by residents to be far more attractive, and safer, than the courtyards in their actual state, devoid of vegetation. These dwellings lay within the ten poorest neighbourhoods in the United States of America. Respondents were shown photo simulations containing three levels of vegetation density (0 trees per acre, 12 trees per acre and 22 trees per acre). The highest vegetation density attracted the highest preference and safety ratings.

Thus there is considerable evidence to suggest that trees, and to some extent shrubs, are a valued part of the urban fabric, but none of these studies deal with naturalistic vegetation of the kind used in Birchwood, so it would be unwise to generalise from these findings. As we have already seen the majority of studies relating to naturalistic vegetation have been carried out in forest or woodland settings, outside the urban envelope.

The interaction between tree density, thickness of undergrowth, and the existence or absence of a path in urban parks was considered by an Australian study (Hull and Harvey, 1989). Pleasure was found to increase with tree density although the most pleasurable scenario was low tree density and thin undergrowth. Whilst these findings seem to confirm earlier studies, such as those by Kaplan and Kaplan (1989), in which dense understorey vegetation was consistently found to be low in preference, the spatial arrangements of the vegetation in the study were not evaluated, and as we have already seen spatial arrangement and view distance are important predictors of preference.

A more recent study (Jorgensen et al, 2002) examined the impact of the spatial arrangement of woodland and the nature of the woodland edge on public perception of safety and preference in an urban park in Sheffield, in the UK. Several different naturalistic edge treatments (flowering herb layer, dense understorey, flowering herb layer combined with dense understorey and finally native woodland edge) were contrasted with a more conventional parkland vegetation of specimen trees and mown grass in three different spatial arrangements (full enclosure, partial enclosure and no enclosure). Respondents were asked to rate digital images of the fifteen combinations of edge treatment and spatial arrangement for safety, and then preference. Although the respondents found native woodland edge to be the least safe of all the edge treatments there were some interesting findings in relation to the interaction between edge treatment and spatial arrangement. Reactions to the three different spatial arrangements of the woodland varied dramatically according to the nature of the woodland edge in the case of the spatial arrangements known as full enclosure and no enclosure, but not in the case of partial enclosure, when all edge treatments received similar ratings for safety and preference. The most dramatic variation was in the case of the dense understorey edge treatment: rated most unsafe in the full enclosure spatial arrangement but most safe in the no enclosure spatial arrangement. These findings suggest that, whilst safety issues are undoubtedly an important issue when working with naturalistic vegetation structures, design can play an important role in addressing these issues through an awareness of the effect of varying spatial relationships and view distance.

One of the difficulties in evaluating a more naturalistic approach to urban tree plantings in the UK is that naturalistic woody vegetation was rarely used as part of planned or designed urban landscapes before Birchwood. One of the first evaluations of public responses to naturalistic woodland, compared with more traditional approaches to urban green space planning and design, was the study of Tartaglia-Kershaw into the role of urban woodland in residents' daily lives (1980). Tartaglia-Kershaw carried out a study of the Gleadless area of Sheffield, in the UK, a housing area planned around an existing mature woodland. Although the woodland in Gleadless was generally within 500 metres of the housing, and often considerably closer, it was not closely integrated with the housing, as in Birchwood. In Gleadless, the woodland and the housing formed two distinct and separate areas. Seventy two per cent of the sample in the study said that the woods were important to them. An overwhelming 90% liked living on the estate, and 94% said that they liked the way the area had been planned. However, Tartaglia-Kershaw (1980) concluded that the overall findings did not support the approach used at Birchwood:

> "The residents do not want woodland to the door as many figures in the "Nature in Cities" movement suggest, and which is happening in New Towns based on woodland structure planning (sic)."

In another early study responding to the need for research on the impact of the nature and character of urban green space, Burgess et al (1988) examined the views of urban dwellers about their local green spaces. They found that traditionally managed urban green spaces characterised by isolated trees and mown grass were not valued as much as natural or semi-natural urban landscapes characterised by woodland, multiple layers of vegetation and an un-mown grass/herb layer. However, they also found that many people had ambivalent feelings about the landscapes they most valued: these landscapes were also the ones that aroused the most fear. They concluded that what people really want is a range of opportunities provided simultaneously in as many different green spaces as possible, and not zoned between different parks and green spaces.

Burgess' findings about the value that people place on natural or semi-natural urban landscapes were confirmed and explored in more detail by Bussey (1996), who found that woods were ranked above parks, and second only to open countryside, as the preferred landscape for informal recreation. These findings are mirrored in an extremely large Dutch study of 3118 respondents throughout the Netherlands. In this study 57% of respondents said they would prefer small areas of nature and green space close to home as opposed to a large nature area further away (Reneman et al, 1999). These studies therefore tell us something about the desired distribution of naturalistic landscapes within the urban framework, as well as about urban-dwellers' views in relation to particular nature-like landscapes.

Despite the innovative work done by researchers such as Burgess and Bussey, the idea that "woodland structure planting" is regarded as unsafe by members of the general public, and is therefore unsuitable for use in urban situations has persisted (Thompson, 2000). There is clearly a danger that, in seeking to reassure the general public by the removal of dense woody vegetation, we are also destroying the landscapes that people most value, despite their understandable fears. However, it may also be the case that "the Ecological Approach" was too wholesale, in that naturalistic vegetation was used too indiscriminately and too close to people's homes, as predicted by Tartaglia-

Kershaw (1980). There may well be an appropriate gradient of planting styles, ranging from formal and manicured to wild and nature-like. In his study of the use of woodland in conjunction with housing, Dowse (1987) recommended an interface between the dwellings and the woodland containing a parkland zone at least 500 metres wide comprising "clumps and specimen trees set in drifts of shrubs at a distance from housing". Manning (1982) has also advocated an appropriate gradient between "intensive" and "extensive" landscapes, though unlike Dowse (1987), he does not seek to prescribe particular types of vegetation in particular locations or lay down strict guidelines. Arguably what is needed is an element of choice, as proposed by Burgess (1988). People may welcome more naturalistic treatments provided they can choose when to interact with them.

Studies of residential satisfaction and quality of life

For some time now environmental psychologists have been examining ways of evaluating the experience of living in urban environments from a human perspective. These enquiries include specific studies of residential satisfaction, and broader investigations of the factors that are connected with quality of life. The literature that is associated with these enquiries is extensive, but in some ways it has limited relevance to this particular study. This is because historically this field of research has never had urban green space as its focus, though the emphasis of recent commentators seems to be changing (Jackson, in press; Pretty et al, 2003). So, for example a study by Potter and Speicher (1995) of the residential satisfaction of the inhabitants of an apartment complex in the USA made no mention of green space, although issues such as "building image" and "perception of the complex" were addressed. Likewise, a study by Taylor (1995) into the residential satisfaction of elderly residents of Illinois, USA, apparently concentrated purely on the built environment. Given existing research around the benefits of green views from windows (see page 9), this is a major omission.

In a more recent study by Bonaiuto et al (in press) items relating to "green areas" formed no more than 18 out of a total of 338 questionnaire items. Out of these 18, the 10 items that were judged to be most important related to access, quantity, size, equipment and condition. The character and experiential qualities of the green spaces were not considered. Further, in an earlier study based on a similar methodology the indicator known as "lack of green areas" was said to be a "weak" predictor of residential satisfaction (Bonaiuto et al, 1999). This finding should not be taken as representative of a generalised view regarding the importance of green spaces in cities. It is probably largely determined by the methodology of the study, and possibly by its location in the capital of a southern European country, Rome, where inhabitants may well have different cultural attitudes towards the urban fabric. When residents of high-rise public housing in Tábor, the Czech Republic, were asked to identify the improvements they wanted to their housing estate, the provision of mature vegetation was top-most in their priorities, despite the fact that many other facilities such as sports grounds, playgrounds and restaurants were missing from the local area (Těšitel et al, 2001). Interestingly, proposals relating to green space were absent from the municipal authority's plan for regeneration of the estate, and were therefore made quite spontaneously by the residents.

Despite its limitations, aspects of the residential satisfaction research are relevant to this study. Firstly, they emphasise the importance of social relationships and community in the way residents feel about

the place in which they live; and secondly, they acknowledge that residential satisfaction is a multi-dimensional concept (Potter and Speicher, 1995; Taylor, 1995), with "spatial", "human", "functional" and "contextual" components (Bonaiuto et al, 1999, in press). This multi-facetted approach is even more strongly present in the quality of life literature, which also emphasises the objective and subjective elements in the human perception of these issues (Marans, in press; Pacione, in press, Van Kamp et al, in press). Roe has emphasised the importance of "social structure" and social learning" on the way humans interact with their environment (2000). These aspects have methodological implications that are referred to in more detail in Chapter 3, "Methodology".

This chapter has set the scene for the present study by reviewing the literature in the relevant areas. It has explained why there is no existing research tradition or methodology that exactly matches the aims of the study, and introduces the methodological issues that are explored further in Chapter 3.

Chapter 3 Methodology

Introduction

Theoretical basis of methodology

Just as the conceptual framework for this study is derived from a number of disciplines (see Chapter 2, "Literature Review", page 6), the methods used have a broad base in social science, cultural geography, environmental psychology and landscape analysis. This is because there are few existing studies that have evaluated a range of perceptual factors in relation to the experience of living in a particular landscape, though as the literature review suggests, there are many relevant studies in all of these fields. The existing studies that match this one most closely concern the quality of life in a specified location, but as previously explained (page 28, above), so far these have not focused primarily on landscape issues. Thus, this examination of the aesthetic and safety implications of woodland landscapes as a setting for housing and new settlements has had to invent its own new methodology, which borrows from the methodology of different disciplines, but does not fall squarely within any of them.

Methodological structure of the research

The research described in this thesis was essentially a case study of Birchwood, in Warrington, UK. A detailed description of Birchwood is given in Chapter 5, "Physical and demographic profile of the case study area". Birchwood was chosen for the case study because it is the first, most radical and most uncompromising example of the ecological woodland approach in Britain (see Chapter 4, "History and Context"). In "The Art of Case Study Research", Stake (1995) distinguishes between three types of case selection: "intrinsic", "instrumental" and "collective". "Instrumental" and "collective" case studies are chosen as instruments to explore the research question. An "intrinsic" case study is where the case almost selects itself because it is an isolated phenomenon, or the best example of its kind. In Britain, Birchwood falls into the latter category.

At the outset it was intended to choose a further European example of the ecological woodland approach, and preliminary investigations were carried out in the town of Emmen, in the Netherlands. It was hoped that this would enable a comparison of the attitudes towards woodland as a setting for housing held by different cultures. This would have been especially interesting given that the Netherlands is one of the "home cultures" of the woodland housing concept. Unfortunately it proved impossible to find a research partner in the Netherlands, and it was not practicable to carry out the dual case study single-handedly in the time available.

Case study research is more often associated with qualitative methods and, according to Stake (1995), is not to be equated with sampling research. To study a case is to assert the uniqueness of that particular case, whereas sampling research asserts that the sample is in some way representative of a wider population:

> "We study a case when it itself is of very special interest. We look for the detail of interaction with its contexts. Case study is the study of the particularity and complexity of a single case, coming to understand its activity within important circumstances." (Stake, 1995)

Burton (undated) states that there is no reason for case study research to be limited to qualitative methods. The present study uses a mixture of qualitative and quantitative methods (including sampling methods). There are a number of justifications for this approach:

- The mixture of quantitative and qualitative approaches is a means of triangulation: testing the validity of findings by exploring the same issues via a variety of methods;
- Qualitative methods (interviews) are used to explore and challenge the quantitative (questionnaire) findings, and as a means of enquiry in their own right;
- Whilst generalisations are made from the findings from both methodologies, their unique context is emphasised, and the particularity of individual cases and different views is respected:

  > "Ultimately, the interpretations of the researcher are likely to be emphasised more than the interpretations of those people studied, but the qualitative case researcher tries to preserve the *'multiple realities'*, the different and even contradictory views of what is happening." (Stake, 1995)

Francis (2001) has suggested that the form of the case study is eminently suitable for the review of projects within the discipline of landscape architecture, and recommends that the method should be used more frequently. He defines a case study as:

> "a well-documented and systematic examination of the process, decision-making and outcomes of a project, which is undertaken for the purpose of informing future practice, policy, theory, and/or education."

Francis goes on to recommend an approach to case study research in landscape architecture, and the proposed content and methods are very similar to those used in this study, although his approach was not used as a model.

As Chapter 1, "Introduction" explains, the aim of this study was to evaluate public perception of the use of naturalistic woodland as a setting for Birchwood over a range of themes, and two basic methods were picked for doing so: the questionnaire and the semi-structured interview. Data collection by questionnaire was chosen because this is the obvious method of collecting data from a large pre-selected sample, and because it is efficient in terms of time and resources.

There are many well-known drawbacks inherent in questionnaire research. There is the danger that, in pursuing their own agendas, researchers can simply miss the most salient points; there is a danger of ambiguity and misunderstanding in the way questions are worded, and that respondents will give the answers that they think are expected of them. There is the more fundamental philosophical objection that questionnaires assume that "reality" is an independent entity that can be empirically quantified, whereas "reality" is socially (and individually) constructed and "the sociology of knowledge is concerned with the analysis of the social construction of reality" (Berger and Luckman, 1966), or ought to be. There are also limitations to what questionnaires can achieve. Responses to open questions in questionnaires are time-consuming to analyse and, generally speaking, closed questions are a far

more efficient tool for collecting data in a questionnaire. Even where open questions are used they do not permit further exploration of any interesting issues that emerge.

For all these reasons, semi-structured interviews were chosen as the other main method of data collection. Although it can be argued that many of the above disadvantages also apply to interviews, they do at least have the potential to be conducted in an enquiring and discursive manner. It was felt that the use of the interviews would enable verification of the questionnaire findings, clarification of ambiguous or contradictory data, further exploration of issues raised, as well as a means of covering areas or questions not previously addressed. Further, as Valentine (1997) has pointed out, places have "multiple meanings and identities" that are best accessed by qualitative methods. In this study Valentine examined parents' reasons for choosing to bring their children up in rural as opposed to urban surroundings by means of in-depth interviews; finding that they used an image of children's safety in the rural idyll to justify their decision to bring up their children in this environment, whilst simultaneously contesting that image. These conflicting ideas would not necessarily have been accessible by quantitative means.

It was hoped that by using this combination of quantitative and qualitative methods the multi-facetted nature of human experience of living in a particular place, with its subjective and objective components, could be revealed.

This study aimed to evaluate residents' experience of naturalistic woodland within a residential setting in Birchwood. However, Birchwood is not a homogeneous entity. The residential part alone encompasses a variety of housing tenures and types, in diverse layouts. The amount of vegetation varies considerably from one residential area of Birchwood to another. It seemed likely that these differences would have an impact on public perception of the woodland in Birchwood. For these reasons it was decided to develop a typology of the residential areas in Birchwood that would reflect these differences. The detailed methodology for doing this is explained later in this chapter, in the section entitled "Urban landscape character assessment and calculation of vegetation and housing density". This typology was then used to select the areas from which the questionnaire sample and the interviewees would be drawn, using the vegetation density and the housing density of the areas as the criteria for selection. These two criteria were chosen because they were considered to be the main overall differentiating factors between the various areas. It was considered that housing density was the best indicator not only of the spacing and layout of dwellings, but also of their size and type. Both criteria were also quantifiable and could be used as experimental or independent variables, which, together with the controlled demographic variables, could be subjected to statistical tests against the dependent, perceptual variables (Oppenheim, 1992). The typology itself could also be used to inform the interpretation of the questionnaire and interview data.

Methods used

The methods used can be divided into two broadly sequential phases, contextual and substantive data collection, and are set out in table 3.1 below. As this thesis has a thematic rather than a chronological or narrative structure, the results in respect of the various methods are given in the appropriate

thematic chapter. The final column of table 3.1 indicates where the results in respect of each method may be found:

Phase	Method	Results
Contextual data collection	Exploratory interviews and meetings	Chapter 3, "Methodology"
	Urban landscape character assessment and calculation of vegetation and housing density	Chapters 3 & 5, "Methodology" & "Physical and demographic profile of the case study area"
	Literature review: • theoretical • historical	Theoretical- Chapter 2, "Literature Review" Historical- Chapter 4, "History and Context"
	Interviews with planners and designers	Chapter 4, "History and Context"
Substantive data collection	Postal questionnaire	Chapters 5,6,7,8 & 9, "Physical and demographic profile of the case study area", "Aesthetic factors", "Place identity", "Safety", "Children"
	In-depth interviews	Chapters 6,7,8 & 9, "Aesthetic factors", "Place identity", "Safety", "Children"

Table 3.1 Outline of methods used and chapters where results may be found

Exploratory interviews and meetings

There is considerable debate as to whether interviews should precede or follow questionnaires chronologically. The argument is that interviews can be used as a means of exploring the territory and establishing the issues, and can thus inform the questionnaire design. Many commentators therefore argue that they should precede the questionnaire, for example, Burgess suggests that "uncontrolled" methods should be used to determine how "controlled" methods should be used (1984).

The difficulty that was foreseen with this approach was that it would be difficult to contact a geographically representative sample of Birchwood residents to interview by any means other than a fairly large-scale postal mailing, or extensive door-to door enquiries. This concern proved to be well-founded, as only 124 respondents from a total questionnaire mailing of 1181, or 10.5%, agreed to be interviewed. To find 39 respondents to interview would therefore have required a mailing of around 371, or at least the same number door-to-door enquiries. Given the cost of mailings and the time and financial resources available it simply was not practicable to take these initial steps to find interviewees. A much simpler course of action was to ask respondents to the postal questionnaire to indicate whether they were also prepared to be interviewed, and this was the course of action that was eventually adopted.

However, it was still considered important to make some preliminary enquiries in order to find out what local agencies and Birchwood residents felt about their local environment before finalising the questionnaire design. A range of activities was therefore undertaken, consisting of:

1. Informal meeting and tour of sites in Birchwood and Warrington, together with Kevin MacReady, Landscape Manager employed by Warrington Borough Council. This began a process of familiarisation with the physical layout of Birchwood, and some other parts of Warrington, and highlighted some of the maintenance issues in Birchwood.

2. Meeting with Alistair Cross, Planning Officer employed by Warrington Borough Council, who provided a selection of written material relating to the 1991 census including a document entitled "Census Information- Oakwood Ward/Poulton North Ward for Chief Executive (June 1995)" (Cross, 1995). Birchwood consists of three districts namely Oakwood, Gorse Covert and Locking Stumps. Oakwood Ward is therefore part of Birchwood, whereas Poulton North Ward forms part of the rest of Warrington. In this document Cross stated that some parts of these two wards had unusually high levels of single parent families and unemployment, compared to the rest of Warrington. He concluded that this was because these parts of the New Town were characterised by "quirky" house styles, small dwellings, unusual layouts and a high proportion of flats. As such places were unattractive to the majority of residents, including families, they tended instead to be occupied by the very poor and the very young, and had become "problem areas". This suggested firstly, that there was a perception within Warrington Borough Council that some types of housing in Oakwood were unsuitable for many prospective occupiers, and secondly, that the parts of Oakwood where this housing was found might have social problems linked with deprivation.
3. Attendance at a meeting of the Birchwood Forum on 13 July 2000. The Forum consists of a number of local residents, community groups and other agencies and is concerned primarily with issues affecting the quality of life in Birchwood.
4. Attendance on an accompanied walk around Risley Moss on 13 July 2000, a Designated Local Nature Reserve and a Site of Special Scientific Interest in Birchwood, together with local conservationists and Birchwood residents. This indicated that Risley Moss was valued by some local residents as both a recreational resource and a centre for conservation and wildlife.
5. Interviews with six local residents contacted by word-of-mouth with the help of Kevin MacReady. Four of these residents lived in Gorse Covert, one in Oakwood and one in Locking Stumps. These were conducted as semi-structured interviews and the interview schedule is attached in Appendix 1. Where possible the interviews were tape recorded and transcribed. The interview data was used to:
   - Help determine the scope and content of particular questions in the questionnaire;
   - Provide appropriate wording for the questionnaire;
   - Begin a process of familiarisation with the way residents talked and thought about Birchwood.

Urban landscape character assessment and calculation of vegetation and housing density

This was done by means of a two-stage process. Firstly, the residential part of Birchwood was subjected to an urban landscape character assessment and divided up into housing character areas (HCA's). Secondly, the vegetation density and the housing density in each of these HCA's was measured.

The landscape character assessment

The technique of Landscape Character Assessment was first developed in the United Kingdom by the Countryside Agency (then the Countryside Commission) in connection with its character map of England, as a means of describing and conserving the character of the various regions (Countryside Commission, 1987). The technique was therefore originally developed as a means of large-scale landscape analysis. However, its value as a tool for evaluating much smaller areas, including residential areas, has since been recognised by the Countryside Commission and other agencies (Countryside Commission, 2003; Doe, 1997).

Landscape Character Assessment is based on the premise that understanding of what differentiates one landscape from another can be derived from an awareness of their constituent elements, and how those elements work together (coupled with an understanding of formative landscape processes). Although it inevitably involves a strong element of subjective judgement, the technique aims to be as objective as possible by laying down a consistent approach, and pre-defining the criteria according to which landscape is analysed (Countryside Agency and Scottish Natural Heritage, 2002). Landscape Character Assessment was therefore considered suitable as the preliminary method of classifying the landscape in Birchwood.

A Landscape Character Assessment would normally include a detailed desktop analysis of a range of aspects, such as geology and history. This was not considered necessary in this case, as an analysis of these aspects is contained in the Draft Masterplan for Warrington New Town (Austin Smith Lord, 1969), relevant parts of which are summarised in Chapters 4 and 5, "History and Context" and "Physical and demographic profile of the case study area". Also, given that the study districts are essentially urban, and that they all comprise post-war residential development, the value of examining factors such as underlying geology must be limited. Further, the units of analysis within Birchwood (the HCA's) were so small that they would have cut across these broad contextual factors. Finally, the purpose of this particular landscape character assessment must be borne in mind. It was not intended as a comprehensive analysis and description of Birchwood, as might be necessary for planning purposes. Rather it was a means of breaking down the area into smaller units of analysis (a typology) for the purpose of understanding them better in the context of this particular study.

Therefore the desktop component of the study consisted of the provisional identification of the HCA's from a visual inspection of aerial photographs at a scale of 1:10,000, and a detailed plan at a scale of 1:1250. This plan consisted of the relevant Landline Plus map "tiles" supplied in digital format by Edina Digimap. These tiles were converted to a format suitable for use in Arc View GIS and were subsequently viewed using this software.

The provisional HCA's were then inspected on the ground, and adjustments were made where necessary. The areas were considered to be different from each other where there were differences in a number of factors that can be summarised as: layout and spacing of buildings, and the

characteristics of intervening spaces, buildings, boundaries, roads and pathways. A detailed list of relevant factors is set out in Appendix 2.

Results

The Urban Landscape Character Assessment yielded 33 different HCA's ranging from .89 to 15.63 hectares in size, including 10 HCA's in Oakwood, 12 in Gorse Covert, and 11 in Locking Stumps (figure 3.1, page 39 below).

Calculation of vegetation density

Surprisingly perhaps, there appear to be no published precedent for the calculation of vegetation density on scales between 1:1,250 and 1:10,000. One obvious approach was to use techniques derived from remote sensing to extract information about the amount of vegetation in a given area from aerial photographs. This was therefore attempted using colour aerial photographs of Birchwood at a scale of 1:10,000 and the Erdas Imagine software. The aim was to extract the relevant information from the photographs and to match it up against the Landline Plus plan in Arc View.

The first difficulty encountered was that the photographs were not planometrically accurate due to a number of factors, including lens distortion. However, it proved relatively easy to carry out a geometric correction of them, using Erdas Imagine.

However, a further problem was encountered during the classification process, which was also attempted using Erdas Imagine, during which the software sorts the pixels in the photographs into groups, on the basis of factors such as colour and patterning. Due to colour inconsistencies between the various photographs, and the fact that the photographs contained long shadows that resembled dark vegetation, the software was unable to identify areas of vegetation consistently. This problem could possibly have been overcome by correcting the photographs for inconsistencies in colour and carrying out a painstaking process known as supervised classification, where the recognition of colour and patterns is done manually by the computer operator in the first instance. This would have been extremely time-consuming. Given that the ultimate outcome was uncertain, and that this was a preparatory phase of the study rather than its main focus, the investment of further time on techniques derived from remote sensing was not considered appropriate. However, there is no doubt that the development of a method for the detailed analysis of small areas by means of aerial photographs and remote sensing techniques would constitute a valuable piece of research in its own right.

Experimentation with selecting and counting different coloured pixels using Adobe Photoshop proved equally fruitless, for similar reasons.

An alternative method was therefore found to calculate the vegetation density, derived from small-scale vegetation mapping and measuring techniques, based on the work of the ecologist Braun-Blanquet (Kent and Coker, 1992). The method adopted was as follows. The colour aerial photographs at 1:10000 were scanned and used as a background layer in Adobe Photoshop. A grid measuring $100m^2$ overall, a hectare, was then superimposed on each HCA. The grid consisted of 25 squares.

Each square therefore measured 20m^2. Each square was then inspected and given a score out of 10 to reflect firstly the area of the square with a vegetated ground surface, and secondly the area of the square covered with woody vegetation in accordance with table 3.2. For example, if 50% of the square was covered with a combination of grass and woody vegetation it was given a score of 5 on the first scale, and if 20% of that square was covered with woody vegetation (as opposed to grass or herbaceous vegetation) it was given a score of 2 on the second scale.

Score	Vegetation cover
10	100%
9	90%
8	80%
7	70%
6	60%
5	50%
4	40%
3	30%
2	20%
1	10%

Table 3.2 Scale used to score vegetation cover

There was clearly a possibility that the data generated by this method would vary with the placement of the grid within the HCA. In order to ensure consistency a set of rules were devised for its placement. The grid was placed in the centre of each HCA, judging by eye. Where a HCA had no obvious centre, for example, in the case of long, narrow HCA's, the grid was placed in the centre of the widest part. Where the HCA was so small that, even with the grid in the centre, part it overlapped the boundaries of the HCA, the grid was moved, so that, so far as possible, all of it lay within the HCA. When overlap was unavoidable and one or more of the 25 squares lay partly or wholly outside the HCA the following rules were adopted. Squares where more than 50% of the surface area lay outside the HCA were excluded. Where more than 50% of the surface area lay inside the HCA the square was allocated scores in the normal way. Consequently HCA's with up to nine squares missing were included. Where HCA's were so small that more than nine squares of the grid were missing, these HCA's were discarded for the purposes of the study.

Given that this study was about the impact of woodland as opposed to grass or herbaceous vegetation it was decided to use the data for woody vegetation as the measure of vegetation density in the study. The data on vegetated ground surface is therefore not reported.

Results

The scores for vegetation density are set out in figure 3.2, ranked in ascending order, and grouped by district.

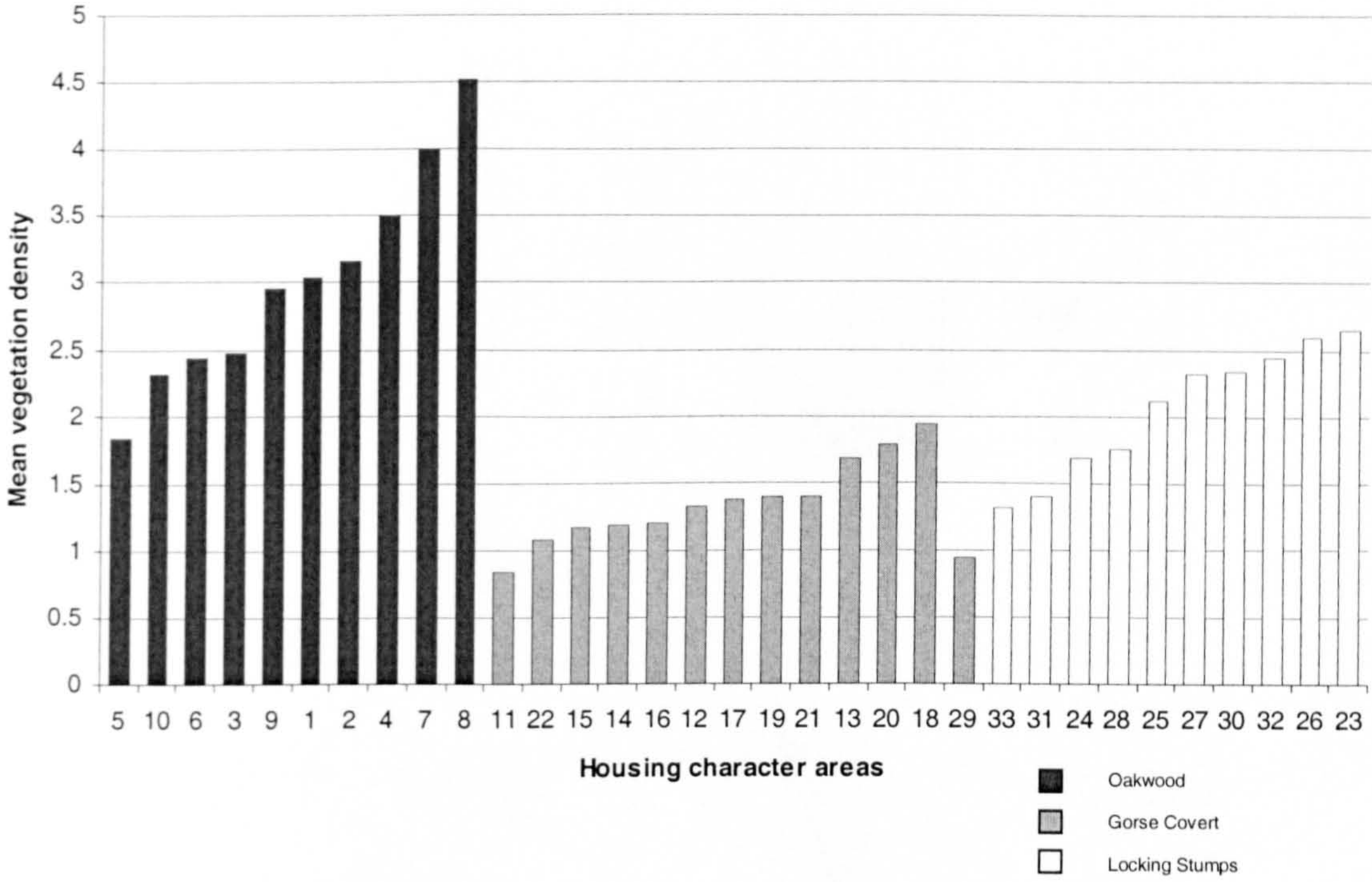


Figure 3.2 Vegetation density of HCA's in Birchwood grouped by district

The location of the 33 HCA's relative to the three districts in Birchwood, and their vegetation density, is shown in figure 3.1.

Calculation of housing density

According to Colquhoun and Fauset (1991) the correct method of measuring housing density is to include the following in the area to be evaluated: built forms, dwellings, garages, private and public gardens, access roads, footpaths, parking areas and half of the perimeter roads serving the site.

The inclusion of all of these elements was not considered appropriate in this study. Many of the HCA's in Birchwood are adjacent to areas of public green space, and often the boundary between the HCA's and the green space is indistinct. It was felt that the evaluation of housing density should be a reflection of the spatial arrangement of the dwellings, and their proximity to each other internally within the HCA's, and should not include green space that was essentially external to them. To do otherwise would have led to inconsistencies in the calculation of housing density. For example, HCA's with adjacent green space would appear to have lower housing densities relative to other HCA's without any green space, despite being identical in all other respects; and it would also be difficult to determine how much of the green space to include. Further, many of the HCA's are bounded on one or more sides by broad bands of woodland. In some instances these woodland belts separate the HCA's from the perimeter roads. To include the bands of woodland and half of the perimeter roads in these instances would also have skewed the results for reasons similar to those set out above.

Figure 3.1 Location and vegetation density of the HCA's in Birchwood

For these reasons a decision was taken to exclude green spaces and woodland belts on the periphery of the HCA's, perimeter roads that were separated from the HCA's by woodland belts and the HCA access roads from the point at which they entered the woodland belts. All footpaths not serving the HCA's were also excluded.

By using this approach it was intended that comparisons could be made between the housing density of the HCA's in the study. It is recognised that comparisons with the housing density of other housing, computed by different methods, should be approached with caution in the circumstances.

The area of each of the 33 HCA's was measured using ArcView. The number of dwellings within each HCA was manually counted using a combination of the Landline Plus Plan in ArcView, and the aerial photographs. Any buildings that appeared to comprise more than one dwelling were inspected on the ground to establish the actual number of dwellings. The number of dwellings in each HCA was then divided by its area in hectares to ascertain the housing density. The density is therefore given in hectares. Although the statistic is referred to as "housing" density it actually includes all dwellings whether they be flats, maisonettes, or whatever.

Results

The housing densities for the 33 HCA's are set out in figure 3.3, ranked in ascending order, and grouped by district.

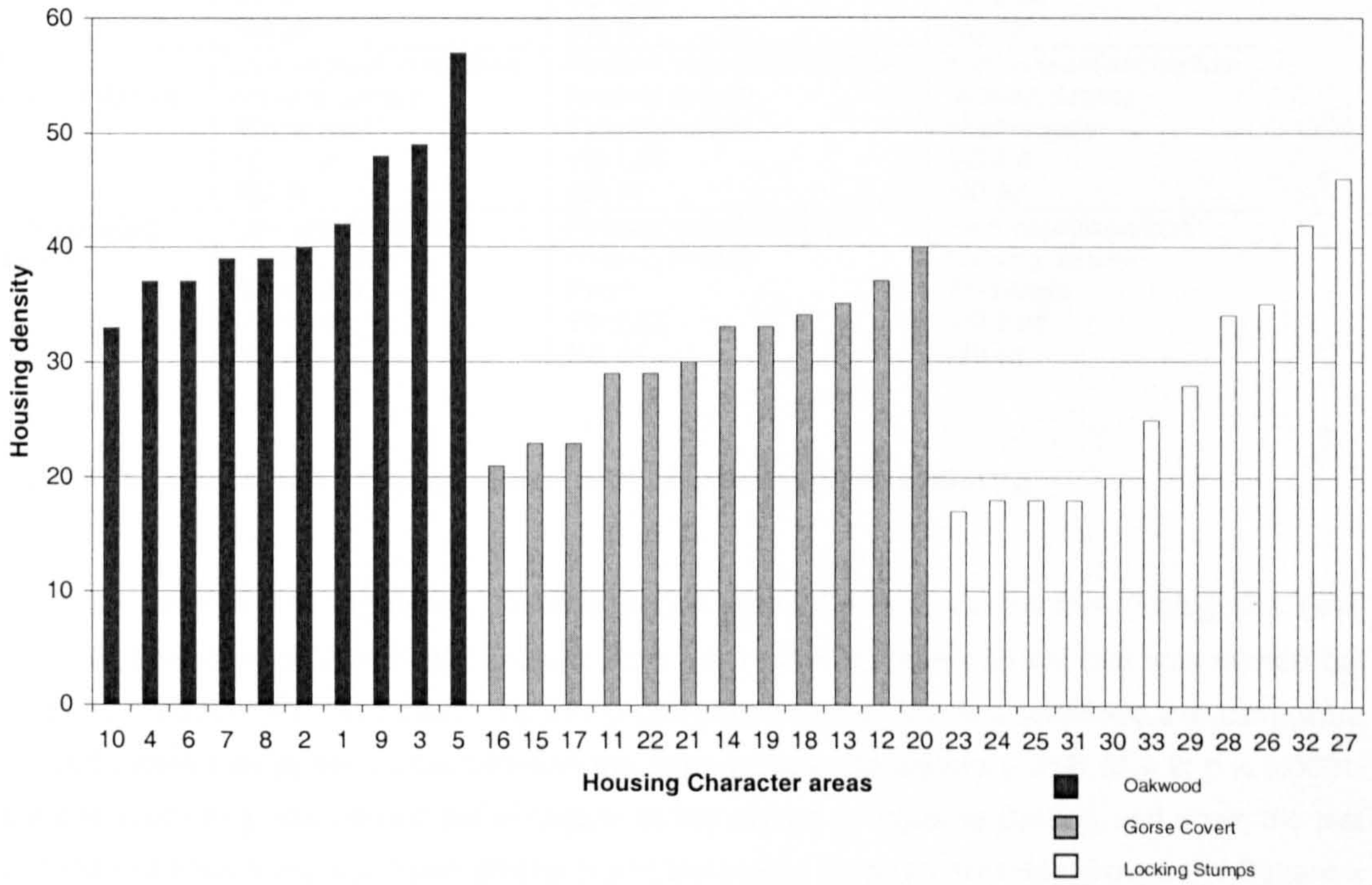


Figure 3.3 Housing density (houses/hectare) of HCA's in Birchwood grouped by district

Vegetation and housing density in Birchwood districts

Table 3.3 indicates that Oakwood has the highest mean vegetation density, followed by Locking Stumps and then Gorse Covert. Oakwood also has the highest mean housing density.

District	Vegetation density	Housing density
Oakwood	3.02	42
Gorse Covert	1.36	31
Locking Stumps	1.95	27

Table 3.3 Mean vegetation and housing density of districts in Birchwood

Selection of sampling HCA's for the substantive study

In order to obtain the widest possible range of vegetation and housing densities within the HCA's to be sampled, three conditions of each variable were selected namely high, medium and low. Putting these conditions together in all possible combinations gave rise to nine pairs of conditions, or cells. The data for vegetation and housing density was then scrutinised to find the nine HCA's (out of the original 33) most closely matching these nine combinations (table 3.4). For example, the HCA known as "Cadshaw" was chosen because it had *both* medium vegetation density and low housing density, and therefore fulfilled both conditions for this particular cell.

	Low vegetation density	**Medium vegetation density**	**High vegetation density**
Low housing density	Low vegetation/low housing density ***Hamsterley*** ***VD 1.17*** ***HD 23***	Medium vegetation/low housing density ***Cadshaw*** ***VD 2.12*** ***HD 18***	High vegetation/low housing density ***Lords*** ***VD 2.64*** ***HD 17***
Medium housing density	Low vegetation/medium housing density ***Ringwood*** ***VD 1.39*** ***HD 33***	Medium vegetation/medium housing density ***Hazelborough*** ***VD 1.95*** ***HD 34***	High vegetation/medium housing density ***Nightingale*** ***VD 3.5*** ***HD 37***
High housing density	Low vegetation/high housing density ***Redshank*** ***VD 1.84*** ***HD 57***	Medium vegetation/high housing density ***Fern*** ***VD 2.32*** ***HD 46***	High vegetation/high housing density ***Rawlings*** ***VD 2.96*** ***HD 48***

Table 3.4 Vegetation and housing density of HCA's selected for sampling

To find out whether the vegetation densities of the nine HCA's within the three categories (low, medium and high) were significantly different from each other a Kruskal-Wallis test was carried out with the low, medium and high conditions as the grouping variable. The test confirmed that there were significant differences in the scores between the three groups Chi-Square = 212; df = 2; $p < 0.0001$.

The same procedure was carried out in relation to the scores for housing density, and again the test confirmed that there were significant differences in the scores between the three groups Chi-Square = 298; df = 2; $p < 0.0001$.

These nine HCA's, and the three control HCA's referred to below (12 HCA's altogether) were then used as the basis for data collection and analysis in the substantive part of the study. To give the HCA's a recognisable identity each one was given a name, based on a street name within the HCA. A

detailed description of each of the HCA's is given in Chapter 5, "Physical and demographic profile of the case study area".

Selection of control HCA's

In order to control for differences in perception that could be attributed to the presence or absence of a naturalistic woodland setting it was decided to compare the perceptions of Birchwood residents with those of residents of areas without this setting, as well as making comparisons between HCA's in Birchwood with different characteristics. It was therefore decided to select three "control HCA's" from the rest of Warrington with low, medium and high housing density, but with little or no woody vegetation.

Potential areas were identified using an Ordnance Survey map of Warrington at a scale of 1:25,000, aerial photographs, and from tours of different housing areas during visits to Warrington. Eight potential HCA's were identified and then inspected on the ground.

Their housing density was calculated using the method used for the HCA's in Birchwood. A number of criteria were used to make the final selection:

- Housing density: whether the housing density of the proposed control HCA fell within the low, medium or high housing density categories used in Birchwood (see above);
- Whether aerial photographs of the HCA were available so that vegetation density could be measured using the method used in Birchwood (see above);
- Absence of woody vegetation;
- Urban landscape character: whether the characteristics of the proposed control HCA matched the characteristics of the HCA's in Birchwood, so far as possible, excluding any factors relating to Birchwood's woodland character.

Three control HCA's matching the three housing density conditions were picked, and their vegetation density was calculated. Once again they were given names to make them more identifiable. Details of these control HCA's are given in table 3.5.

Housing density	Control HCA
Low	No vegetation/low housing density ***Coppice*** ***VD 0.04*** ***HD 23***
Medium	No vegetation/medium housing density ***Shakespeare*** ***VD 0.04*** ***HD 31***
High	No vegetation/high housing density ***Vulcan*** ***VD 0.12*** ***HD 47***

Table 3.5 Vegetation and housing density of Control HCA's selected for sampling

Literature review

The literature review focused on two main areas namely the theoretical framework and methodology for the study, and the historical and philosophical development of the New Town concept, and the ecological woodland approach to urban landscape planning and design. These two strands are written up separately in Chapters 2 and 4, entitled "Literature Review" and "History and Context" respectively. The literature review was carried out by conventional means including searches of electronic databases and library catalogues. The interviews with the planners and designers also yielded further suggestions for written sources.

Interviews with planners and designers

An important objective of the study was to compare the original aims and aspirations of the planners and designers of Birchwood with the experience of its current residents. Although both the philosophical and technical basis of the ecological woodland approach as practised at Birchwood are well-documented (see Chapter 4, "History and Context"), it was considered essential to meet with the key players in order to obtain a personal account of a number of different aspects of their work at Birchwood, and their role in contributing to the ecological woodland approach there. The individuals interviewed are listed in table 3.6 together with details of their role at the time of Birchwood's construction, and the nature of the interview/meeting that took place. All the interviews were conducted by the author.

Name	Role	Date	Nature of Interview/meeting
Hugh Cannings	Chief Architect and Planner	15/8/2000	Interview
Roger Greenwood	Landscape Architect and Landscape Group Leader	3/7/2000	Interview
Roland Gustavsson	Leader of the Research Team at the Department of Landscape Planning at the Swedish University of Land Use at Alnarp	3/8/2000	Informal meeting and tour of locations in Birchwood
David Scott	Chief Landscape Architect	3/8/2000	Interview
Robert Tregay	Deputy Chief Landscape Architect	14/8/2000	Interview

Table 3.6 Interviews with Planners and Designers

Two interviews with Professor Nic de Boer, former Chief Town Planner at Emmen, in the Netherlands were carried out on 2 May and 10 August 2000 respectively. Finally, Dr A.M. Nannen, who has written a doctoral thesis about Emmen's planning and architecture, was interviewed on 9 August, 2000. As mentioned in Chapter 1, "Introduction", a comparative study of Birchwood and Emmen was originally planned. This was not undertaken, but the interviews with Professor de Boer were very useful as a means of understanding more about the context of the ecological woodland approach. All the interviews were tape-recorded, with the exception of the interview with Roger Greenwood. A detailed contemporaneous note was made of the latter.

The interviews were of a semi-structured nature. A schedule of key issues/questions was used as the basis for the interviews and this is annexed in Appendix 3. However, when additional material not covered by the schedule came up during the interviews this was freely explored. All the interviews were transcribed by the author. The protocol for transcription was:

- All words spoken were transcribed (with some exceptions, given below) without further description of the mood, inflection or manner of delivery of the speaker;

- Repeated words or phrases were only typed once;
- Interjections by the interviewer to which the interviewee did not respond were omitted.
- Expressions such as "um" or "er" were omitted.
- Unintelligible sections of the interview were signified by square brackets ([]).

The transcripts of the interviews were analysed manually. A list of relevant themes was compiled. This was informed by the research questions of the study as a whole, recurrent themes in the interviews themselves and the literature written by the interviewees (see Chapter 4, "History and Context"). A matrix was constructed with the names of the interviewees across the top, and the themes down the side, and references to relevant extracts of the interviews were inserted in the cells of the matrix. The results and discussions of the interviews are set out mainly in Chapters 4 and 5, "History and Context" and "Physical and demographic profile of the case study area", but further comments are made in the thematic results Chapters 6,7,8 and 9, "Aesthetic factors", "Place Identity", "Safety", "Children" and in Chapter 10, "Conclusions".

Postal questionnaire

All the main themes addressed in the study were covered in the questionnaire namely residents' aesthetic reaction to naturalistic woodland as a setting for housing ("Aesthetic factors"), the personal attachment that residents held for the woodland ("Place identity"), the impact of the woodland on the perception of personal safety ("Safety"), and the implications of the woodland for the perception of children's safety and the quality of Birchwood as a place to bring up children ("Children"). The questionnaires also contained questions about the respondents' homes, e.g. about tenure and type of accommodation, and demographic questions, e.g. about respondents' gender, age, ethnic or cultural origin, marital status, occupation, education and health. Finally, respondents were invited to indicate whether they were prepared to participate further in the study.

The questionnaire was divided up into seven parts and table 3.7 shows how the research themes and data collection were divided between these sections.

Part	Research theme/data sought
Part 1 "Your home"	Information about the respondent's home
Part 2 "Your street"	Aesthetic factors Social factors
Part 3 "Your local area"	Place identity
Part 4 "Safety"	Safety
Part 5 "Children"	Children
Part 6 "Your leisure activities"	Leisure activities
Part 7 "About you"	Demographic factors

Table 3.7 Questionnaire structure

Table 3.7 refers to two research themes that are not mentioned elsewhere in this thesis, namely "Social factors" and "Leisure activities". The study also aimed to evaluate the impact of Birchwood's woodland setting on residents' social and leisure activities. A preliminary analysis of the data dealing with these themes suggested that the main independent variable in the study, vegetation density, had a limited impact on the variables represented by these themes. A decision was therefore made not to proceed further with their analysis.

The full questionnaire is annexed in Appendix 4. The content of the questionnaire was led by the overall research questions of the study, refined by the feedback from the exploratory interviews and meetings. The design of individual questions was informed by previous examples, namely the questionnaires used by Reneman et al (1999) in their research about Dutch attitudes to different types of green space, and by Valentine (1997) in her research about urban and rural parenting. General guidance was also obtained from Flowerdew and Martin (1997) and Oppenheim (1992). A combination of closed and open questions, and question with "Likert-style" response scales was used. For the reasons explained above there were no precedents that could be followed in their entirety, and the questionnaire design is therefore original. A more detailed rationale for the design of the thematic parts of the questionnaire (Parts 2, 3 ,4 and 5) is given in the relevant thematic chapters.

Part 7 of the questionnaire, dealing with demographic factors, was modelled closely on the design of the 1991 Census questionnaire. This was done specifically so that meaningful comparisons could be made between census data and the demographic data collected in the study.

A final draft of the questionnaire was posted to 30 respondents in October 2000 together with an explanatory letter and a stamped addressed envelope by way of a pilot study. This draft was essentially a prototype for the final version, except that it had an additional section at the end inviting feedback on the questionnaire itself. Ten questionnaires were sent to respondents from each of the three districts in Birchwood (Oakwood, Gorse Covert and Locking Stumps) respectively. The respondents were selected simply by picking names from the electoral register, with a roughly equal balance of males and females. Two weeks later a reminder letter was sent, urging respondents to return their questionnaires if they had not already done so. 13 respondents returned their questionnaires, a return rate of 43%.

The purpose of the pilot study was to ensure that both the structure of the questionnaire and the form of the questions were accessible and comprehensible. Thus the substantive data generated by the questionnaire was not analysed. Instead, the completed questionnaires were scrutinised for responses that did not "comply" with the instructions, and comments and feedback generally. Changes were then made to simplify the format of some questions and clarify any ambiguity in the instructions. The questionnaire was also altered to respond to some of the feedback received, e.g. originally only respondents with children under 18 were invited to complete Part 5, the section about children, but this generated some controversy, so the questionnaire was changed so that all respondents were invited to complete this section. Finally, where respondents had given replies that did not fall within any of the preset answers to certain questions, additional categories were added to make the range of responses more comprehensive.

The main questionnaire distribution took place from March to May 2001, approximately six months after the pilot study. It was decided to carry out the questionnaire distribution in Spring, as it was thought that potential respondents would be more interested in their environment at this time of year.

The sampling strategy was to obtain a random stratified sample. The strata were the nine cells referred to above in this chapter (see table 3.4, page 41), and the three control HCA's from outside Birchwood (see table 3.5, page 42): 12 HCA's altogether. Lists of the residents in the HCA's were generated from a commercially available electronic database, "UK-INFO DISK 2001" which is compiled from the electoral register and records maintained by British Telecom. This database is incomplete in the sense that persons not registered to vote, and without a telephone supplied by British Telecom, are not included. This limitation was recognised, and alternatives were considered. For example, one option would have been to send questionnaires to residents in the 12 HCA's anonymously by their addresses, which could have been ascertained from sources such as records kept by the Post Office, combined with a physical inspection. However, it was felt that the advantage of having a more inclusive sampling frame would be outweighed by the disadvantage of not being able to address correspondence to respondents in person. It was thought that the latter course would generate a greater response rate than addressing letters to "Dear Occupier". A target of 30 responses for each HCA was set, 360 responses altogether. The figure 30 is widely quoted as the minimum number of responses per cell (Flowerdew and Martin, 1997).

Prospective respondents were selected randomly from the lists of residents in the 12 HCA's. A number was allocated to each resident on the list, and the Excel statistics package was then employed to generate lists of random numbers that were then used to select the given number of prospective respondents from each HCA. Residents that had already responded to the pilot questionnaire were excluded, and no more than one respondent was selected from each household. This method of random selection worked very well in the larger HCA's, where there were plenty of residents to choose from. However, it proved to be more problematic in the smaller HCA's, such as Hamsterley (83 residents), where it became a matter of selecting every available person on the list. There was no way around this dilemma as it would have been ludicrous to exclude HCA's on the grounds that they were too small, when otherwise they fulfilled the criteria for selection. However, this was one of the factors that ultimately limited the sample size.

Two tranches of questionnaires were sent out, as the initial distribution did not generate the desired number of responses. As in the case of the pilot study, an explanatory letter and a stamped addressed envelope accompanied each questionnaire. The first mailing went out in late March/early April. Reminder letters urging respondents to return their questionnaires were sent out in late April. The second mailing was despatched in late May, and reminders were sent out approximately one month later. Where possible, respondents were also contacted by telephone and requested to complete and return their questionnaires. Duplicate copies of the questionnaire were sent to 30 respondents contacted by telephone who had lost or discarded the original, but were prepared to complete and return a questionnaire. 13 duplicate questionnaires were sent to "the occupier" at addresses from which the original questionnaires had been returned, marked "Gone away", or similar. Details of the questionnaire administration and response rates are summarised in table 3.8.

HCA	No. of residents	1st mailing	No. of responses	2nd mailing	Total questionnaires sent out	Total responses	Total % response rate
Nightingale	122	60	19	10	70	27	38
Redshank	504	60	10	120	180	38	21
Rawlings	237	120	25	24	144	35	24
Hamsterley	83	39	17	0	39	22	56
Hazelborough	89	60	10	0	60	17	28
Ringwood	109	60	14	11	71	22	31
Lords	229	60	21	30	90	39	43
Cadshaw	156	60	20	14	74	26	35
Fern	352	60	15	60	120	40	33
Coppice	184	60	15	5	65	25	38
Shakespeare	213	60	9	28	88	24	27
Vulcan	501	60	8	120	180	21	12

Table 3.8 Summary of questionnaire administration and response rate

Generally speaking the first questionnaire mailing consisted of 60 questionnaires per HCA, with two exceptions. Rawlings was originally two HCA's but the data from these HCA's was later combined. A thirteenth HCA had been included in the original research design. This HCA had the highest vegetation density of any HCA in Birchwood and it was considered interesting as a case study in its own right. By mistake the questionnaires destined for this HCA were sent to residents of Rawlings instead. The simplest course of action was simply to combine the two sets of questionnaire responses from Rawlings. Only 39 questionnaires were sent to Hamsterley, as there were no other available respondents within this HCA.

Despite the measures taken, as table 3.8 demonstrates, the target of 30 responses per HCA was not achieved in all cases. A total of 1181 questionnaires were sent out, and 336 were returned (28%), compared to an overall target of 360, with a shortfall of only 24. However, these responses were somewhat unevenly distributed between the HCA's, the range being from 17 to 40 responses per HCA. The response rate was generally high, except in the case of Vulcan, where it was only 12%. The factors that prevented the target of 30 responses being met were small HCA's, and lack of time and financial resources.

There is one other methodological issue that should be mentioned in connection with the administration of the questionnaires. Unfortunately the questionnaires destined for Coppice, one of the control HCA's from outside Birchwood, were sent to residents outside the perimeter of the HCA. As this HCA was intended to be one of the HCA's with very low vegetation density it was defined to exclude a portion of the street adjacent to a small woodland. A visual inspection of the street was carried out to determine which street numbers lay outside the perimeter of the HCA, but this must have been carried out inaccurately, because later on it was discovered that six of the 25 respondents from Coppice Green actually lived opposite this woodland. Thus, the validity of this HCA as a control area with little or no vegetation is somewhat compromised, and this was borne in mind in the interpretation of the results and the discussion.

The questionnaire data was analysed using the statistics package, SPSS version 11. A detailed account of the method of analysis is given in the thematic chapters. However, the following general

principles should also be borne in mind. The data was coded and transformed into a number of different types of variables namely nominal (binary), nominal (categorical), ordinal and scale. A selection of four different non-parametric statistical tests was used to test for the existence of statistically significant associations or correlations between different combinations (pairs) of variables. The rationale behind the choice of the four tests was that the most powerful and appropriate test available should be used for any given combination of variables. Table 3.9 lists the four tests together with a brief outline of their respective functions:

Test	Function
Chi-Square	Looks for an unequal distribution of cases in a frequency table or cross-tabulation of two nominal variables
Mann-Whitney	Looks for a difference in the mean rankings of cases according to the ordinal or scale variable between the two categories of the nominal variable
Kruskal-Wallis	Looks for a difference in the mean rankings of cases according to the ordinal or scale variable between the three or more categories of the nominal variable
Spearman's Correlation	Looks for a correlation between two ordinal or scale variables: a consistent trend for the value of one to decrease or increase as the other increases or decreases

Table 3.9 Statistical tests used and their functions

Table 3.10 indicates which test was used for a particular combination of variables.

Variables	Nominal (binary)	Nominal (categorical)	Ordinal	Scale
Nominal (binary)	Chi-Square	Chi-Square	Mann-Whitney	Mann-Whitney
Nominal (categorical)	Chi-Square	Chi-Square	Kruskal-Wallis	Kruskal-Wallis
Ordinal	Mann-Whitney	Kruskal-Wallis	Spearman's Correlation	Spearman's Correlation
Scale	Mann-Whitney	Kruskal-Wallis	Spearman's Correlation	Spearman's Correlation

Table 3.10 Statistical tests used on variable combinations

There has long been a convention that the Chi-Square test should only be used where there is a minimum of five cases per cell of the frequency table or cross-tabulation. Version 11 of SPSS has now made it possible to use the Chi-Square test even where this precondition is not met, provided the Monte Carlo or Exact probability level is used in place of the Asymptotic probability level (Weerahandi, 1994). Accordingly, the Chi-Square test was used even where some cells contained less than five cases; in these instances the Monte Carlo or Exact probability levels are given in place of the Asymptotic probability level.

There were essentially three types of variables used in the study namely the independent variables, the demographic variables and dependent, perceptual variables representing the four research themes.

There were five independent variables and these were "vegetation density", "housing density", "HCA", "district", and "location in relation to Birchwood". The scores for the vegetation and housing density of the 12 HCA's were simply transformed into the scale variables "vegetation density", and "housing density", where the values consisted of the vegetation scores and houses per hectare respectively

(see figures 3.2 and 3.3). The variable "HCA" was a nominal (categorical) variable reflecting the HCA in which a particular respondent lived, with values 1 to 12, representing the 12 HCA's. The variable "district" was a nominal categorical variable reflecting the district in which a particular respondent lived, with values 1 to 6 reflecting the six districts in which the HCA's were situated (including the three districts in Birchwood, namely Oakwood, Gorse Covert and Locking Stumps). There were interesting variations in the physical and demographic characteristics of the districts in Birchwood (see Chapter 5, "Physical and demographic profile of the case study area"), and for this reason it was considered important to determine whether these differences had any impact on the respondents' perception of the woodland in Birchwood. Finally, the variable "location in relation to Birchwood", was a nominal (binary) variable, where the values 1 and 2 simply denoted whether the respondent lived in Birchwood, or in one of the control HCA's outside.

One of the research aims of the study was to examine the impact of demographic differences between the respondents on their perception of Birchwood's woodland setting. Thus a selection of the demographic data collected by the questionnaire was also coded and transformed into a series of variables so that it could be tested against the dependent variables reflecting the various research themes ("Aesthetic factors", "Place identity", "Safety" and "Children"). The four demographic variables selected for these tests were "Gender", "Age", "Occupation" and "Education". Although the postal questionnaire included a question about the ethnicity of the respondents, no analysis of this data was carried out, as less than 1% of the respondents (n=2) said they were from non-white ethnic groups (Afro-Caribbean and Pakistani). This reflects the situation in Warrington Borough, which has a remarkably low proportion of residents from non-white ethnic groups: around 1%.

The data on respondents' gender was coded and transformed into a nominal (binary) variable. In the questionnaire the respondents were asked to indicate their age by ticking one of ten boxes containing different age ranges from "15-19" to "Over 59". The age data was then coded, rationalised into five categories ranging from "15-24" to "Over 59", and transformed into an ordinal variable. The respondents were also asked to indicate their occupations in response to an open question namely:

"What is your occupation or full job title?"

Their answers were then coded by reference to the "Standard Occupational Classification" (Office of Population Censuses and Surveys, 1990) and sorted into groups based on the "social class" categories employed in the 1991 Census using the OOSS User Guide 1990: 06.01 (Office for National Statistics, 2001). These groups were "professional", "managerial and technical", "skilled non-manual", "skilled manual", "partly skilled", "unskilled", "carer", "unemployed", "student" and "retired". The data was then transformed into a nominal (categorical) variable with ten categories. Finally, the respondents were asked to indicate which forms of education they had received by ticking boxes labelled "School up to age 16", "School up to age 18", "Qualifications or training", "Undergraduate degree" and "Postgraduate course". For each respondent one category was selected representing the "highest" form of education received. This data were then coded and transformed into a nominal (categorical) variable with five categories. These four variables were then tested against the dependent variables reflecting the various research themes using one of the four tests referred to in table 3.9, selected according to table 3.10.

In order to do justice to the research design represented by the matrix of nine cells or HCA's representing combinations of different vegetation and housing densities (see table 3.4, page 41), the tests for statistically significant associations between different variables were only carried out on the questionnaire data collected from the Birchwood respondents (i.e. the respondents from these 9 HCA's). The data from the respondents from the three control HCA's (see table 3.5, page 42) was however included in the descriptive analysis of the data, so that comparisons could be made between the two groups of respondents from inside and outside Birchwood, and the three HCA's from outside Birchwood could properly fulfil their function as controls. It is relevant to note at this point that the data from the three control HCA's is always shown separately in the bar charts that follow, on the far right hand side.

However, the data from the respondents from all 12 HCA's was tested for statistically significant associations between the dependent variables representing the research themes, and the independent variable representing location in relation to Birchwood, in order to establish whether there were any statistically significant differences between the respondents living in Birchwood and the control group from outside.

In-depth interviews

Earlier in this chapter four main functions of the in-depth interviews were identified. These were: verification of the questionnaire findings, clarification of ambiguous or contradictory data, further exploration of issues raised, as well as a means of covering areas or questions not previously addressed.

Approaches to research interviewing have been the subject of considerable debate in recent years. Scheurich (1997) criticises what he calls "positivist" and "post-positivist" stances. He claims that the methods of coding and analysis associated with "positivist" or "conventional interviewing" are a means of reordering sanitised chunks of text until they comply with the researcher's own paradigm. Further, he asserts that "post-positivist" alternatives such as those advocated by Mishler (1986) are still based on a positivist, reductionist model despite their emphasis on methodological rigour, discourse, narrative, context and empowerment of the interviewee. Instead, Scheurich asserts that:

> "Human interactions and meaning are neither unitary or teleological. Instead interactions and meaning are a shifting carnival of ambiguous complexity, a moving feast of differences interrupting differences."

According to Scheurich "the crux of the issue is the interpretative moment as it occurs throughout the research process", because it is then that the researcher brings their perspective into play. Thus, the researcher should be open about what they are bringing to bear upon the research process and should be prepared to find new ways of conducting and representing interviews. The theoretical standpoint adopted in this study is most closely allied to that of Mishler, whilst acknowledging that interviews are "a moving feast", and that the researcher's interpretation is no more and no less than their own representation.

The interviews were loosely structured around a list of predetermined questions, which were used as starting points. Hence, during the interviews some of these questions were omitted, further questions were asked, the order departed from and new issues introduced as the need arose. The interview questions were mostly open questions, which, so far as possible, were framed so as to encourage interviewees to give their own story or narrative, as opposed to inviting them to contribute to the interviewer's own conceptual framework, e.g. "Can you describe any experience of wildlife in Birchwood?" (Hollway and Jefferson, 2000).

The questions asked fell into two broad categories: firstly, questions relating to the questionnaire responses given by the interviewee, and secondly, questions about Birchwood's green structure (not addressed in the questionnaire). A unique set of questions regarding the former was prepared for each interviewee (for an example see Appendix 5) but a common set of questions was used for the latter (Appendix 6).

It was decided to interview three respondents from each HCA, a total of 36 respondents. Table 3.10 summarises the number of interviewees from each HCA, and table 3.12 summarises their demographic characteristics.

Housing character area	Number of Interviewees
Nightingale	3
Redshank	4
Rawlings	4
Hamsterley	3
Hazelborough	2
Ringwood	4
Lords	3
Cadshaw	4
Fern	4
Coppice	3
Shakespeare	3
Vulcan	2
Total	39

Table 3.11 Distribution of Interviewees between HCA's

The respondents were chosen from the list of questionnaire respondents from each HCA who had agreed to be interviewed simply by going down the list and arranging to meet the first people who were still prepared to be interviewed. The interviews were all carried out by the author during August and September 2002; and were all conducted in the respondents' own homes, except one, which was conducted in a restaurant. During 11 out of the 39 interviews, other family members and friends were present during the interviews and contributed to them. Arguably, this introduced an element of inconsistency in the interview process but there are many inconsistencies already inherent in interviewing (Scheurich, 1997). It was felt that the advantages of having extra contributors outweighed the disadvantages, because there was another "source of material", it may have made some respondents feel more comfortable, and sometimes the interaction between different contributors was

illuminating in itself (Valentine, 1999). At the outset of each interview the respondents were asked to give their consent to the interview, and were given assurances about anonymity and confidentiality. They were also asked whether they consented to extracts from the interviews being published, subject to these safeguards.

	Gender of respondent	
	Female	Male
Age of respondent	Count	Count
25-34	1	1
35-44	3	2
45-59	11	8
Over 59	7	6
Totals	22	17

Table 3.12 Gender and age of Interviewees

All the interviews were transcribed by a research assistant using the protocol in Appendix 7. They were then analysed by making lists of references to relevant sections of the textual record of the interviews in an alphabetical index of themes or categories. Extracts from the interviews were deemed to be "relevant" when they related to one of the research questions in the study, set out in Chapter 1, "Introduction", page 4, and elaborated in the thematic chapters. These thematic groupings of interview references were then organised into categories around a series of sub-themes informed by the content of the interviews, but still focused around the research questions in the study. For example, the interview references about "Footpaths" were divided into the following sub-themes: "positive comments", "safety", "access to attractive places", "recreational use", "convenience/inconvenience-access to facilities", "characteristics", "means for criminals to escape", "source of litter and noise", "crime", "maintenance", "lighting", "gender", "pavements by roads" and "motivation behind house purchase".

The findings from the interviews are reported in the thematic chapters ("Aesthetic factors", "Place Identity", "Safety", "Children") within the section entitled "Discussion". Frequently extracts from the interviews are reproduced. Generally speaking, they are raw extracts from the original transcription subject to some editing:

- Typological errors were corrected.
- Repeated words or phrases were deleted, except where they had been repeated for emphasis.
- Interview extracts were condensed by omitting interjections by the interviewer or the interviewee that did not appear to affect the content of the interview. Clearly the question of what affects the content of an interview is a purely subjective judgement. However, the published extracts are a genuine attempt to portray the interviews as remembered, and as recorded in the transcriptions, as accurately as possible within the constraints of the time and space available. Where something has been omitted this is signified in the published extract by the notation "...".

- Further punctuation (in addition to that inserted by the transcriber) was added sparingly, where it helped make sense of the text, e.g. by breaking up very long passages into a sequence of sentences.
- A guiding principle throughout was that the interviewer's questions and comments should not be "cleaned up" and that the same editing protocol should be applied to both interviewer and interviewee.
- Inaudible portions are signified by the notation "[inaudible]".
- To preserve confidentiality the interviewees are referred to only by initials, though their titles are retained to convey gender and occasionally, the relationship between two speakers e.g. Mrs B and Mr B.
- The words of each speaker were placed in inverted commas.

The following two extracts illustrate how this editing process worked. The first extract is from the original transcription of the interview with Mrs L:

AJ I was quite interested that that you picked the forest park as somewhere where you know somewhere particularly unsafe because you also said that pests along here and Risley Moss were your, you know and the Circular Footpath

Mrs L yeah

AJ were some of you're your

Mrs yeah

AJ places you particularly liked

Mrs L yeah

AJ but you didn't pick one of them

Mrs L no

AJ as as being

Mrs L no

AJ particularly unsafe

Mrs L no

AJ and I just wondered what the difference between the forest park was and those places

Mrs L I could be horrible and say

AJ you can horrible if you like

Mrs L no the majority of the Council Houses

AJ yes

Mrs L are over in Oakwood

AJ yeah so it's closer to Oakwood essentially

Mrs L it is yeah

AJ yes yeah

Mrs L and I think when they're roaming round well they roam on the park

The next extract is the edited version of this passage as published in Chapter 7, "Place Identity":

> **AJ**: "I was quite interested that that you picked the Forest Park as somewhere where you know, somewhere particularly unsafe, because you also said that Pestfurlong Hill and Risley Moss were your, you know and the Circular Footpath...were some of you're your...places you particularly liked,...but you didn't pick one of them...as being...particularly unsafe,...and I just wondered what the difference between the Forest Park was and those places?"
>
> **Mrs L**: "I could be horrible and say...no the majority of the Council Houses...are over in Oakwood."
>
> **AJ**: "Yeah so it's closer to Oakwood essentially?"
>
> **Mrs L**: "It is yeah...and I think when they're roaming round well they roam on the park."

Chapter 4 History and Context

This chapter examines the historical and philosophical context of the ecological approach to landscape planning and design used at Birchwood. It explores the influences on the key figures responsible for the ecological approach there, and concludes by describing their aims and aspirations for Birchwood's landscape. These key figures, employed by Warrington and Runcorn Development Corporation, were Hugh Cannings (Chief Architect and Planner), Roger Greenwood (Landscape Architect and Landscape Group Leader), Duncan Moffatt (Landscape Manager and Ecologist), David Scott (Chief Landscape Architect) and Roger Tregay (Deputy Chief Landscape Architect).

The history of planned housing in the UK

According to most commentators (e.g. Colquhoun and Fauset, 1991), the history of large-scale social and planned housing in the UK began in the nineteenth century, when the industrial revolution brought a large influx of people into towns and cities, and dwellings were built by speculative builders, landlords and employers to house them. Generally speaking, these developments contained neither public facilities nor green space for the new urban dwellers. The first initiatives to include these were the settlements and communities built by philanthropic entrepreneurs for their employees, one of the earliest examples being Robert Owen's New Lanark (1800), in Scotland, which contained a free school and an institute providing hot meals as well as a place to meet (Colquhoun and Fauset, 1991). Other examples followed, including Saltaire (1850), Bournville (1879), and Port Sunlight (1888) (figure 4.1.

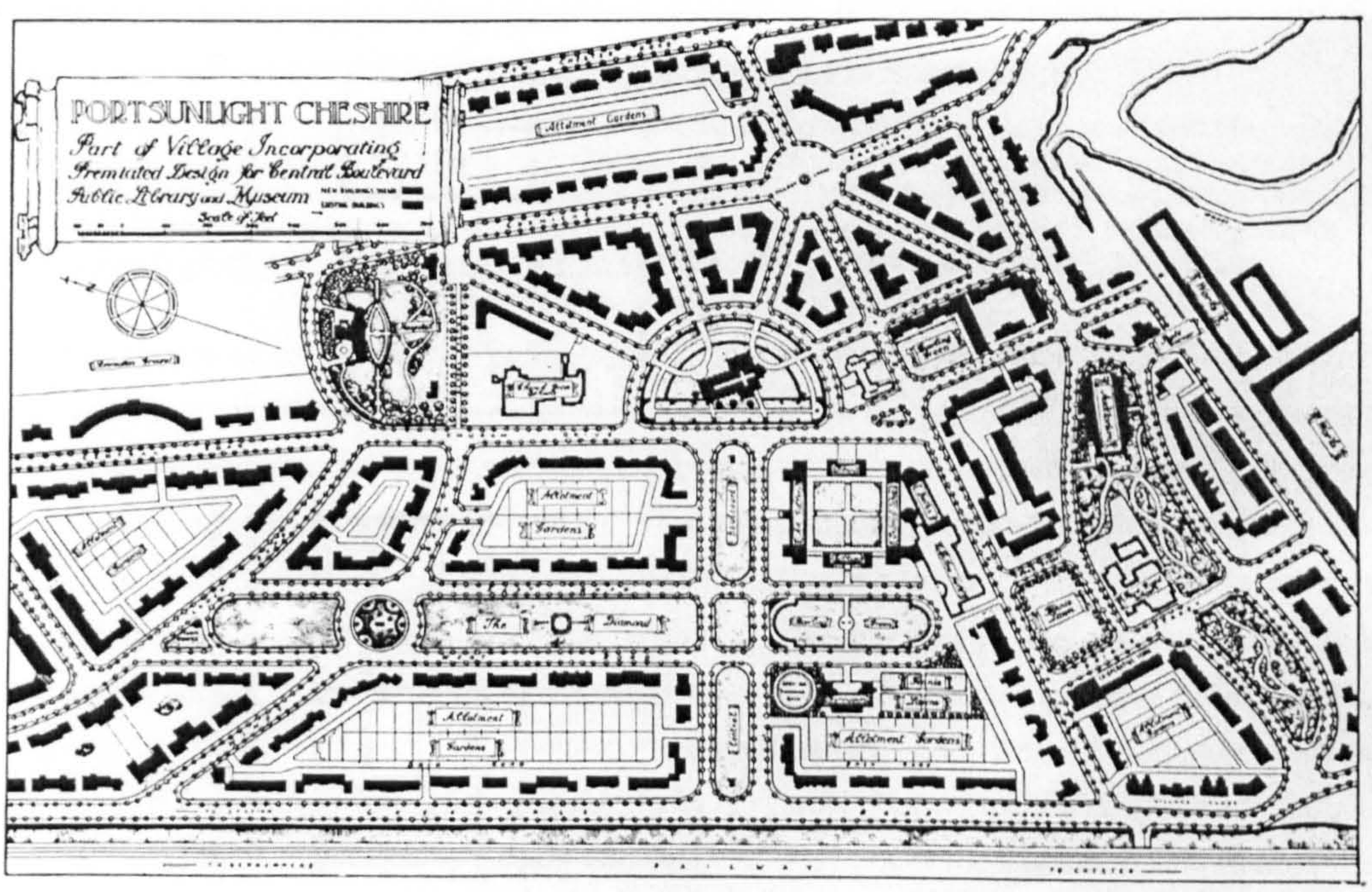


Figure 4.1 Ernest Prestwich's 1910 design for Port Sunlight (reproduced from Meacham, 1999)

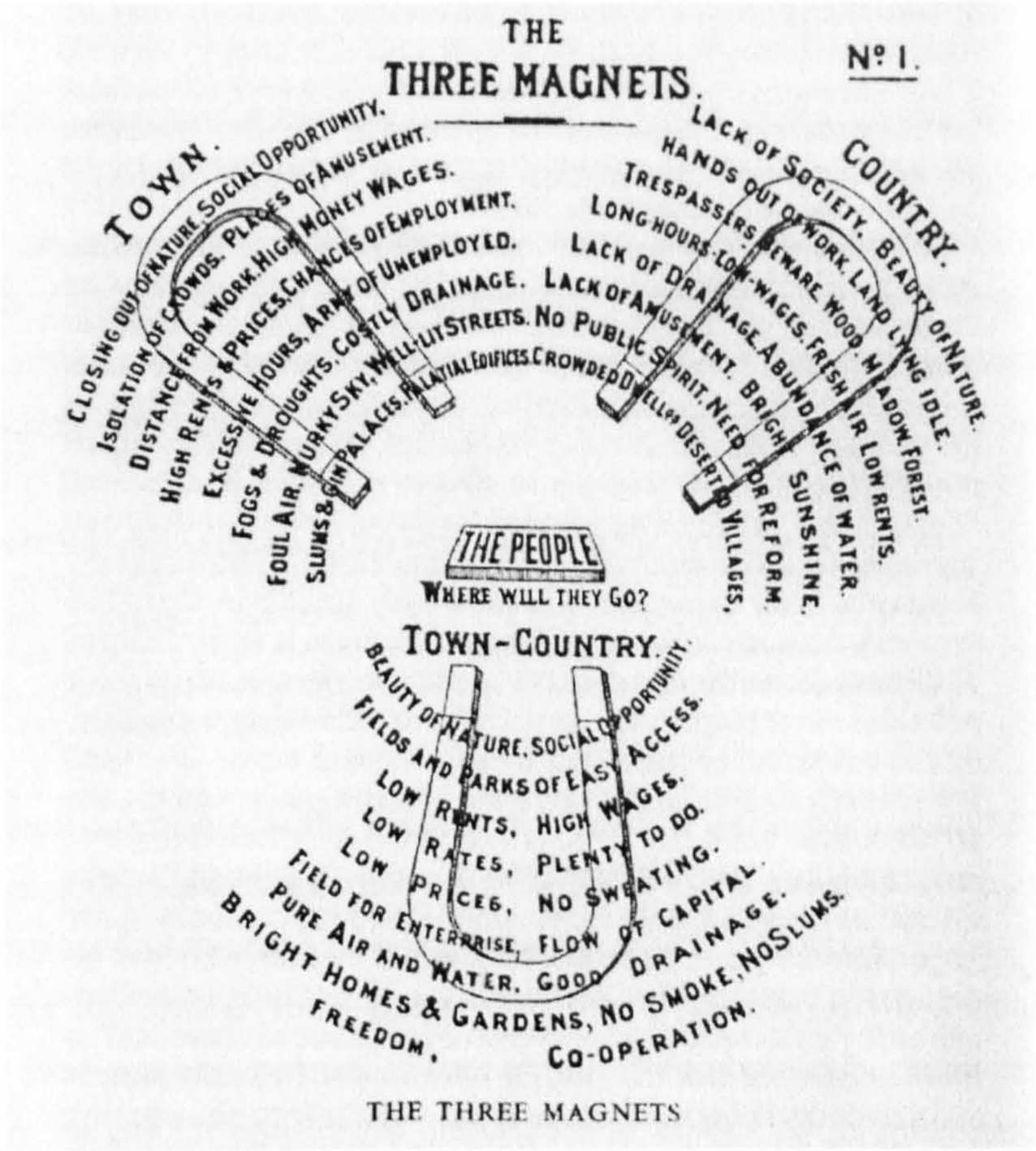
Whilst these developments incorporated a range of planting and green space including street trees, parks, gardens and allotments, they all had a predominantly urban or formal character. New Earswick, York (by the architects Barry Parker and Raymond Unwin), begun in 1902, built to house the employees of Joseph Rowntree, was the first new settlement to respond to its rural green field site, incorporating existing trees and watercourses in a naturalistic manner (figure 4.2).

Figure 4.2 New Earswick, York (reproduced from Colquhoun and Fauset, 1991)

Many of the ideas that inspired the creators of these developments were taken up by Ebenezer Howard at the close of the nineteenth century; but his vision was far more radical and all-encompassing than that of his predecessors. His concept of the "Garden City" included not only the physical infrastructure of the new settlement but also the political, economic, administrative and social systems that were necessary to bring about and sustain it. As Mumford (1945) points out in his introductory essay in the 1960 edition of Howard's "Garden Cities of Tomorrow":

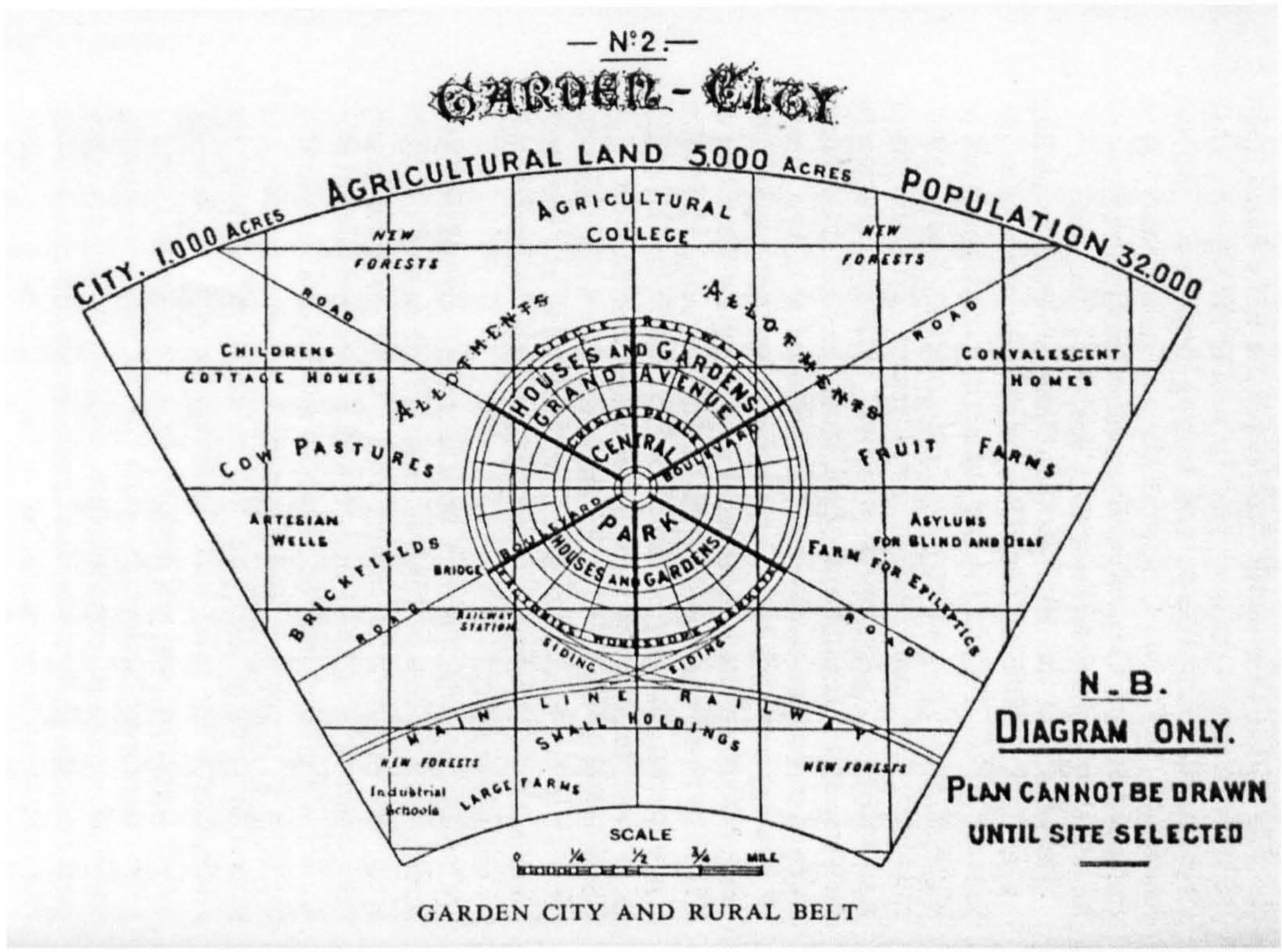
> "what strikes one about Howard's garden city proposals was how little he was concerned with the outward form of the new city and how much he was concerned with the processes that would produce such communities...Howard's ideas have laid the foundation for a new cycle in urban civilisation: one in which the means of life will be subservient to the purposes of living, and in which the pattern needed for biological survival and economic efficiency will likewise lead to social and personal fulfilment."

Howard's ideas were originally set out in his treatise, "Tomorrow: a Peaceful Path to Real Reform", published in 1898. He proposed that, in order to deal with the related problems of urban overcrowding and rural depopulation, new settlements should be created on hitherto undeveloped land, combining the most beneficial aspects of urban and rural life. These settlements would attract new inhabitants, as well as business and investment, away from the existing congested urban centres. These ideas were famously depicted in Howard's diagram of "The Three Magnets" (figure 4.3). Here access to nature is ranked alongside issues of social reform and cultural opportunity. In towns the problem is seen as one of "closing out of nature", whereas in the country "beauty of nature" and "wood, meadow and forest" are present, but inaccessible ("trespassers beware"). In Howard's "Town-Country" synthesis "beauty of nature" is both present and accessible ("fields and parks of easy access"). It is interesting to note that Howard believed that access to different kinds of nature was necessary for human well being. Urban parks were not sufficient; people also needed easy access to "fields" or open country.



THE THREE MAGNETS

Figure 4.3 "The Three Magnets" by Ebenezer Howard (reproduced from Howard, 1945)



GARDEN CITY AND RURAL BELT

Figure 4.4 Ebenezer Howard's schematic plan for the garden city (reproduced from Howard, 1945)

This notion is implicit in Howard's schematic plan for his new garden city (figure 4.4). Parks, avenues and tree-lined boulevards were to be used to structure the new settlement. The city was to be surrounded by a 5,000 acre zone of "agricultural land" which fell within the city's administrative jurisdiction and was not available for building. As well as accommodating various agricultural uses, allotments and public institutions, this zone also included provision for "new forests". Howard believed that contact with what he called variously "the land" or "the country" would confer spiritual, as well as material and physical benefits:

> "Yes, the key to the problem how to restore the people to the land- that beautiful land of ours, with its canopy of sky, the air that blows upon it, the sun that warms it, the rain and dew that moisten it- the very embodiment of Divine love for man- is indeed a *Master Key*, for it is a key to the portal through which, even when scarce ajar, will be seen to pour a flood of light on the problems of intemperance, of excessive toil, of restless anxiety, of grinding poverty- the true limits of Governmental interference, ay, and even the relations of man to the Supreme Power."

Expressed in language that now seems overblown, many aspects of Howard's vision were ahead of his time. He intuitively understood that contact with nature can be an antidote to the stresses of urban living, and is connected with both physical and mental well being (see Chapter 2, "Literature Review", page 7). He also envisaged that the agricultural zone surrounding the residential and industrial districts would produce much of the food that was needed to support the city's population, proposed the recycling of waste products from the city for agricultural purposes and advocated an integrated transport system, whilst his proposal for "new forests" was surely a forerunner of contemporary community forests.

Although Howard understood the *human* processes inherent in urban development, his concepts of "nature", "country" and "the land" were unsophisticated, and show no understanding of natural processes. He saw the natural world predominantly as a setting for human activities, or a vehicle for the work of a divine being. Howard's ideas, and even his diagrams showing the ideal structure of the "garden city", were at a purely conceptual level, and there is no indication anywhere in his work of the form that the urban green spaces, or the vegetation within them, should take.

The first realisation of these ideas were the garden cities of Letchworth (figure 4.5) and Welwyn, begun in 1903 and 1920 respectively. They were the products of the Garden City Association, whose founders included Howard himself, Lord Reith and Lord Silkin. The architects Barry Parker and Raymond Unwin won the competition to create a masterplan for Letchworth. As at New Earswick, the plan for Letchworth responded very sensitively to the site, and every street was planted with a different tree species (Colquhoun and Fauset, 1991). Osborne and Whittick (1969) describe the generous proportions of the residential street frontages, with maximum house densities of 10 houses per acre, enabling grass verges to be included in the streetscape, and how, in addition:

> "Flowering and foliage trees and shrubs were introduced in an unprecedented variety of species and arrangements, and all over the town there are decorative green spaces of an infinite variety of shape and size."
>
> They also state that existing "fine trees" and "attractive spinneys" were retained.

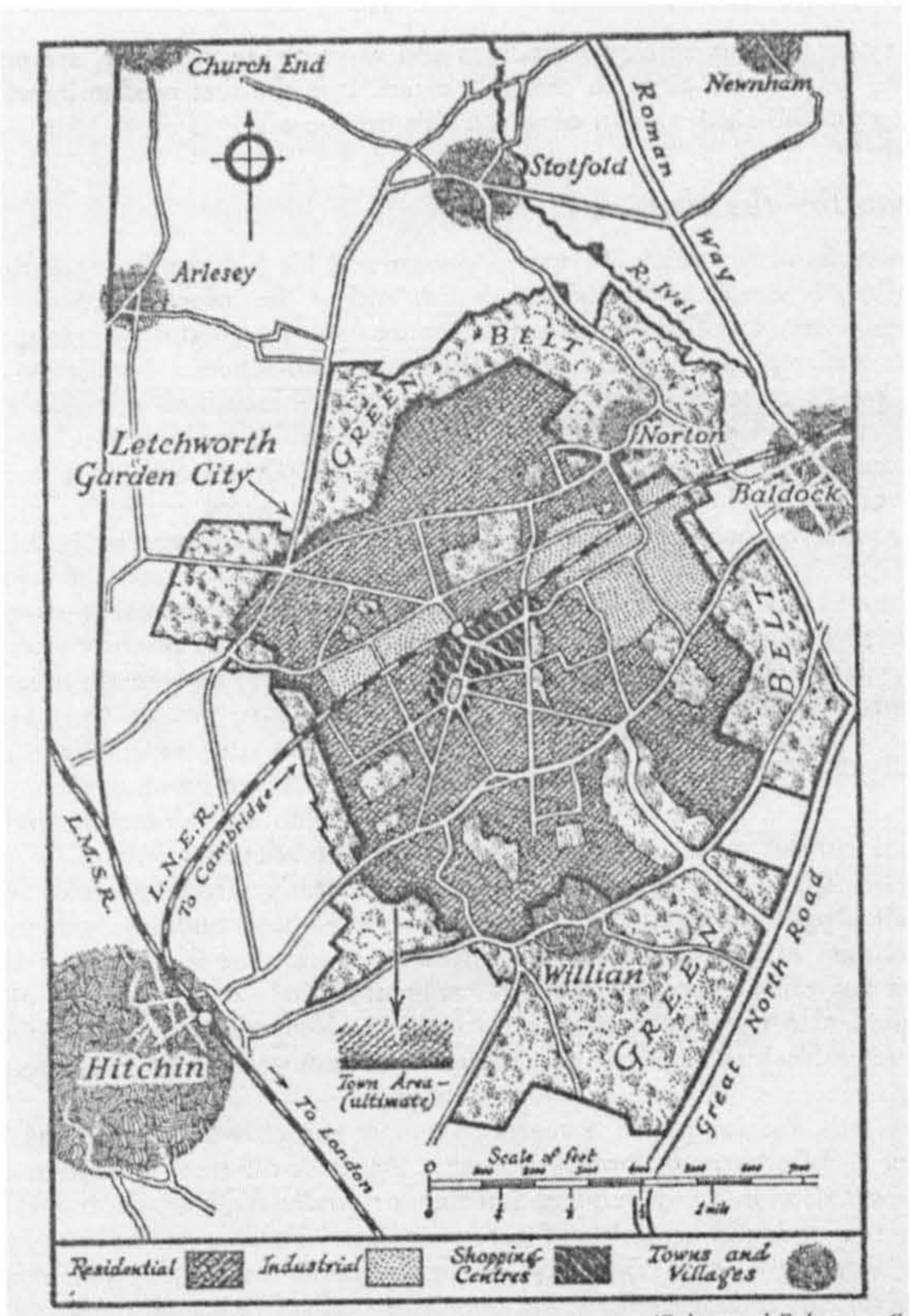


Figure 4.5 Plan for Letchworth (reproduced from Howard, 1945)

The landscapes of the residential areas of Letchworth, Welwyn (town plan by Louis de Soissons), and some parts of Hampstead Garden Suburb (1906; plan by Parker and Unwin) all contributed to a garden suburb landscape formula, which, as many commentators have pointed out (Colquhoun and Fauset, 1991; Meacham, 1999), was reproduced up and down the country during the inter-war years. In the case of the dwellings for poorer inhabitants, this consisted of houses (mainly terraced and often based on a vernacular Arts and Crafts style) with both front and back gardens, facing onto a street (often a cul-de-sac) with grass verges and street trees. The front and back gardens were usually hedged. Interspersed amongst the streets and cul-de sacs were green spaces. These were extremely varied and included "village greens", recreation grounds, children's playgrounds, allotments, parks, gardens and formal sports facilities. Footpaths were used to connect back gardens with the street, to create short-cuts between streets and cul-de-sacs, and to access green spaces, but there was no comprehensive footpath system.

The manner in which the plan for Letchworth responded to the site also set a precedent that was to be followed (knowingly or otherwise) in many subsequent British new towns. Meacham (1999) describes how existing features such as the Ickneild Way, Norton Common and Pix Brook were retained and incorporated into the plan; how the topology of the site informed its layout, with the town centre located at one of the site's highest points; and how "major axial roads were tied directly to existing historical landmarks". A kind of green corridor following the line of the Pix Brook bisected the town from North to South.

It was over 25 years before any more new towns were constructed. Howard died in 1928, but some of the other co-founders of the Garden City Association became involved in Britain's post-war regeneration. Lord Silkin was appointed Minister in the newly formed Ministry for Town and Country Planning in 1945 and requested Lord Reith to chair a committee to look into the question of new towns, resulting in the New Town Act of 1946 (Schaffer, 1972).

From 1946 until the mid 1980's 34 new towns were built in Britain. These have come to be grouped by commentators into three groups known as "Mark I", "Mark II" and "Mark III" towns. "Mark I" were those designated in the late 40's and early 1950's, and included Stevenage and Harlow. Gibberd (1972) summarises the way of life these settlements were intended to cater for:

"It is a way of life in which most families no longer like living in town centres, preferring a suburban environment of two-storey houses with private gardens, and it is one which is largely dependent on motor transport, with the private car as the ideal."

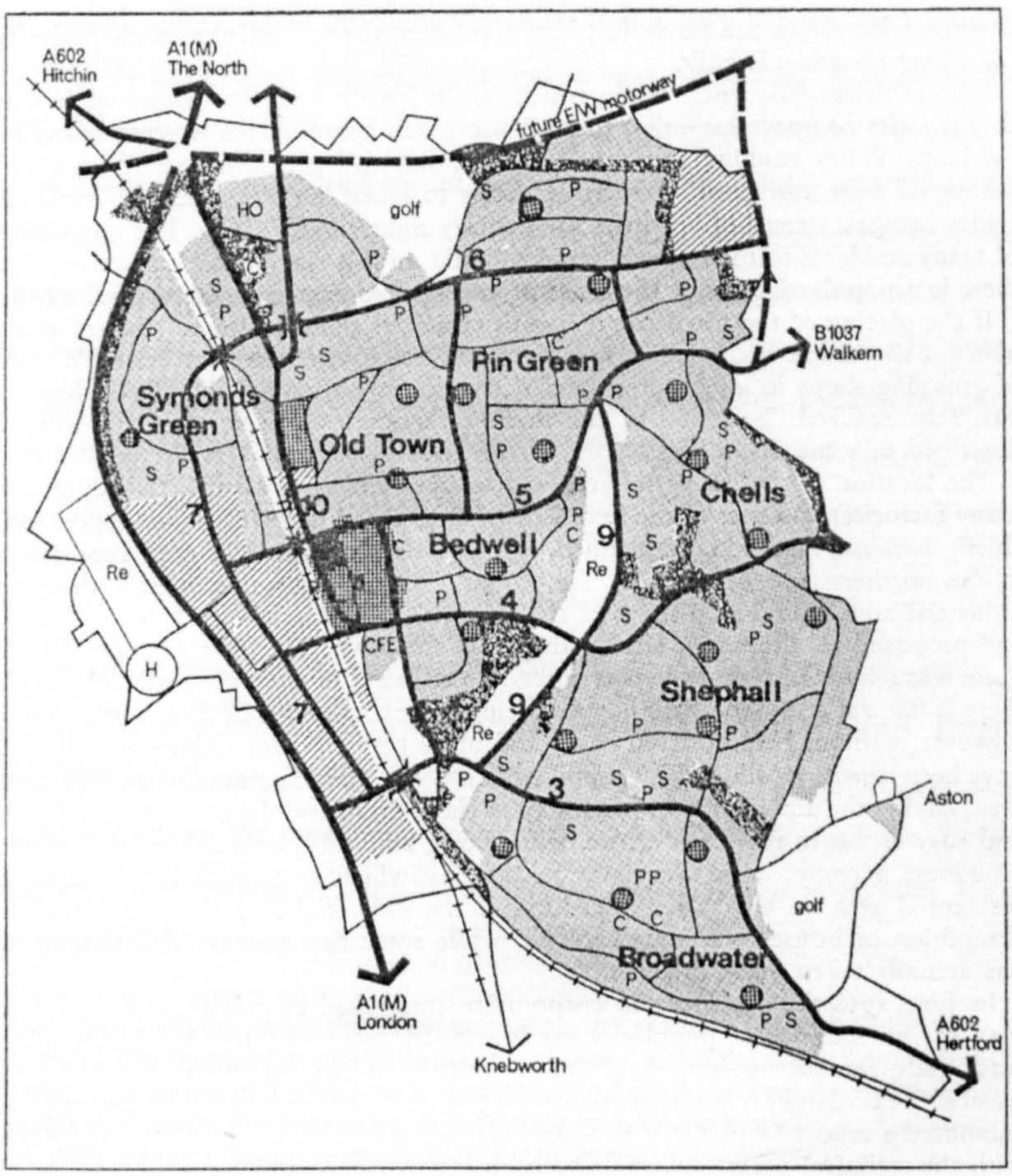


Figure 4.6 Outline plan for Stevenage by Ministry of Town and Country Planning, based on work by Patrick Abercrombie (reproduced from Osborne and Whittick, 1963)

Broadly speaking, the average housing density of the Mark I new towns was comparable to Letchworth and Welwyn (Colquhoun and Fauset, 1991). Like their predecessors, they also left tracts of the existing countryside within the urban fabric forming "green wedges" (Schaffer, 1972) or corridors. In the case of Stevenage this included the Fairlands valley, running roughly north-south through the residential neighbourhoods (figure 4.6).

In Harlow the green corridors were used to separate the residential neighbourhoods from each other, and to accommodate the major roads in a kind of loose grid. However, in terms of the housing layout, the Mark I towns developed from their predecessors in two important respects (Ward, 1992). Firstly they adopted the neighbourhood principle of the American, Clarence Perry. This meant that in Stevenage, for example, the housing areas were divided up into six distinct neighbourhood areas with their own primary schools and shopping facilities. Secondly, the incorporation of the ideas articulated in the plan for Radburn, New Jersey (1927-1929; by Clarence Stein and Henry Wright) had several important consequences. At Radburn pedestrian and vehicular traffic was separated. Access to the front of the house was by footpath only. Vehicular access, parking and garaging was to the rear. In consequence, in the Mark I new towns, the traditional relationship between the house and the street changed: houses started to become physically detached from the street and the distinction between their fronts and the backs became blurred. The character of the street changed from that of a traditional thoroughfare, and took on some of the qualities of a courtyard or car park. In some instances, rather than being a series of isolated events within the built environment, the public green space became a unified matrix into which the built structures and hard landscape were placed. As a result of the new emphasis on the separation of vehicles and pedestrians, footpaths and cycleways began to develop into coherent networks in their own right.

Despite the great potential inherent in the new green matrix, and the continued incorporation of existing natural landscapes, many commentators find the landscape treatment of the "Mark I" new towns profoundly disappointing. Gordon Cullen (1953) dubbed the whole approach "prairie planning" (quoted in Schaffer, 1970), and Woudstra (in press B) makes the following critique of the Ongar proposal by Peter Shepheard, which according to Woudstra formed the basis for the plans for a number of "Mark I" new towns including Stevenage and Harlow:

> "Noticeable differences between the Ongar proposal and contemporary continental counterparts are the relative bleakness, with trees providing the main relief. Tree planting is incorporated within the housing areas but is kept to a minimum. The shopping centre is devoid of any trees, providing areas for bedding only. There are no shrub plantings on any of the proposals, except for hedges around private gardens that formed the only articulation of space. It is interesting to deliberate as to where this image of an ideal environment derives from. With the uncompromisingly modernistic buildings in the shopping area, this may be interpreted as the understanding of the principles of the modern movement. This appears to have meant " 'sweep clean' ideas and the exclusion of any fussy planting. On the other hand it may have been a response to the municipal grass and trees syndrome, for ease of maintenance. The space between buildings was seen as multi-functional and shows little concern about providing for specific uses, or creating dedicated spaces."

Designated in 1955, Cumbernauld was the first of the "Mark II" new towns (figure 4.7). The concept for Cumbernauld was based on the plan for Hook by the Greater London Council (1965), in which the

aims for Hook included "urbanity", a need to consider the implications of the increased ownership and use of motor vehicles and a greater definition of town and country:

> "It is not so much a garden city as a city in a garden." (GLC, 1965)

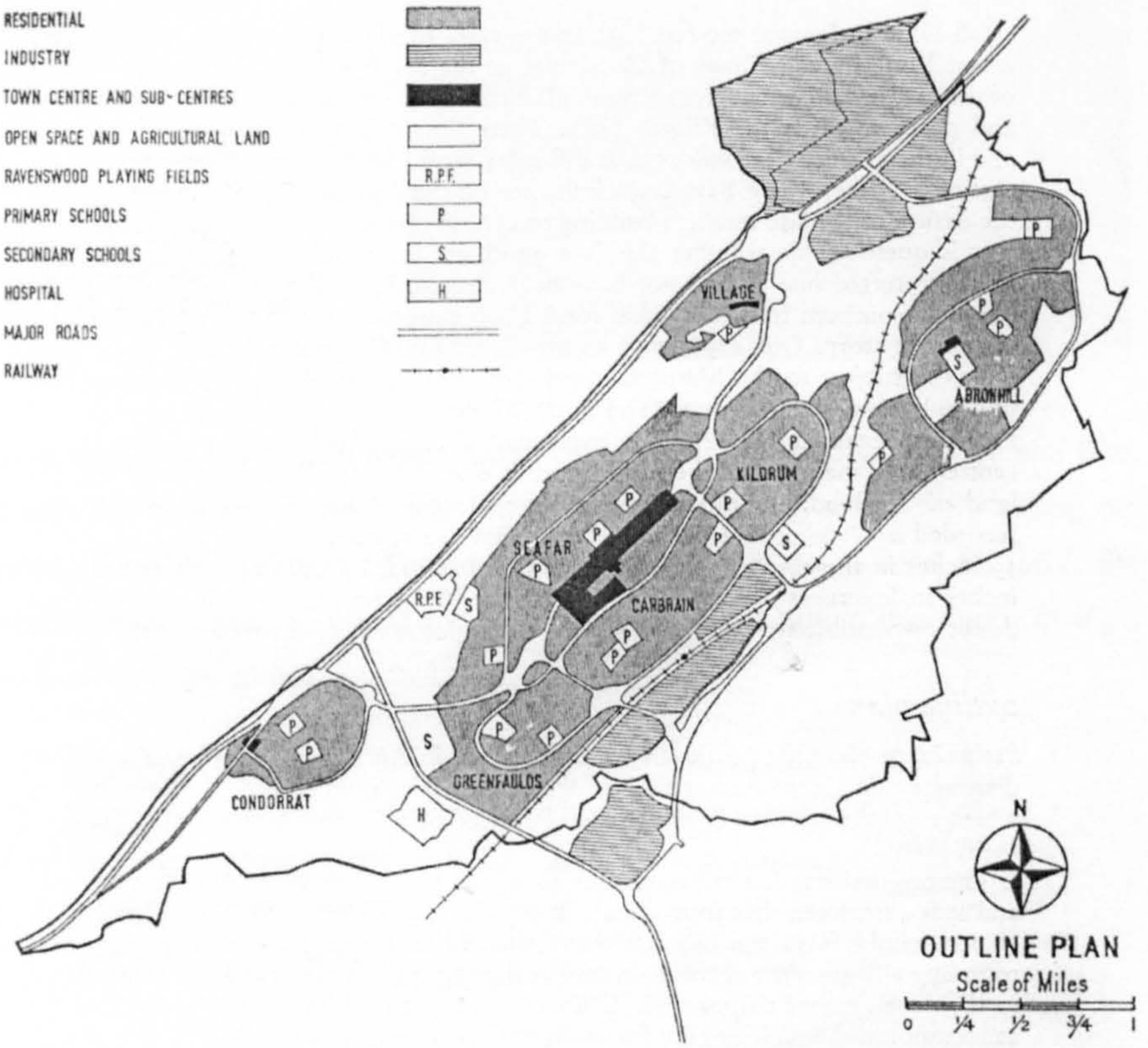


Figure 4.7
Outline plan for Cumbernauld by Hugh Wilson (reproduced from Osborne and Whittick, 1963)

"Urbanity" was to be gained by a coherent and compact structure without neighbourhoods, focused on one "strong central area" (GLC, 1965). There was to be a complete separation of vehicles and pedestrians with an "independent pedestrian circulation system" leading to the town centre. Unlike its predecessors, Hook was to have a girdle of green space rather than any green corridors. Nearly all of these elements were adopted in Cumbernauld. The town centre was housed inside a gigantic structure on several levels, accessed separately by vehicles and pedestrians. Rather then being located in relation to housing neighbourhood the schools and other public facilities were sited strategically in relation to the footpath system, considerable use is made of flats in high-rise blocks and net housing densities average at 26 houses per acre (Osborne and Whittick, 1969). Despite the desire for compactness there was one green corridor comprising existing woodland, separating the outlying district of Abronhill from the rest of the town, and other woodland appears to have been retained in pockets and belts throughout the town. In places there was a slightly more naturalistic and organic approach to the landscape compared to the "Mark I" new towns, as for example in the housing area of Seafar 2 (figure 4.8), where existing Oak/Birch woodland, interspersed with heather, was integrated closely with the housing (Osborne and Whittick, 1969). Apart from this, the landscape approach is similar to the one adopted in earlier new towns.

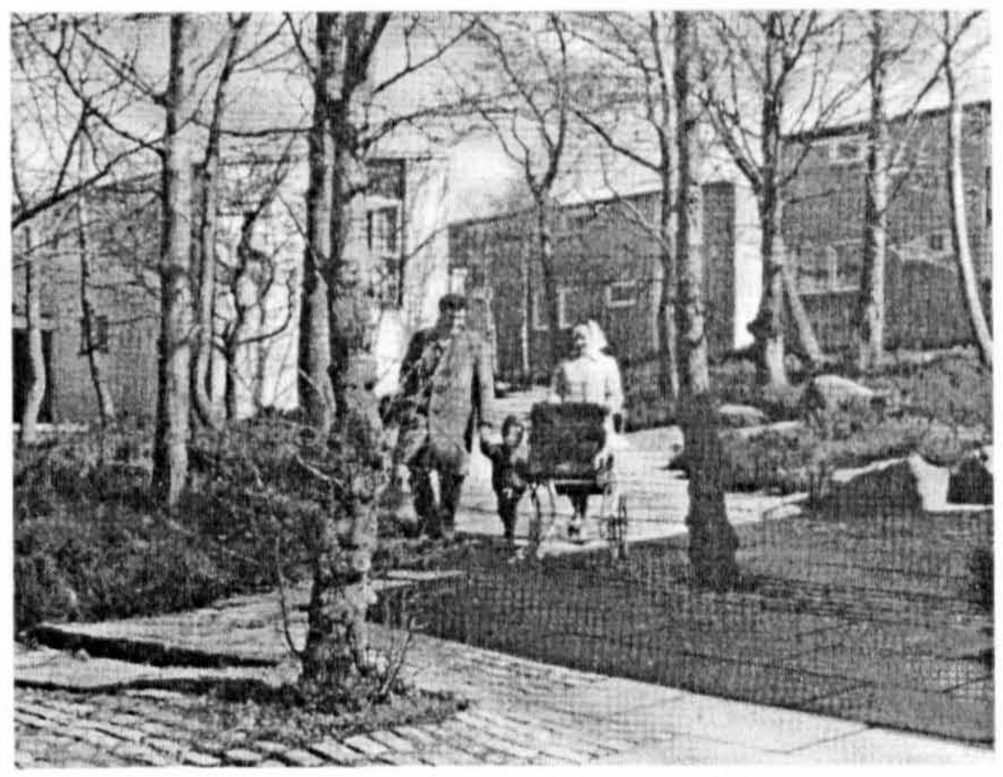


Figure 4.8 Naturalistic approach to landscape in Seafar 2, Cumbernauld (reproduced from Osborne and Whittick, 1963)

The "Mark III" new towns begun in the 1960's were "based on a simple traffic idea" (Opher and Bird, 1981). This coincided with the concept of the "linear town", in which housing areas were strung out along transport corridors (Schaffer, 1970). In Runcorn (by Arthur Ling), designated in 1964, the "simple traffic idea" was an expressway in the shape of a figure of eight. Within this figure of eight were the housing areas and the town centre (figure 4.9).

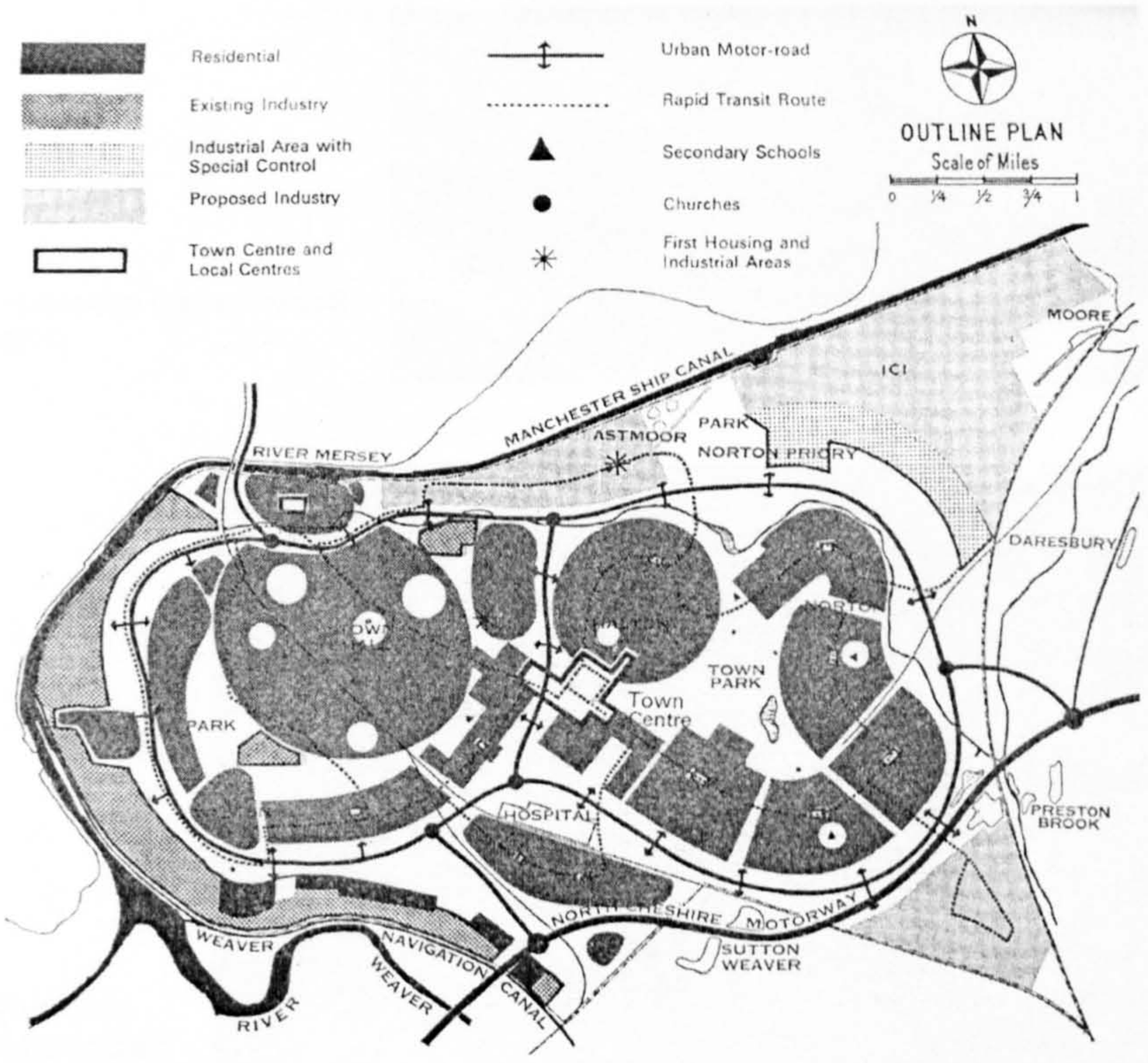


Figure 4.9 Outline plan for Runcorn by Arthur Ling (reproduced from Osborne and Whittick 1963)

The plan also provided for a separate bus expressway, which connected the town centre and housing areas in a series of loops (Opher and Bird, 1981). Once again, the housing is grouped in distinct areas or neighbourhoods with their own local centres. In terms of landscape, the plan for Runcorn makes provision for two major green links that run roughly north-south through the town. The expressways were located within "wide parkland strips", which also constituted a "cordon sanitaire" between the industrial and residential areas (Opher and Bird, 1981). Within this broad structure there were

surprising variations in the landscape treatment of different areas. The landscape treatment of the infamous Southgate area, vilified by HRH, Prince of Wales (1989) ("people condemned to live out their lives in a grubby launderette"), and of Castlefields, is reminiscent of the approach used in the earlier new towns, consisting mainly of trees and mown grass, though there are more trees, and some shrub planting, and the trees are used structurally to create belts and avenues, rather than as isolated incidents (figure 4.10). However, the overall impression is of a bland undifferentiated landscape, lacking in any fine grain. This contrasts dramatically with the approach used at The Brow (figure 4.11). Here trees and shrubs were crammed into small closes and courtyards, and combined with the irregular spaces created by the buildings, the sloping topography, and a lively manipulation of landform, helped to create a diverse and intimate landscape (Opher and Bird, 1981). The housing layout and landscape treatment of The Brow is in many respects similar to the approach used at Birchwood.

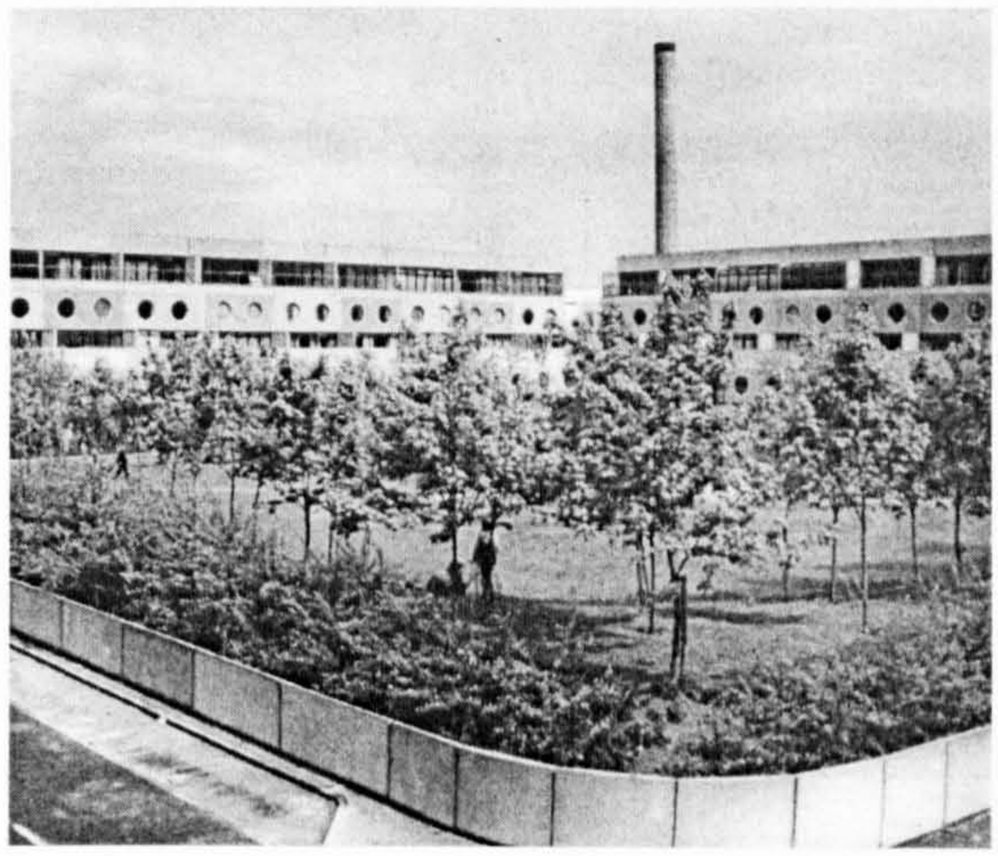


Figure 4.10 Southgate, Runcorn (reproduced from Opher and Bird, 1981)

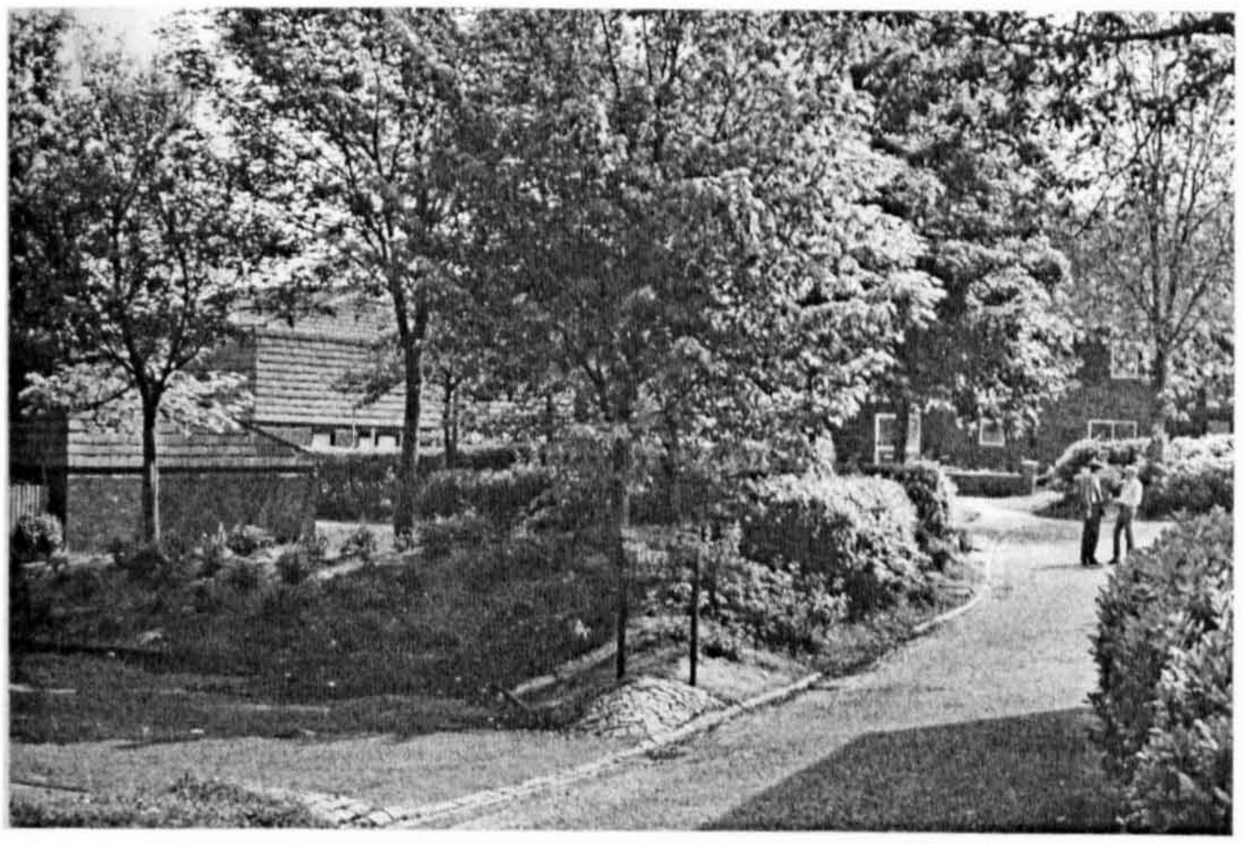


Figure 4.11 The Brow, Runcorn (reproduced from Colquhoun and Fauset, 1991)

The plan for Milton Keynes (masterplan by Llewelyn-Davies, Weeks, Forestier-Walker and Bor), the first new city, designated in 1967, was also based a "simple traffic idea". The masterplan for the city was based on a grid road system of one kilometre squares, within which the housing areas and other land uses would be situated (figure 4.12). Unlike Runcorn, where the traffic was concentrated onto the single expressway, the idea at Milton Keynes was that the traffic would be homogenously distributed

over a wider area, resulting in less traffic congestion, and enabling the inhabitants to move swiftly from one part of the city to another (Eiler-Rasmussen, 1981). Although "urbanity" was one of the aims of the planners, and neighbourhoods were therefore eschewed, each housing area in its one kilometre square has distinct architectural characteristics and its own local centre.

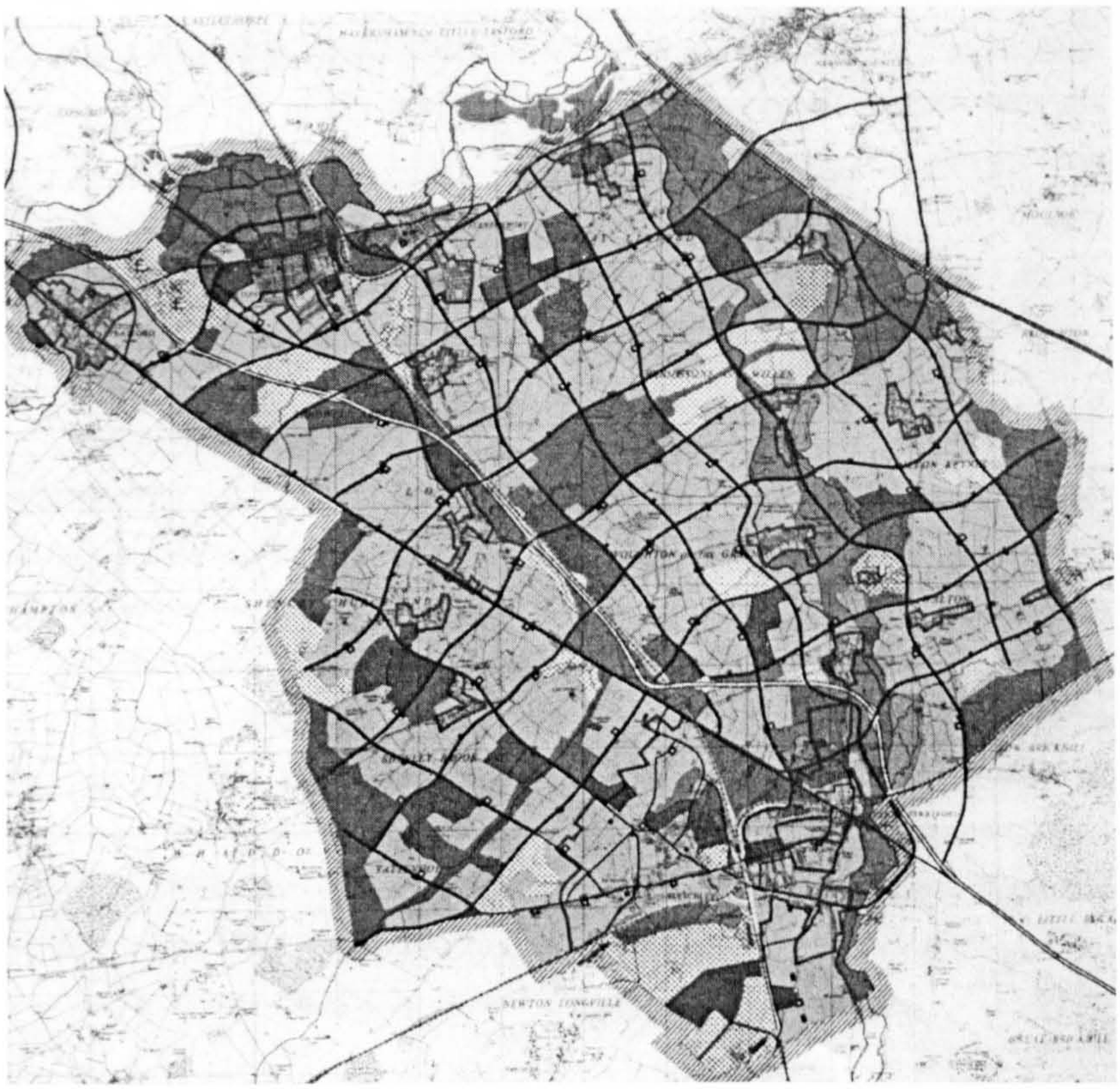


Figure 4.12 The masterplan for Milton Keynes by Llewelyn-Davies, Weeks, Forestier-Walker and Bor (reproduced from Walker, 1981)

Unlike the plans for many of the new towns, the plan for Milton Keynes was structured around landscape, second only to the grid road system. The city is bisected by a huge green corridor running north-south, comprising two valleys containing the river Ouzel and the Grand Union Canal respectively. The city centre is located axially in relation to a park that sits at right angles to the green corridor, and merges with it (Eiler-Rasmussen, 1981). The grid road system sits within a lattice of woodland and parkland belts. In addition there is an independent path network for pedestrians and cyclists, contained within a separate system of smaller green corridors. There is extensive use of street trees. In his discussion of the strategic landscape objectives for Milton Keynes, Walker (Chief Architect and Planner at the city from 1970-76) emphasises that this landscape structure was made explicit in the plan for Milton Keynes, which was envisaged as a city in a forest:

> "The new city is set in the 'Midland Plain'- originally an Oak forest, becoming predominantly pasture and finally an area of indifferent arable land. A typical view would show rather open, exposed fields, with trees and hedge rows well spaced over undulating ground- a mainly bland area containing enjoyable incidents of nature and architecture...The obvious opportunity for contrast seems in softness- to produce a city 'softer' than the surrounding countryside, a city enveloped in green, a city set in a forest." (Walker, 1981).

Surprisingly perhaps in the light of this declaration, there is huge variation in the landscape approaches adopted within the housing areas themselves, as at Runcorn. In some areas there was

quite extensive use of both tree and mass shrub planting, which was used to structure as well as decorate space, as in Great Linford, whilst in other areas the approach was more reminiscent of the trees plus grass formula of earlier new towns.

Thus, before Warrington New Town, the strength displayed in many new town approaches to landscape was the practice of incorporating tracts of countryside in the form of green corridors or linear parks within the urban fabric. At Milton Keynes this practice was combined with the establishment of an entire green network into which the built development was placed. The shortcomings inherent in the plans and designs for so many new town landscapes lay in their tendency to fall back on a bland uniform landscape of scattered trees set in mown grass that failed to provide visual and functional diversity, or to relate to existing landscape patterns and processes.

The origins of the ecological approach

As we will see in more detail later in this chapter, the plan for Birchwood echoed earlier new town plans by incorporating tracts of countryside and smaller landscape elements such as existing vegetation, areas of topographical interest and small water bodies, as well as using a landscape matrix as the structure for the new settlement. However, the plan for Birchwood differed from its predecessors in two important respects. Firstly, the decision was made to use woodland as the basis for the landscape matrix, and to integrate this woodland with the built development as closely as possible. Secondly, the landscape plan for Birchwood was to be driven by ecological processes as much as notions of aesthetic form, or function. The question therefore arises as to why the approach adopted in Birchwood was different to that of its predecessors? There were two main philosophical strands that informed and inspired the planners and designers of Birchwood, originating from USA and Europe.

The new ecological approach to landscape planning

The first of these philosophical strands developed in the USA, though it was further articulated and developed into a method for landscape planning by Ian McHarg, who settled there, but was originally from Scotland. The philosophy was based on an emotional reaction to the human destruction of natural habitats consequent upon rapid urban growth and exploitation of natural resources. It is hardly surprising that this should happen in the USA, with its dramatic contrasts between massive and spectacular "wilderness" landscapes (in the eyes of the European colonisers) and unprecedented and often brutal development of the land by the European settlers.

Aldo Leopold (1949) was one of many American commentators to express this emotional reaction, as well as extrapolating what he called a "land ethic". In this passage from "A Sand County Almanac" he laments the loss of the wetlands:

> "The marshlands that once sprawled over the prairie from the Illinois to the Athabasca are shrinking northward. Man cannot live by marsh alone, therefore he must need live marshless. Progress cannot abide that farmland and marshland, wild and tame, exist in mutual toleration and harmony...
>
> Some day my marsh, dyked and pumped, will lie forgotten under the wheat, just as today and yesterday will lie forgotten under the years. Before the last mud-minnow makes his last wiggle in the last pool, the terns will scream goodbye to Clandeboye, the swans will circle skyward in snowy dignity, and the cranes will blow their trumpets in farewell."

As well as respecting the integrity of wild creatures and their natural habitats, Leopold argued that there are what he called "cultural values" inherent in human contact with "wild things". These are said to consist of a kind of national identity based on the (non-native) American people's origins as pioneers, a healthy awareness of the human place in the "food-chain" and "biota" and "sportsmanship". He also makes an argument for retaining animal populations and by inference their habitats, as a potentially valuable repository of information about human behaviour. Later in the book he goes on to articulate a philosophical basis for appropriate human land-use:

> "The 'key-log' which must be moved to release the evolutionary process for an ethic is simply this: quit thinking about decent land-use as solely an economic problem. Examine each question in terms of what is ethically and esthetically [sic] right, as well as what is economically expedient. A thing is right when it tends to preserve the integrity, stability and beauty of the biotic community. It is wrong when it tends otherwise."

Where Leopold had argued for the conservation of wildlife and its natural habitats through a deep ethical sense of their entitlement to exist, together with his somewhat crude analysis of the "cultural values" accruing to humans, Rachel Carson's book, "Silent Spring" (1962), focused on the risks to human health as well as the damage to ecosystems consequent upon the widespread use of chemical pesticides and fungicides in farming and land management. It attracted unprecedented public attention and has been compared in its historical impact to Charles Darwin's "The Origin of the Species" (Lear, 1999). It was important not only for its systematic scientific examination of the links between chemical use in land management and damage to ecosystems but also for its:

> "reverence for the complex of intricate ecological relationships of the living world". (Lear, 1999)

The book was known to three of the planners and designers involved in the plan for Birchwood, namely Hugh Cannings, Roger Greenwood and Robert Tregay, and it is likely that it would have been common currency amongst most landscape professionals operating in the 1970's and 80's.

Rather like Leopold's "A Sand County Almanac", McHarg's "Design with Nature" (1969) is prefaced by his own personal account of the anguish he experienced when returning to rural childhood haunts after a period of absence to find them completely obliterated by development. McHarg found the same environmental destruction going on in the USA, but on a shockingly large scale, leading him to perceive humans as being capable of destroying life on earth, themselves included. He developed the analogy of the earth as a space capsule, in which all resources are finite, and in which life-sustaining processes must be perpetuated in order for humans to survive. Thus, in order to ensure the continuation of life on earth, of which humans are a part, they must act as "stewards of the biosphere".

McHarg saw the solution as the continuation of life-sustaining natural systems alongside, or integrated with, other land uses. Landscape planning as he envisaged it would not be driven by form or economics. Instead it would be a complex analytical and ethical exercise in which both social and natural processes are seen as values that can be ranked (e.g. "the most valuable water resources and the least"). By carefully evaluating the fitness of a given site, district or region to accommodate these processes, or a combination of them, a complex land-use mosaic is built up. McHarg developed a visual method to enable this sophisticated analysis consisting of mapping the rankings of each

process or value on a separate transparent overlay, and combining the overlays to generate one site evaluation that could be interrogated to find the answers to particular questions.

It will already be apparent that the main motivation for McHarg's ecological approach to planning was a desire to protect natural environments and processes and to ensure human survival on the planet. However, he also had ideas about the benefits that could accrue to humans through contact with nature, prefiguring many current theories about the value of contact with nature:

> "There are many people who look to nature for meaning and order, peace and tranquillity, introspection and stimulus. Many more look to nature and activity in the outdoors as the road to restoration and health."

McHarg was vague about the appropriate form of designed green space, possibly because his vision was driven by ideas about process rather than outward form. He holds up the eighteenth century English Landscape Style as an ideal and is surprisingly uncritical about its political and social origins, given his strictures against American over-exploitation of natural resources. The only principle he advocates in this context is to recommend the use of a native plant palette. McHarg's main legacy is rather in his emphasis on the dominance of process over form, and his creation of a landscape planning model and method that enables this primacy to be given prominence in the planning process. As we shall see, he also had a direct personal influence on Hugh Cannings, the Chief Architect and Planner at Warrington New Town Corporation at the time of Birchwood's realisation.

European influences

If there is a difference in emphasis between the philosophical justifications put forward by the advocates of the American and European ecological approaches then it is that the European approach was more human-centred: bringing nature into our towns and cities would make humans better, happier and healthier; whilst the American approach focused on saving the ecosystems that support human life on planet Earth.

These European influences were brought to the UK principally by Ian Laurie and Allan Ruff, two British academics from the University of Manchester, where Robert Tregay was a student during the 1970's. Laurie was the Director of Landscape Studies at the Department of Town and Country Planning at this time, and Allan Ruff was a landscape architect and a Lecturer at the Department. Information about what was going on in Europe was disseminated through teaching at the University. Ruff made a number of study trips to the Netherlands from 1973 to 1978, and wrote up his findings in "Holland and the Ecological Landscapes", published in 1979. Laurie edited "Nature in Cities- the Natural Environment in the Design and Development of Urban Green Space", published in 1979; which contained contributions from a number of different European and British authors about new approaches to the planning, design and management of urban green space, with a strong ecological bias. Some of these ideas were later consolidated in a workshop held at Risley Moss in 1981. Papers and findings from the workshop were published in 1982 in the form of an occasional paper from the Department of Town and Country Planning at the University of Manchester entitled "An Ecological Approach to Landscape Design", edited by Allan Ruff and Robert Tregay. Also present at the workshop were Roger Greenwood and Duncan Moffatt.

In "Holland and the Ecological Landscapes" Ruff (1979) was deeply critical of urban landscapes that he felt were inspired by the 19th century gardenesque movement. Instead he advocated an ecological approach to landscape, and gave examples showing how such an approach had developed in the Netherlands. According to Ruff (1979), this ecological approach had its origins in the work of Jacobus P. Thijsse, a teacher and naturalist, who became disillusioned with existing urban public parks, in which visitors were physically separated from the elaborate horticultural displays which they could only admire from a distance; instead Thijsse believed that people's lives would be enriched by intimate contact with the native flora and fauna of the Netherlands, and conceived of a new type of public garden in which people could experience different native plant communities at first hand. Thijsse's ideas became the inspiration for a number of urban public parks in the Netherlands, created from 1925 onwards, which became known as "Heemparks", in which native plants communities are grown in large scale replicas of the precise biotic and abiotic conditions in which they would be found in the wild (Woudstra, in press A).

In fact, the Dutch interest in native plants and their habitats can be traced much further back to the first Dutch flora of the botanist De Gorter, published in 1781, which marks the beginning of a series of works on this subject (Bos and Mol, 1979). Where Thijsse differed from his predecessors was in his desire to disseminate this information, and to make it widely accessible to the lay public. Thijsse also articulated a growing concern about the conservation of native species (Ruff, 1979); which was probably shared by many of his compatriots.

However, the ecological approach as practised at Warrington was not so much about the exclusive use or preservation of native species but more about the structural use of woodland created and managed using ecological principles. In "Holland and the Ecological Landscapes" Ruff (1979) explained how woodland had first been used to structure the spaces within an urban park in the Bos park in Amsterdam, instigated in 1929, and later implemented by the Architect Cornelis van Eesteren as Chief Architect of the Urban Development Department of Amsterdam Public Works; inspired by the "de Stijl" movement, the Bos Park aimed to create spaces for different sports and other recreational activities by using woodland, meadow and water in equal proportions. A loose grouping of artists, designers and others, "De Stijl" took its name from Theo van Doesburg's periodical of the same title; the group aimed for a new utopian and universal aesthetic based on abstraction, mathematical principles and the idea that art and life were indivisible (Van Dijk, 1999). Van Eesteren became closely identified with the ideas of "De Stijl" and later combined many of these ideas with the ideals of the modern movement, being the chair of CIAM (Congrès Internationaux d'Architecture Moderne) in the Netherlands from 1930-1947 (Van Dijk, 1999).

Although the woodland in the Bos Park was to have been managed according to ecological principles, there were limitations, including a failure to manage the woodland so as to create diversity in the woodland structure, and an absence of ecotones (Ruff, 1979; Tregay, 1980).

Ruff (1979) claimed that "During the 1950's the lessons of the Bos were overlooked"; but this ignores the work done by N.A. de Boer in Emmen. De Boer studied architecture at the University of Technology at Delft. Initially he felt frustrated by the traditional approach advocated there by M.J. Granpré Molière and others but later on he derived support and inspiration from new members of staff who had espoused the modern movement including Van Eesteren, J.B. Bakema and J.H. van den Broek.

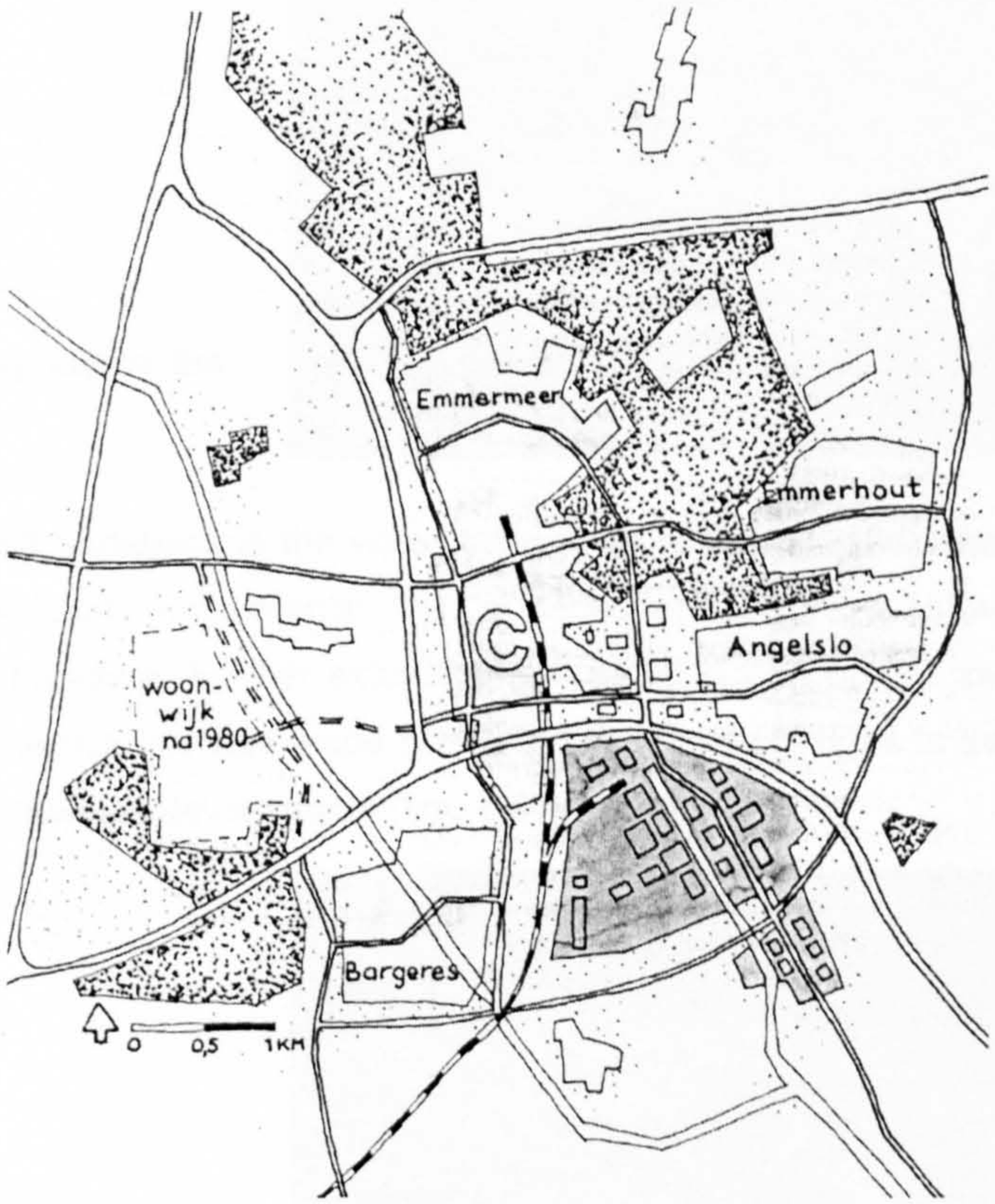


Figure 4.13 Structure plan 1980 for Emmen (1970), incorporating many of de Boer's ideas- dotted area represents woodland (reproduced from de Boer, 1982)

De Boer became town planner at Emmen, a small town in the north west of the Netherlands in 1955, where he remained until 1966. De Boer conceived a new strategic plan for the development of Emmen typified by a concept that he refers to as the "open green town" (figure 4.13). According to this plan the existing landscape elements of the "Es", a traditional agricultural landscape (see figure 4.14), and around 1000 hectares of established woodland were not only retained, but became part of the structure for the new development.

The existing town centre to the west was developed, but without encroaching on the "Es", which remained as a soft edge to the west of the town centre. East of this compact town centre various large institutions, e.g. a hospital and various schools, were placed in a park-like landscape. Further east were the two new residential districts of Angleslo and Emmerhout, which were contained and bounded to the north and east by the existing woodland. De Boer was also responsible for masterplanning these districts. Within them (and particularly in Angleslo) green fingers permeated the development, as in the strategic plan for the town itself.

Figure 4.14 The Es, Emmen (photographed by the author)

Variations in landform, existing trees and variations in the water table were respected and retained wherever possible. A number of pre-historic monuments: the "hunebedden" (figure 4.15) were sensitively incorporated into the green structure. Further extensive tree planting was carried out in order to structure the green spaces. Generous use was made of shrub planting and hedges to define boundaries and pathways, and to soften the built development (figure 4.16).

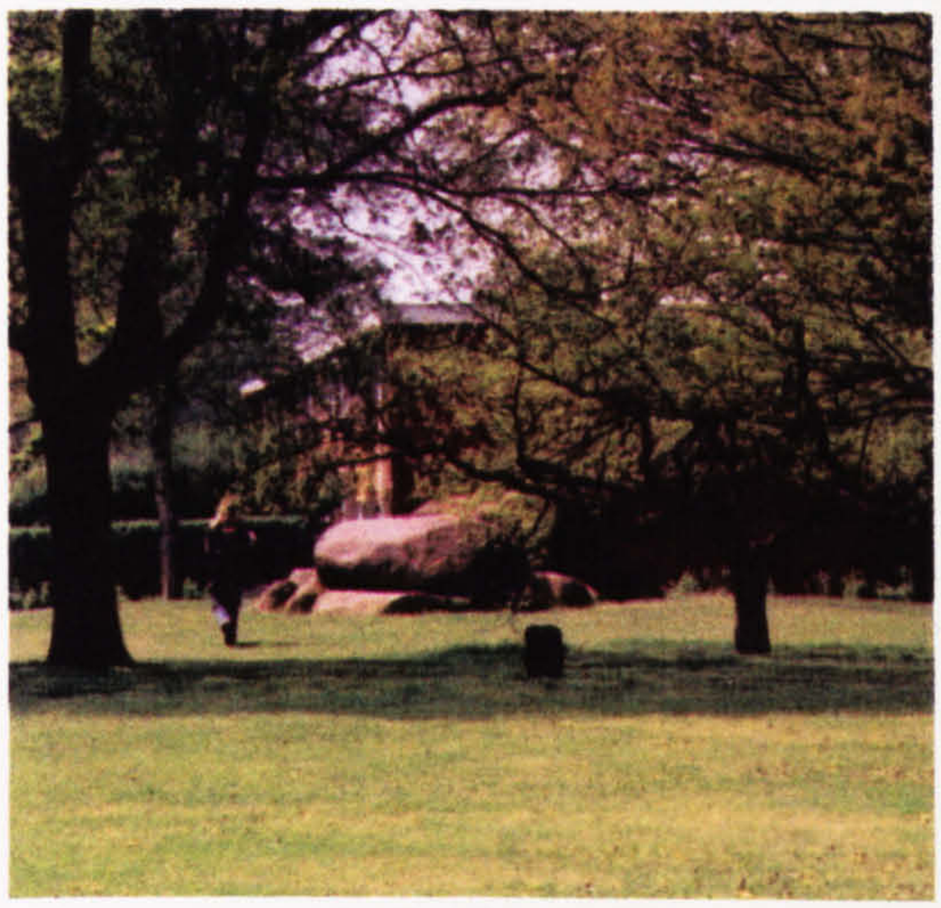


Figure 4.15 Prehistoric monument, Emmen, incorporated in housing landscape (photographed by the author)

Figure 4.16 Housing surrounded by vegetation in Angelslo, Emmen (photographed by the author)

Whilst similar comments can be made about many new towns based on modernist principles, there is something qualitatively different about Emmen. This has to do both with the quality of the masterplanning, and the sensitivity of the landscape treatment. There is exceptional diversity in the formation and manipulation of spaces, and in the way landscape elements constitute these spaces. There is also an unusual degree of integration between landscape and built form. According to Nannen (personal communication) "the theme underlying the development of Emmen is respect for the landscape". Although the landscape approach adopted in Emmen was not ecological within the meaning ascribed in this thesis, De Boer undoubtedly had an awareness of ecology. He describes his father as a "folklorist" and says that his father wrote two "ecological books" in the twenties, and contributed articles to Thijsse's magazines (De Boer, personal communication).

Emmen was also remarkable for what can be described as a human centred approach. The landscape in Emmen was not something merely to be looked at from buildings, but had diverse functional aspects of its own. The green structure of Angleslo and Emmerhout was the setting for a series of footpaths that enabled residents to circulate on foot or by bicycle, without having to use the road system. The green structure was also the setting for a number of facilities and institutions:

> "An important point was the protection of pedestrians, children in particular, against motor traffic, but also the charm that emanated from the specific atmosphere of the pedestrian world. Green zones had to provide the ideal situation for nursery schools, elementary schools, sports grounds, playing and recreational facilities. The traffic-free green zones were assigned important social significance."

De Boer also felt that " good landscape" had psychological benefits for people:

> "I was interested with the relationship with psychology because we found out that living in suburbia in America had generated very many psychological diseases. You can escape your town and sorrows by a walk along the sea...Especially the edges of woods. I think that good landscape is fewer mental hospitals."
>
> "Town can be a mass of the sorrows and stresses and you can escape this complex by walking or cycling through agricultural fields, through woods and a walk along the sea."

Finally, it was de Boer who originally conceived the Dutch idea of "woonerf", which has become a highly influential concept in housing layouts throughout the world. The concept of "woonerf" was first put into practice in Emmerhout, in Emmen. De Boer developed the idea partly as a result of his desire to create a safer, more comfortable and more social car-free environment around housing, and partly through financial constraints. In Angleslo de Boer identified the need for low cost, low density housing. He worked out that the major outlay was in constructing roads and sewers, and if these could be kept as short as possible, savings of 30% would ensue. This led him to begin to develop the idea of clustering housing around courtyards with vehicular access as far as cul de sacs, with access to the dwellings via footpaths, which was later implemented in Emmerhout (figure 4.17).

De Boer claims that a residential street has two functions, the " erffunctie" and the "verkeersfunctie". "Erf" is an old fashioned word for the area around a farmhouse and "erffunctie" encompasses the social functions of a street:

> "The street was a safe playground. The baker had a hand cart. The greengrocer came with a cart and horse and round the cart came a group of women."

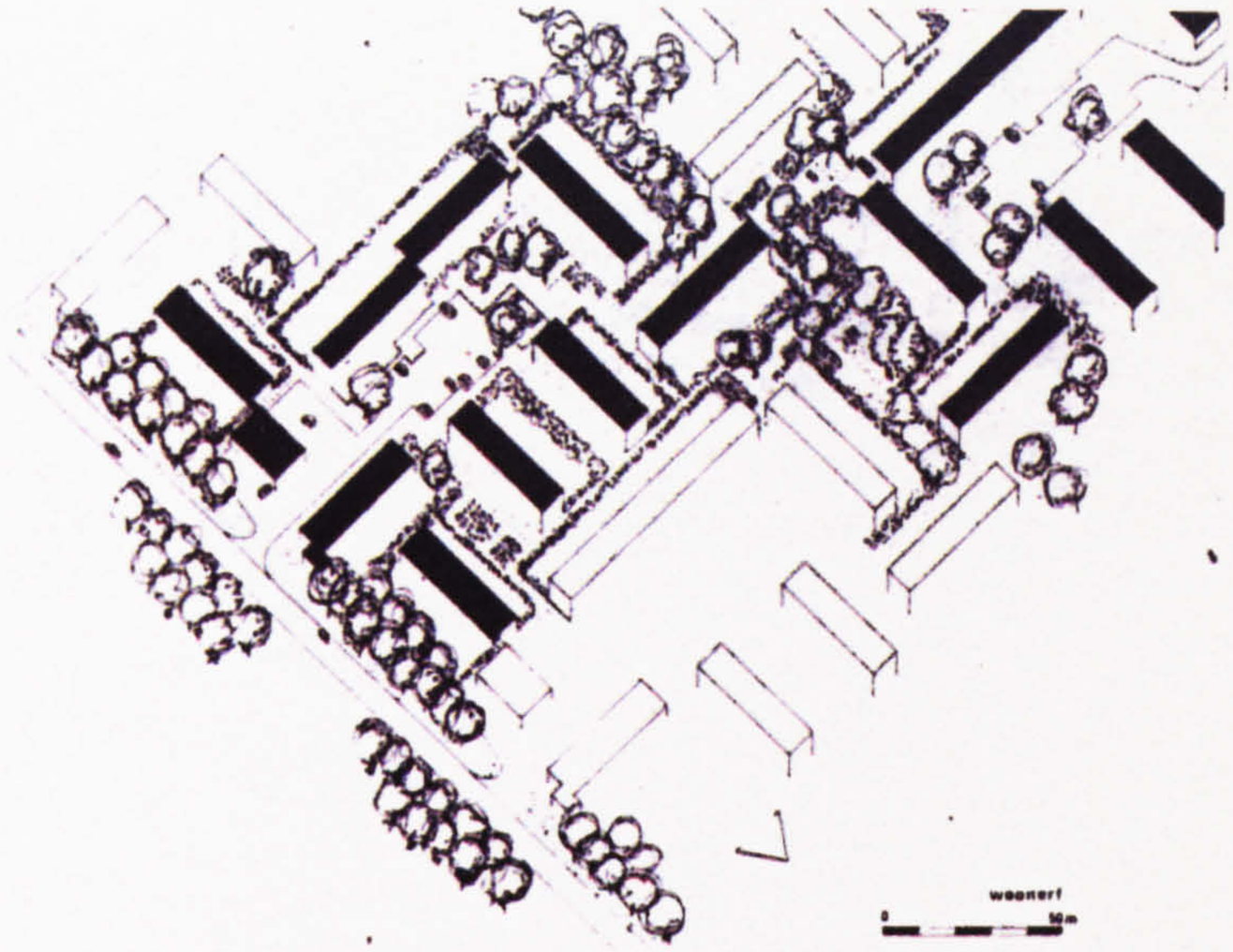


Figure 4.17 Prototype for woonerf, as implemented in Emmerhout, Emmen (reproduced from de Boer, 1982)

According to de Boer the " erffunctie" is disappearing and is being replaced by the "verkeersfunctie" or traffic function. Hence the idea of "woonerf", a living space in which the social functions of the street would be restored, free of traffic constraints. An extremely brief visit to these "woonerfs" in Emmerhout in 2000 seemed to indicate that these spaces are still functioning very successfully as safe play areas for children (figure 4.18). As will be seen, the concept of woonerf was important in the design and layout of parts of Oakwood, in Warrington.

Figure 4.18 Woonerf at Emmerhout, Emmen (photographed by the author)

Ruff (1979) went on to describe how some of the ideas that first emerged in the Bos Park were developed and refined in subsequent housing developments of the 1960's and 70's at Biljlmermeer in Amsterdam, Buitenhof in Delft, Slotermeer in Amsterdam, and Molenwijk in Haarlem. In all of these developments woodland was used as the primary means of structuring the spaces between buildings, and in public open space forming part of the new development. Ruff (1979) emphasised two main aspects: firstly, the way in which the planners' and designers' understanding of ecological processes and their application to urban situations became progressively more sophisticated, leading to more diverse, durable, robust, and species-rich vegetation communities, with greater spatial and structural

complexity; and secondly, how the meaning and function of these landscapes changed from instruments of social control to catalysts for change and social interaction.

Essentially what seemed to be taking place was a democratisation of landscape, driven by the political upheavals that were happening across Europe in the 1960's, in which the authority of the state was being called into question:

> "Nowadays new ideas are breaking through and younger people particularly ask for an alternative. They are bored with only these trimmed lawns and borders to look at. They want to see and use green space, they like to play in it and they want their own intimate spaces in that green space, they want to walk where they like and not only on paths that someone else has laid out for them. They want to do as they like and not what other people have planned for them." (Bos and Mol, 1979)

One of the first landscape practitioners to experiment with these ideas in a landscape context was Louis le Roy, who applied his ideas about political self-determination to the design of landscape and to vegetation management. Le Roy saw landscape design as a collective enterprise, in which the local community would participate freely, and believed that if a sufficiently large number of plant species was introduced into a site these species would spontaneously form self-perpetuating communities (Ruff, 1979). Le Roy's work included the Kennedylaan in Heerenveen, and his ideas inspired the development of the park in the Shanghaidreef district of Utrecht. Although Le Roy's attempts to establish self-sustaining plant communities were doomed to failure, through his lack of understanding of the impact of physical conditions on site, and the characteristics of different plant species, some of his ideas about public participation and the nature of urban green space endured (Ruff, 1979; Tregay, 1980). In particular his belief that urban green space could include all urban space between buildings, including motorway verges, roundabouts and airports, and his ideas about green networks and corridors for wildlife were way ahead of his time.

The essential characteristics or principles of the ecological style as advocated by Ruff in "Holland and the Ecological Landscapes" may therefore be summarised as follows:

- All urban land that is not taken up by buildings or other structures, is potentially available for use by urban dwellers, not just parks or other areas that are traditionally thought of as accessible urban green space;
- Urban landscapes should be robust and interactive, permitting a variety of uses and experiences, in particular users should be able to experience woodland from the inside as well as the outside;
- Vegetation, and particularly woodland should be used for its functional qualities rather than purely for visual decoration, e.g. to structure urban landscapes to create and separate spaces with diverse characteristics and functions;
- The dynamic potential of vegetation should be exploited so that vegetation can be enjoyed at different successional stages;
- There should be an emphasis on the use of native species, and particularly species found in the locality;
- Vegetation should be seen as a series of potentially self-sustaining plant communities rather than as a collection or series of individual species.

- Plants should be deployed in response to a detailed site analysis, with a close fit between plant communities and site conditions;
- Landform manipulation and the height of planting above the water table are important factors in differentiating appropriate plant communities;
- The ultimate aim is to create stable plant communities and ecosystems requiring minimum human intervention;
- Creating an ecological landscape requires a detailed understanding of the interaction and characteristics of different vegetation structures and plant communities in response to both site conditions and management techniques; often this technical expertise will be outside the normal competence of landscape professionals and operatives and there is therefore a need for additional training and education; and
- Users should be involved in the creation and maintenance of these landscapes.

Some of the theoretical justifications for these principles will already be apparent but Ruff (1979) also articulated a number of the philosophical ideas underpinning them. Firstly, there was a belief that humans had moved from living in partnership with natural ecosystems to a position where they were exploiting those ecosystems, with detriment to the continued survival of both humans and nature. A more equal partnership needed to be restored by the incorporation of natural ecosystems into the urban fabric. This would enable urban dwellers to become familiar with "the permanent values of nature" and would "encourage the self-formulation of values concerning environmental quality". Ecological landscapes demonstrating "the permanent values of nature" would also have benefits in terms of children's play and development. There was also the possibility of transcendental experiences:

> "At a more complex level, the onlooker may look into the infinity of nature and come close to a perception of life itself."

There was also a curious contradiction in Ruff's attitude towards the potential users of these ecological landscapes. On the one hand he claimed that such landscapes were inherently more accessible to the lay person:

> "However, the Bos Park went further, for whereas previously a designed landscape based upon aesthetics derived from renaissance values of fine art could only be appreciated through an understanding of the principles of beauty, the Bos could be enjoyed by everyone irrespective of age, education or environmental background."

On the other hand, Ruff claimed that education was needed to "explain the reason for" the new landscapes to their users, and to encourage them to become involved in landscape management. This in turn would lead to a deeper understanding of the inter-dependent relationship between humans and their environment. Curiously Ruff's ideas in this respect are the very antithesis of some current commentator's views about popular landscape preference. For example, Parsons and Daniel (2002) are currently arguing that landscapes based upon aesthetics (though not necessarily Renaissance aesthetics) have more popular appeal than naturalistic landscapes informed by ecological principles (see Chapter 2, "Literature Review", page 21).

British influences

There were two British landscape architects who influenced the landscape approach taken at Warrington namely Sylvia Crowe and Nan Fairbrother. Sylvia Crowe Associates were the Consultant Landscape Architects appointed to the team who prepared the draft masterplan for the whole of Warrington (Austin Smith Lord Partnership, 1969).

Many of the ideas that found expression in the landscape strategy for Warrington New Town, contained in the draft masterplan, were already present in Crowe's book, "Tomorrow's Landscape", published in 1956. Trees and woodland were said to have the capacity to act as a unifying factor in new development, to shelter and integrate settlements, to screen incompatible land uses, as well as acting as a setting for recreation. Further the use of existing woods and copses, as well as extensive use of planting in advance of development, was advocated. Crowe was also aware of the potential benefit to children of play in natural and challenging surroundings:

> "The needs of children are far better met on Wimbledon Common than at Versailles. The provision of 'reserves' for children, where they can revert to a primitive form of life in their play, becomes a necessity for healthy and happy childhood in urban areas where the real country is beyond their reach."

The role of natural landscapes as playscapes for children was an important motivating factor for the planners and designers of Birchwood, though it is unlikely that they were familiar with this aspect of Crowe's writings at the time they were working on Birchwood.

Together with her professional associate, Wendy Powell, Crowe carried out a comprehensive landscape survey of Warrington (Scott, 1999). On the basis of this survey the masterplan report concluded that Warrington suffered from a "lack of landscape and natural landscape features, except to the south of the Ship Canal" but that its landscape capital consisted of a series of waterways and watercourses together with isolated areas of "high visual quality or of special landscape or ecological value" such as Risley Moss, and that this should be conserved (Austin Smith Lord Partnership, 1969). The potential of the existing woodland in the Risley Moss area was understood:

> "Use can be made of the extensive belt of birches and twisted oak on the east side, running into an area of previously defined ecological interest."

The report recommended the creation of a system of 5 linear parks along the waterways, running from north to south, with the River Mersey bisecting and connecting them from east to west. Further, there was a need for shelter belts, buffer zones and landform, which would ameliorate microclimate, noise and air pollution, conceal or separate incompatible land uses, create spatial structure, set up a relationship between natural and human elements and provide a "dignified" context for the road network. In the north of Warrington (where Birchwood is situated), shelter belts and "continuity of vegetation" were said to be "essential to the achievement of a high quality of housing development" and the need for tree planting "in advance of development" was identified. Finally, there was a strategic vision for the entire green space system:

> "The parks link with a system of woods and shelter belts, which in conjunction with topographical features, define the edges of individual parcels of development."

Crowe also felt that an important part of the function of this green space system was to include places that people would want to visit for a day out within the urban fabric, as there was a shortage of such places in the Warrington area (Scott, 1999).

Thus, whilst there was no indication of the ecological woodland approach first adopted in Birchwood, the basic ingredients of the landscape strategy for Birchwood were already present in the draft masterplan, including the linked system of parks, green spaces and woodland belts as a setting for the built development, the use of extensive woodland planting, and planting in advance of development.

The type of broad landscape framework outlined in the Warrington draft masterplan, based on the ideas of Sylvia Crowe, was further developed by Nan Fairbrother in "New lives, New Landscapes" (1970). In its final chapters, comprising the extraordinarily visionary "Four-point Plan for a New landscape Framework", Fairbrother anticipated most aspects of the Birchwood ecological woodland approach; proposing that suburban areas (which would include most parts of a new town) should be contained within extensive areas of woodland planting, which would distinguish such areas from the true countryside, as well as providing a pleasant setting for their inhabitants. The woodland was seen a continuous mass, into which diverse spaces for the built development and other land uses would be carved. Fairbrother saw the potential to create such woodland on all land that was not being specifically used for built development, and recommended the use of communities of native species based on "the potential vegetation" of the area, and small stock. Furthermore, she advocated the use of natural vegetation structures comprising trees, shrubs and herbs, talked about vegetation "management" rather than "maintenance" and advocated differential mowing regimes. Essentially, the only ingredient missing from Fairbrother's proposals was a detailed understanding of the ecology of the vegetation communities she referred to, though she was clearly aware of many aspects including the basic requirements for establishing a species rich meadow. Fairbrother's influence was explicitly acknowledged by both Robert Tregay and Davis Scott (Tregay and Gustavsson, 1983; Scott, 1983).

Personal influences on the designers and planners of Birchwood

This then was the context in which the planning and design of Birchwood took place. The ecological approach adopted in Birchwood was only possible because of a unique combination of personalities, with singular experience and characteristics.

Hugh Cannings, the Chief Architect and Planner of Birchwood, was an architect by training. By the 1960's he had already spent some years in architectural practice but then won the Harkness Fellowship to go and study urban design in the USA. He elected to go to the University of Pennsylvania and Philadelphia, where he studied landscape planning under Ian McHarg, worked on some of the projects that McHarg drew on for his examples in "Design with Nature", and was profoundly affected by this experience (Cannings, personal communication). He recalls being told to read Rachel Carson attending a lecture at which a space scientist from NASA (the National Aeronautics and Space Administration of the USA) presented the first Hasselblad photograph of the earth taken from space, an iconic image which seems to have had a major influence in prompting contemporary thinkers to see planet earth as a place of finite resources. He was also impressed by

the park systems that he saw in Baltimore and Philadelphia, and the way in which these systems formed an essential strategic part of the urban infrastructure, with roads running through then, rather than being isolated and discrete events within the urban fabric (Cannings, personal communication).

On his return from the USA in 1966 Cannings started work for the Austin Smith Lord Partnership on the draft masterplan for Warrington, where he immediately set about applying the ideas he had absorbed in the USA:

> "McHarg was always ... looking at the way we'd...that nature had been considered as a determinant of form. So the whole idea of that as an influence was very strong and when I came back and started to work on Warrington Masterplan with Austin Smith Lord the first thing that I felt strongly about was looking at the whole of the setting and the nature of the place influencing the setting of the town. So it really sort of started- it started from there" (Cannings, personal communication).

He remembers taking issue with Sylvia Crowe, feeling that she had a primarily visual as opposed to ecological approach (Cannings, personal communication). Cannings later secured the job of Chief Architect and Planner at Warrington and Runcorn Development Corporation. In fact, as previously mentioned, the draft masterplan did not have the ecological emphasis of the landscape approach to Birchwood, and Cannings' main contribution to the Birchwood landscape was perhaps in his openness towards the radical new ecological approach advocated by the landscape team that was later appointed, based no doubt on his experience in the USA. The holistic, "joined-up", strategic approach to Birchwood's landscape, articulated in the draft masterplan, probably also owes its existence to Cannings' experience of the Baltimore and Philadelphia park systems, as well as Sylvia Crowe's input.

Cannings also had strong views about the relationship of housing to the street and won a scholarship from Manchester University to travel to the Netherlands to look at this issue:

> "we were looking at new forms of housing, and the Dutch were into the woonerf... system.
> ...
> I went to Emmen and I looked at Delft because that's where one of the new road systems, vehicle calming and all this sort of thing, and the space being for people and a range of activities rather than just purely for the road was beginning to take place. It underlined the view that I'd taken for 10 years that we'd lost out in terms of streets and spaces... so we went back to Emmen and a whole range of things to just look at, to look at that."

Whether Cannings actually visited the original "woonerf" at Emmerhout, conceived by de Boer, is unclear. The "woonerf" model favoured by Cannings seems rather to be a later one where many functions of the street- traffic, play, socialising- were combined in one area, rather than the separation of functions originally favoured by de Boer. This later model was subsequently adopted in a number of the housing areas in Oakwood, presumably influenced by Cannings' research, though Robert Tregay asserts that the use of the "woonerf" principle in Birchwood was not the result of any outside influence (personal communication).

David Scott became Chief Landscape Architect at Warrington and Runcorn Development Corporation in 1974, aged only 27. A Planner and Landscape Architect by training, and a member of the Institute of Leisure and Amenity Management, he had a strategic and deeply pragmatic approach towards landscape practice. He also had experience of working with land reclamation and brown field sites and realised that the conditions on the site of the former Royal Ordnance factory at Risley called for a new approach. He was looking for a solution that would use the landscape budget cost-effectively by

rapidly creating an attractive woodland landscape that was homogenously distributed throughout the town, and relatively cheap to maintain, rather than a landscape approach that was geared towards creating what he calls a few "jewels in the crown" (Scott, personal communication). He conceived the original landscape masterplan for Birchwood with a strategy consisting of a series of linked green wooded spaces and corridors (figure 5.4, page 92). It is important to emphasise that woodland was already seen as the landscape solution in Birchwood before the ecological approach began to be applied in 1974/75.

Scott's contribution to Birchwood was threefold. In the first place he was sufficiently far-sighted to see at once that the ecological approach advocated by Robert Tregay fitted in well with his own landscape aims, and he therefore took up the approach wholeheartedly. Secondly, describing himself as "a great believer in planning, design and management" he also understood the tremendous importance of landscape management in any landscape project, but particularly in the context of the ecological woodland approach adopted in Birchwood, and ensured that appropriate management took place, both for the duration of the Development Corporation and after its disbanding, when he continued to be responsible for the management strategy from his new position in private practice with Gillespies, until this role was taken over by Warrington Borough Council. Finally, as both Canning and Tregay emphasise (personal communication), Scott had the ability to deliver the landscape outcomes contained in the masterplan, and the whole ecological approach, with skills including raising finance, advocacy and project management. Scott himself is very clear about what his role was:

> "There is no park [in Warrington new Town] never been built, if the land was allocated to a park it was built, that was a matter of being quite organised and planning it, so we had to work very carefully with the programmers who were programming all the other works like roads, sewers and housing and industrial schemes and community facilities, they had to be all programmed in. In a new town it is very fast track it's not like in a local authority where you've got a committee and it takes a long time. As soon as a drawing was off the drawing board it was bang into Bills of Quantities and away. We would let probably 30 odd contracts a year for landscape creation. So it was very fast track, you have only got about 20 years or so to do it and it seems a long time but when you are building a whole new town. Warrington had five districts. Birchwood was only one, there is a lot happening across the town and of course we also took over Runcorn, so we had to look after the Runcorn, so you can imagine it was a big task and I think it needs a lot of careful administration. So I feel that I am probably a better administrator than I am a landscape architect but I think that is probably as important as being an architect."

The woodland ecological approach itself in Birchwood came from neither Hugh Cannings nor David Scott, but from Robert Tregay. Tregay studied Landscape Design at Manchester University from 1973-1975. He was deeply dissatisfied with some of the housing landscapes created by the Greater London Council, which he saw during his first year as a student- "housing with concrete and miles of berberis"- and was inspired by Allan Ruff to look at alternative approaches in Europe (Tregay, personal communication). Tregay did his student thesis on urban woodlands, and by way of research visited all the sites in the Netherlands referred to in Ruff's "Holland and the Ecological Landscapes". He became convinced that the ecological approach advocated by Ruff was the basis for a new kind of urban landscape.

Tregay first went to work for Warrington and Runcorn Development Corporation during one of his summer vacations. During this short first visit he wrote two papers: one about relaxing mowing regimes and one about biotope planting, and was rapidly able to persuade David Scott that an

ecological approach should be adopted in Birchwood. Tregay went back to work for the Development Corporation as soon as he qualified, where he continued to develop and disseminate his ideas:

> "When all this came up I was totally a lone voice and I was in some circles regarded as very wacky, very experimental, and what I did was that I persuaded Hugh Cannings to go to Holland. And he went there for a few days. Came back converted. From then on I at least didn't have to persuade him. I spent the next few years gradually persuading first of all the small group of people around me, and then more and more, and then in the end it became policy for the whole New Town and then it became policy for just about everywhere, Widnes and Runcorn and everywhere, but it all started in Oakwood."

Hugh Cannings says of this trip to the Netherlands:

> "And they abandoned it [Slotermeer] and it naturally regenerated and so when we were there they were just publishing the plan to finish the park off. People said 'No! We like it as it is.'...and
> ...
> half of it was naturally regenerated so they changed to just simply a remodelling and a management plan and David [Scott] and I were gob smacked to see how people had reacted so strongly to the excitement of that. Then we went on to Utrecht and we looked at a community Park Shanghaidreef. It was called the Shanghaidreef Park. And again the City Council had left the community to decide really how the park should be. And we were staggered by what the different approach was. How the landscape character was really quite different in detail than we'd seen. So we came back from Holland having gone to look at landscape and housing with quite a different view about um the park and people's attitudes to the park and people's attitudes to an overly designed landscape as compared to a natural regeneration landscape. And Rob was coming back from Scandinavia with all his things as well. So those were really quite key influences."

As Cannings mentions, Tregay also carried out more research about ecological landscapes in Sweden, where he visited sites at Helsingborg and Trelleborg (Tregay and Ertzgaard, 1979). Whilst in Sweden, Tregay forged an important link with Roland Gustavsson, from the Alnarp Agricultural University, which helped him to develop his understanding of the structural and spatial properties of woodland. These ideas are explored in more detail later in this chapter.

With hindsight it seems quite extraordinary that the whole concept for a major part of the new town, Birchwood, was the brainchild of a university student, or at least a newly-qualified landscape architect. That this should be possible is an indication of two factors: firstly, the coherence of Tregay's ideas and his remarkable ability to communicate and persuade, and secondly that people were receptive to these ideas, partly because of their own personal experience, as was the case with Hugh Cannings, and partly because of what can be described as a climate of change brought about by individuals such as Rachel Carson, and the political upheavals of the 1960's.

Two other important individuals were Duncan Moffatt and Roger Greenwood. Duncan Moffatt was an ecologist who was appointed to the landscape team at Birchwood as Landscape Manager/Ecologist. According to Cannings, "Duncan was the first ecologist to be appointed to a landscape team in the country". From 1974 onwards, prior to Tregay taking up employment with the Development Corporation, Moffatt was already carrying out woodland edge planting alongside existing woodlands in Birchwood (Tregay and Gustavsson, 1983). Although Tregay himself had considerable technical expertise, as evidenced by a number of his publications (Tregay and Ertzgaard, 1979; Tregay and Gustavsson, 1983), Moffatt's scientific background must have helped to formulate and refine the practical approaches and techniques that were so important in creating the ecological woodland landscape on a relatively hostile post-industrial site (Tregay and Moffatt, 1980; Moffatt, undated). Moffatt was also a forceful contributor at meetings, and was particularly critical of individuals who had

signed up to the ecological approach at Birchwood, but were not implementing it in practice, (Scott, personal communication). Roger Greenwood was another Landscape Architect whose own ideals were very much in harmony with Tregay and Moffatt, and who also had considerable technical expertise (Greenwood and Moffatt, 1982). One of Greenwood's major achievements was the design of the woodland landscape structure and footpath system for Gorse Covert, particularly the perimeter woodland and the woodland corridors or fingers within the development.

There were, no doubt, other influential figures who contributed to the new ecological woodland approach at Birchwood, but the individuals mentioned would appear to be the main players.

The ecological woodland approach as practised at Birchwood

As explained earlier, the ecological approach at Birchwood came about because of a unique combination of people in a particular social, cultural and political climate. However, the prevailing site conditions at Birchwood were also important:

> "The usual panacea to problematical sites in many landscape architects' eyes of a 150mm or 300mm layer of topsoil with pit-planted material was seen as an unnecessary waste of money and a 'solution' which simply would not work on the heavily compacted clay subsoil of many of the Warrington sites." (Moffatt, undated)."

The ecological approach, as advocated by Ruff, combined with suitable ground preparation techniques, seemed to Tregay and others to be an appropriate alternative. This approach was refined further by the landscape team at Birchwood, and particularly by Tregay, Moffatt and Greenwood. The characteristic principles of Ruff's approach, set out above (page 74), were therefore adopted but with the following differences and refinements:

- Before Birchwood, ecological woodland planting had mainly been used to define the spaces between buildings, or to create structure within incidental urban green spaces in the Netherlands and Sweden. In Birchwood it was the landscape and the ecological woodland planting that created the structure for the whole development:

  "in Holland some of the ideas were because of the type of housing it tended to be the housing that made the spaces and the spaces were filled with quite intensive ecological landscapes. We tended to do it the other way round with the landscape that formed the structure and the houses within the structure and that's the key difference. I think the key difference between us and what went abroad was that we had a very strong influence on masterplanning and on the whole shape of the whole environment- that it was the environment that was shaped primarily by the landscape structure and roads and then within that then went the housing areas. That's different Holland I think and different to Helsingborg, where everything was much more of a "Here's a green space, we'll do an ecological landscape in it." (Tregay, personal communication)

- In Birchwood the practice of using plant communities was further developed into a concept which Robert Tregay called "biotope planting". This was influenced by work using the "potential natural vegetation concept" by Göran Johnson, which Tregay observed at Dalköpinge, in Trelleborg, Sweden in 1979; Johnson had created a series of woodland planting mixes that were based on naturally occurring vegetation communities in the local area (Tregay and Ertzgaard, 1979). "Biotope planting" in Birchwood involved using a series of woodland plant mixes that were tailored to suit particular on-site conditions and functional requirements, e.g. "woodland mix", "light demanding mix" and "edge mix". These mixes contained all the plants necessary to make up the final plant community, including understorey

shrubs and, where necessary, between 10-30% of nurse species, but excluding herbs (Tregay and Moffatt, 1980). Initial plantings, modelled on Dutch examples, had used up to 60% of nurse species, which had subsequently proved excessively vigorous and difficult to remove, so that a decision to reduce the percentage of nurse species was taken (Moffatt, undated).

- At Birchwood the potential structural and spatial diversity of woodland vegetation was fully exploited. Early on Tregay had formed a partnership with Roland Gustavsson, who was pioneering a methodology for drawing woodland structures in section, allowing different types of woodland and woodland edge to be analysed (Tregay and Ertzgaard, 1979). Gustavsson's work was important for its technical advances, but also because he could see the social and cultural implications of using different types of woodland in an urban setting (Tregay and Gustavsson, 1983). The collaboration enabled Tregay to develop his understanding of the different spatial experiences that could be created by different woodland types and woodland edge:

  "Not only can an ecological approach to planting ensure greater establishment success and long-term vitality, but social demand on the landscape can now be reassessed. Plantations need no longer be seen merely as barriers or visual 'backcloths'. Their complexity and dynamic qualities can be experienced as much from within as from the outside. They become important playgrounds and recreational spaces in their own right." (Tregay and Ertzgard,1979)

  Consequently, in Birchwood, woodland and particularly woodland edge were manipulated and designed so as to create an unprecedented variety of spaces. A widely-used strategy was to create narrow woodland belts that were effectively no more than two woodland edges back to back (Tregay and Gustavsson, 1983).

- Significant technical advances were also made at Birchwood. There were a number of reasons for this including the exigencies of the site, the commitment of the landscape team to finding an effective ecological solution, the presence of an ecologist in the team, the fact that planning, design and management were carried out within one landscape team rather than being devolved over several departments and the sheer scale of the landscape operation, which enabled experimentation to take place over a period of time. These advances included:
  - the practice of site preparation: deep ripping followed by the incorporation of organic material (peat sourced on site or spent mushroom compost);
  - advance planting-in some cases the woodland was planted up to 3 years before construction of the built development, allowing it to become established by the time the first residents moved in;
  - notch planting small plant material or "whips"- as opposed to the previously widespread practice of pit planting standards- which proved to be more cost-effective, quick to establish and less prone to vandalism; and finally
  - the development of sophisticated management techniques covering the application of herbicide, mulches, thinning, coppicing and pruning and differential mowing regimes.

The philosophical aims and aspirations of Birchwood's planners and designers

In "Oakwood's New Landscape- Designing for Nature in the Residential Environment" Tregay (Tregay and Gustavsson, 1983) identifies four theoretical or philosophical aims behind the ecological woodland approach adopted at Oakwood. In the first place there was a desire to work with the natural history of the site and to produce a landscape that was not only a close fit with the local ecology, but grown onto it. This meant retaining existing woodland, scrub, grassland and "open-ground communities", where possible, and using existing plant communities as a blueprint for the new plantations, broadly speaking. This was not to be a purely cosmetic exercise, rather the aim was to create "a landscape linked to the site by restoring naturally functioning ecosystems". A second and subsidiary aim was to create "diverse and resilient habitats for wildlife". Rather than confining nature to the countryside, and surrounding housing with formal or "gardenesque" landscape design a third aim was to create nature-like landscapes on the doorstep. There was an implicit assumption that this would have benefits for humans and that they would find such an approach aesthetically acceptable. There was however an acknowledgement that adults still wanted "traditional gardenesque plantings" and the nature-like woodland landscapes penetrating into the housing areas would therefore provide the structure with which these "gardenesque" or ornamental areas would be situated (Tregay and Gustavsson, 1983). Fourthly, there was a strong belief that such nature-like landscapes at the front door and surrounding the housing environment would be beneficial for children's free play.

A much fuller expression of the philosophical underpinning of the ecological woodland approach employed at Birchwood was set out by Tregay in "Nature and an Ecological Approach to Landscape Design: some Thoughts on Basic Philosophy" (1981) in which a number of key principles were set out. The principles relevant to Birchwood were:

- "Nature as usable space for everyday outdoor life and recreation"

  The idea was to create accessible natural settings in which activities were not prescribed: people could use this setting for whatever social or recreational activity they chose.
- "Nature as usable space for children's play"

  Small-scale natural landscapes close to the home, rich in sensory detail and diversity, would provide a stimulating environment for small children, which would aid their growth and development. For older children more extensive and challenging natural landscapes adjacent to housing would provide opportunities for "creative and adventure play" which would enable these children to pass developmental milestones. These landscapes would also have educational benefits for children and would "encourage the development of a close tie between a child and its environment".
- "Nature as man's spiritual retreat"

  Wilderness-like areas within the urban fabric had the potential to be arenas for contemplation, getting in touch with the fundamentals of life and a means of combating the stresses and strains of urban living.
- "Nature as a dynamic outdoor art-form"

  There were opportunities for harnessing the dynamic qualities of nature in landscape design, including seasonal variation, " tree form, light and shade, enclosure, edges and vegetation patterns."

- "Landscape as a social catalyst"
  Naturalistic landscapes in urban settings were seen as opportunities to re-create a missing link between humans and nature through community involvement in landscape design and management.
- "Environmental education", "urban wildlife", and "wildlife conservation in urban areas"
  Specific sites rich in wildlife habitats and species diversity would enable people to learn about nature locally, leading to "an understanding of environmental issues, nationally and internationally". Urban-dweller should not be excluded from witnessing wildlife first hand. Furthermore, some types of urban green space could contribute to nature conservation.
- "Sound landscape practice"
  An understanding of natural ecosystems had the capacity to inform and improve the practice of landscape "design, establishment and management".

In addition to the above Tregay (personal communication) has stated that the woodland belts were seen as having benefits in terms of climate and pollution control. He emphasises that these ideas and principles were based on extensive research consisting of both personal observation and familiarity with the academic research of the day (personal communication).

In terms of the specific areas on which this study focuses, namely aesthetic factors, place identity, safety and children the planners and designers' approach would appear to be as follows.

Aesthetic factors

The ecological approach already adopted in the Netherlands was followed, with some modifications. In particular, several of the instigators of this approach emphasised that modifications were made to the ecological "look" within the housing areas:

> "my response to that was not to do it in an extreme way. I think I saw things like Delft and there were one or two other areas in Holland I saw, very early pioneering stuff, and I felt that they were too extreme and that my response to it was to have more of a design led approach rather than a purist concept-led approach. So very basic things like I felt there was still a need for formal landscapes, there was still a need to mow the edges of grass to make it look looked after so you could say it was more of a compromise. In some ways it was in the sense that some areas were quite purist technically but we were still very concerned to make this a cared-for environment that people felt safe in and was cared for and that still had pleached trees, and avenues, and had gardens and all the other things. So the idea was to create a structure of nature within which you could have housing areas, gardens, formal areas, that was the idea, whereas in Holland some of the ideas were because of the type of housing it tended to be the housing that made the spaces and the spaces were filled with quite intensive ecological landscapes. (Tregay, personal communication)

> "if you go down into Oakwood and you go round on some of the area lanes that we developed, Lapwing Lane, there was a great rapport between the architects and the Landscape Architects about bringing the...you know the continuity of the landscape. And it was the architects who started to say to landscape 'Come on, lets be a bit more decorative as we get to the front door'." (Cannings, personal communication)

AJ: "What sort of feedback were you getting?"

DS: "Almost always positive, some people would complain that they didn't want such a planting in their garden and I think we did learn that, I think we took it a little bit too far initially it was like *Rosa canina* in people's front gardens. I think we stepped back, we realised that we were perhaps doing the natural too much and that people did want in their own frontages some more semi-ornamental at least. So we got that sort of feedback from them." (Scott, personal communication)

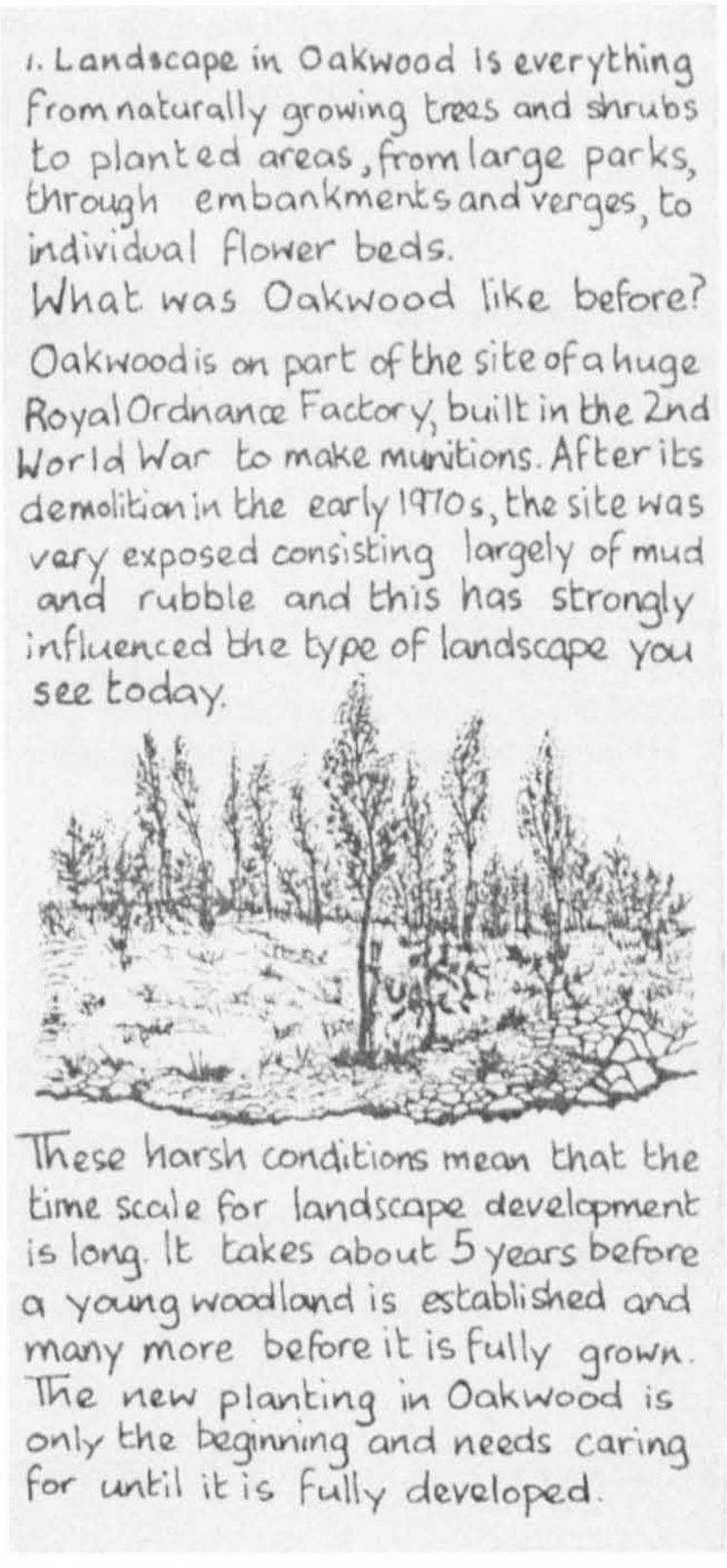


Figure 4.19 Extract from leaflet distributed to Oakwood's new residents, published by the Warrington and Runcorn Development Corporation

Generally there was an assumption that the naturalistic look was what the new residents wanted, subject to these modifications within the housing areas themselves. Public consultation would have been difficult, given that there was virtually no existing population, and Birchwood's future residents were still to come from the conurbations of Manchester and Liverpool.

Certainly, information about the landscape approach being taken in Birchwood, and particularly in Oakwood, was disseminated in the from of newsletters and leaflets (figure 4.19), and the ranger service was also a medium for communicating ideas and receiving feedback; but Tregay would be first to admit that the purpose of these was to inform, and even persuade, rather than consult:

> AJ: And how I mean what was your gut feeling about how people would react to this?
>
> RT: Oh, I had, I think I had total self-belief. I guess I think I had such belief that it was the right thing to do that I guess I never questioned that anybody would [...]. I would now you know when you get older and more mature you, you see other sides to things but I had such belief that it was the right thing to do that I, rightly or wrongly, I was really in the business of selling the idea. That's the honest answer. (Tregay, personal communication)

Place Identity

There were three main aspects to the cultural meanings ascribed to the proposed new naturalistic landscape of Birchwood. Firstly, as we have seen there was a belief that people's lives would be enriched through contact with nature and that this would result in an enhanced understanding of

environmental issues. Secondly, it was felt that exposure to nature stood for tranquillity, stress-relief, contemplation, and self-realisation. Thirdly, there was a feeling that coming to live in the "countryside" represented an ideal for urban dwellers and that Birchwood's new landscape would be a form of countryside:

> "There was no consultation pre people's arrival just a general knowledge of people's general expectations. For many urban dwellers this was countryside. A new and better life and greenery formed part of it- simply being able to see it and have access to it. Not short mown grass and 'Keep Off' signs. The planting was the definition of the countryside versus urban and urban parks." (Greenwood, personal communication)

> "There's also people from Manchester that settled in Birchwood and I think they had been used to living in pretty poor conditions, terraced housing with very little open space. So I think we gave them what our slogan was and I think it was adopted by many local authorities afterwards which was 'Countryside on your door step'. And I think that we got lots of letters in people saying 'We love living out in the countryside'." (Scott, personal communication)

Safety and Children

The perceived safety of Birchwood's new landscape was not mentioned spontaneously by any of the planners or designers interviewed, except Roger Greenwood, who recalled:

> "There was some testing of public opinion in the form of feedback from new residents. The big issue initially was perceived safety. We had a big debate about how to respond. There had to be modifications, for example the creation of alternative routes or opening spaces up." (Greenwood, personal communication)

Further, the issue of perceived personal security is rarely mentioned, if at all, in the contemporary literature written by those planners and designers.

The benefits of the new landscape as a playscape for children of all ages is extensively documented in this literature, but again no mention is made of the possibility that this natural playscape might be regarded unsafe for children because of the perceived potential for abduction and assault. It may be that the issue of personal safety of adults and children alike was not the cultural demon in the 1970's and early 1980's that it has subsequently become.

Chapter 5 Physical and demographic profile of the case study area

This chapter sets the scene for the reporting and discussion of the results in the four thematic chapters that follow by describing the physical and demographic characteristics of the case study area (Birchwood) and its surroundings. Various specific areas, or types of area, are dealt with and these are Warrington as a whole, Warrington New Town, Birchwood and the individual HCA's ("Housing Character Areas"- for a definition see Chapter 3, "Methodology", page 34), both in Birchwood and Warrington at large. There is also some historical information which was included in the current chapter, rather than in Chapter 4, "History and Context", because a decision was made to focus on the generic qualities of the ecological woodland approach in that chapter, and because any discussion of the physical layout of the new town inevitably touches on its historical development. Consequently there is some overlap in the subject area between the two chapters, but very little information is repeated.

Warrington

Warrington is currently a town of 180,000 inhabitants (1991 Census) situated in the north west of England. It lies inland, but is bisected by the River Mersey and the Manchester Ship Canal running west to east. During the war Warrington became the base for military operations at three sites situated at Risley, Padgate and Burtonwood. After the war these operations ceased, and the sites became derelict.

In 1965 four companion new town expansion projects were announced by the Ministry of Housing and Local Government, at Peterborough, Ipswich, Northampton and Warrington (Austin-Smith Lord, 1969). These projects were different from most, if not all, other new towns to date in the sense that they were expansions of existing towns rather than completely new settlements built on green field sites. In marked contrast the land available to be developed at Warrington included the three brown field sites abandoned by the military after the war, occupying 1,080 hectares (WNTDC, 1972).

Warrington New Town

An area of 7,535 hectares was designated for Warrington New Town in 1968 and the draft masterplan was published in 1969 (Austin Smith Lord Partnership, 1969). After consultation, the "Warrington New Town Outline Plan" was published by the Warrington New Town Development Corporation in 1972. The "Open Space and Landscape" strategy in the outline plan was basically a restatement of the landscape strategy contained in the draft plan (for details see Chapter 4, "History and Context", page 76). At this time the existing population of Warrington was 122,000, and the projected new town population by 1991 was 201,500, to include an "overspill" of 40,000 from Liverpool and Manchester.

The designated area was divided into five districts, namely Warrington County Borough (corresponding roughly to the original town of Warrington), Westbrook, Padgate, Birchwood and Bridgewater (figure 5.1). The case study area is Birchwood. The control HCA's are drawn from the County Borough, Westbrook and Padgate respectively.

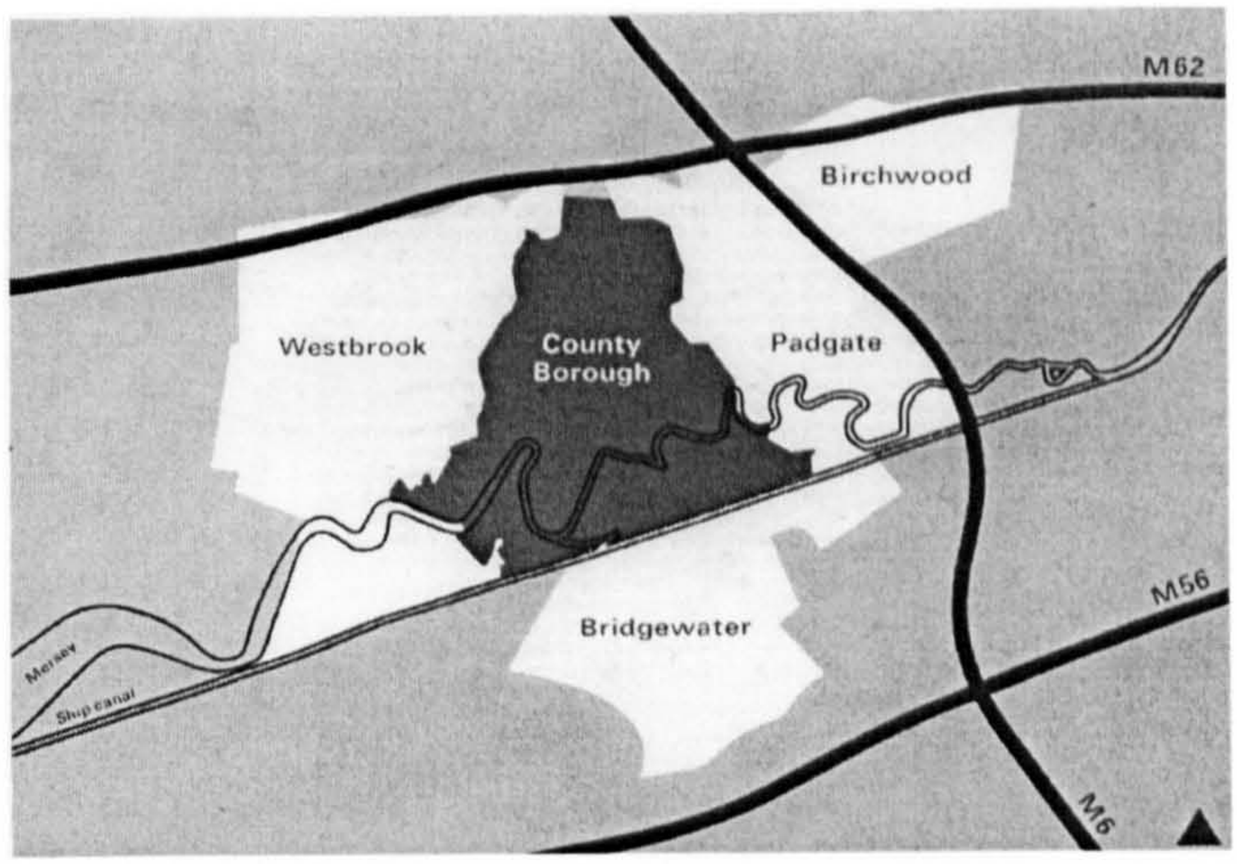


Figure 5.1 The districts in Warrington New Town- reproduced from "Birchwood District Area Plan" (Warrington New Town Development Corporation, 1973)

Birchwood

The "Birchwood District Area Plan" was published by the Warrington New Town Development Corporation in 1973. Situated to the north east of Warrington town centre, the site for Birchwood was bounded by the M62 to the north, the M6 to the east, the railway to the south and Risley Moss and open farmland to the east. The 740 hectare site included the former Royal Ordnance Factory at Risley. Figure 5.2 shows the remains of the factory together with part of Risley Moss to the far right, the remnant of a far more extensive area of raised bog that had once covered most of Birchwood (Tregay and Gustavsson, 1983).

Figure 5.2 Remains of the Royal Ordnance Factory, and Risley Moss, Birchwood

The Area Plan (figure 5.3) provided for Birchwood to be divided up into four areas: a central employment area surrounded by three residential neighbourhoods known as Locking Stumps, Oakwood and Gorse Covert; each with their own "local centre" consisting of a primary school and local facilities (including at least one shop, a public house and a church). Birchwood was also to have its own district centre located adjacent to the railway station and secondary school.

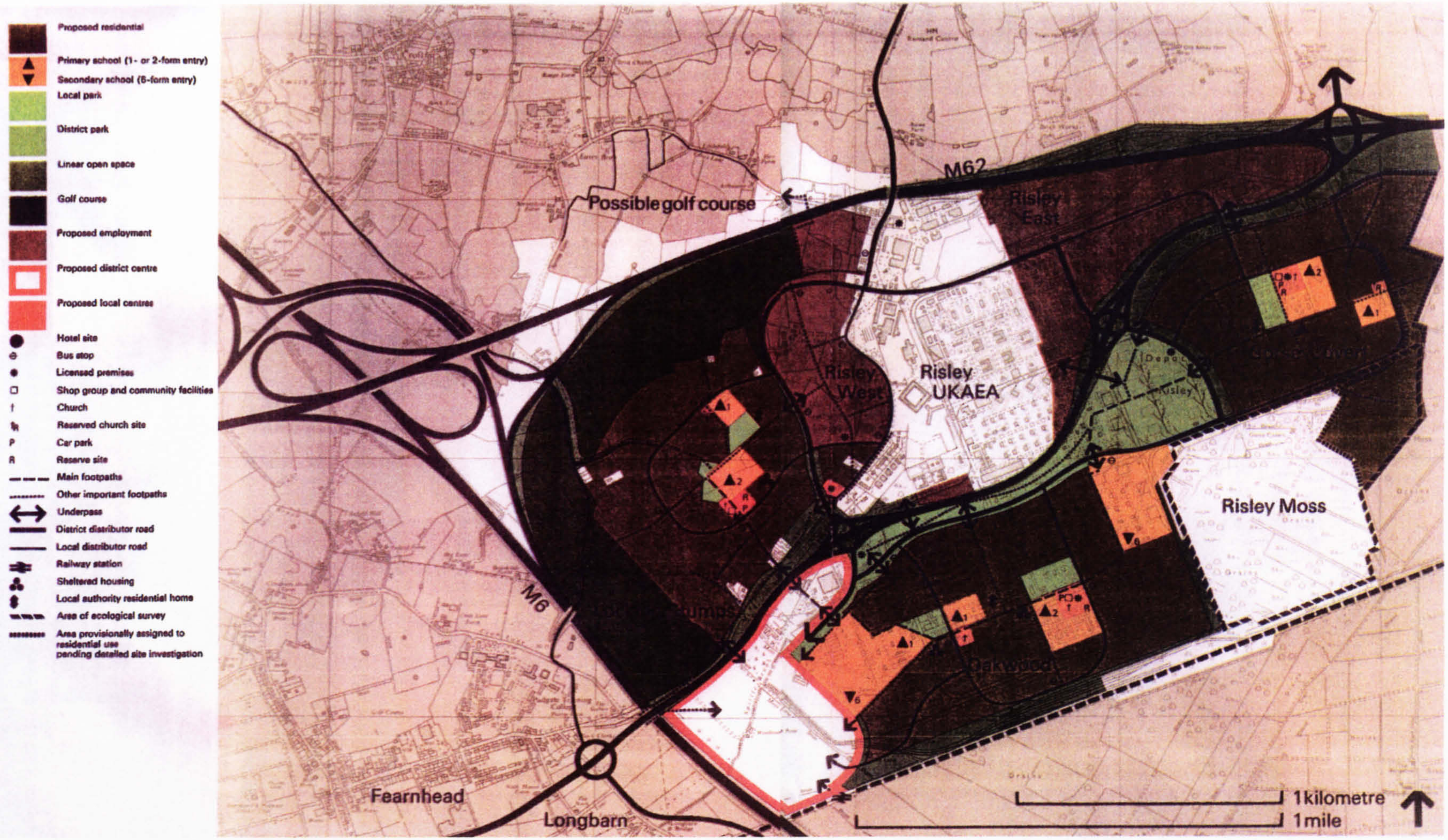


Figure 5.3 Birchwood District Area Plan- reproduced from "Birchwood District Area Plan" (Warrington New Town Development Corporation, 1973)

The road system would consist of an expressway running diagonally through Birchwood from south west to north east. To the west this route led to Warrington Town Centre, and to the east the M62. Connecting with the expressway at two strategic points was the district distributor road, which was effectively a ring road running all the way around Birchwood. The three neighbourhoods of Locking Stumps, Oakwood and Gorse Covert were all connected to this circular district distributor road by a series of looped local distributor roads. In Oakwood and Gorse Covert these local distributor roads only accessed the neighbourhoods themselves, but in Locking Stumps to the north west there was a through road leading back into Warrington to the south, and to open countryside and the villages of Winnick and Croft to the north.

There was to be a comprehensive footpath system, separate from the road network, serving two primary purposes. The main footpaths would connect the three local centres with the district centre, and to facilitate this these local centres would be located at the points where the footpaths crossed the distributor roads. There would then be a further series of footpaths intended for more recreational use, passing through the district and linear parks (see below). The plan predicted that the use of cycles would be limited, but made some provision for them by widening some footpaths (presumably to enable dual pedestrian and cycle use) and creating underpasses to enable cyclists to traverse the expressway and distributor roads without dismounting.

In terms of open space the plan made provision for a district park of 17 hectares ("Birchwood Forest Park", and local parks covering an area of 2-3 hectares, as well as an 18 hole golf course which would wrap around the north western corner of Locking Stumps, buffering the neighbourhood from the motorways surrounding it on these sides. There was also to be a system of linear parks including an area south of the expressway ("Oakwood Gate") and a corridor parallel with the railway to the far south of the district ("Birchwood Brook"). These, together with the golf course, would also act as "noise attenuation zones". The roads and footpaths themselves would be set within woodland belts. The large quantities of waste material from the structures forming part of the former Royal Ordnance factory were to be used to create mounds within the noise attenuation zones and parks. Risley Moss was identified as "area of ecological survey" and was to be retained.

What was remarkable about the district plan was not so much the existence of the individual landscape elements, but the way in which they were seen as part of a holistic landscape structure for Birchwood:

> "The basic landscape policy is to link together the proposed major open spaces to form an unbroken chain of landscape through the whole district. The flat site demands substantial planting and the structure will be based on ribbons of tree covered mounds defining the major roads and spreading out into blocks of woodland at the district centre, the district park, the golf course and Risley Moss. Smaller scale plating will follow lesser roads and footpaths and expand into the local parks and play spaces. Planting will be used to give environmental protection and, visually, will bind together the small scale low density development." (WNTDC, 1973)

The landscape structure of Birchwood was therefore seen as the continuous woodland envelope in which the new district would be contained (figure 5.4):

> "We saw the whole of Birchwood as a forest park. And the whole of Birchwood's landscape was called the "Birchwood Forest Park". At its nucleus was the main core of the forest park, which is actually on the

> signs now, "Birchwood Forest Park". Everybody thinks the forest park is just the nucleus. But in fact the concept that it was the whole structure and that you could walk from the core of the forest park through to the Risley Moss nature reserve which adjoins it and you could walk down the express ways and through the housing and you were still in the forest park and indeed the planting in this campus in the middle of the site is very strong. Planting Belts which also link back to the forest park so you could also walk from outside of our building here to the forest park to Risley Moss. You've got to cross a few roads and a few underpasses, but the landscape is quite continuous and before Rob Tregay came to the new town, I actually worked on the concept for the masterplan for Birchwood and it's very rare a landscape architect gets the chance to drive a masterplan but I was very influential in driving the masterplan for the whole of Birchwood. What I wanted was something that I think was perhaps unique at its time was connectivity of landscape." (Scott, personal communication)

Another striking feature of the district plan was the way in which the landscape structure was to be used to inform the character of the whole development:

> "There is, nowadays, little call for largeness of scale in institutional architecture and the urban designer has very few accents to call on to enliven the whole. Birchwood will be sub-urban rather than urban in character and this can be made a virtue if a strong landscape structure is adopted. Within this landscape structure an interesting and intricate pattern of buildings and spaces can develop." (WNTDC, 1973)

Within each neighbourhood the woodland belts were used to create cells within which blocks of housing with different characteristics were constructed (figure 5.5). These cells were part of a green matrix linking up with the district, local and linear parks and all the other incidental green spaces such as roadside verges, children's play areas, railway embankments and so on.

The proposed mix of housing tenure is set out in table 5.1. There was to be a mixture of homes for sale and for rent in all three neighbourhoods but most of the rented homes were to be situated in Oakwood.

Neighbourhood	Homes to rent	Homes to buy	Rented homes as % of total in neighbourhood
Locking Stumps	200	1170	15
Oakwood	934	1190	44
Gorse Covert	497	1160	30

Table 5.1 Proposed housing tenure in Birchwood summarised from Birchwood District Area Plan (WNTDC, 1973)

Birchwood was built according to the district plan, with few changes (see frontispiece). Such changes as there are relate to the location of two of the three neighbourhood centres. Oakwood local centre now lies to the south rather than to the east of Oakwood, and Gorse Covert local centre was moved from the north to the west, with the result that the there is now just one local distributor road linking Gorse Covert to the rest of Birchwood. The proposed mix of housing tenure also changed whilst Birchwood was under construction. In response to a directive from the new Conservative government, which came to power in 1979, the amount of housing for rent was reduced. This did not affect Locking Stumps, which would have been largely completed by then, but the amount of rented housing in Oakwood and particularly Gorse Covert was reduced.

This then was the framework within which the ecological woodland approach in Birchwood was applied and the framework in which the more detailed masterplanning and design took place. The basic characteristics of this ecological woodland approach have already been outlined earlier (Chapter 4, "History and Context", page 74). These principles or characteristics were applied in the following way:

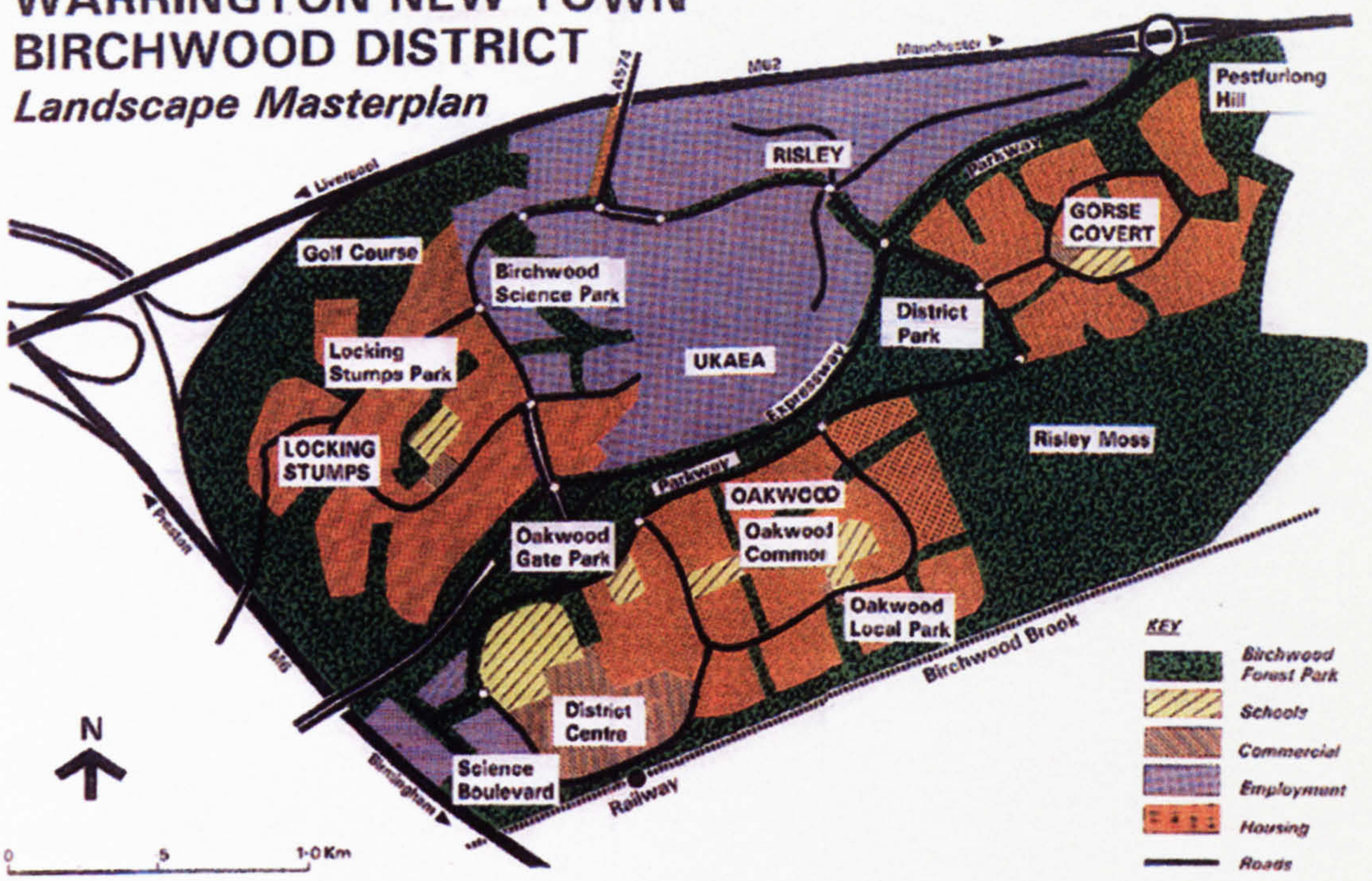


Figure 5.4 The landscape masterplan for Birchwood (Courtesy of David Scott)

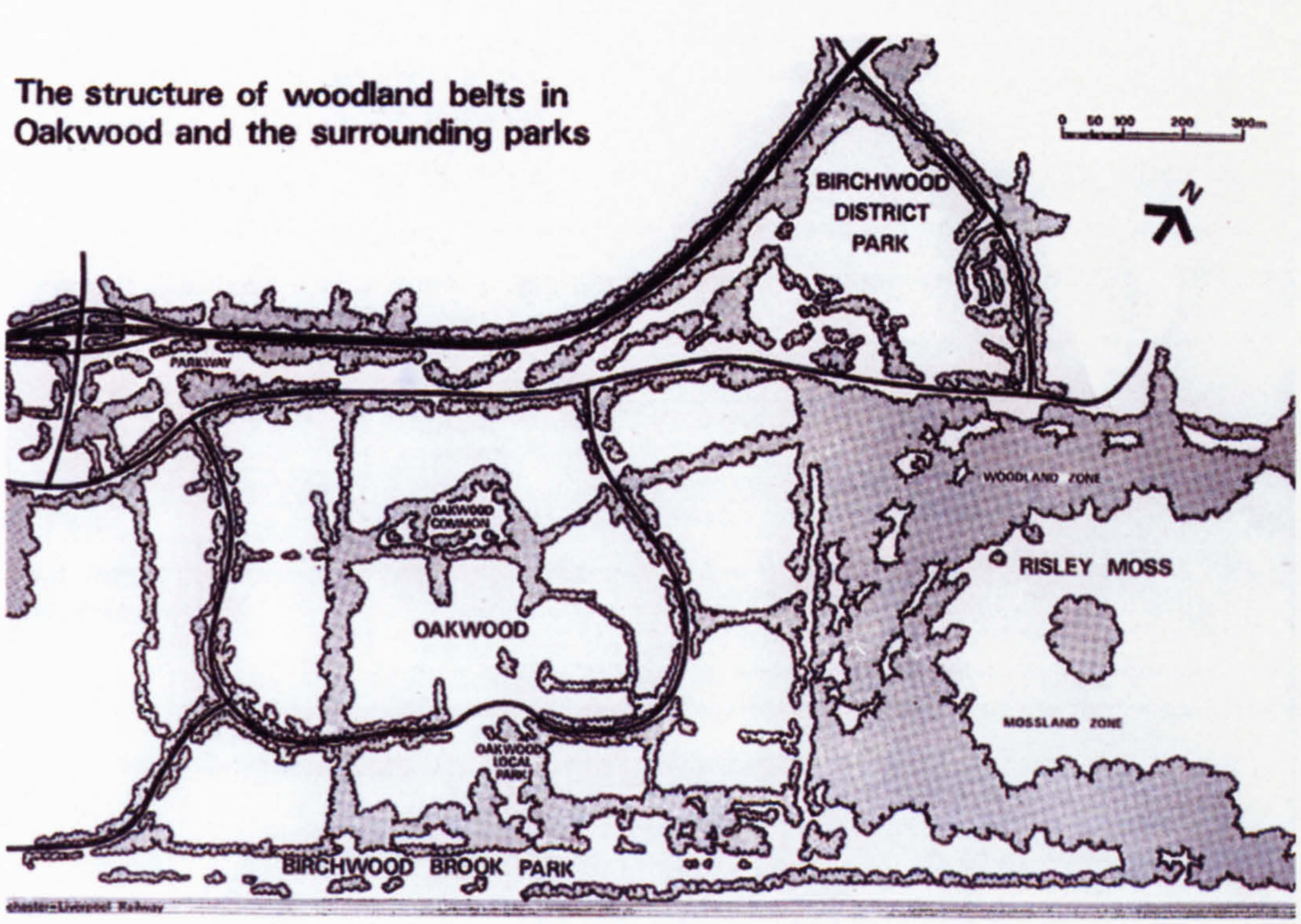


Figure 5.5 The structure of woodland belts in Oakwood and the surrounding parks (courtesy of David Scott)

- As previously indicated (Chapter 4, "History and Context", page 82) the full spatial and structural potential of using woodland as the main form of vegetation was exploited. In particular, extensive use was made of the woodland edge. Where space permitted the edge was manipulated to create a series of bays or enclaves along the woodland boundaries that generated visual diversity as well as sub-spaces for different activities. Furthermore, the edge could be used as a means of pulling down the tree canopy to ground level, allowing more intimate interaction with the foliage, flowers and fruits. A variety of internal woodland spaces were also used to create routes for roads and footpaths, as well as more enclosed spaces for play and exploration.

Figure 5.6 Woodland edge in Birchwood Brook Park, circa 1980 (photograph by Robert Tregay)

- Early on a decision was made to retain Risley Moss and its surrounding woodland, as well as a belt of woodland to the north of the Liverpool to Manchester railway line, and other isolated vegetation outcrops. Whilst the Risley Moss woodland probably pre-dated the construction of the Royal Ordnance Factory, the remainder was the result of natural succession after the factory was built, and in some cases after demolition (Tregay and Gustavsson, 1983). The basic vegetation types are summarised in table 5.2.

Substrate	Natural vegetation
Clayey soils	*Quercus- Fraxinus- Corylus* woodland *Crataegus- Rosa* scrub
Demolition substrates	*Betula- Salix* scrub and open woodland, with *Quercus* and *Crataegus*
Peat	*Betula* woods with some *Salix*

Table 5.2 Vegetation found on different substrates in the Birchwood site (adapted from Tregay and Gustavsson, 1983)

- These vegetation types were used to develop four basic vegetation mixes that were used at Birchwood to create the woodland structure (table 5.3).

Woodland mix (Managed by thinning and coppicing, usually to give multi-layered structure) *Quercus robur* *Fraxinus excelsior* *Prunus avium* *Sorbus aucuparia* *Coryllus avellana* *Ilex aquifolium* *Sambucus nigra* *Alnus glutinosa* (*Pinus sylvestris* included on tops of mounds, sometimes becoming dominant)	**Light demanding mix** (Mostly group coppiced on rotation) *Alnus glutinosa* *Betula pendula* *Sorbus aucuparia* *Populus tremula* *Coryllus avellana* *Acer campestre* *Sambucus nigra* *Ilex aquifolium*
Tall edge mix or scrub with or without open tree canopy Shrub species: *Crataegus monogyna* *Prunus spinosa* *Coryllus avellana* *Ilex aquifolium* *Sambucus nigra* Tree species: *Acer campestre* *Sorbus aucuparia* *Betula pendula* (*Salix caprea* and *Viburnum opulus* can be added)	**Low edge or low scrub mix** *Rosa canina* *Rosa pimpinellifolia* *Ulex europaeus* *Cornus sanguinea* *Prunus spinosa*

Table 5.3 Basic vegetation mixes used at Birchwood (adapted from Tregay and Gustavsson, 1983)

- Considerable work was also done at Birchwood to retain and create species-rich swards and meadows in less heavily used areas, such as alongside footpaths and roads, and in more extensive areas such as Birchwood Brook Park. Whilst there are some places in Birchwood where extremely diverse herbaceous plant communities have developed, there are undoubtedly many areas where species-rich swards have failed to establish, or disappeared, for a variety of reasons that are beyond the scope of this thesis.
- As explained earlier, in Birchwood the whole planting approach was based on working with existing site conditions, even where these appeared to be quite hostile to plant establishment. A corollary of this approach was that existing ponds, ditches, and watercourses were retained and became elements in their own right within the new landscape:

  " We rejected the accepted way of dealing with drainage. The received wisdom was to create free-draining planting areas by graded surfaces and land drains. The ground had high clay content. We decided that the new landscape should reflect that instead of idealised landscape. Water was allowed to accumulate in open ditches and hollows leading to a richer and more interesting landscape. This resulted in a rich and diverse vegetation with very little more." (Greenwood, personal communication)

- There was a fundamental difference between the landscape approaches adopted in housing areas of Birchwood that were for rent, and those that were for sale. This is because the masterplanning of the rented areas was done by professionals employed by the Warrington and Runcorn New Town Development Corporation, whereas professionals employed by private developers did the masterplanning of the private sector areas. In the former case the Development Corporation had full control over the landscape within the housing areas, as well as the external woodland structure. This meant that, in these areas, the ecological woodland

approach could be given free reign. In practice this meant extending the woodland belts into the housing areas where it was practicable to do so, whilst simultaneously creating so-called "gardenesque" pockets within the spaces created. On the other hand, in the private sector housing areas, the most the Development Corporation could do was to create the external woodland structure and suggest options for the developers:

> "There is little potential for creating substantial nature-like landscapes actually within the private housing sites. However, in the brief to the developer and his consultant landscape architect the Corporation suggests ways in which the housing design can exploit the landscape potential of the site. This often involves opening up views and footpath links to the surrounding parks and woodland belts. In this way it is possible to capitalise on the proximity of nature in what are essentially traditional private housing estates." (Tregay and Gustavsson, 1983)

- As we have already seen (Chapter 4, "History and Context", page 83), a feature of the ecological woodland approach was the creation of play areas for young children. Whilst these often did contain simple play equipment they also consisted of shrubby vegetation and landform that it was hoped would provide stimulating play environments in their own right. Although these play areas were created predominantly within the rented housing areas, for the reasons explained above, traces of them can also be found within the private sector housing areas in Locking Stumps, though not in Gorse Covert.

Demographic profile of the sample

This section briefly describes the demographic profile of the sample, comparing it to the 1991 census data for Warrington Borough (the whole of Warrington, including the New Town districts). Whilst this research adopts a case study rather than a sampling approach, it is useful to be able to make a comparison between the two demographic profiles.

Gender

The gender balance within the study sample was very similar to the gender balance of the Warrington Borough as a whole (table 5.4).

	Female	Male
	%	%
Warrington Borough	51	49
Sample	56	44

Table 5.4 Comparison between the gender balance in Warrington Borough and the study sample

Age

Within the study sample there were proportionately fewer respondents in the younger age groups, and greater numbers of respondents in the older age groups, compared to Warrington Borough (table 5.5). However, the study sample is still quite well distributed between the age groups.

	Warrington Borough	Study sample
	%	%
15-24	16	6
25-34	20	11
35-44	18	23
45-59	22	34
Over 60	24	26

Table 5.5 Comparison between the ages of the population in Warrington Borough and the study sample

Occupation

Once again, the distribution of the study sample between the various occupations is very similar to its distribution within the population of the Warrington Borough, except that within the study sample there are proportionately more people in the "professional" and "unemployed" categories (table 5.6). There are also more people in the "other" category in the population of Warrington Borough. Generally speaking the study sample is very well distributed between the occupation categories. As will be seen from table 5.6 the categories are not an exact match, but are similar enough to enable basic comparisons to be made.

1991 Census		Study sample	
Professional	3	Professional	8
Managerial and technical	17	Managerial and Technical	21
Skilled non-manual	14	Skilled Non-Manual	13
Skilled Manual	13	Skilled Manual	9
Partly skilled	9	Partly Skilled	8
Unskilled	3	Unskilled	2
Government scheme	1	NA	
Retired	17	Retired	23
Unemployed	4	Unemployed	9
Other	19	Carer	1
		Student	2

Table 5.6 Comparison between the occupations of the population in Warrington Borough and the study sample

Children

The data for households with children in Warrington Borough bears a striking similarity to the data for the study sample (table 5.7). However, 6% of the study sample were lone parents, compared to only 4% in Warrington Borough.

	Warrington Borough	Study sample
	%	%
No Children	67	71
1 Child	14	11
2 Children	14	14
3 or more Children	5	4

Table 5.7 Comparison between households with children in Warrington Borough and the study sample

The Housing Character Areas

The next part of this chapter deals with the physical and demographic characteristics of the HCA's themselves. The locations of the Birchwood HCA's are shown on figure 5.7.

Demographic profile of the sample in each housing character area

Gender

There were roughly equal numbers of male and female respondents in most HCA's, with some exceptions, namely Nightingale, Rawlings, Hazelborough, Fern and Coppice (figure 5.8). In these HCA's the number of females generally exceeded males, except in the case of Hazelborough, where the situation was reversed. The range for female respondents was 45% to 72%, and for male respondents 28% to 65%.

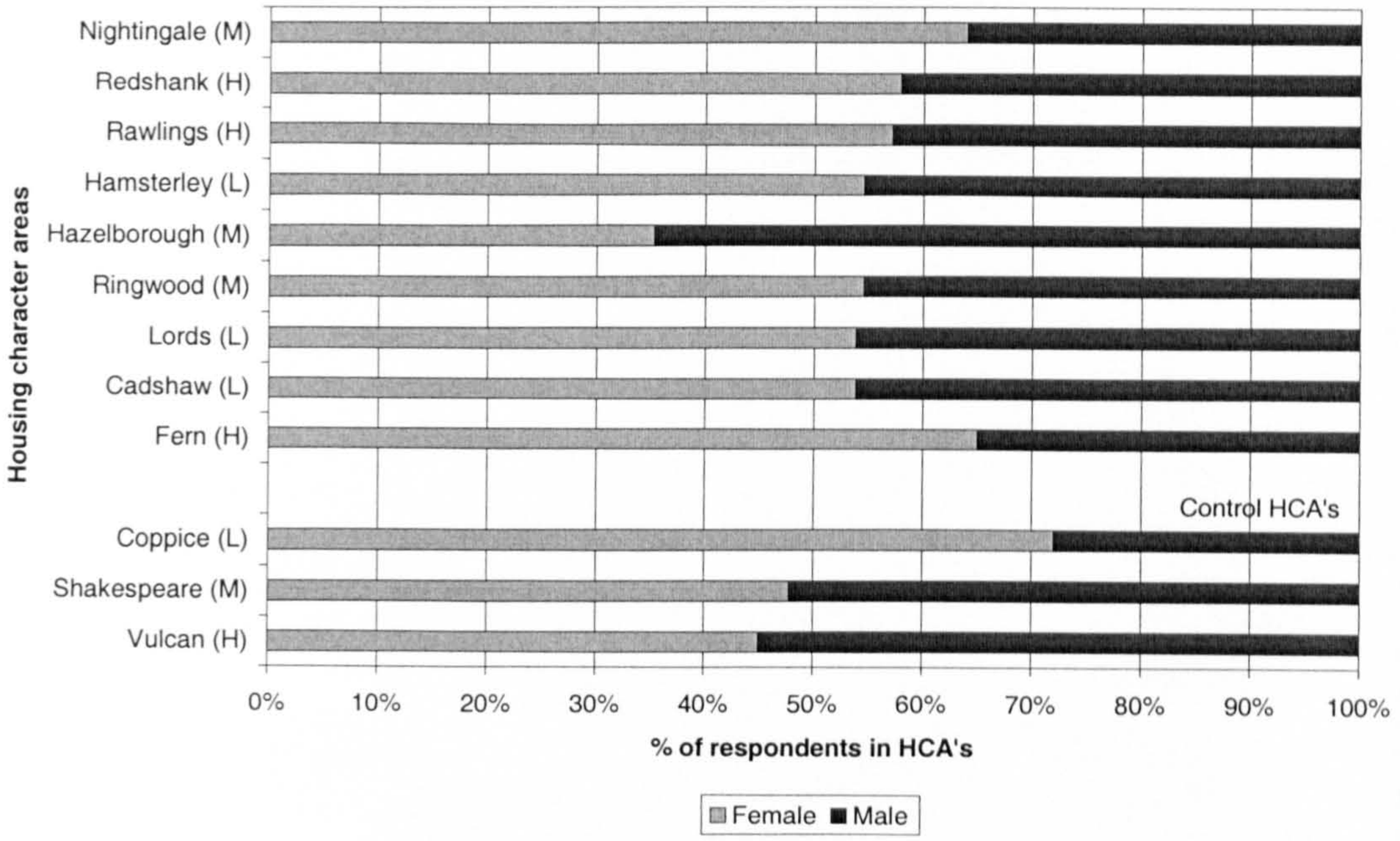


Figure 5.8 Gender of respondents within HCA's (letters in brackets refer to housing density of HCA's: Low, Medium or High)

Figure 5.7 Location of the HCA's in relation to Birchwood

Age

There were some marked differences in the age of respondents from different HCA's (figure 5.9). The respondents from Redshank, Hazelborough, Ringwood, Coppice and Vulcan were generally younger: 50% or more of these respondents were aged from 25 to 44. . On the other hand respondents from Nightingale, Rawlings and Fern were more likely to be elderly. In Nightingale 67% of the respondents were aged over 59. It is noteworthy that the respondents in these three HCA's were also predominantly female.

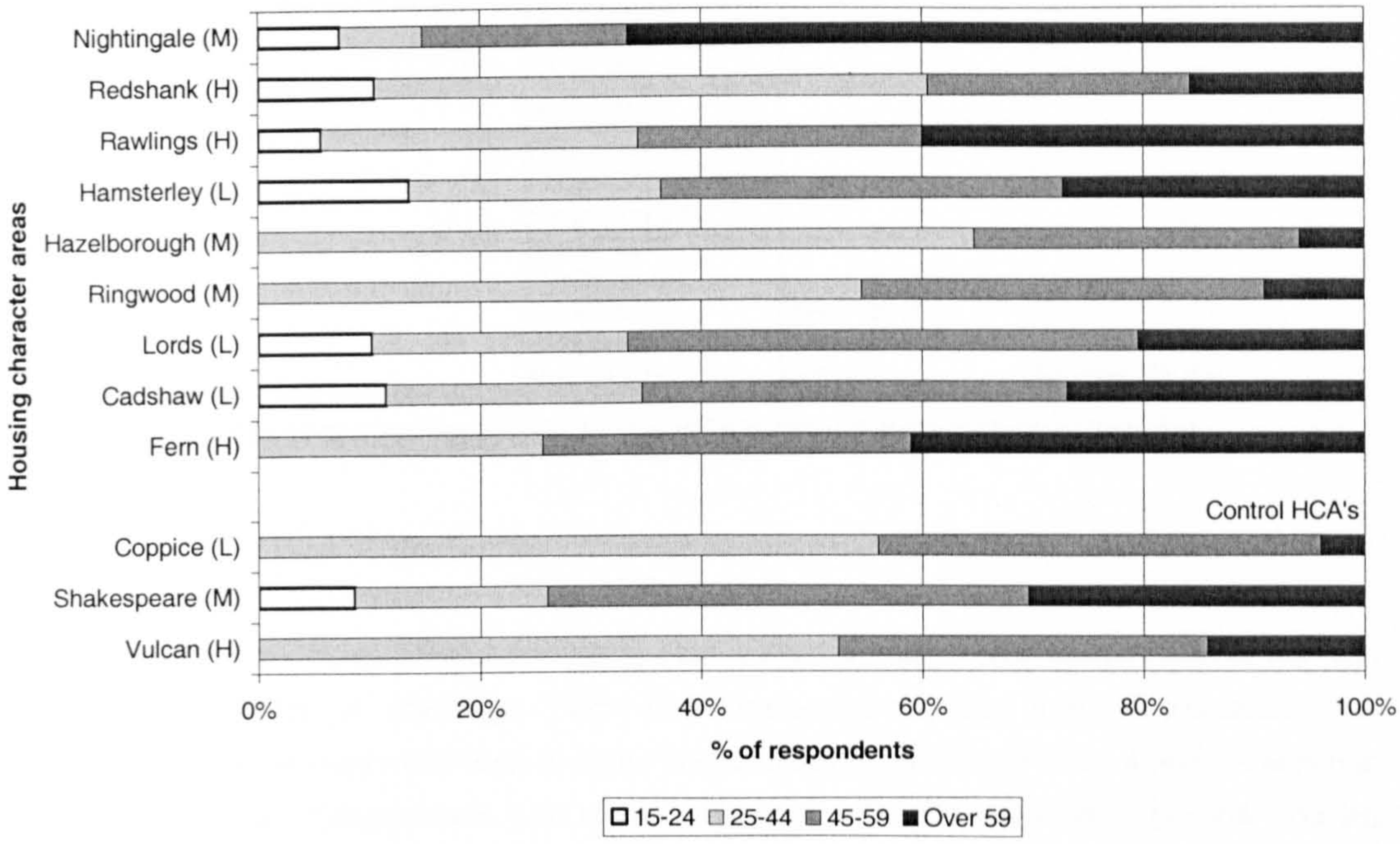


Figure 5.9 Age of respondents within HCA's

Occupation

Respondents with "professional, managerial and technical" occupations lived mainly in the low or medium housing density HCA's of Lords, Coppice, Hamsterley, Hazelborough, Ringwood and Cadshaw (table 5.8). Respondents from "skilled or semi-skilled" occupations were more likely to live in the medium or high housing density HCA's of Shakespeare, Redshank, Rawlings, Hazelborough, Ringwood, Fern and Vulcan. Self-evidently, the "retired" respondents lived mainly in the HCA's with elderly samples, namely Nightingale, Rawlings and Fern, but also in Hamsterley.

Although few respondents throughout the whole sample were "unemployed", there were some HCA's with higher proportions of "unemployed" respondents. These were the high housing density HCA's of Redshank (14%), Rawlings (16%), Fern (14%) and Vulcan (22%), and surprisingly perhaps, the low housing density control HCA, Coppice (12%).

	Low (< 25%)	Medium (25-50%)	High (>50%)
Professional, managerial and technical	Nightingale (M) Redshank (H) Rawlings (H) Fern (H) Shakespeare (M) Vulcan (H)	Hamsterley (L) Hazelborough (M) Ringwood (M) Cadshaw (L)	Lords (L) Coppice (L)
Skilled and semi-skilled	Nightingale (M) Hamsterley (L) Lords (L) Cadshaw (L) Coppice (L)	Redshank (H) Rawlings (H) Hazelborough (M) Ringwood (M) Fern (H) Vulcan (H)	Shakespeare (M)
Unskilled	All HCA's		
Carer	All HCA's		
Unemployed	All HCA's		
Student	All HCA's		
Retired	Redshank (H) Hazelborough (M) Ringwood (M) Lords (L) Cadshaw (L) Coppice (L) Shakespeare (M) Vulcan (H)	Rawlings (H) Hamsterley (L) Fern (H)	Nightingale (M)

Table 5.8 Percentage of respondents within the HCA's having different occupations

Education

Respondents who left school without continuing their education were more likely to live in the high housing density HCA's of Rawlings, Fern and Shakespeare (table 5.9). Respondents with qualifications or training were most likely to come from Hazelborough, where 59% of respondents had this form of education. Respondents with higher education were concentrated in the low housing density areas of Lords, Cadshaw and Coppice.

	Low (< 35%)	Medium (35-55%)	High (>55%)
School	Hazelborough (M) Lords (L) Cadshaw (L) Coppice (L)	Nightingale (M) Redshank (H) Hamsterley (L) Ringwood (M) Vulcan (H)	Rawlings (H) Fern (H) Shakespeare (M)
Qualifications or training	Rawlings (H) Ringwood (M) Lords (L) Fern (H)	Nightingale (M) Redshank (H) Hamsterley (L) Cadshaw (L) Coppice (L) Shakespeare (M) Vulcan (H)	Hazelborough (M)
Higher education	Nightingale (M) Redshank (H) Rawlings (H) Hamsterley (L) Hazelborough (M) Ringwood (M) Fern (H) Shakespeare (M) Vulcan (H)	Lords (L) Cadshaw (L) Coppice (L)	

Table 5.9 Percentage of respondents within HCA's having different forms of education

Household structure

The highest percentages of respondents that were "married or living together" lived in Hamsterley, Ringwood, Lords, Cadshaw, Coppice and Shakespeare. The greatest percentages of respondents living alone occurred in Nightingale, Redshank, Hazelborough, Fern and Vulcan.

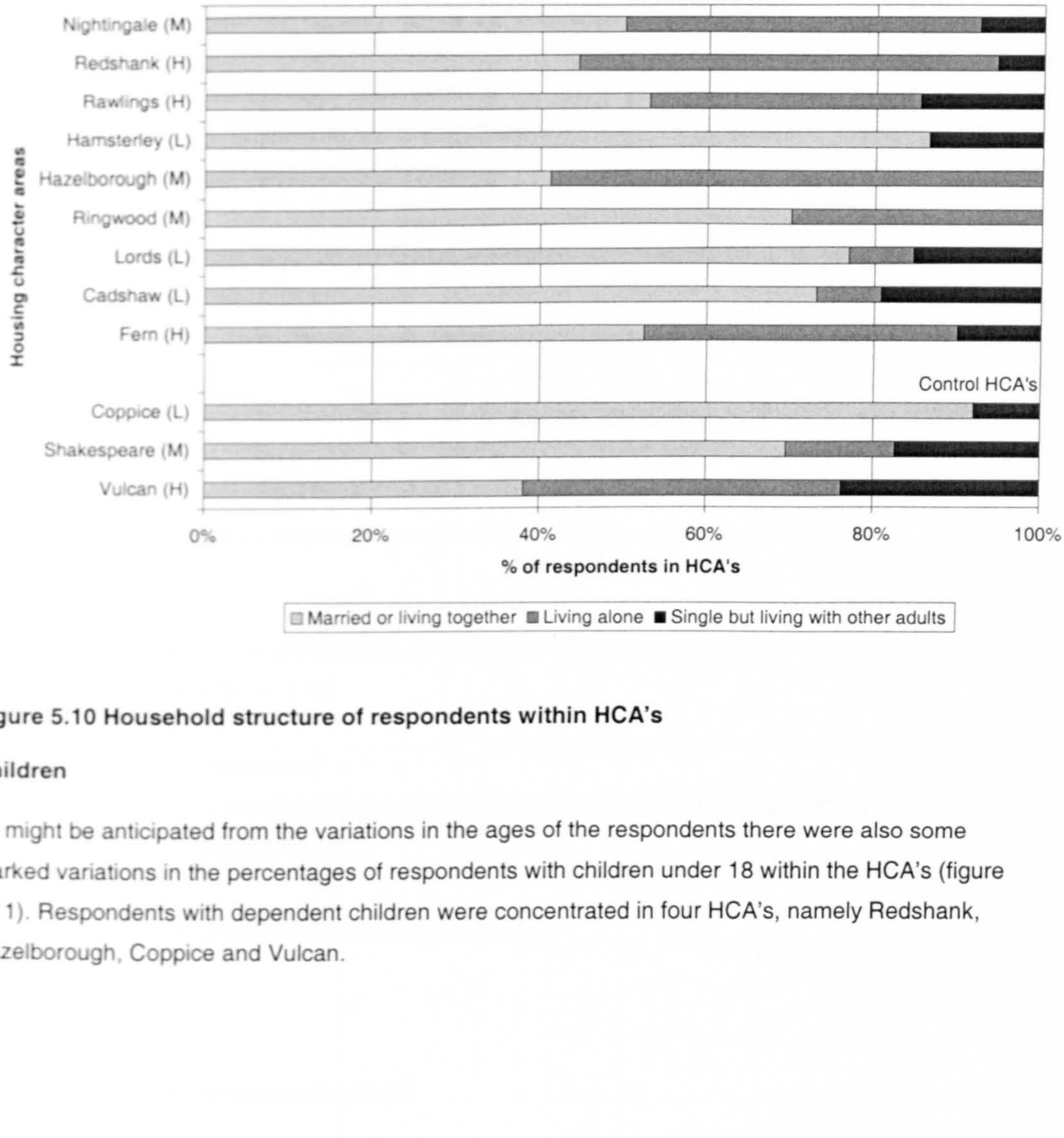


Figure 5.10 Household structure of respondents within HCA's

Children

As might be anticipated from the variations in the ages of the respondents there were also some marked variations in the percentages of respondents with children under 18 within the HCA's (figure 5.11). Respondents with dependent children were concentrated in four HCA's, namely Redshank, Hazelborough, Coppice and Vulcan.

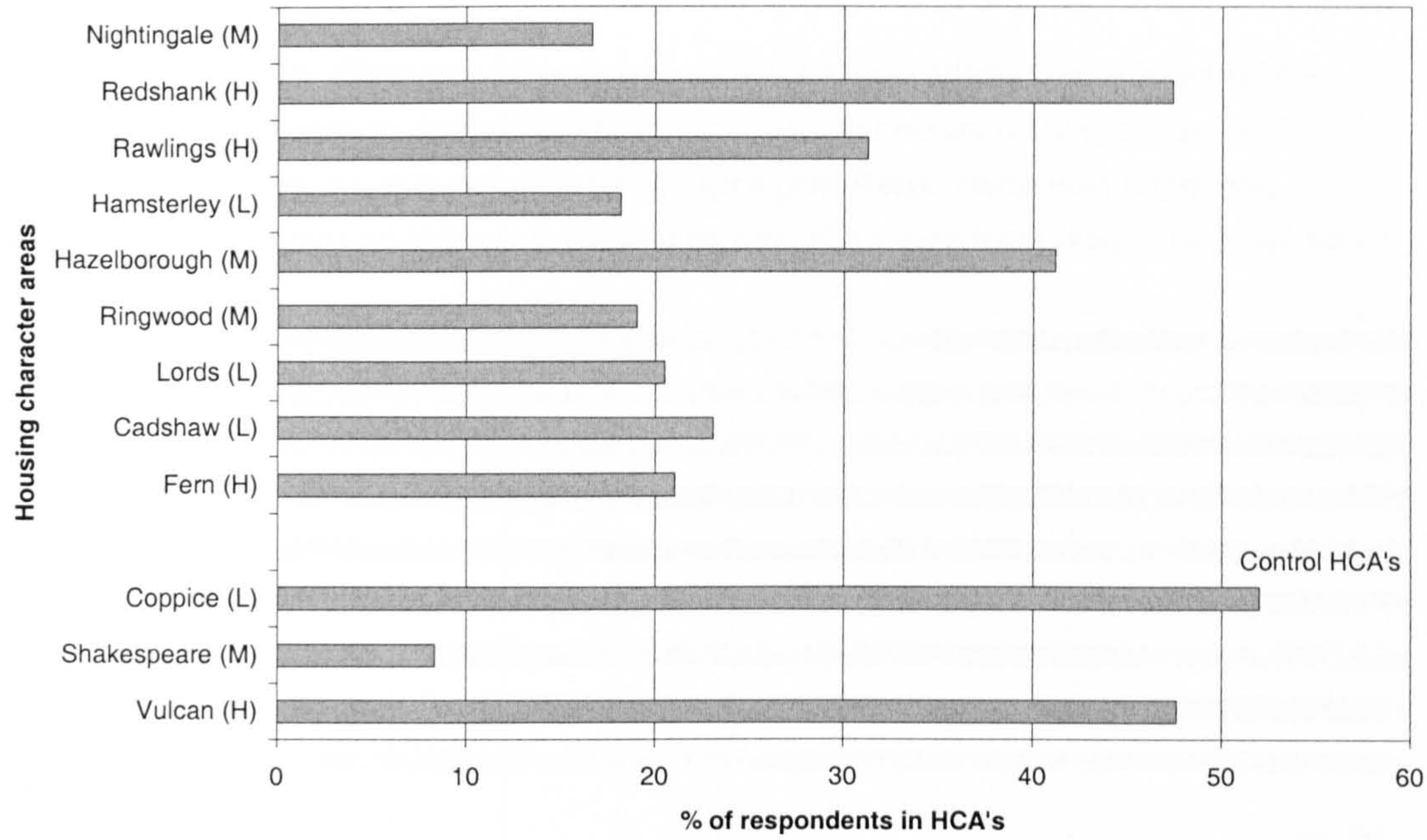


Figure 5.11 Percentage of respondents with children under 18 within the HCA's

Single parenthood

The greatest incidence of single parenthood occurs in two of the high housing density HCA's, namely Redshank and Vulcan (figure 5.12).

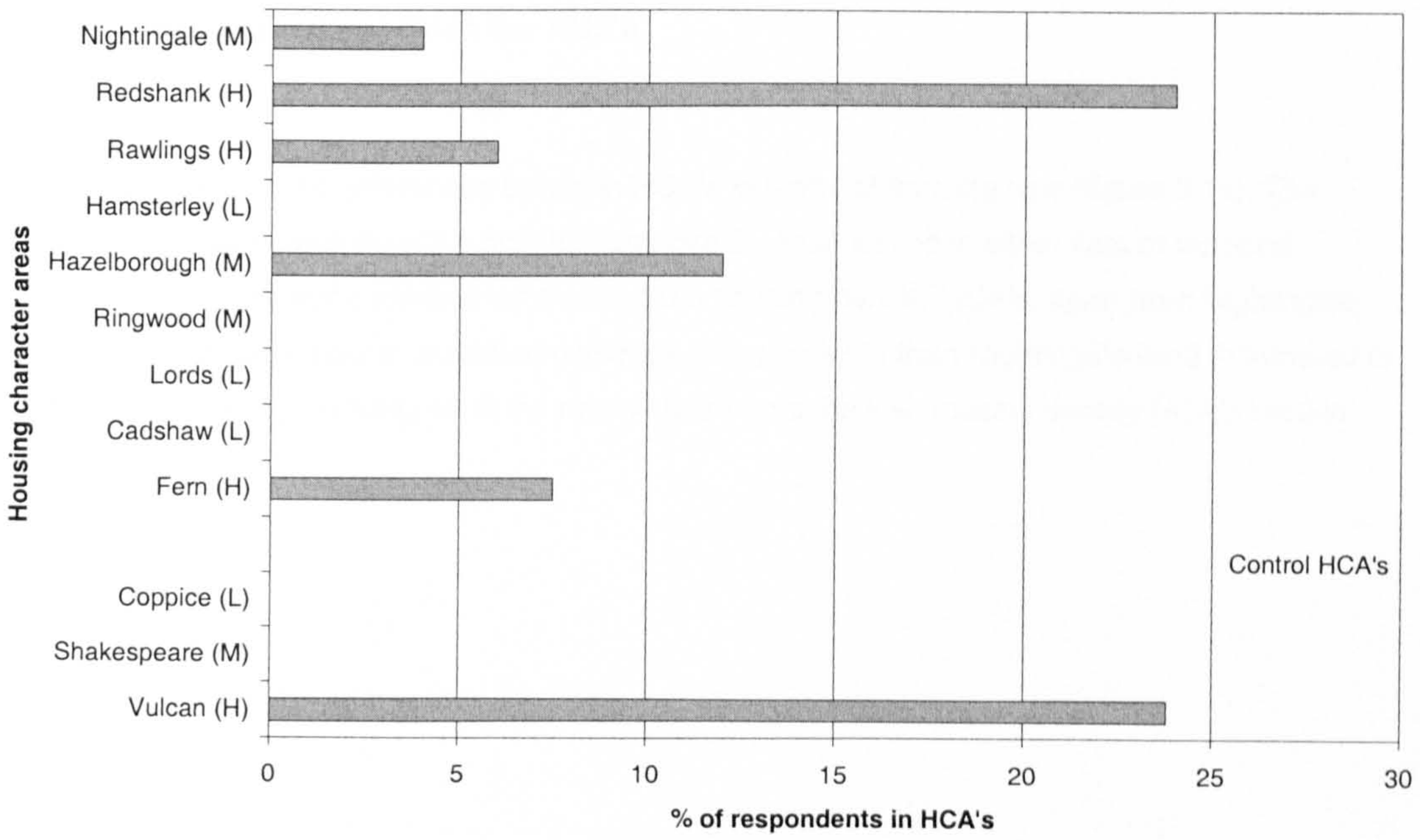


Figure 5.12 Percentage of single parent respondents within the HCA's

Tenure

There were considerable differences in home tenure between respondents from different HCA's (figure 5.13). The vast majority of respondents from the low and medium housing density HCA's owned their own homes, the only exception being Nightingale. Respondents from Nightingale (medium housing density) and all the high housing density HCA's were more likely to rent their homes.

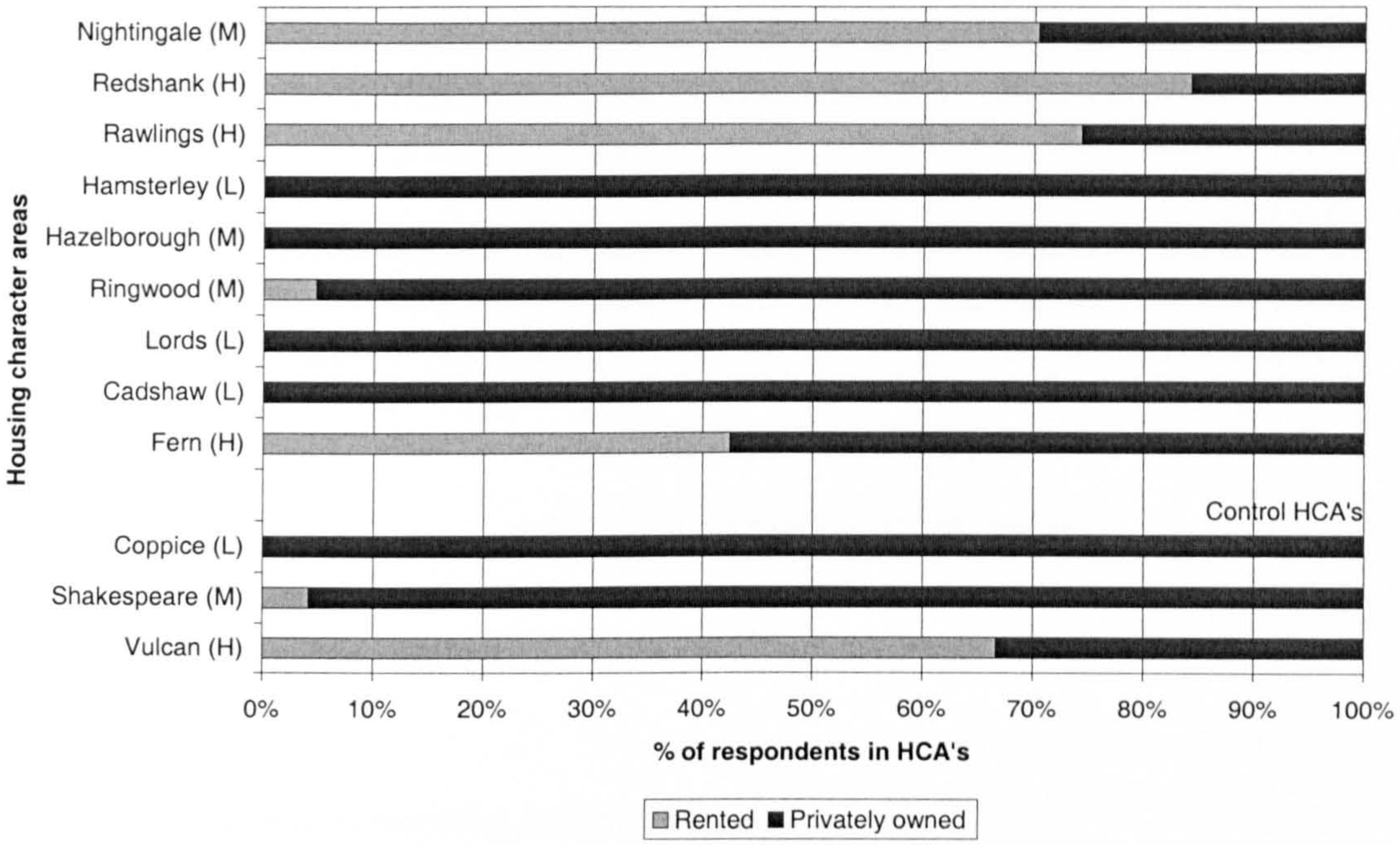


Figure 5.13 Housing tenure within the HCA's

Housing type

Again, there were marked differences between HCA's in terms of housing type (figure 5.14). The majority of the respondents from the high housing density HCA's lived in either flats or terraced accommodation. Most respondents from the medium housing density HCA's, apart from Nightingale, lived in either semi-detached or detached dwellings. Respondents from Nightingale lived in terraced or semi-detached housing. Virtually all of the respondents from the low housing density HCA's lived in detached houses.

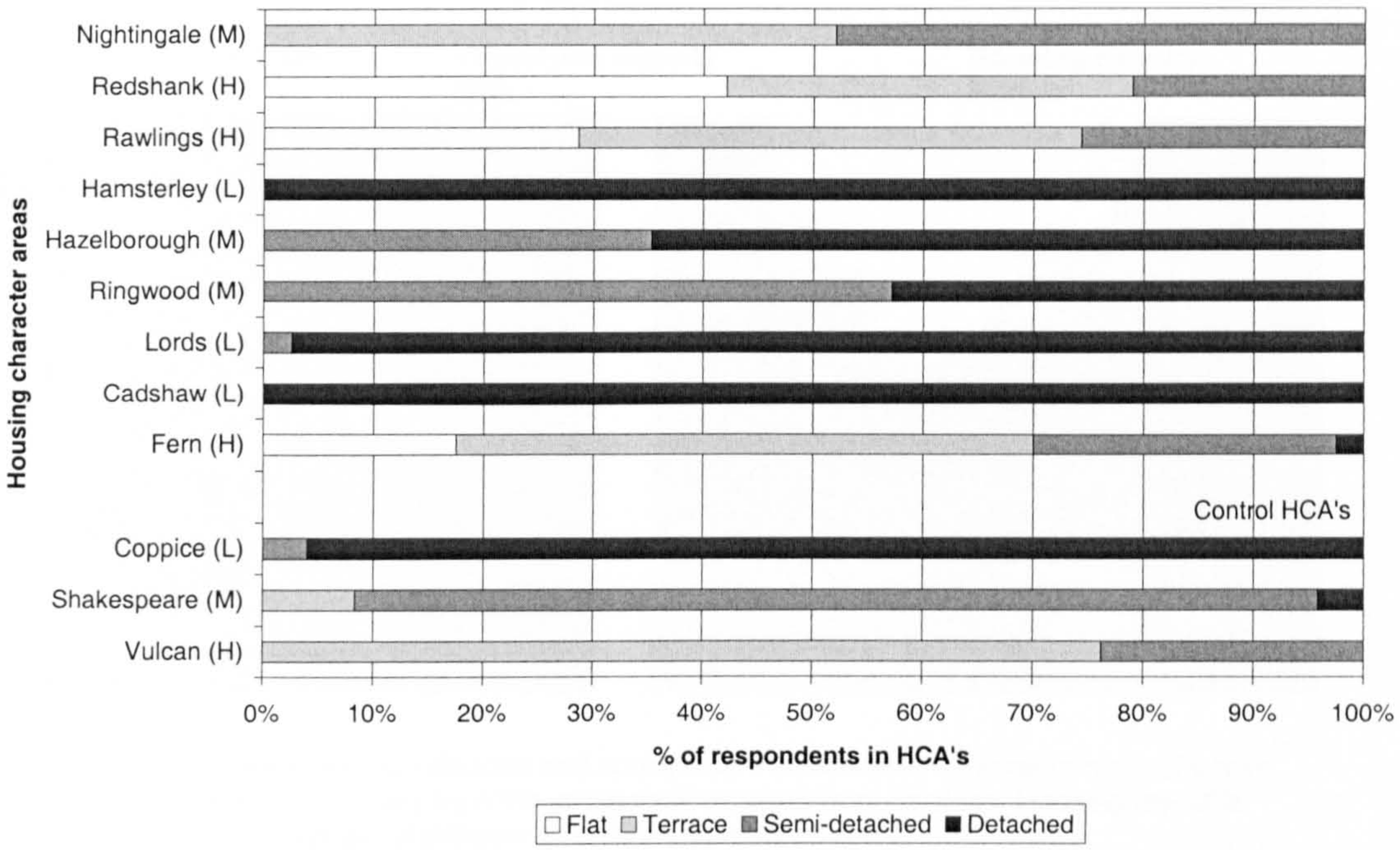


Figure 5.14 Type of dwelling occupied by respondents within HCA's

Physical descriptions of Housing Character Areas

Detailed physical descriptions of all 12 HCA's are given in the pro forma sheets that follow. Each sheet contains an aerial photograph of the HCA, a detailed description of its character and a plan showing the housing layout.

Name and Location of HCA
Nightingale, Oakwood

Vegetation density
High

Housing density
Medium

Description of HCA

- Series of linked meandering cul de sacs and courtyards. Houses have obvious fronts and backs and are set back and separated from the street itself by small front gardens. Housing layout is staggered, creating a variety of different spaces along each street.
- Public areas comprise both hard and soft landscape. The street itself winds sinuously around and through blocks of naturalistic planting comprising both trees and shrub mass. Boundaries to front gardens originally consisted of hedges, planted at the time of construction. The northern ends of each cul de sac are separated off by substantial brick walls that create small courtyard like spaces at these locations. This HCA is surrounded by Oakwood Common to the north, and woodland belts to the west and east. Boundary fences and walls separate the housing from these green areas, but footpaths provide links through.
- The housing itself consists of brick built terraced and semi detached bungalows and two storey dwellings, constructed in the 1980's, with off road parking bays. Many front gardens are still hedged; where hedges have been removed they have been replaced with an assortment of different boundary styles.
- The street is surfaced with tarmac and edged with concrete pavers. "Courtyard" areas are block paved. There are no pavements.

Name and Location of HCA
Redshank, Oakwood

Vegetation density
Low

Housing density
High

Description of HCA

- Series of cul de sacs, squares and courtyards in a rectilinear layout. Some dwellings are laid out in terraces, others are clustered around these small public spaces. Whilst some dwellings are separated from the street by very small front gardens or yards, others have front doors that open straight onto public space. Some have no obvious fronts and backs.
- The streetscape comprises both hard and soft public space. The hard landscape consists of an access street primarily intended for vehicles, with separate footpaths, running across the northern side of the HCA, as well as areas that are shared between vehicles and pedestrians within the cul-de-sacs. The soft landscape consists of tree planting, naturalistic shrub mass and mown grass along verges, and on small "greens". There are some large mature trees (horse chestnut, ash and London plane). This HCA is surrounded on all four sides by woodland and woodland belts and there are strong visual links with the woodland at the southern end of each street or cul-de sac. Footpaths link this HCA with the surrounding woodland, adjacent housing and the perimeter road around Oakwood.
- The dwellings (flats and two storey accommodation) are contained within two to four storey terraces constructed in the 1980's with unusual "half timber" detailing, with parking in courtyard car parks, on the street and in parking bays.
- Hard public areas are surfaced with tarmac, with brick pavers used for drainage and other details.

Name and Location of HCA
Rawlings, Oakwood

Vegetation density
High

Housing density
High

Description of HCA

- Series of four parallel rectilinear cul de sacs.
- Cul de sacs are edged with terraces running parallel to the streets, which define an informal courtyard-like streetscape shared between vehicles and pedestrians. The dwellings have obvious fronts and backs and are separated from the street by very small front gardens or yards.
- The streetscape is a mix of hard and soft public space. Hard spaces permit access and parking by vehicles. Soft landscape comprises street trees, naturalistic shrub mass and areas of mown grass. Chunky wooden bollards separate the hard and soft landscape and demarcate pedestrian areas. Front gardens are hedged with a naturalistic shrub mix, and also contain "street trees" planted at the time of construction. "Street trees" include silver birch, mountain ash, cherry and crab apple. This HCA is surrounded on all four sides by woodland and woodland belts and there are strong visual links with the woodland at the southern end of each street. Footpaths link this HCA with the surrounding woodland, adjacent housing and the perimeter road around Oakwood.
- The dwellings (flats and two storey accommodation) have distinctive features such as full length veranda style porch roofs, and are contained within two and three storey terraces constructed in the 1980's, with some private off-road, and public on-street parking.
- Hard public areas are surfaced with asphalt with exposed red aggregate, with the addition of block paved traffic calming "tables".

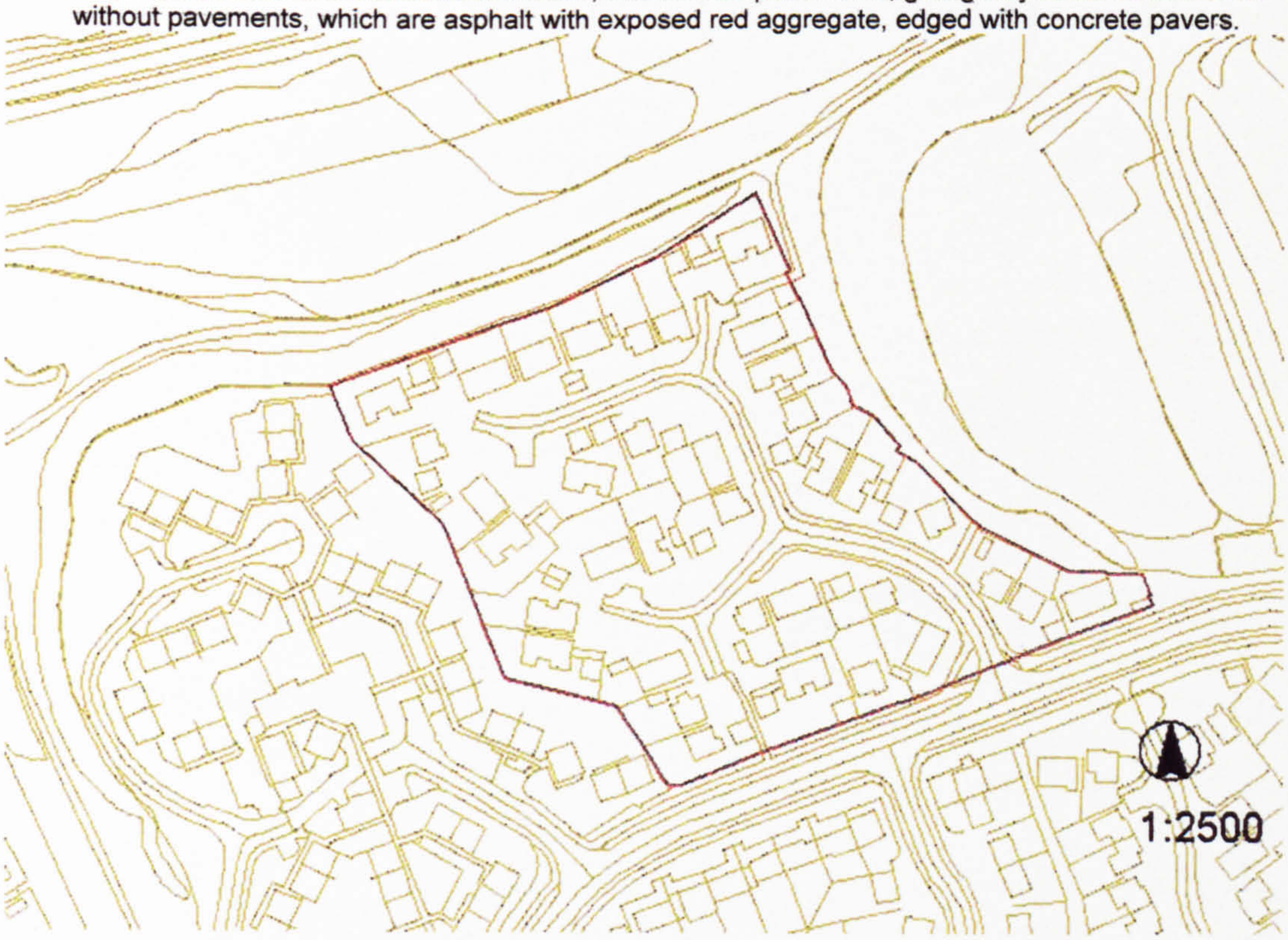
Name and Location of HCA
Hamsterley, Gorse Covert

Vegetation density
Low

Housing density
Low

Description of HCA

- Series of linked meandering cul de sacs. Houses have obvious fronts and backs and are set back and separated from the street itself by medium-sized front gardens; housing layout is staggered and houses are juxtaposed at different angles to each other.
- No public green space. Vegetation is confined to private gardens and includes trees and shrubs planted by the developer at the time of construction in the 1980's. Consequently there are some mature trees, including strategically located clusters of trees on street corners. This HCA is fringed with a woodland belt to the north and east, which is separated from the housing by boundary fencing, though staggered housing layout and low housing density permits views of the woodland, especially to the north. Footpaths give access to the woodland belt, and to the perimeter road around Gorse Covert.
- Houses themselves are brick built, two storey, detached dwellings, constructed in the 1980's. Detached garages set mainly at right angles to the front facades of housing create courtyard like spaces close to houses. Some driveways are shared. Front gardens are open plan.
- The initial section of the street is tarmaced, with tarmac pavements, giving way to cul de sac ends without pavements, which are asphalt with exposed red aggregate, edged with concrete pavers.



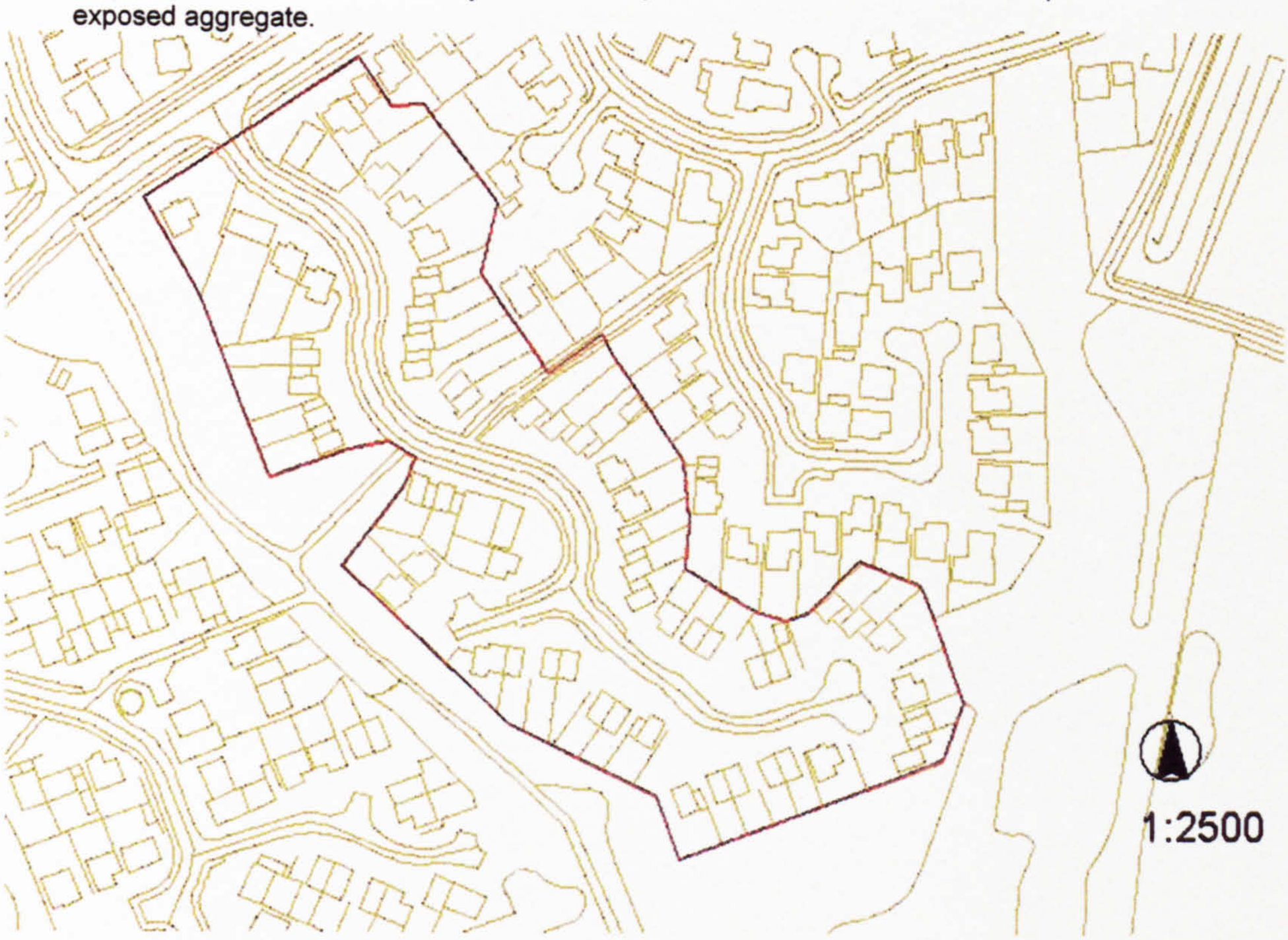
Name and Location of HCA
Hazelborough, Gorse Covert

Vegetation density
Medium

Housing density
Medium

Description of HCA

- Meandering cul de sac. Houses have obvious fronts and backs and are set back and separated from the street itself by small front gardens; houses are equidistant from street and the horizon is therefore lined with housing facades.
- No public green space. Vegetation is confined to private gardens and includes vegetation planted by the developer at the time of construction in the 1980's. The vegetation provided by the developer includes "street trees" (mountain ash) planted in front gardens, and informal hedges planted at right angles to the street to define different sections of it. This HCA is fringed with a woodland belt to the south and west, which is separated from the housing by boundary fencing. Housing generally obstructs views of the woodland. Footpaths give access to the woodland belt, and adjacent housing.
- Houses themselves are brick built, two storey, detached and semi-detached dwellings, constructed in the 1980's, with attached car ports and private driveways. Front gardens are mainly open plan, with some hedging and low planting separating houses from the street in places.
- The main access section of the street is tarmaced, with a tarmac pavement. Cul de sac ends have no pavements and are defined by cobbled ramps or bands and surfaced with asphalt with exposed aggregate.



Name and Location of HCA
Ringwood, Gorse Covert

Vegetation density
Low

Housing density
Medium

Description of HCA

- Series of linked courtyards and cul de sacs. Houses have obvious fronts and backs and are set back and separated from the street itself by small front gardens. Housing layout is staggered with houses juxtaposed at different angles.
- No public green space. Vegetation is confined to private gardens and includes hedges separating front gardens from the street planted by the developer at the time of construction in the 1980's. This HCA is fringed with a woodland belt to the south, west and east, which is separated from the housing by boundary fencing. The far end of the main cul de sac is terminated by a wide unfenced view of the woodland, which is also accessible at this point. Footpaths give access to the woodland belts.
- Houses themselves are brick built, detached and semi-detached bungalows and two storey dwellings with distinctive deep pitched roofs, constructed in the 1980's, with attached garages or car ports, and private driveways. Boundaries to front gardens consist of original hedges, and where these have been removed, substitutes include timber, wrought iron and concrete posts with larch lap panels.
- The main access section of the street is tarmaced, with a tarmac pavement. Cul de sac ends have no pavements and are defined by ramps or bands made out of brick paves.

Name and Location of HCA
Lords, Locking Stumps

Vegetation density
High

Housing density
Low

Description of HCA

- One through road and an access street lead to a series of cul de sacs and courtyards. Within the cul de sacs the housing has a more informal organic layout, with housing juxtaposed at different angles to the street, whereas within the courtyards all the housing tend to be parallel to the street. Housing is separated from the street by small and medium sized front gardens.
- There is limited public green space, except for the verges and woodland belts along Lords Lane (the through road) and some areas of naturalistic shrub mass, tree planting and mown grass within the meandering cul de sacs. The developer carried out tree and shrub planting in private gardens at the time of construction. These trees are now mature and include substantial species such as limes. This HCA is bounded by Locking Stumps Common to the north and the golf club to the west and south, though views of these green spaces are generally limited from the street. Footpaths connect different cul de sacs and courtyards but there is no formal access to Locking Stumps Common or the golf club.
- The housing itself consists of brick built detached and semi-detached two storey houses and bungalows constructed in the 1970's, with integral garages and private driveways. Front gardens are largely open plan.
- All roads and streets are tarmaced; whilst access roads and streets have separate pavements none are provided within the cul de sacs and courtyards.

Name and Location of HCA
Cadshaw, Locking Stumps

Vegetation density
Medium

Housing density
Low

Description of HCA

- An access street lead to a collection of cul de sacs. The housing is staggered and creates a series of different sized spaces along the street. Housing is separated from the street by medium sized front gardens. The housing has obvious fronts and backs.
- There are some small public green spaces, comprising areas of naturalistic shrub mass, tree planting and mown grass. Vegetation in private gardens comprises planting by homeowners as well as original tree and shrub planting carried out by the developer at the time of construction. These trees are now mature and include substantial species such as oak. This HCA is bounded by woodland belts to the east and south and the golf club to the west, though views of these green spaces are generally limited from the street. Footpaths connect this HCA to adjacent green spaces.
- The housing itself consists of brick built detached two storey houses and bungalows constructed in the 1970's, with private garages and driveways. Front gardens are largely open plan, with some hedges separating the street from front gardens.
- All roads and streets are tarmaced; whilst access roads and streets have separate pavements none are provided within the cul de sacs, which are marked by cobbled ramps at the entrance and asphalt with exposed red aggregate.

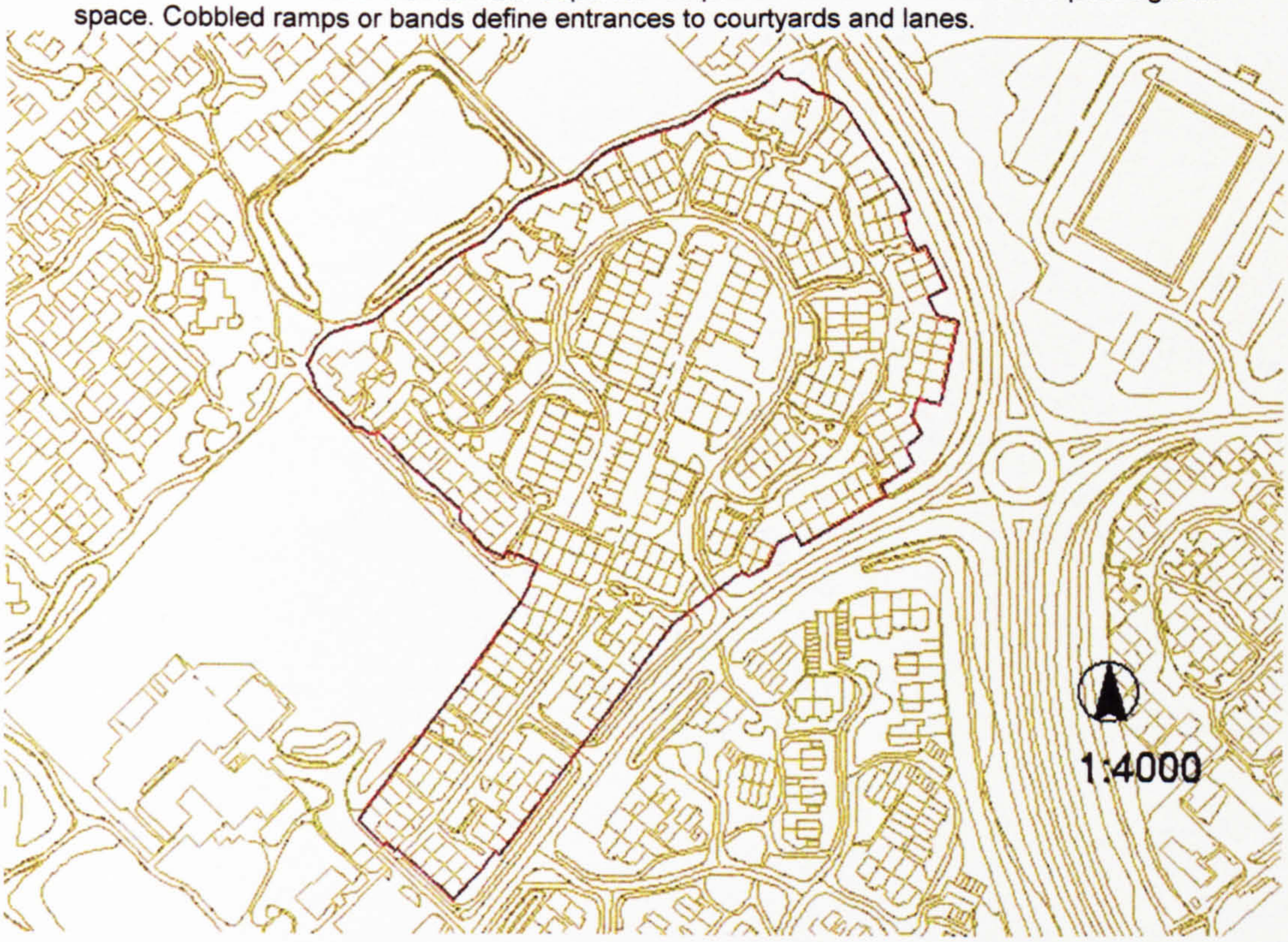
Name and Location of HCA
Fern, Locking Stumps

Vegetation density
Medium

Housing density
High

Description of HCA

- Two streets give access to a succession of cul-de sacs, lanes, courtyards and small blocks of flats. The housing is usually removed from the street and separated from it by areas of public green or very small front gardens. The housing is juxtaposed at many different angles and many dwellings have no obvious fronts and backs.
- Public space is both hard and soft. Hard surfaces are confined to the street itself, car parks and footpaths. The soft landscape includes tree planting, naturalistic shrub mass, hedges and areas of mown grass. Front gardens were originally hedged. Pergolas and brick walls are also used to define the spaces between the housing. This HCA is surrounded by woodland belts on most sides. Footpaths give access to areas of public green, adjacent housing, local facilities and the perimeter road around Locking Stumps.
- The housing is a mix of flats and one and two storey dwellings contained in brick built one to four storey terraces and blocks, constructed in the 1970's, with parking in garages, car parks courtyards and parking bays. Some frontages consist of public green space, and are open plan, in other areas front and back gardens are delineated by hedges and an assortment of later replacements.
- The streets are surfaced with tarmac. Separate footpaths weave in and out of the public green space. Cobbled ramps or bands define entrances to courtyards and lanes.



Name and Location of HCA
Coppice, Kingswood

Vegetation density
Very low

Housing density
Low

Description of HCA

- Cluster of meandering cul de sacs, some of which are accessed by a straight avenue-like section of street. Houses have obvious fronts and backs and are set back and separated from the street itself by medium-sized front gardens; houses are mainly equidistant from the street so that horizon line seems lined with housing facades.
- No public green space. Vegetation is sparse, confined to private gardens and provided by homeowners. This HCA is fringed with a woodland belt to the south and west, which is separated from the housing by timber fencing, though cul de sac ends are not "closed" with housing and give views of the woodland. There are no footpaths linking up with adjacent green spaces.
- Houses themselves are conventional, brick built, two storey, detached dwellings, constructed in the 1990's, with integral garages, private driveways and some Victorian/Edwardian style detailing. Front gardens are open plan.
- Access roads are tarmaced, with block paved pavements, and separated by brick walls from the more informal cul de sac ends, which are block paved, without pavements.

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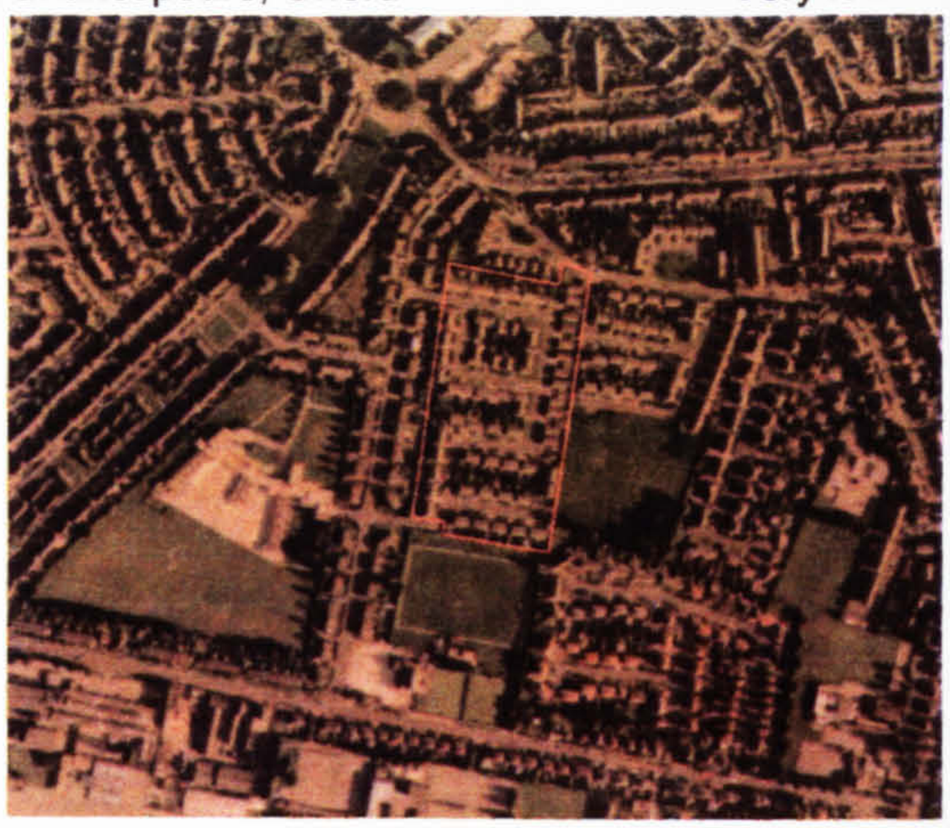
Name and Location of HCA
Shakespeare, Orford

Vegetation density
Very low

Housing density
Medium



Description of HCA

- Series of cul-de sacs in rectilinear layout. Houses have obvious fronts and backs and are separated from the street itself by small front gardens; houses are equidistant from street so that horizon line seems lined with housing facades.
- Virtually no public green space apart from small areas of mown grass at cul-de sac ends and junctions. Vegetation is sparse, confined to private gardens, and provided by homeowners. The HCA is surrounded by housing on three sides but has a recreation ground consisting mainly of mown grass to the east. There are no views out of the HCA, though the tops of a row of mature poplars on the recreation ground are visible. A number of footpaths link up with the recreation ground or adjacent housing.
- The housing consists of conventional brick built semi-detached and detached bungalows and two storey dwellings constructed in the 1970's, with attached garages and private driveways. Boundaries to front gardens are an eclectic mix of open plan and assorted of boundary types.
- Streets have separate pavements throughout, and both are tarmaced.

1:3000

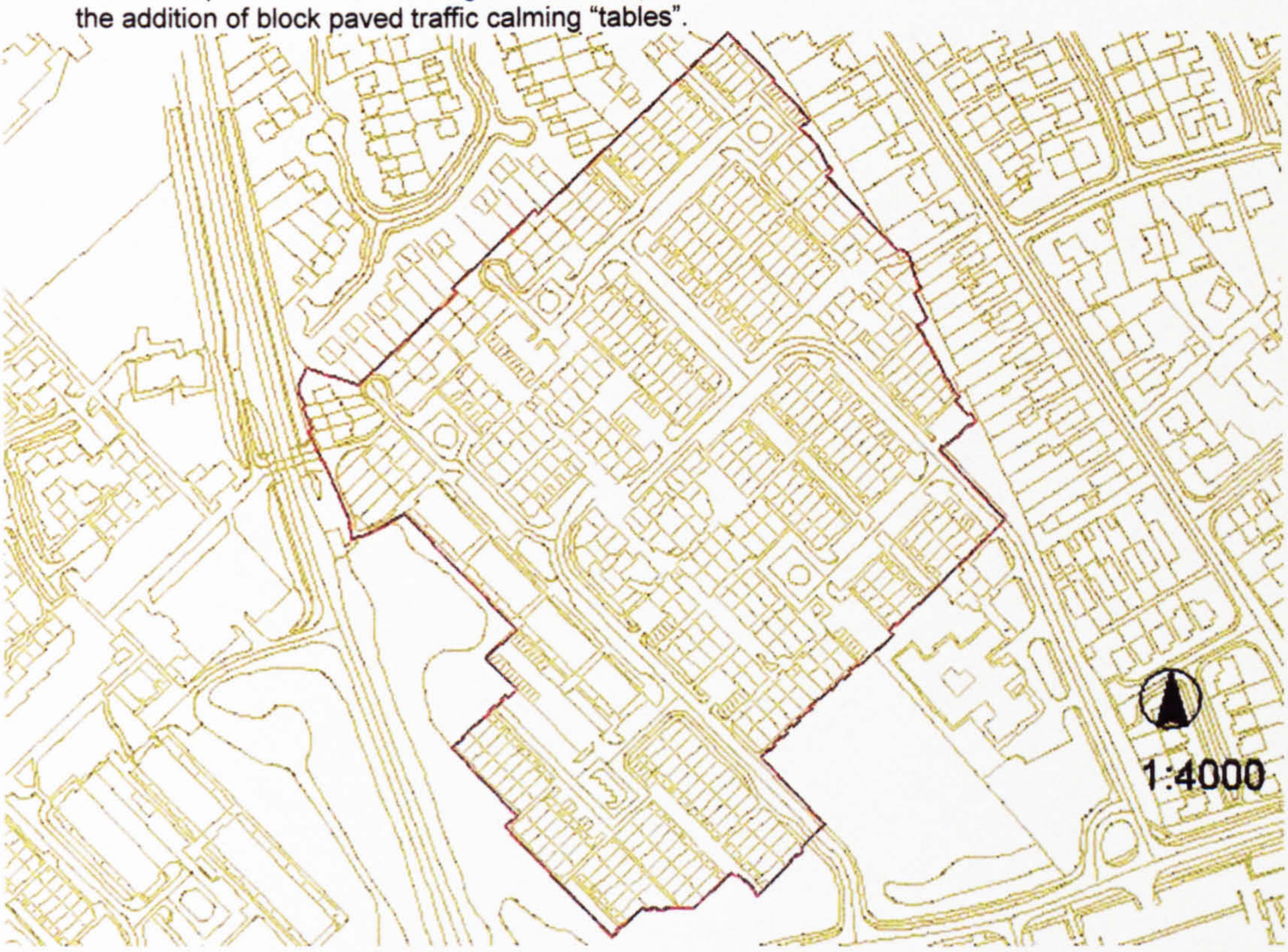
Name and Location of HCA
Vulcan, Padgate

Vegetation density
Very low

Housing density
High

Description of HCA

- Series of cul de sacs, walkways, squares and courtyards in a rectilinear layout. Some dwellings are laid out in terraces, others are clustered around these small public spaces. Whilst some dwellings are separated from the street by very small front gardens or yards, others have front doors that open straight onto public space. Many have no obvious fronts and backs.
- Public space is mainly hard with limited green space consisting of incidental areas including verges and small greens comprising mown grass and occasional trees. This HCA is surrounded by housing to the north and east, with a playing field to the south, and woodland belts to the south and west. The high housing density limits views out. Footpaths link this HCA with areas of surrounding housing.
- The dwellings (flats and two storey accommodation) are contained within rendered terraces and clusters constructed in the 1970's, with separate blocks of garaging, car parks, and on-street parking.
- Most hard public areas, including streets, and pavements, where they exist, are tarmaced, with the addition of block paved traffic calming "tables".



Chapter 6 Aesthetic factors

Introduction and research questions

People notice and care about the appearance of their residential environment, and use their surroundings, so far as it is in their power to do so, to express aspects of themselves. Yet the planners and designers of Birchwood's naturalistic woodland landscape rarely talked explicitly about the aesthetic impact of this landscape on its users during the interviews that were carried out for the purpose of this study; nor is this aspect often mentioned in the literature setting out their aims and methods, and their philosophical basis (see Chapter 4, "History and Context"). Rather, it seems that they were concerned to create a robust, usable landscape, which would provide a setting for a wide range of recreational pastimes, as well as the activities of daily living. There was simply an assumption that the new nature-like landscape was "richer visually" (Greenwood, personal communication), and that the new residents would think of it as "countryside on [their] doorstep" (Scott, personal communication), and would find it attractive.

As we have seen the ecological woodland approach at Birchwood was in many respects uncompromising, except that there was a general acceptance that the new residents would want a "gardenesque" landscape in the areas immediately adjacent to their homes (Tregay and Gustavsson, 1983). However, it seems that this so-called "gardenesque" approach became focused on the mere substitution of exotic or "ornamental" species for native ones, as opposed to major changes in the form of these domestic landscapes (see Chapter 4, "History and Context", page 84).

Given the quite negative body of opinion that has grown up around what has come to be known as "the ecological style" it is questionable whether high densities of naturalistic woody vegetation on residential streets, and surrounding people's homes, would necessarily receive public approval. If people do dislike such vegetation as a setting for housing and new settlements then it seems unlikely that this form of environment could have the social, leisure and health benefits linked with nature and green spaces, which we are beginning to understand more about.

Thus the research questions that this part of the study aims to answer can be summarised as follows:

- What impact does the presence of woody vegetation and particularly naturalistic woody vegetation have on the public perception of the aesthetic qualities of residential streets and their surroundings?
- Do the residents of Birchwood find the visual appearance of their street attractive compared to the residents of other areas?
- What contribution does the presence of woody vegetation, and particularly naturalistic woody vegetation, make to the aesthetic appreciation of residential streets, compared to other factors, and which issues have the biggest negative impact on residents' perception of the aesthetic qualities of their street?
- What difference does housing density make to public attitudes towards these issues?

- What impact do the demographic factors gender, age, occupation and education have on these perceptions and concerns?

Methodology

Questionnaire design

These issues were addressed in Part 2 of the questionnaire, which contained 3 questions. These can be summarised as a question about the respondents' overall aesthetic preference for the visual appearance of their street, a cluster of questions about aesthetic preference for specific aspects of the street, and a final question asking respondents to identify which aspect of their street they most wanted to change. To give the respondents a chance to think about their street in the round, without giving one aspect prominence, a decision was made not to focus too narrowly on vegetation issues in this stage of the study. If the questionnaire had focused exclusively upon vegetation it would have been difficult to draw conclusions about the relative importance of this element of the streetscape. Part 2 of the questionnaire was prefaced by the following explanation:

> "This section is about what you think of your street. By "your street" we mean the street or road where you live, which is usually in the first line of your postal address. Questions 6-8 are only about what the street looks like."

The respondents were first of all asked to indicate their overall aesthetic preference for their street by reference to a five point bi-polar Likert scale (question 6):

> 6 Compared to other places you have lived, or other places you know, do you like or dislike the way your street looks? *Please tick the appropriate box to say how much you like or dislike the way your street looks*

Like very much	**Like**	**Neither like nor dislike**	**Dislike**	**Dislike very much**

The respondents were requested to compare the visual appearance of their street with other places they were familiar with in order to relate the question more directly to the respondents' own personal experience.

The respondents were then asked whether or not they liked certain specific aspects of their street (question 7):

> 7 Which aspects of your street do you like or dislike? *For each aspect listed in the table below please tick **one** of the boxes to indicate whether you like or dislike this aspect of your street*

	Please tick the box below if you LIKE this aspect of your street	Please tick the box below if you DISLIKE this aspect of your street
Birds and wildlife		
Maintenance of public areas e.g. tree and shrub cutting, litter clearance, grass cutting		
Traffic		
Car parking		
Maintenance of gardens by occupiers		
Visual appearance of the houses		

Trees and greenery		
Outlook from inside your own house and garden		
The way the street is set out		
Other- please describe		

The list of items was compiled on the basis of common sense about the main elements of most streetscapes, coupled with information about important issues for Birchwood residents, gleaned from the preliminary interviews.

Finally, the respondents were asked:

8 If you could change one thing about the way your street looks what would that one thing be? *Please write your answer in the space below*

This question was included to cover the eventuality that the list in the previous question had omitted some important or controversial aspect.

Data analysis

The data from question 6 was converted to an ordinal variable with values between 1 and 5, reflecting the five categories on the Likert scale, where 5 was "like very much" and 1 was "dislike very much".

The data from question 7 was converted into 9 nominal (binary) variables, where 1 was "like" the aspect in question, and 2 was "dislike" the aspect in question, e.g. 1= like "trees and greenery" and 2= dislike "trees and greenery".

Question 8 was an open question. The replies were scrutinised and were then arranged into the following broad categories: "design issues", "parking and circulation issues", "neighbour issues", "public green issues", "maintenance of public areas", and "lighting and signage". Table 6.1 gives an indication of the spectrum of replies within each category.

Aspects of the street respondents wanted to change	Examples of replies in each category
"design issues"	"More semi-detached houses instead of terrace houses would reduce noise from neighbours" "Open plan front gardens- would like a fence or wall to keep people off our lawn" "The buildings themselves- it looks like a run down council estate- all look onto each other"
"parking and circulation issues"	"More parking space" "Bit more parking area" "Not have the entry it is just a place for kids to hang out"
"neighbour issues"	"The people" "'Uniformity'- non compliance with front lawn, fences, walls, hedges in evidence" "I live in the end house, and I would like the passers by not to use my garden as a dustbin"
"public green issues"	"More trees" "Trees cut down that faces the house" "I would like to see more trees"
"maintenance of public areas"	"Road could be swept more often" "Uneven road surfaces" "To be kept cleaner"
"lighting and signage"	"Street lighting poor" "Improve the street lighting" "We live on a cul de sac, but this isn't clearly marked as such, so we get a lot of unnecessary traffic having to turn around outside out house- better signing would help"

Table 6.1 Examples of replies to question 8

The data from question 8 was then converted into seven separate variables details of which are set out in table 6.2: one nominal (categorical) variable with six values reflecting each of the six categories; and six nominal (binary) variables where the values 1 and 2 indicated whether the respondent's reply fell within or outside of one particular category. The nominal (categorical) variable was used to find out which aspects of the street most respondents wanted to change, whereas the nominal (binary) variables were used to look at the effect of variations in the experimental or independent variables (e.g. housing density) on the respondents' tendency to want to change one particular aspect of their street.

Type of variable	Values represent	Number of variables
Nominal (categorical)	1="design issues" 2="parking and circulation issues" 3="neighbour issues" 4="public green issues" 5="maintenance of public areas" 6="lighting and signage"	1
Nominal (binary)	1= Aspect of the street respondent wanted to change categorised as one of the six categories e.g. "design issues" 2= Where the respondent had picked one of the other five categories	6

Table 6.2 Variables relating to data from question 8

All of the variables from questions 6, 7 and 8 were then analysed against the independent variables, vegetation and housing density, HCA, district and location in relation to Birchwood (for an explanation of these see Chapter 3, "Methodology", page 48); and the demographic variables gender, age, occupation and education; with the exception of the nominal (categorical) variable from question 8,

which was only needed to provide a descriptive overview of this portion of the data. HCA stands for "Housing Character Area": a geographical unit with precise characteristics defined earlier (Chapter 3, "Methodology", page 34).

Four different statistical tests were used to carry out this analysis, as explained above in tables 3.8 and 3.9 (Chapter 3, "Methodology", pages 47 and 48).

Design and analysis of the in-depth interviews

Generally speaking the in-depth interviews were used to confirm the questionnaire findings, clarify ambiguous or contradictory aspects of the questionnaire data, test tentative hypotheses and to explore issues that were not addressed in the questionnaire, particularly in relation to the cultural meanings and values held by the respondents about key aspects relevant to the research questions.

The main relevance of the interviews to the aesthetic factors was as an opportunity to talk about those aspects of the street that each respondent had said they disliked in answer to question 7, and any aspects of the street they had said they wanted to change in answer to question 8.

As previously indicated, sample interview schedules are annexed in Appendix 5 and 6, and the method of analysis of the interview data is explained above, in Chapter 3, "Methodology", page 52.

Results

Question 6- Compared to other places you have lived, or other places you know, do you like or dislike the way your street looks?

Differences between HCA's and districts in Birchwood, and the impact of vegetation and housing density

The respondents' overall aesthetic preference for the visual appearance of their street (question 6) varied significantly according to which HCA they lived in: Chi-Square = 39.381; df = 8; $p < 0.0001$. The main underlying factor associated with these variations was housing density: Spearman's correlation $rs = -0.340$; $n = 262$; $p < 0.0001$. Respondents from areas of lower housing density clearly expressed greater satisfaction with the visual appearance of their street (figure 6.1). On the other hand, the vegetation density of the HCA's had no impact on respondents' aesthetic preference: Spearman's correlation $r_s = -0.030$; $n = 262$; NS. However, figure 6.1 indicates that there is an exception to the trend for respondents' aesthetic preference for the visual appearance of their street to decrease in areas of higher housing density. Respondents from Rawlings (a high housing density area) expressed levels of preference on a par with respondents from some of the lower density areas.

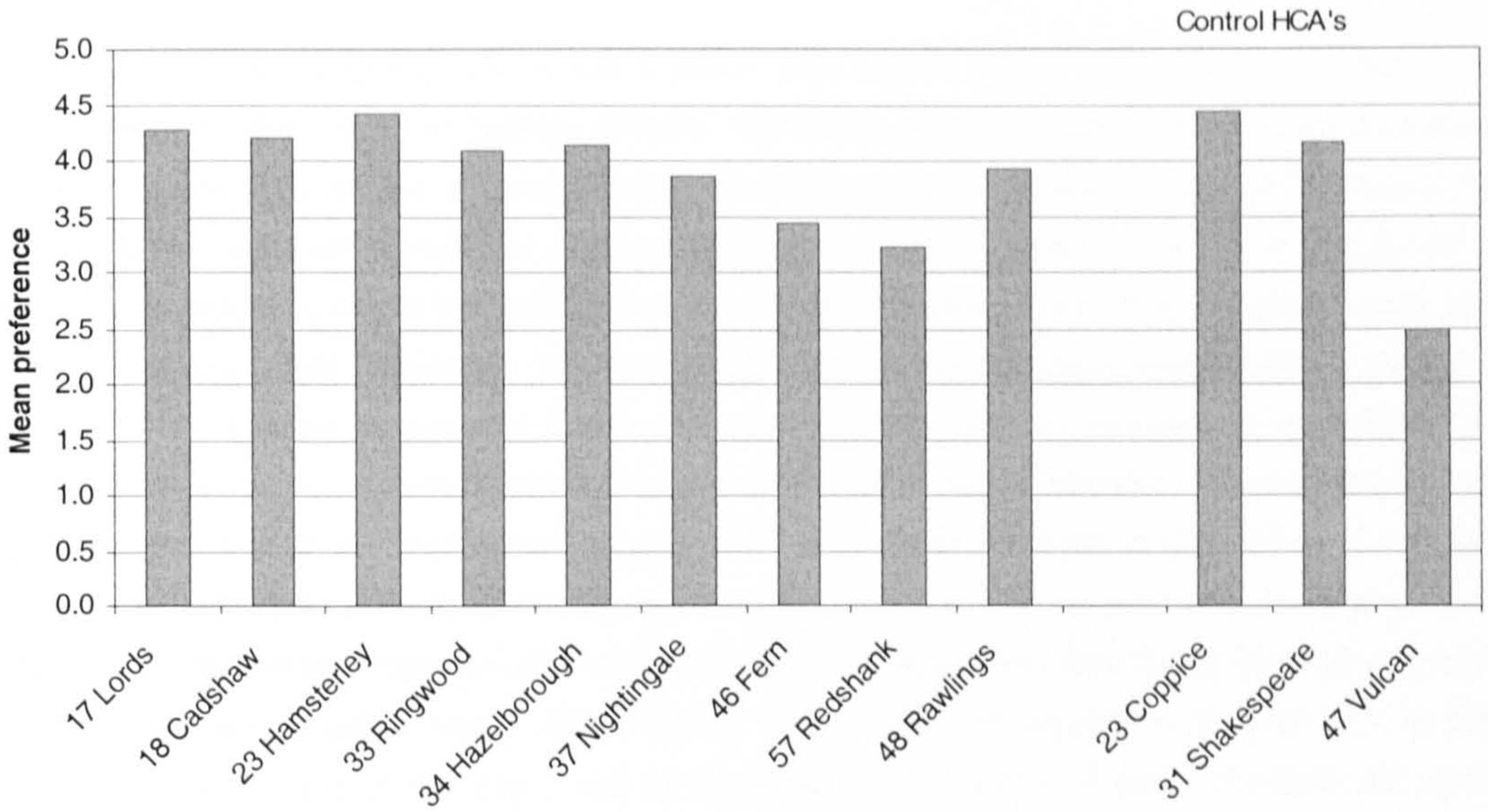


Figure 6.1 Effect of housing density on mean preference for street

The respondents' preference for the visual appearance of their street also varied significantly according to which district of Birchwood they lived in. Respondents from Gorse Covert found their streets most attractive, whilst those from Oakwood found theirs least attractive (table 6.3).

District	Mean preference for street
Oakwood	3.65
Locking Stumps	3.94
Gorse Covert	4.22

Table 6.3 Effect of housing district in Birchwood on mean preference for street

Comparison between respondents living in Birchwood and the control group from outside

The respondents' overall aesthetic preference for their street for their street did not vary significantly according to whether they lived in or outside Birchwood: Mann- Whitney Z = -0.564; NS. The mean preference scores of the respondents from the low and medium housing density areas in Birchwood were broadly similar to those of the respondents from the corresponding control areas outside Birchwood. However, respondents from Birchwood's high housing density areas (Fern, Redshank and Rawlings) expressed considerably higher levels of preference than respondents from the high housing density control area of Vulcan, outside Birchwood (figure 6.1).

Question 7- Which aspects of your street do you like or dislike?

Question 7 asked respondents to indicate whether they liked or disliked nine specified aspects of their street namely "birds and wildlife", "maintenance of public areas", "traffic", "car parking", "maintenance of gardens by occupiers", "visual appearance of the houses", "trees and greenery", "outlook from inside your own house and garden" and "the way the street is set out".

Whilst it was perhaps inappropriate to ask whether respondents "liked" aspects such as traffic, they were essentially being asked to indicate whether the current levels of such factors were acceptable. One of the problems inherent in questionnaire research is that it is often impossible to predict how respondents will interpret words and phrases such as "traffic" or "maintenance of public areas". In order to try to reduce potential ambiguity some examples of "maintenance of public areas" were given in the questionnaire, and these were "tree and shrub cutting, litter clearance, grass cutting": essentially a miscellany of different aspects of street maintenance. Yet however precisely a questionnaire is framed, some ambiguity always remains. Thus it is difficult to know whether respondents who said they "liked" the "traffic" on their street actually liked it, perhaps because it gave them a feeling of security or something to look at, or merely tolerated its presence. The respondents' comments during the qualitative interviews tended to confirm the latter interpretation, and also suggested that responses about "maintenance of public areas" related mainly to the control of vegetation, in Birchwood at least. Nevertheless, at the end of the day it has to be accepted that some of these concepts will remain vague and the findings should therefore be interpreted with caution.

Figure 6.2 shows that the most popular aspects of the street across the entire sample were "birds and wildlife" and "trees and greenery". The "maintenance of gardens by occupiers", "visual appearance of the houses", "outlook from inside your own house and garden" and "the way the street is set out" were also liked by over 80% of the sample. The less popular aspects were "maintenance of public areas" and "traffic", with "car parking" being disliked by more than 50% of the whole sample.

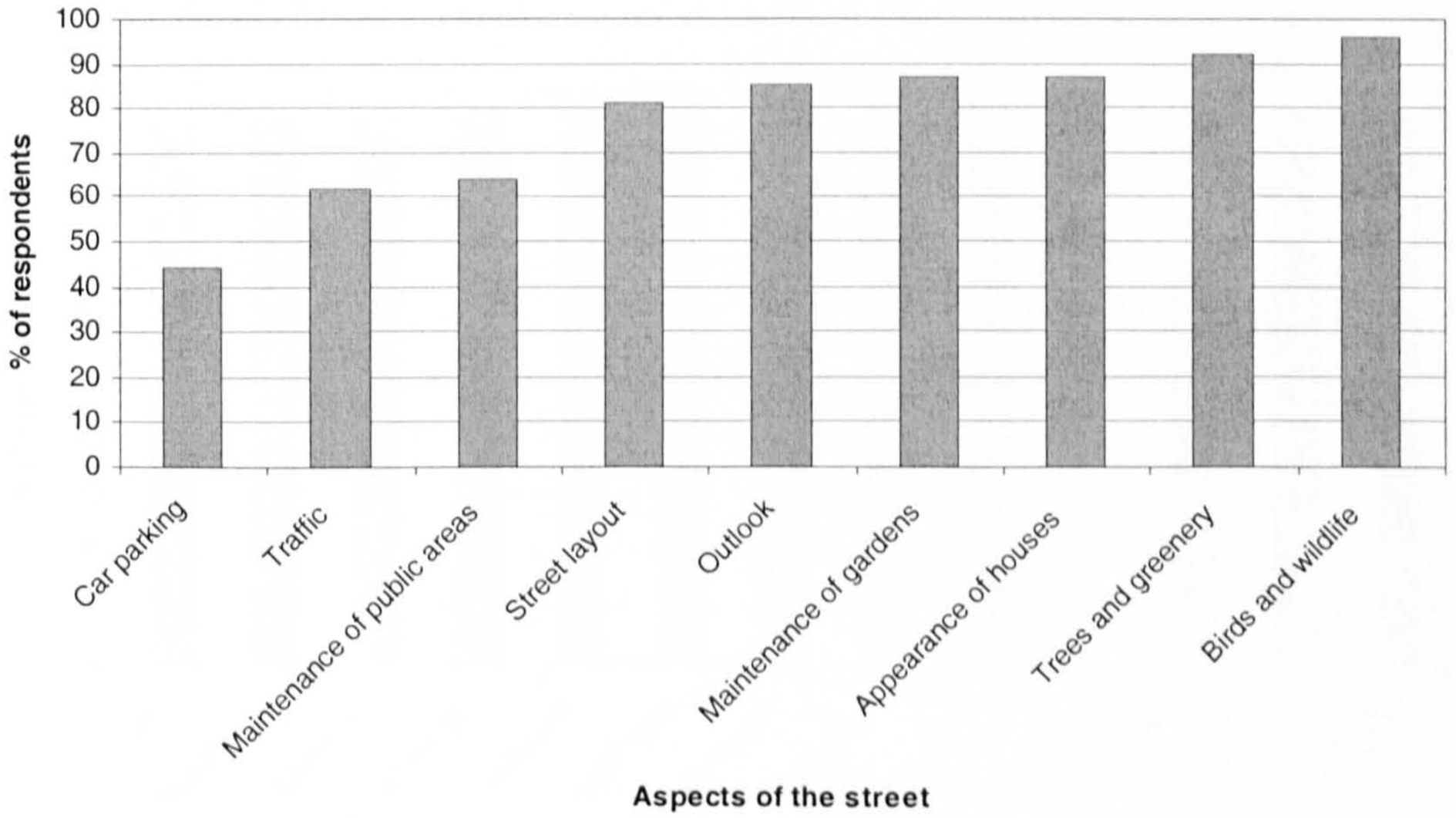


Figure 6.2 Respondents' approval for specific aesthetic aspects of their street

"Birds and wildlife"

Differences between HCA's and districts in Birchwood, and the impact of vegetation and housing density

The respondents' attitudes to "birds and wildlife" were not significantly affected by the HCA they lived in, nor by either vegetation or housing density, nor by the district in which the respondents' HCA's were situated (table 6.4 and figure 6.3).

Variable	**Test**	**Result**	**Exact significance = E Monte Carlo = MC**
HCA	Chi- Square	$x^2 = 4.578$; df = 8; NS.	
Vegetation density	Mann-Whitney	Z = -.467; NS.	
Housing density	Mann-Whitney	Z = -.741; NS.	
District	Chi- Square	$x^2 = .322$; df = 2; NS.	

Table 6.4 Effect of HCA, vegetation and housing density and district on respondents' tendency to approve or disapprove of "birds and wildlife"

Comparison between respondents living in Birchwood and the control group from outside

However, respondents from outside Birchwood were significantly less likely to approve of "birds and wildlife" on their street: Chi-Square $x^2 = 7.127$; df = 1; p = 0.017 (exact significance used). In particular, proportionately fewer respondents from Vulcan approved of "birds and wildlife", compared to all the other HCA's (figure 6.3).

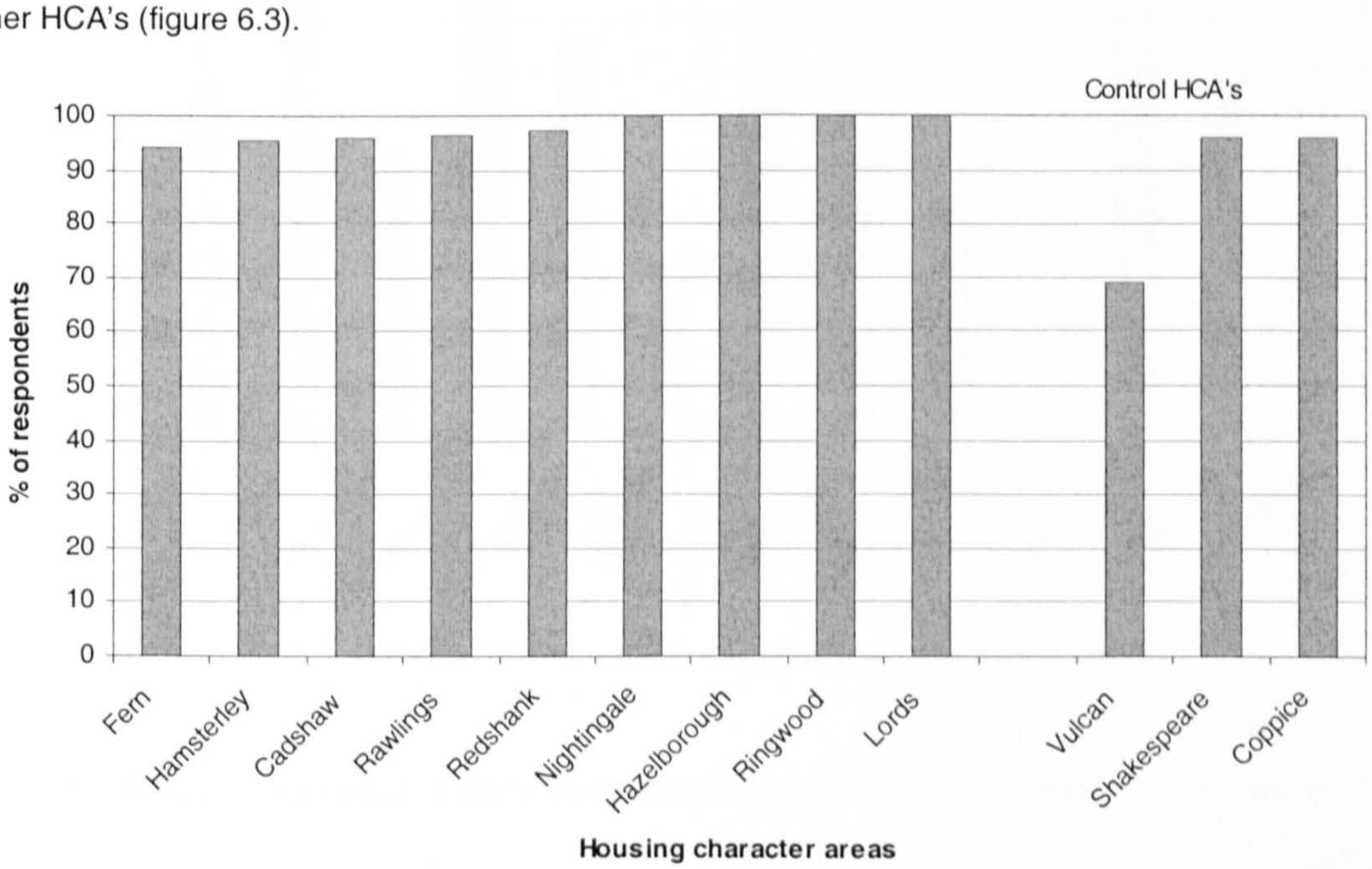


Figure 6.3 Approval for birds and wildlife expressed by respondents from different HCA's

"Maintenance of public areas"

Differences between HCA's and districts in Birchwood, and the impact of vegetation and housing density

The respondents' attitudes to the approach to "maintenance of public areas" on their street varied significantly according to which HCA they lived in, and according to the district in which the respondents' HCA's were situated (table 6.5). Respondents from HCA's with high vegetation or high housing density were less likely to approve of this aspect of their street (table 6.5 and figures 6.4 and 6.5).

Variable	Test	Result	Exact significance = E Monte Carlo = MC
Maintenance of public areas	Chi- Square	$x^2 = 43.758$, df = 8; $p < 0.0001$.	MC
Vegetation density	Mann-Whitney	Z = -2.887; p = 0.004.	
Housing density	Mann-Whitney	Z = -4.327; $p < 0.0001$.	
District	Chi- Square	$x^2 = 21.465$; df = 2; $p < 0.0001$.	

Table 6.5 Effect of HCA, vegetation and housing density and district on respondents' tendency to approve or disapprove of "maintenance of public areas"

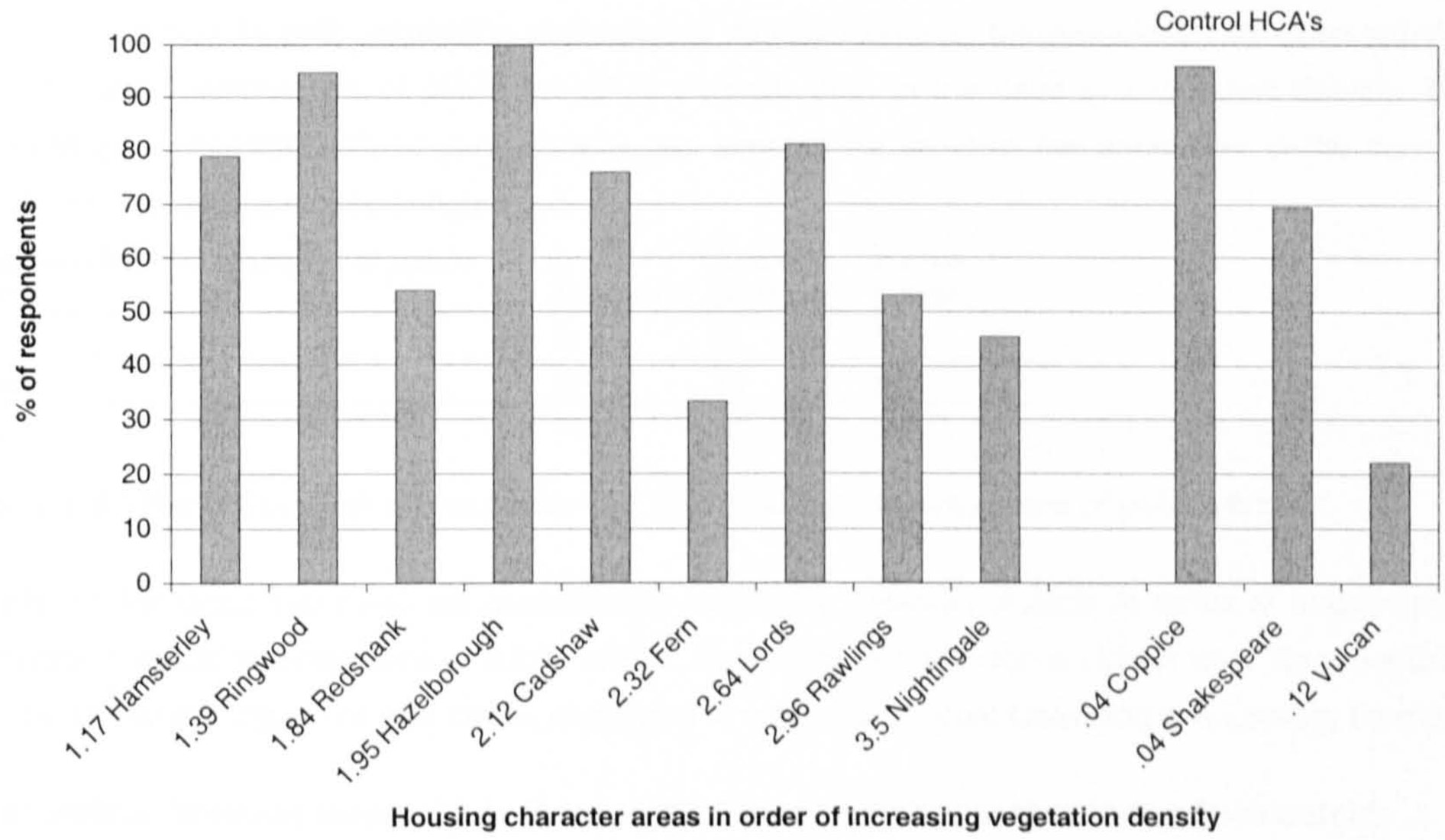


Figure 6.4 Effect of vegetation density on respondents' approval for maintenance of public areas

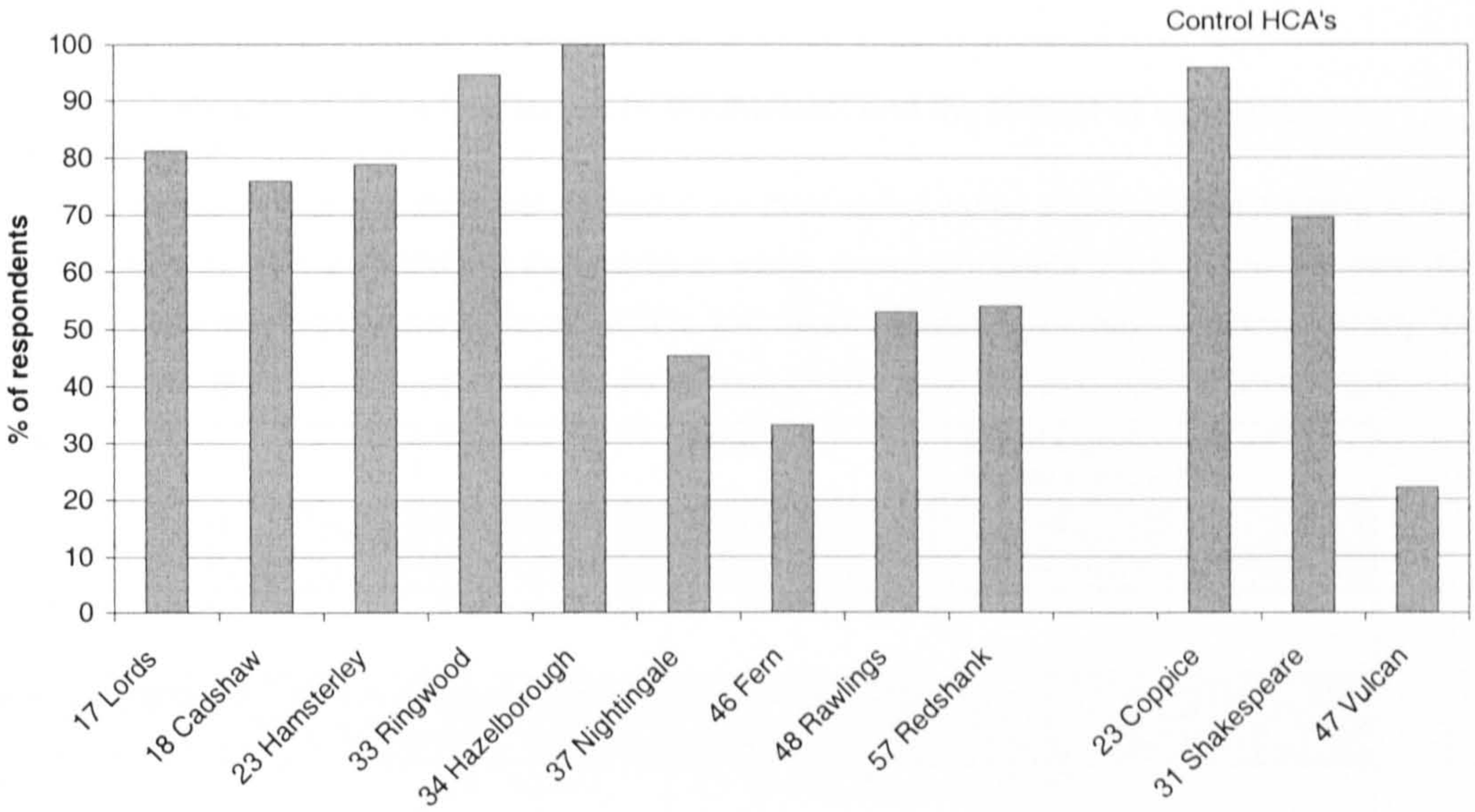


Figure 6.5 Effect of housing density on respondents' approval for maintenance of public areas

Figures 6.4 and 6.5 show that although the overall trend is for approval of "maintenance of public areas" to decline as both vegetation and housing density increase, the association between housing density and "maintenance of public areas" is stronger than in the case of vegetation density. The competing association with housing density can account for most of the anomalies in the case of vegetation density illustrated in figure 6.4.

Approval for "maintenance of public areas"	Oakwood	Locking Stumps	Gorse Covert
	%	%	%
Yes	52	61	90
No	48	39	10

Table 6.6 Effect of district on respondents' approval for "maintenance of public areas"

Table 6.6 indicates that there are considerable disparities between districts in terms of respondents' attitudes towards "maintenance of public areas". Respondents from Gorse Covert were far more likely to approve of this aspect of their street, compared to respondents from Oakwood and Locking Stumps.

Comparison between respondents living in Birchwood and the control group from outside

Whether the respondents lived in or outside Birchwood did not significantly affect their approval for the "maintenance of public areas" on their street: Chi-Square $x^2 = 0.181$, df = 1; NS. However it is noticeable that respondents from Vulcan were once again the group that was most dissatisfied with this aspect of their street (figure 6.5).

"Traffic"

Differences between HCA's and districts in Birchwood, and the impact of vegetation and housing density

The respondents' attitudes to the level of "traffic" on their street varied significantly according to which HCA they lived in, and according to the district in which the respondents' HCA's were situated (table 6.7). It appears that respondents from HCA's with high vegetation or high housing density were significantly less likely to approve of this aspect of their street (table 6.7, and figures 6.6 and 6.7).

Variable	**Test**	**Result**	**Exact significance = E Monte Carlo = MC**
HCA	Chi- Square	$x^2 = 24.452$; df = 8; p = 0.002.	
Vegetation density	Mann-Whitney	Z = -2.691; p = 0.007.	
Housing density	Mann-Whitney	Z = -2.705; p = 0.007.	
District	Chi- Square	$x^2 = 19.662$; df = 2; p < 0.0001.	

Table 6.7 Effect of HCA, vegetation and housing density and district on respondents' tendency to approve or disapprove of "traffic"

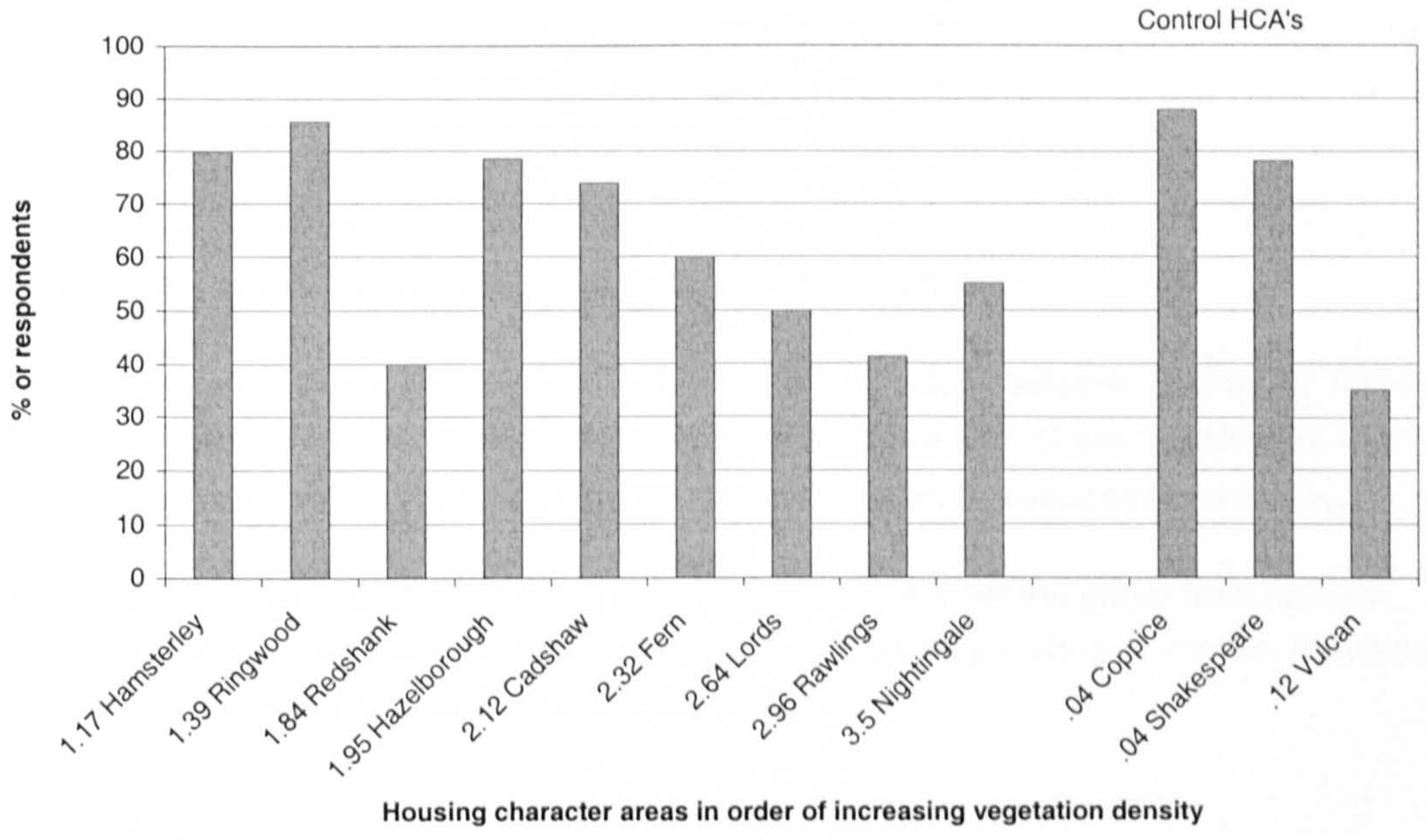


Figure 6.6 Effect of vegetation density on respondents' tolerance for traffic

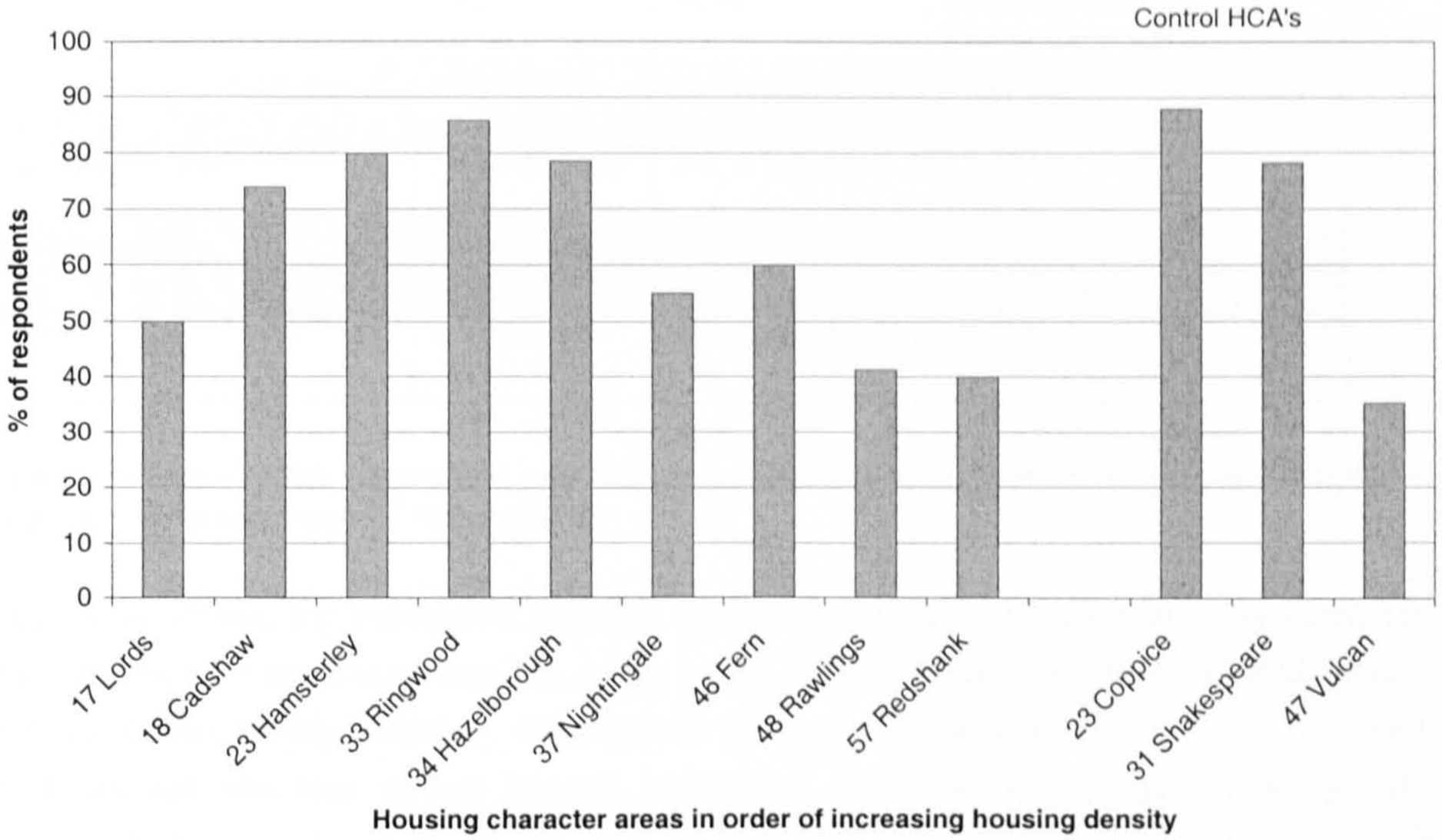


Figure 6.7 Effect of housing density on respondents' tolerance for traffic

Approval for "traffic"	Oakwood	Locking Stumps	Gorse Covert
	%	%	%
Yes	44	60	82
No	56	40	18

Table 6.8 Effect of district on respondents' tolerance for "traffic"

Table 6.8 indicates that there are also considerable disparities between districts in terms of respondent's attitudes towards "traffic". Once again, respondents from Gorse Covert were far more tolerant of this aspect of their street, compared to respondents from Oakwood and Locking Stumps.

Comparison between respondents living in Birchwood and the control group from outside

The respondents' attitudes towards traffic did not differ significantly according to whether they lived in or outside Birchwood: Chi-Square $x^2 = 2.824$; df = 1; NS.

"Car parking"

Differences between HCA's and districts in Birchwood, and the impact of vegetation and housing density

The respondents' attitudes to the arrangements for "car parking" on their street varied significantly according to which HCA they lived in, and according to the district in which the respondents' HCA's were situated (table 6.9). It appears that respondents from HCA's with high vegetation density were less likely to approve of this aspect of their street (table 6.9 and figure 6.8). Housing density apparently had no significant effect on the respondents' perception of "car parking" (table 6.9).

Variable	Test	Result	Exact significance = E Monte Carlo = MC
HCA	Chi- Square	$x^2 = 16.374$; df = 8; p = 0.037.	
Vegetation density	Mann-Whitney	Z = -2.345; p = 0 .019.	
Housing density	Mann-Whitney	Z = -0.242; NS.	
District	Chi- Square	$x^2 = 9.085$; df = 2; p = 0.011.	

Table 6.9 Effect of HCA, vegetation and housing density and district on respondents' tendency to approve or disapprove of "car parking"

As figure 6.8 shows, the association between vegetation density and respondents' tolerance for the car parking on their street is a loose one, with a barely discernible tendency for the level of approval to fall as vegetation density increases. Nevertheless there is a distinct pattern to the data. In figure 6.8 the HCA's fall into four distinct clusters comprising the three low vegetation density HCA's (Hamsterley, Ringwood and Redshank), the three medium vegetation density HCA's (Cadshaw, Hazelborough and Fern), the three high vegetation density HCA's (Lords, Nightingale and Rawlings) and lastly three control HCA's from outside Birchwood with minimal levels of vegetation (Coppice, Shakespeare and Vulcan). Each of these clusters contains a high, medium and low housing density HCA. Generally speaking (there are exceptions) the data is arranged in a distinct order within these clusters with residents of the low housing density HCA's displaying the highest level of approval for car parking and residents of the high housing density HCA's displaying the lowest level of approval for car parking, with residents of medium density HCA's somewhere in between. Thus although there is no statistical relationship between housing density and approval for car parking (table 6.9) housing density is nevertheless associated with the perception of this issue.

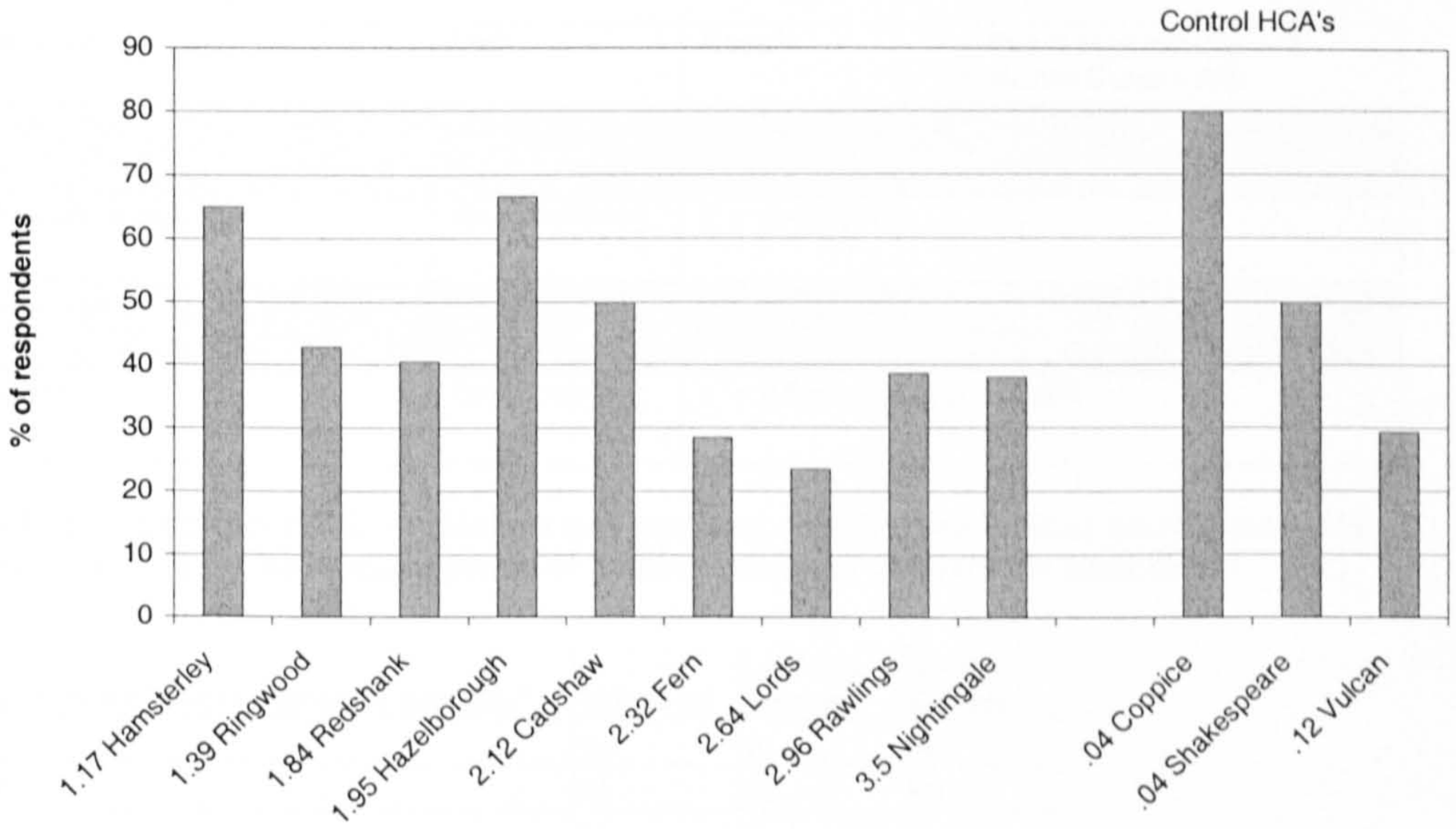


Figure 6.8 Effect of vegetation density on respondents' approval for car parking

Approval for "car parking"	Locking Stumps	Oakwood	Gorse Covert
	%	%	%
Yes	32	39	57
No	68	61	43

Table 6.10 Effect of district on respondents' approval for "car parking"

Table 6.10 indicates that there are also considerable disparities between districts in terms of respondent's attitudes towards "car parking". Once again, respondents from Gorse Covert were far more likely to approve of this aspect of their street, compared to respondents from Oakwood and Locking Stumps.

Comparison between respondents living in Birchwood and the control group from outside

Respondents from within Birchwood were significantly less tolerant of the arrangements for car parking on their street than the respondents from the control HCA's outside Birchwood: Chi-Square x^2 = 4.910; df = 1; p = 0.027. Fifty nine per cent of the respondents from within Birchwood said they disliked "car parking" on their street as opposed to 44% of the respondents from outside.

"Maintenance of gardens by occupiers"

Differences between HCA's and districts in Birchwood, and the impact of vegetation and housing density

The respondents' attitudes to "maintenance of gardens by [other] occupiers" of their street varied significantly according to which HCA they lived in, and according to the district in which the respondents' HCA's were situated (table 6.11). It appears that respondents from higher housing density HCA's were less likely to approve of this aspect of their street (table 6.11 and figure 6.9). Vegetation density had no significant effect on the respondents' perception of this factor (table 6.11).

Variable	Test	Result	Exact significance = E Monte Carlo = MC
HCA	Chi- Square	x^2 = 25.065; df = 8; p = 0.001.	MC
Vegetation density	Mann-Whitney	Z = -0.467; NS.	
Housing density	Mann-Whitney	Z = -0.134; NS.	
District	Chi- Square	x^2 = 9.624; df = 2; p = 0.008.	

Table 6.11 Effect of HCA, vegetation and housing density and district on respondents' tendency to approve or disapprove of "maintenance of gardens by occupiers"

Approval for "maintenance of gardens"	Oakwood	Locking Stumps	Gorse Covert
	%	%	%
Yes	80	91	96
No	20	9	4

Table 6.12 Effect of district on respondents' approval for "maintenance of gardens by occupiers"

Table 6.12 shows that there are also some differences between districts in terms of respondents' attitudes towards "maintenance of gardens", though these are less pronounced than in the case of "maintenance of public areas", "traffic" and "car parking". Once again, respondents from Gorse Covert were more likely to approve of this aspect of their street, compared to respondents from Oakwood and Locking Stumps.

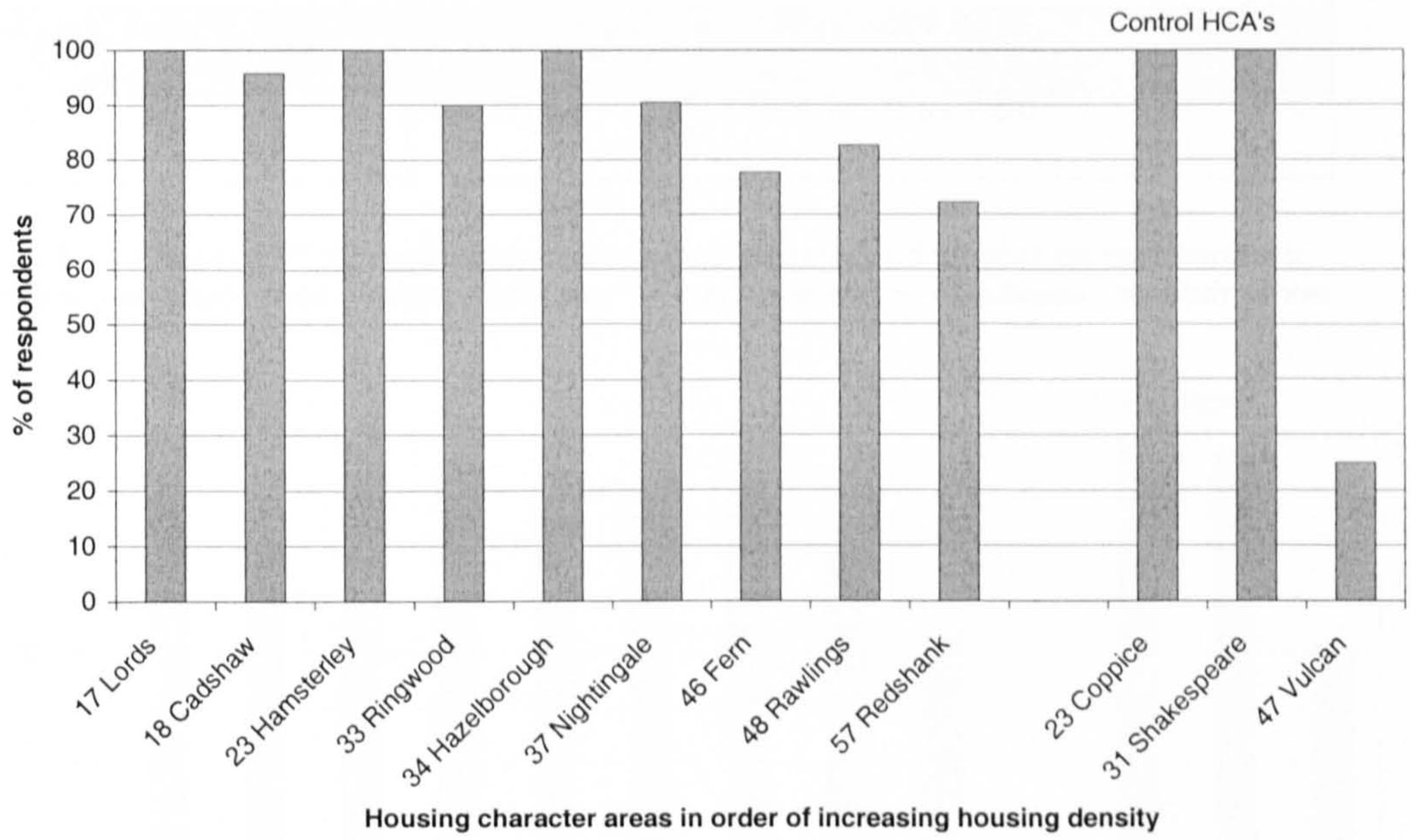


Figure 6.9 Effect of housing density on respondents' approval for "maintenance of gardens by occupiers"

Comparison between respondents living in Birchwood and the control group from outside

Living in or outside Birchwood did not significantly affect the respondents' attitudes towards the "maintenance of gardens" on their street: Chi-Square $x^2 = 2.219$; df = 1; NS.

"Visual appearance of houses"

Differences between HCA's and districts in Birchwood, and the impact of vegetation and housing density

The respondents' attitudes to the "visual appearance of houses" on their street varied significantly according to which HCA they lived in, and according to the district in which the respondents' HCA's were situated (table 6.13). Once again it appears that respondents from higher housing density HCA's were less likely to approve of this aspect of their street (table 6.13 and figure 6.10). Vegetation density apparently had no significant effect on the respondents' perception of the "visual appearance of houses" on their street (table 6.13).

Variable	Test	Result	Exact significance = E Monte Carlo = MC
HCA	Chi- Square	$x^2 = 30.798$; df = 8; $p < 0.0001$.	MC
Vegetation density	Mann-Whitney	Z = -0.823; NS.	
Housing density	Mann-Whitney	Z = -4.1491; $p < 0.0001$.	
District	Chi- Square	$x^2 = 13.286$; df = 2; $p = 0.001$.	

Table 6.13 Effect of HCA, vegetation and housing density and district on respondents' tendency to approve or disapprove of the "visual appearance of houses" on their street

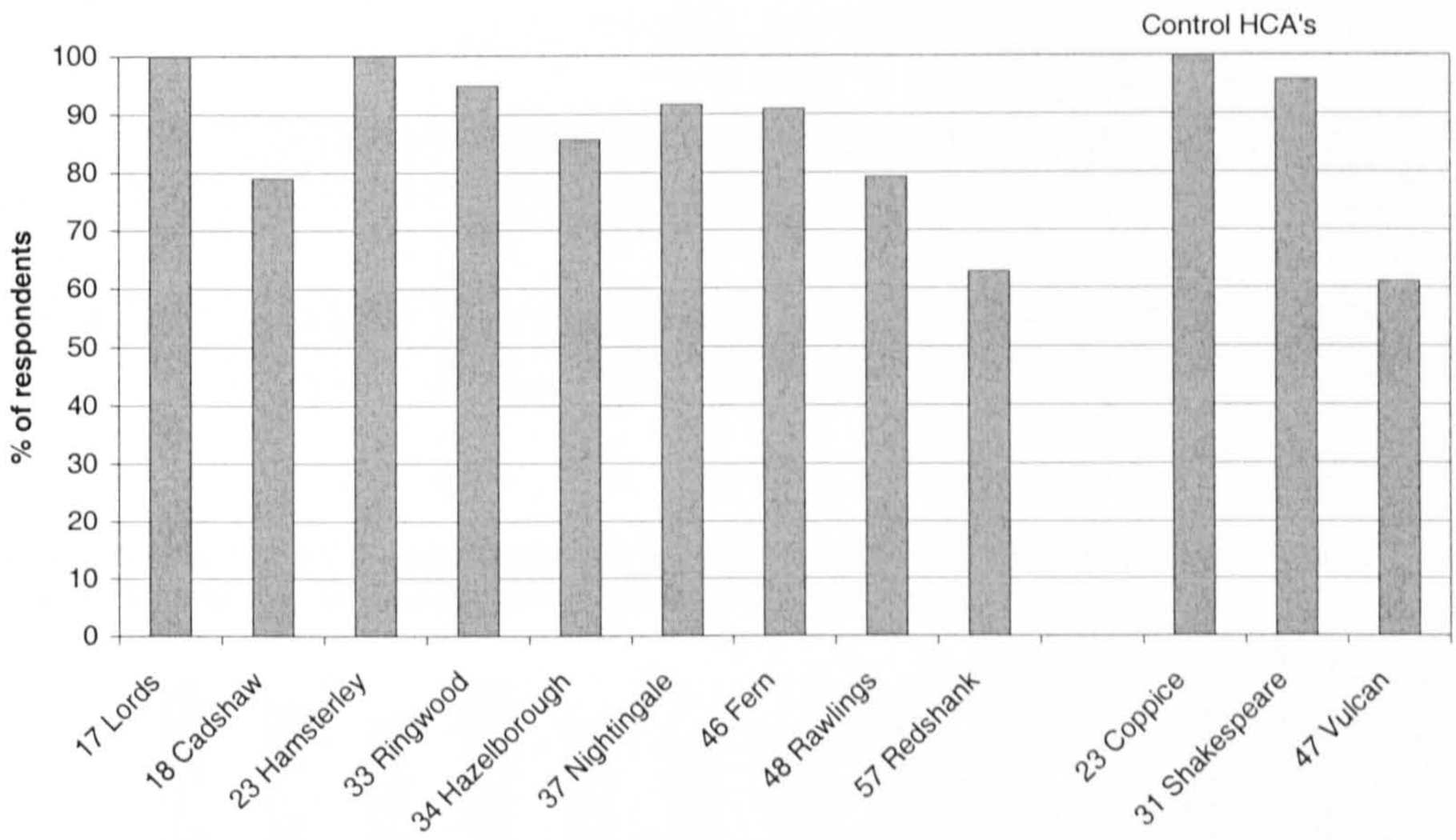


Figure 6.10 Effect of housing density on respondents' approval for the visual appearance of houses on their street

Approval for "visual appearance of houses"	Oakwood	Locking Stumps	Gorse Covert
	%	%	%
Yes	76	92	95
No	24	8	5

Table 6.14 Effect of district on respondents' approval for "visual appearance of houses"

Table 6.14 shows that there are also some differences between districts in terms of the respondents' attitudes towards the "visual appearance of houses" on their street. Respondents from Gorse Covert and Locking Stumps were more likely to approve of this aspect of their street, compared to respondents from Oakwood.

Comparison between respondents living in Birchwood and the control group from outside

Living in or outside Birchwood did not significantly affect the respondents' attitudes towards the "visual appearance of houses" on their street: Chi-Square $x^2 = 0.104$; df = 1; NS.

"Trees and greenery"

Differences between HCA's and districts in Birchwood, and the impact of vegetation and housing density

The respondents' attitudes to "trees and greenery" were not significantly affected by the HCA they lived in, nor by the vegetation density of their HCA's, nor by the district in which the respondents' HCA's were situated (table 6.15). However, there was a significant but slight tendency for respondents' approval for "trees and greenery" on their street to decline with increases in housing density (table 6.15, figure 6.11).

Variable	Test	Result	Exact significance = E Monte Carlo = MC
HCA	Chi- Square	$x^2 = 8.652$; df = 8; NS.	
Vegetation density	Mann-Whitney	Z = -.167; NS.	
Housing density	Mann-Whitney	Z = -2.030; p = 0.042.	
District	Chi- Square	$x^2 = 2.024$; df = 2; NS.	

Table 6.15 Effect of HCA, vegetation and housing density and district on respondents' tendency to approve or disapprove of "trees and greenery"

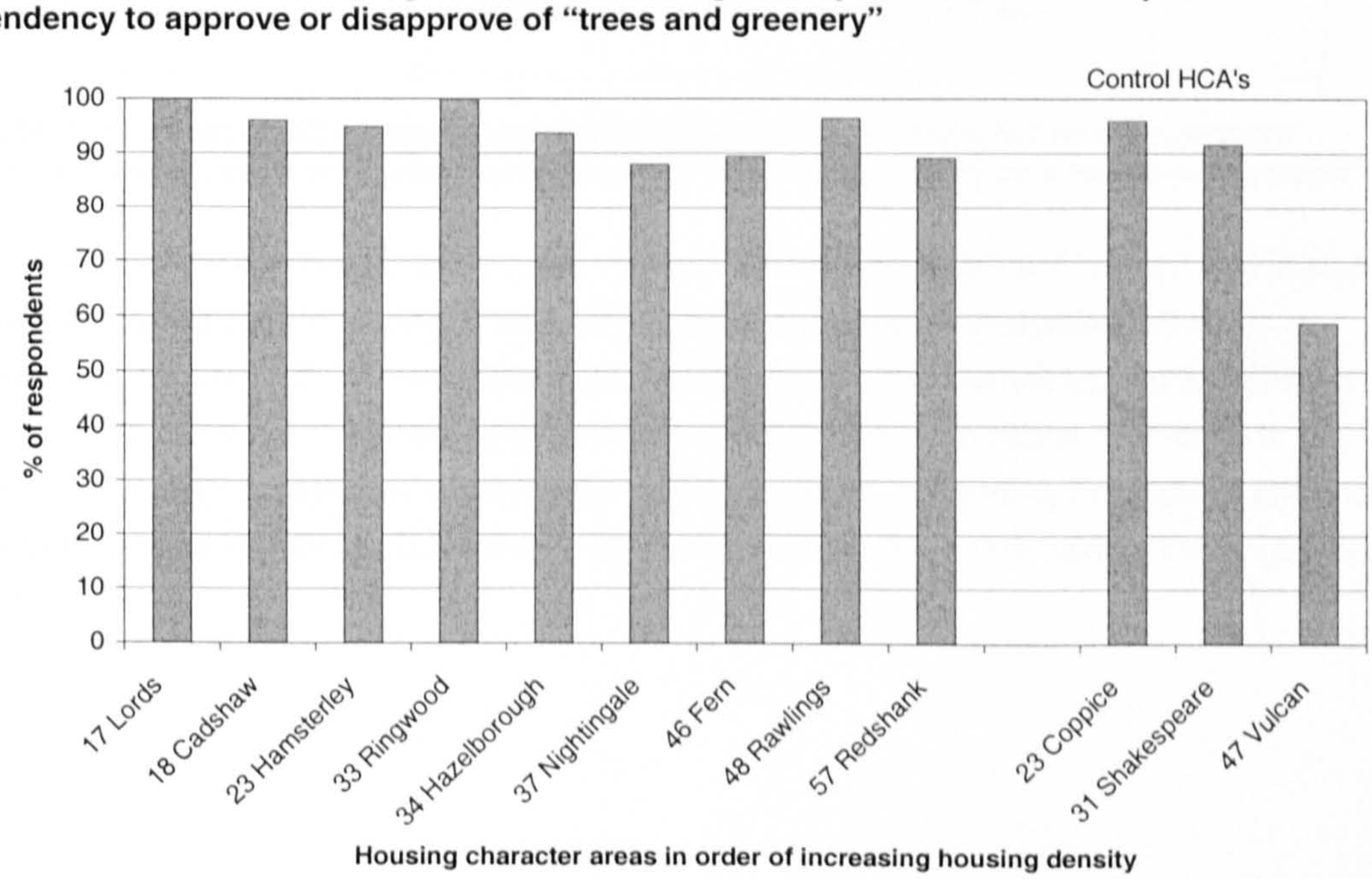


Figure 6.11 Effect of housing density on respondents' approval for "trees and greenery"

Comparison between respondents living in Birchwood and the control group from outside

Respondents from Birchwood were significantly more likely to approve of the "trees and greenery" on their street than the respondents from the control HCA's outside Birchwood: only 6% of respondents from Birchwood said they disliked trees and greenery as opposed to 15% of those from outside. However, this difference in attitudes is mainly due to the proportionately higher number of respondents from Vulcan who said that they disliked the "trees and greenery" on their street.

"Outlook from inside house and garden"

Differences between HCA's and districts in Birchwood, and the impact of vegetation and housing density

The respondents' attitudes to the "outlook from inside [their] own house and garden" varied significantly according to which HCA they lived in, and according to the district in which the respondents' HCA's were situated (table 6.16). Once again respondents from higher housing density HCA's were less likely to approve of this aspect of their street (table 6.16 and figure 6.12). Vegetation density had no significant effect on the respondents' perception of this factor (table 6.16).

Variable	**Test**	**Result**	**Exact significance = E Monte Carlo = MC**
HCA	Chi- Square	$x^2 = 25.357$; df = 8; p = 0.001.	MC
Vegetation density	Mann-Whitney	Z = -.267; NS.	
Housing density	Mann-Whitney	Z = -3.584; p < 0.0001.	
District	Chi- Square	$x^2 = 12.218$; df = 2; p = 0.002.	

Table 6.16 Effect of HCA, vegetation and housing density and district on respondents' tendency to approve or disapprove of "outlook from inside [their] own house and garden"

The respondents' approval for the "outlook from inside [their] own house and garden" also tended to decline with increases in housing density but this was by no means a straightforward linear association (figure 6.12). There is a considerable range between the lowest and highest levels of approval for this factor in the case of low, medium and high housing densities. This range is particularly marked in the case of the high density HCA's where the range is from 90% of respondents liking this aspect on their street in the case of Rawlings, to only 50% in the case of Vulcan: a range of 40%.

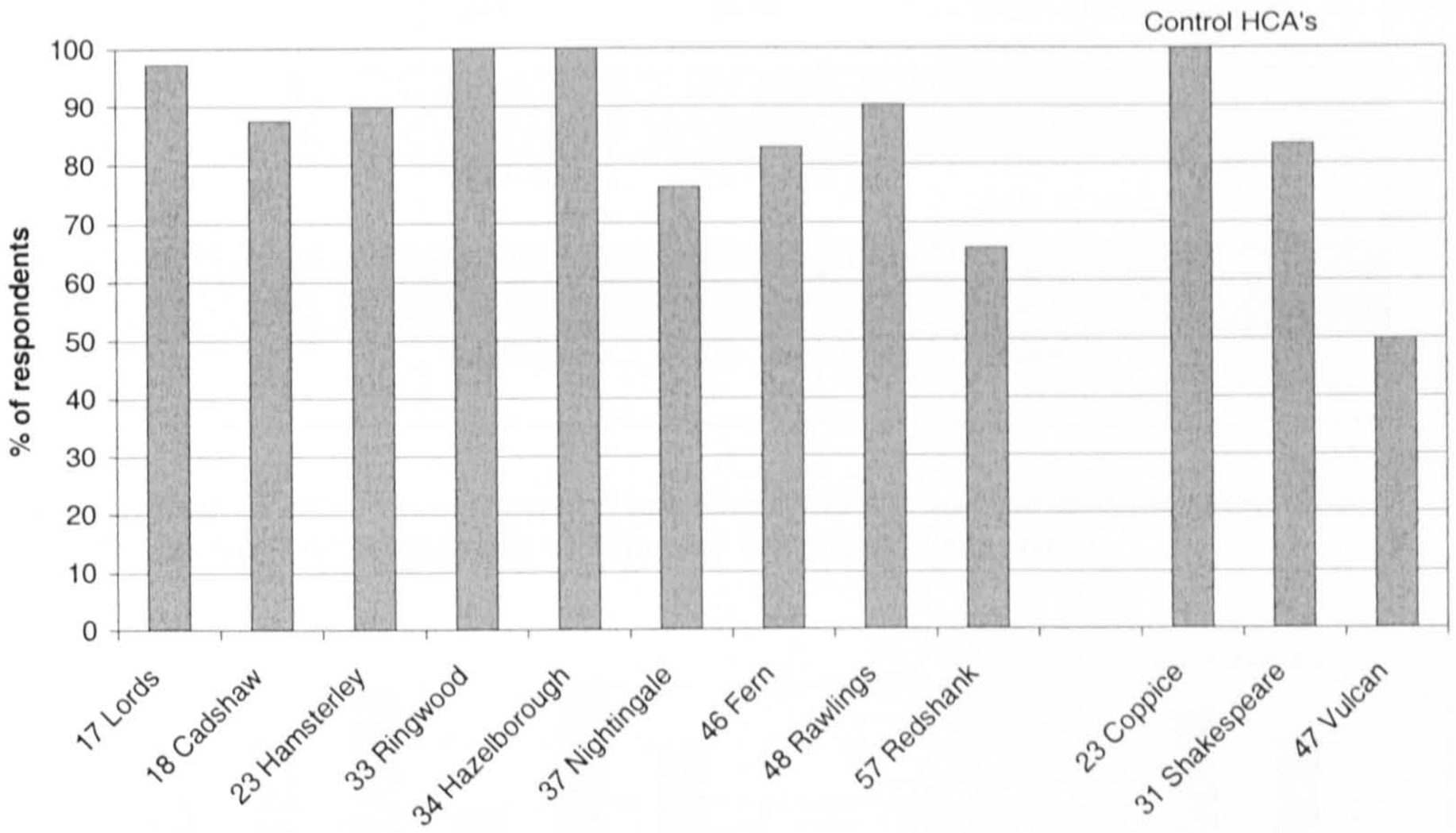


Figure 6.12 Effect of housing density on respondents' approval for "outlook from inside [their] own house and garden"

Approval for "outlook from inside house and garden"	Oakwood	Locking Stumps	Gorse Covert
	%	%	%
Yes	77	90	96
No	23	10	4

Table 6.17 Effect of district on respondents' approval for "outlook from inside [their] own house and garden"

Table 6.17 shows that there are also some differences between districts in terms of the respondents' attitudes towards "outlook from inside [their] own house and garden". Respondents from Gorse Covert and Locking Stumps were more likely to approve of this aspect of their street, compared to respondents from Oakwood.

Comparison between respondents living in Birchwood and the control group from outside

Living in Birchwood had no impact on the respondents' attitudes towards their "outlook from inside house and garden": Chi-Square $x^2 = 1.509$; df = 1; NS.

"The way the street is set out"

Differences between HCA's and districts in Birchwood, and the impact of vegetation and housing density

The respondents' attitudes to "the way the street is set out" varied significantly according to which HCA they lived in, and according to the district in which the respondents' HCA's were situated (table 6.18). Once again respondents from higher housing density HCA's were less likely to approve of this aspect of their street (table 6.18 and figures 6.13). Vegetation density had no significant effect on the respondents' perception of this aspect (table 6.18).

Variable	Test	Result	Exact significance = E Monte Carlo = MC
HCA	Chi- Square	$x^2 = 19.869$; df = 8; p = 0.01.	MC
Vegetation density	Mann-Whitney	Z = -1.538; NS.	
Housing density	Mann-Whitney	Z = -2.509; p = 0.012.	
District	Chi- Square	$x^2 = 7.085$; df = 2; p = 0.029.	

Table 6.18 Effect of HCA, vegetation and housing density and district on respondents' tendency to approve or disapprove of "the way the street is set out"

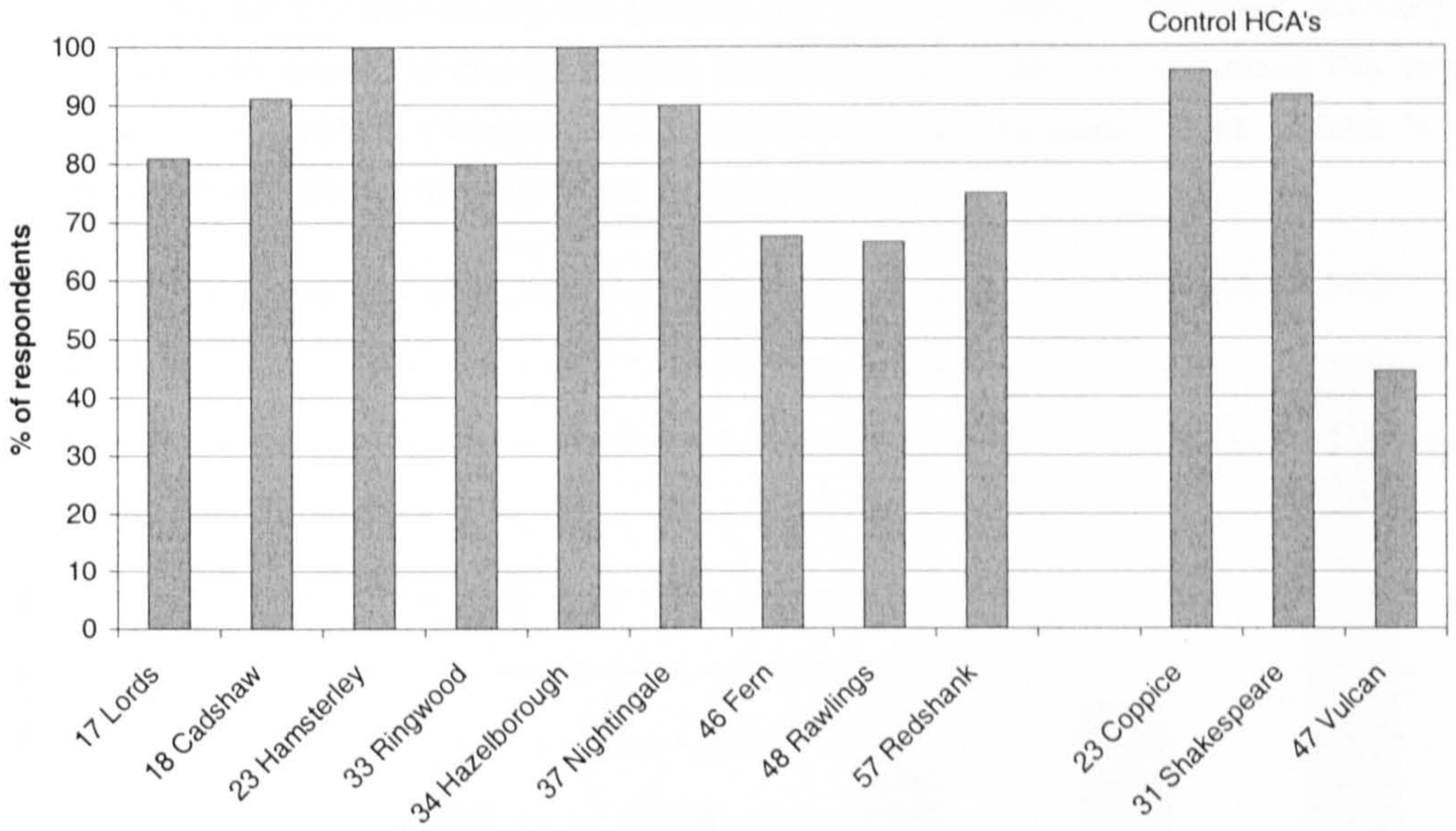


Figure 6.13 Effect of housing density on respondents' approval for "the way the street is set out"

As in the case of "outlook from inside [their] own house and garden", figure 6.13 indicates that the association between housing density and street layout is somewhat confused, and there is a considerable range between the lowest and highest levels of approval for this factor in the case of all three housing densities.

Approval for "the way the street is set out"	Oakwood	Locking Stumps	Gorse Covert
	%	%	%
Yes	76	79	93
No	24	21	7

Table 6.19 Effect of district on respondents' approval for "the way the street is set out"

Table 6.19 shows that there are also some differences between districts in terms of respondents' attitudes towards "the way the street is set out". Respondents from Gorse Covert were more likely to approve of this aspect of their street, compared to respondents from Oakwood and Locking Stumps.

Comparison between respondents living in Birchwood and the control group from outside

Living in or outside Birchwood did not significantly affect the respondents' attitudes towards the "the way the street is set out": Chi-Square $x^2 = 0.012$; df = 1; NS.

Question 8- If you could change one thing about the way your street looks what would that one thing be?

As figure 6.14 shows over 41% of the respondents who chose to answer this question (n = 201) identified issues related to parking and circulation as the aspect of their street that they wanted to change. This category included comments relating to the parking and circulation of vehicles, as well as facilities for pedestrians. Next in importance were issues related to design, with 18% of respondents wanting to change aspects that fell into this category, which included matters such as housing type and density, the layout of the housing and gardens and their relationship to the street. No more than 14% of respondents wanted to change aspects related to public green issues. Notably this category was split fairly evenly between respondents who wanted trees and vegetation to be cut back (n = 16) and respondents who wanted more trees and greenery (n = 12).

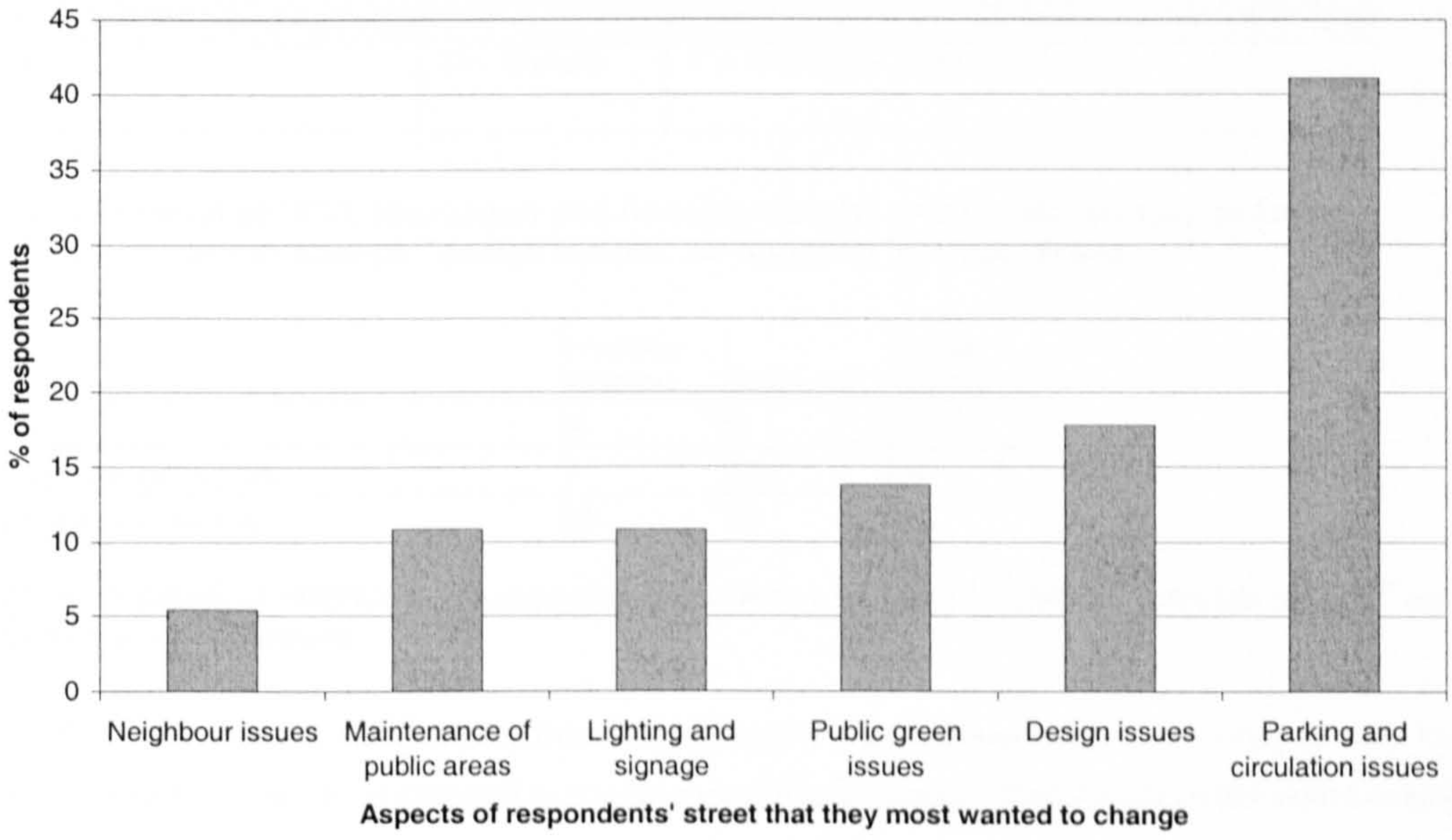


Figure 6.14 Aspects of the street that respondents wanted to change

The following section will show that the respondents' choice of aspects of their street they wanted to change varied significantly according to which HCA they lived in. These issues included "design", "parking and circulation" and "maintenance of public areas". Respondents from higher vegetation density HCA's were more likely to want to change "parking and circulation issues" and less likely to want to change "design" or "neighbour issues". Respondents from lower housing density HCA's were more likely to want to change "parking and circulation issues" but the trend was barely discernible. Interestingly, the desire to change issues related to the "public green" (increase or reduce the amount of vegetation) or to "maintenance of public areas" were not significantly associated with the vegetation density of the HCA's. The respondents' tendency to chose one or other aspect of their street to

change was not affected by whether they lived inside or outside Birchwood (for test results see table A1, Appendix 8).

"Design issues"

Differences between HCA's and districts in Birchwood, and the impact of vegetation and housing density

The respondents' desire to change aspects related to the design of their street varied significantly according to which HCA they lived in, and according to the district in which the HCA was situated (table 6.20). Whilst the trend was not particularly strong, respondents from lower vegetation density HCA's were more likely to want to change this aspect of their street (figure 6.15).

Variable	Test	Result	Exact significance = E Monte Carlo = MC
HCA	Chi- Square	$x^2 = 18.248$; df = 8; p = 0.016.	MC
Vegetation density	Mann-Whitney	Z = -2.644; p = 0.008.	
Housing density	Mann-Whitney	Z = -1.355; NS.	
District	Chi- Square	$x^2 = 8.238$; df = 2; p = 0.016.	

Table 6.20 Effect of HCA, vegetation and housing density and district on respondents' tendency to want to change "design issues" as opposed to other issues

	Locking Stumps	Oakwood	Gorse Covert
	%	%	%
Change design issues	7	20	26
Change other issues	93	80	74

Table 6.21 Effect of district on respondents' tendency to want to change "design issues" as opposed to other issues

Table 6.21 indicates that respondents from Oakwood and Gorse Covert were more likely to want to change aspects of the street included in the category "design issues" than respondents from Locking Stumps.

"*Parking and circulation issues"*

Differences between HCA's and districts in Birchwood, and the impact of vegetation and housing density

The respondents' desire to change aspects related to the parking and circulation on their street varied significantly according to which HCA they lived in, but not according to the district in which the HCA was situated (table 6.22). Whilst the trend was again not particularly strong, respondents from higher vegetation density HCA's were more likely to want to change this aspect of their street (table 6.22 and figure 6.15). Respondents from lower housing density HCA's were also more likely to want to change this aspect but the trend was barely discernible (table 6.22 and figure 6.16).

Variable	Test	Result	Exact significance = E Monte Carlo = MC
HCA	Chi- Square	x^2 = 23.281; df = 8; p = 0.002.	MC
Vegetation density	Mann-Whitney	Z = -2.504; p = 0.012.	
Housing density	Mann-Whitney	Z = -2.395; p = 0.017.	
District	Chi- Square	x^2 = 0.742; df = 2; NS.	

Table 6.22 Effect of HCA, vegetation and housing density and district on respondents' tendency to want to change "parking and circulation issues" as opposed to other issues

"Neighbour issues"

Differences between HCA's and districts in Birchwood, and the impact of vegetation and housing density

Neither the HCA the respondents lived in, nor district in which the HCA was situated had any significant impact on their desire to change matters related to the neighbours on their street (table 6.23). However, respondents from lower vegetation density HCA's were more likely to want to change this aspect of their street, although the trend was not particularly strong (table 6.23 and figure 6.15).

Variable	Test	Result	Exact significance = E Monte Carlo = MC
HCA	Chi- Square	x^2 = 18.248; df = 8; p = 0.016.	MC
Vegetation density	Mann-Whitney	Z = -2.644; p = 0.008.	
Housing density	Mann-Whitney	Z = -1.355; NS.	
District	Chi- Square	x^2 = 8.238; df = 2; p = 0.016.	

Table 6.23 Effect of HCA, vegetation and housing density and district on respondents' tendency to want to change neighbour issues as opposed to other issues

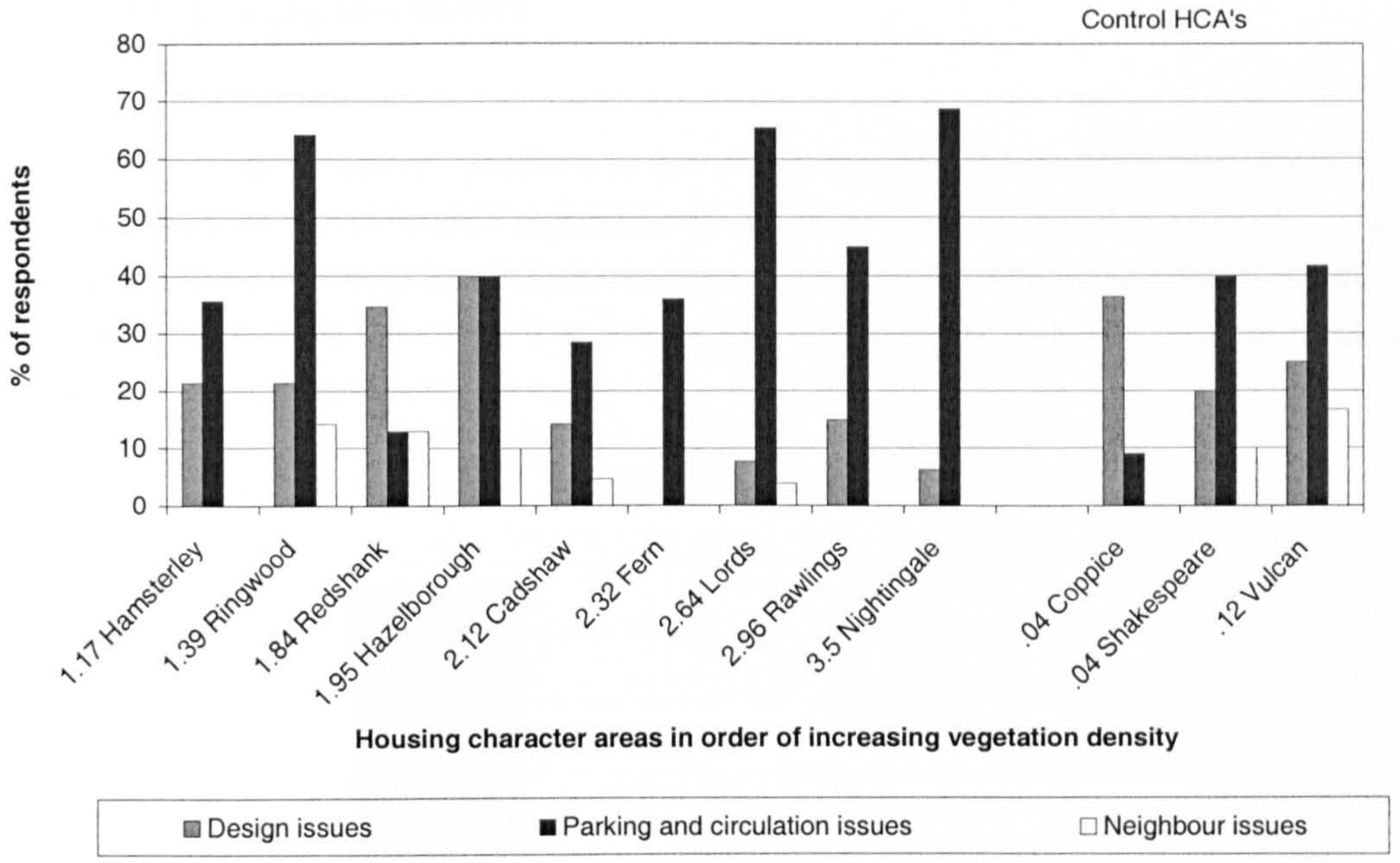


Figure 6.15 Effect of vegetation density on aspect of the street respondents wanted to change

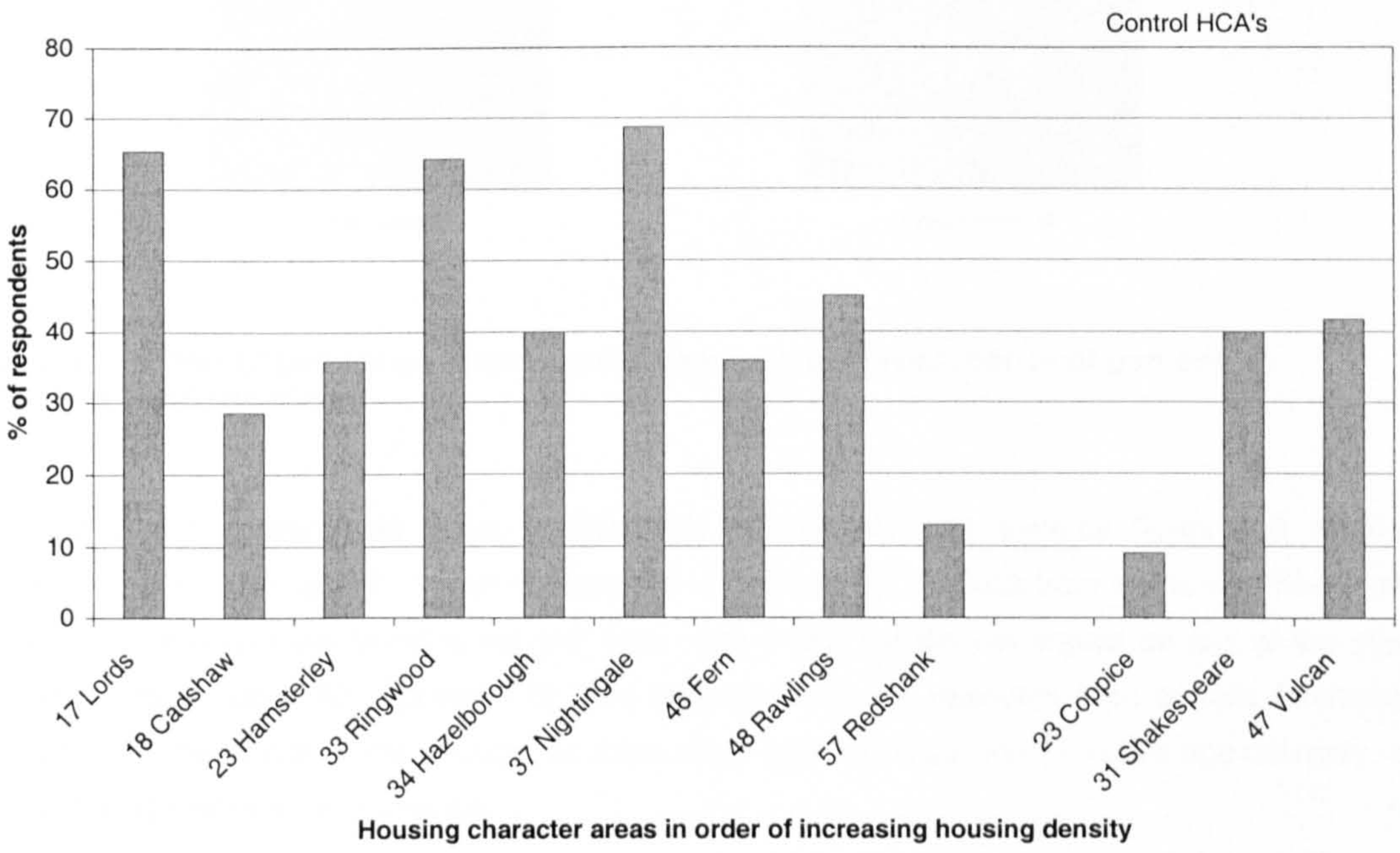


Figure 6.16 Effect of housing density on respondents' tendency to want to change parking and circulation issues as opposed to other issues

The impact of demographic factors

Gender

The respondents' gender made no difference to any of the aesthetic factors (table A2, Appendix 8), except in the case of the "maintenance of gardens by occupiers": Chi- Square $x^2 = 4.615$, df = 1; p = 0.032. Female respondents were less likely to approve of the "maintenance of gardens by occupiers" on their street (figure 6.17). However, this pattern was not repeated within the control group of respondents from outside Birchwood.

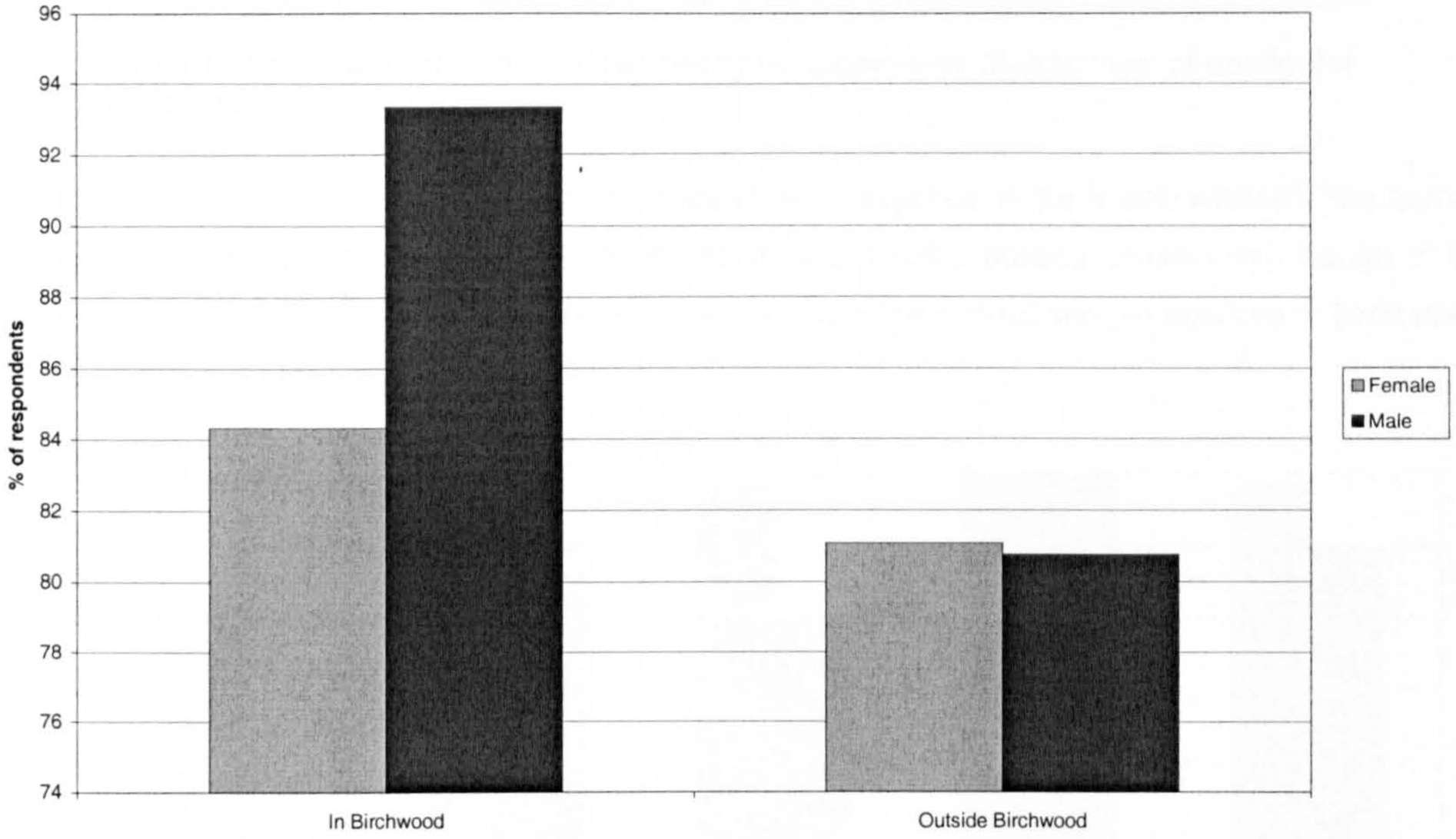


Figure 6.17 Effect of gender on respondents' approval for "maintenance of gardens by occupiers" on their street

Age

The age of the respondents made a difference to their attitudes towards "birds and wildlife", "maintenance of public areas", "visual appearance of the houses", "outlook from inside own house and garden" and "the way the street is set out" (see table 6.24); but did not impact on any of the other aesthetic factors (table A3, Appendix 8). The data for 15 to 24 year-olds from outside Birchwood needs to be viewed with some caution, as there were only two respondents in this age category, as opposed to 18 from inside Birchwood.

Variable	Test	Result
Birds and wildlife	Mann-Whitney	Z = -2.416; p = 0.016.
Maintenance of public areas	Mann-Whitney	Z = -2.161; p = 0.031.
Visual appearance of the houses	Mann-Whitney	Z = -1.970; p = 0.049.
Outlook from inside own house and garden	Mann-Whitney	Z = -2.772; p = 0.006.
The way the street is set out	Mann-Whitney	Z = -2.379; p = 0.017.

Table 6.24 Effect of age on respondents' tendency to approve or disapprove of particular aspects of the street

Figure 6.18 shows that older respondents are more likely to approve of "birds and wildlife". The same trend appears amongst the respondents from the control HCA's outside Birchwood, though it is noteworthy that proportionately fewer of the respondents from the control sample approve of birds and wildlife in all but one of the age categories.

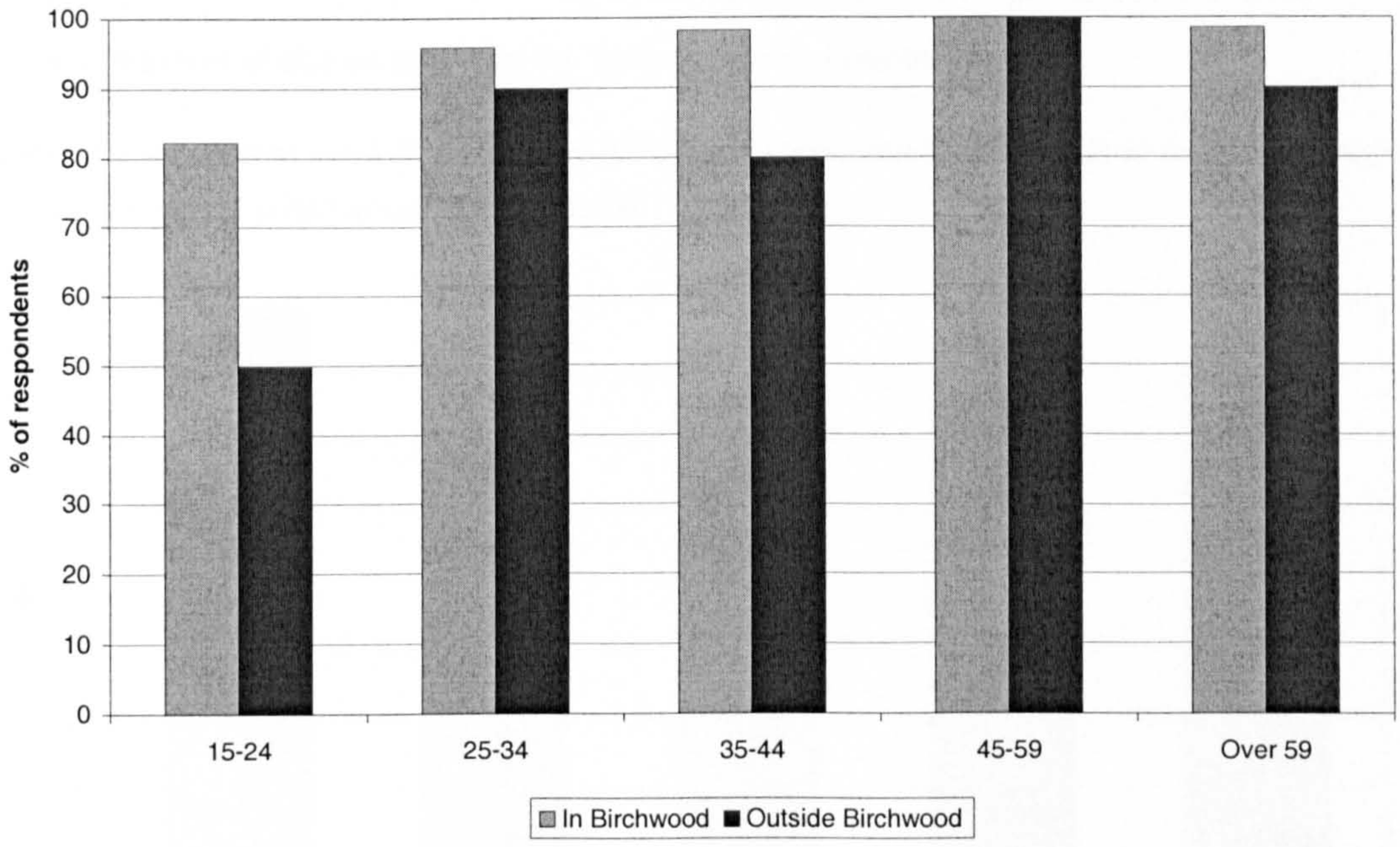


Figure 6.18 Effect of age on approval for "birds and wildlife"

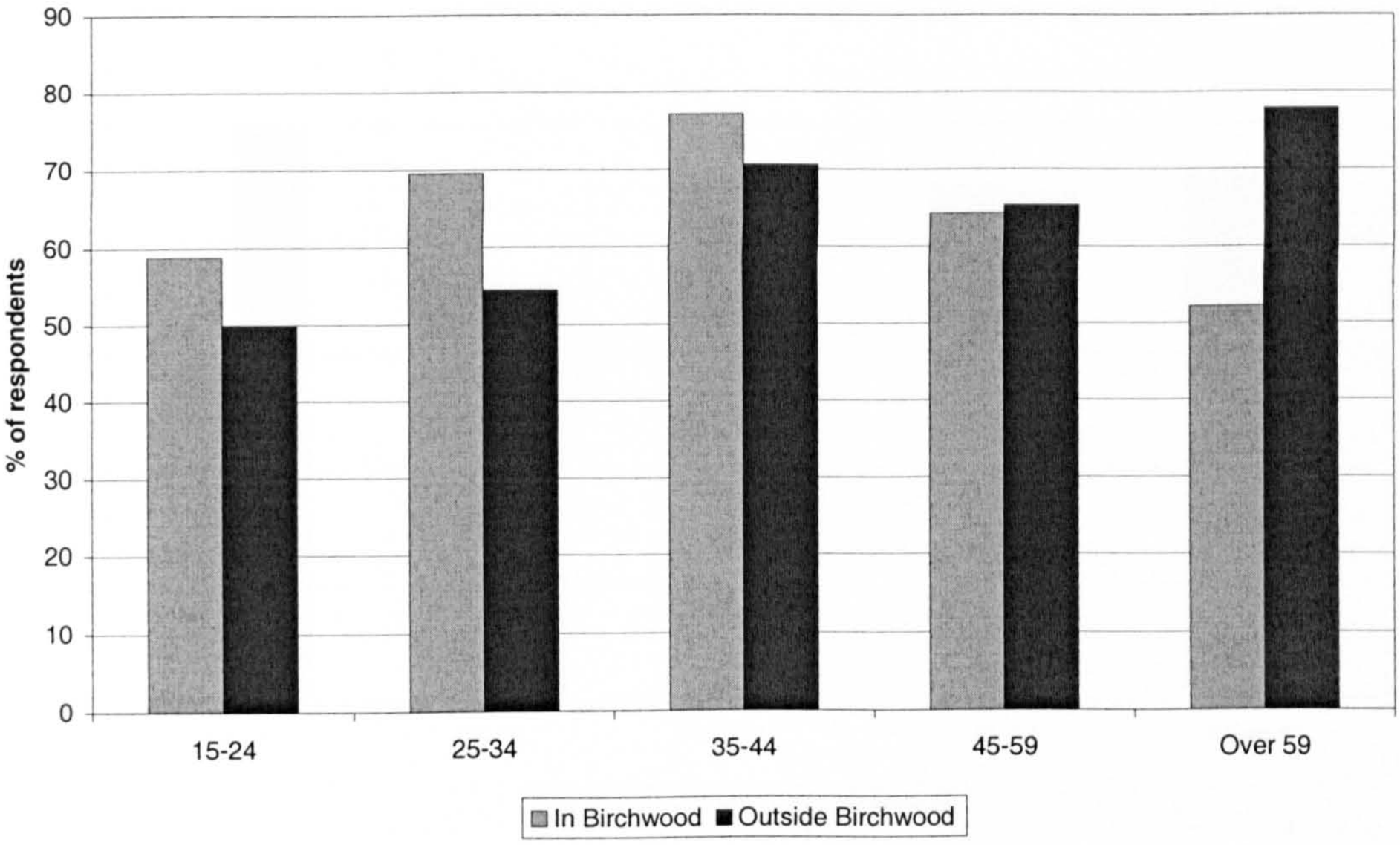


Figure 6.19 Effect of age on approval for "maintenance of public areas"

Figure 6.19 shows that there is a tendency for older respondents in Birchwood to be more critical of the "maintenance of public areas" on their street.

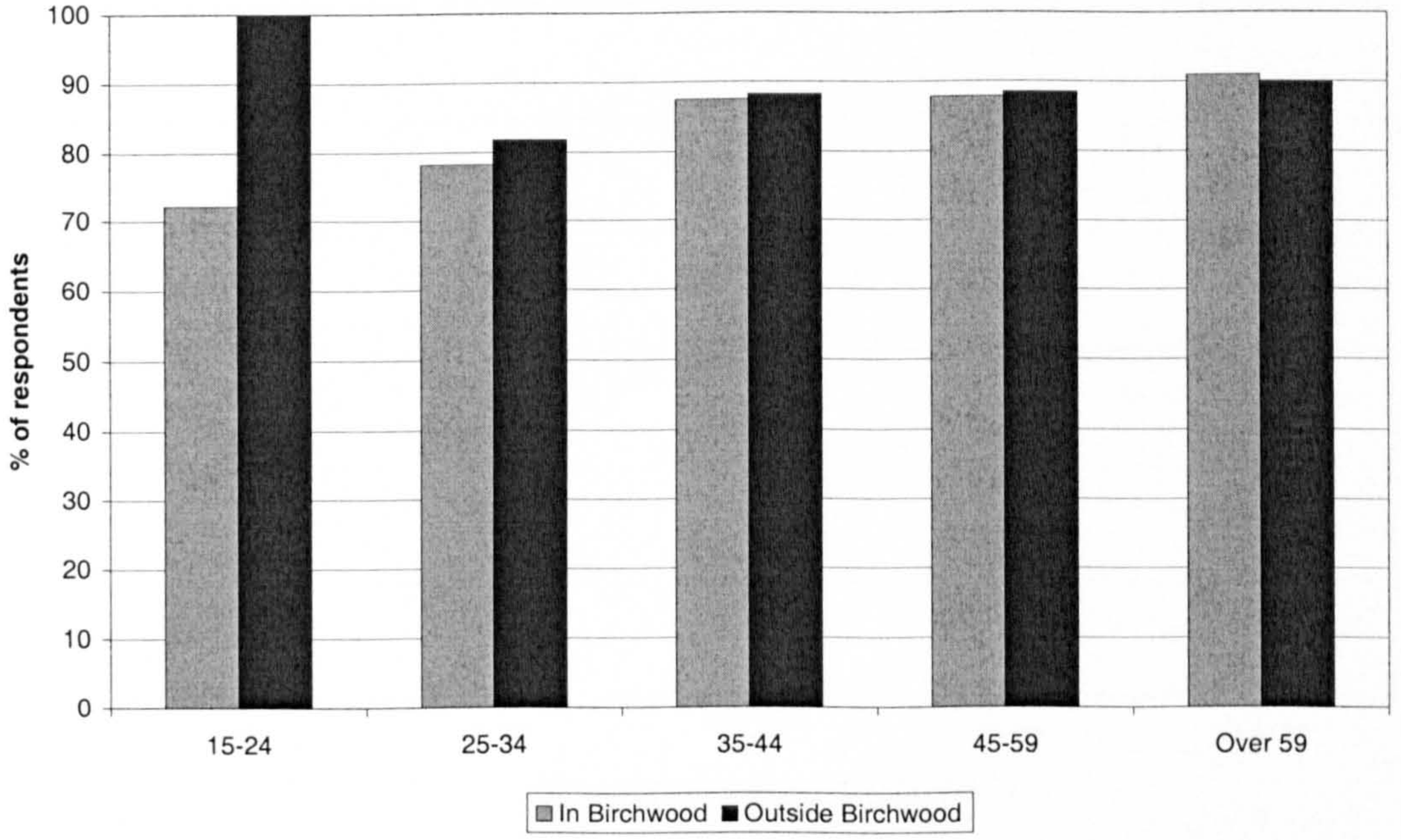


Figure 6.20 Effect of age on approval for "visual appearance of houses"

Generally speaking, older respondents from both inside and outside Birchwood were also more likely to approve of the "visual appearance of the houses" on their street.

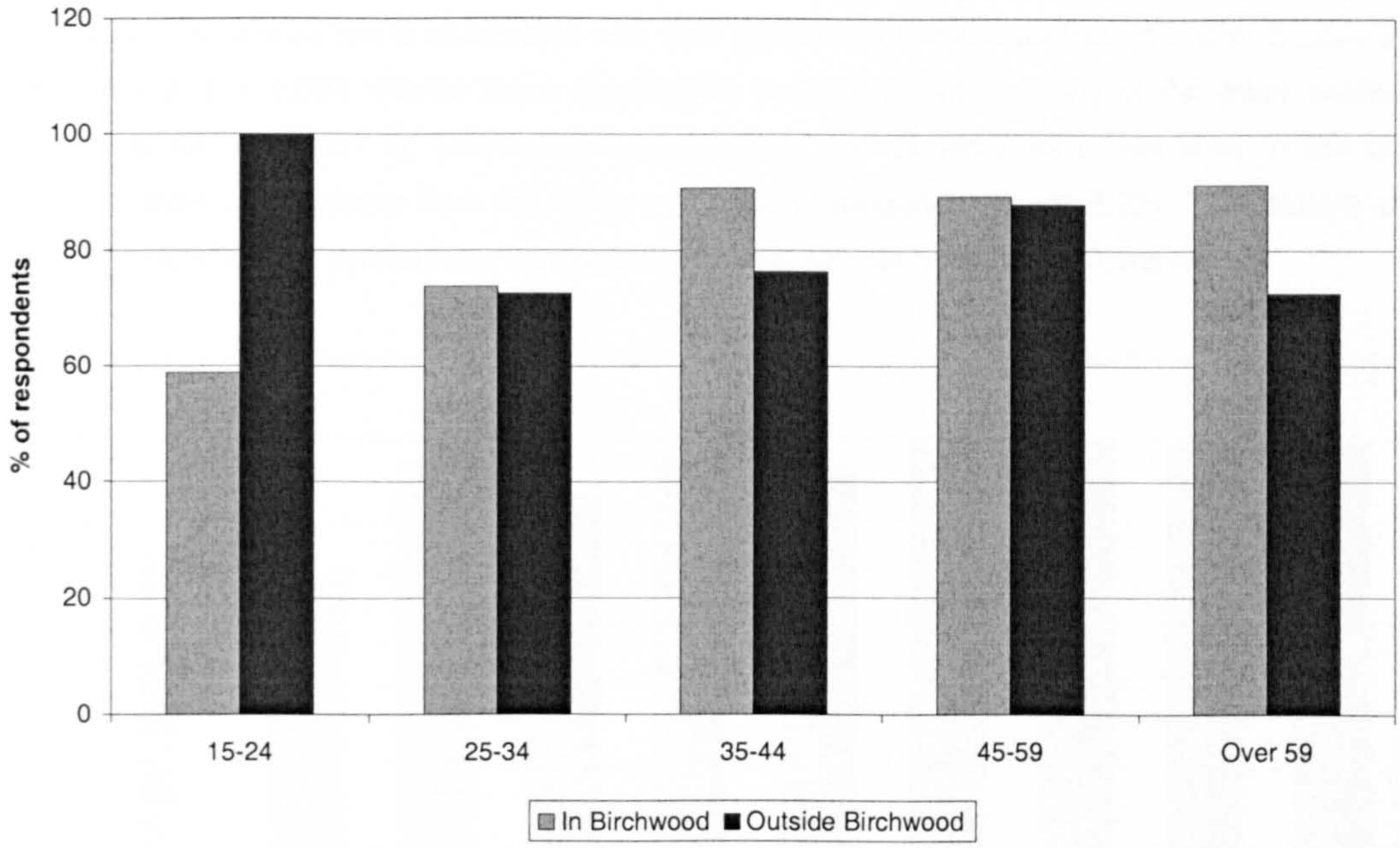


Figure 6.21 Effect of age on approval for "outlook from inside own house and garden"

Older respondents were more likely to approve of the "outlook from inside [their] own house and garden", though, interestingly, this trend was more pronounced inside Birchwood (figure 6.21).

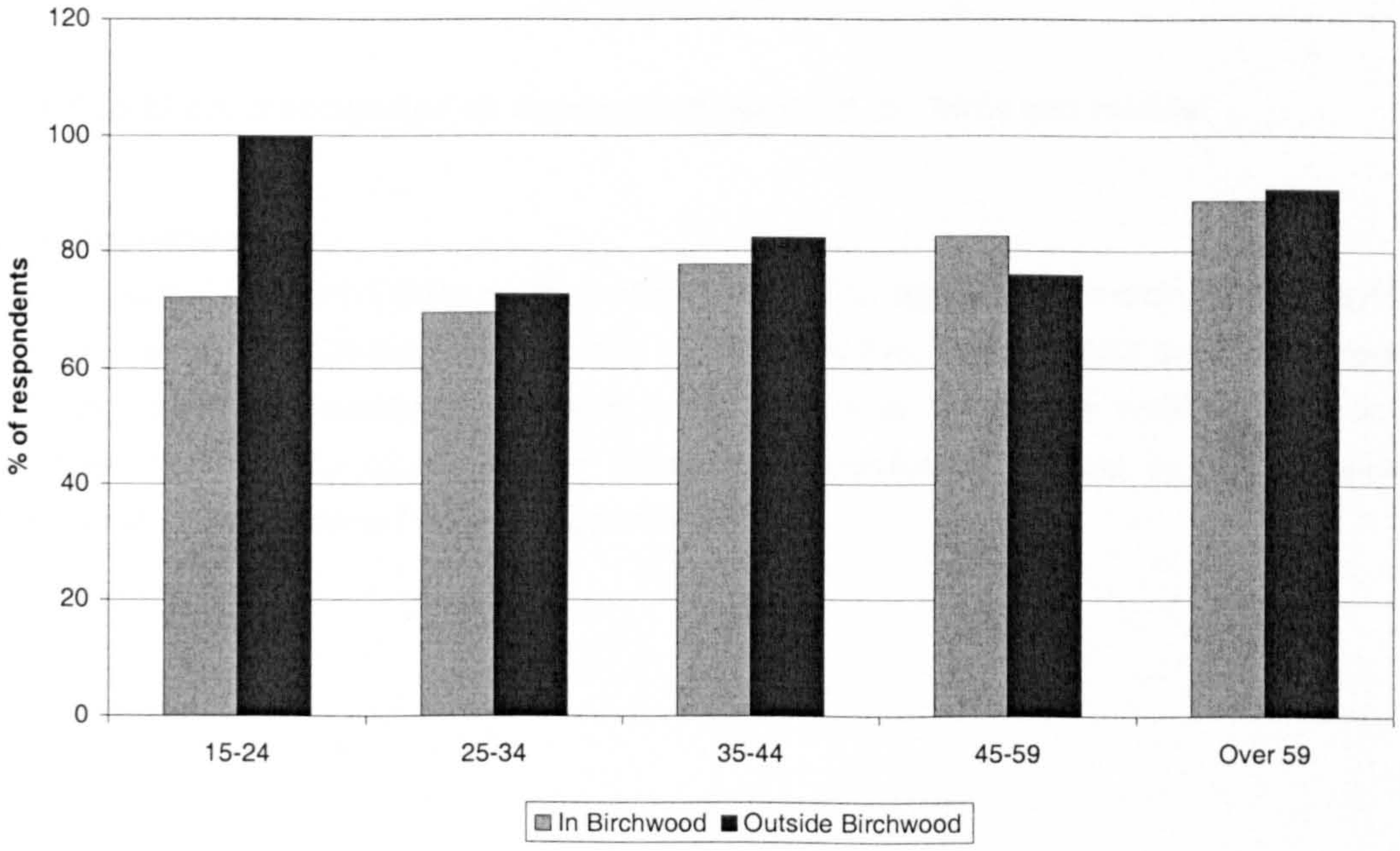


Figure 6.22 Effect of age on approval for "the way the street is set out"

Once again, older respondents were more likely to approve of the "the way the street is set out", though as in previous examples, this trend was more marked inside Birchwood (figure 6.22).

Occupation

The respondents' occupation is associated with their perception of birds and wildlife: Chi- Square x^2 = 27.862; df = 9; p = 0.033 (Monte Carlo significance used); but not with any of the other aesthetic factors (table A4, Appendix 8). Unemployed respondents and students were less likely to like birds and wildlife than respondents from the other occupation categories (figure 6.23). This pattern was present and slightly more pronounced amongst the control sample from outside Birchwood.

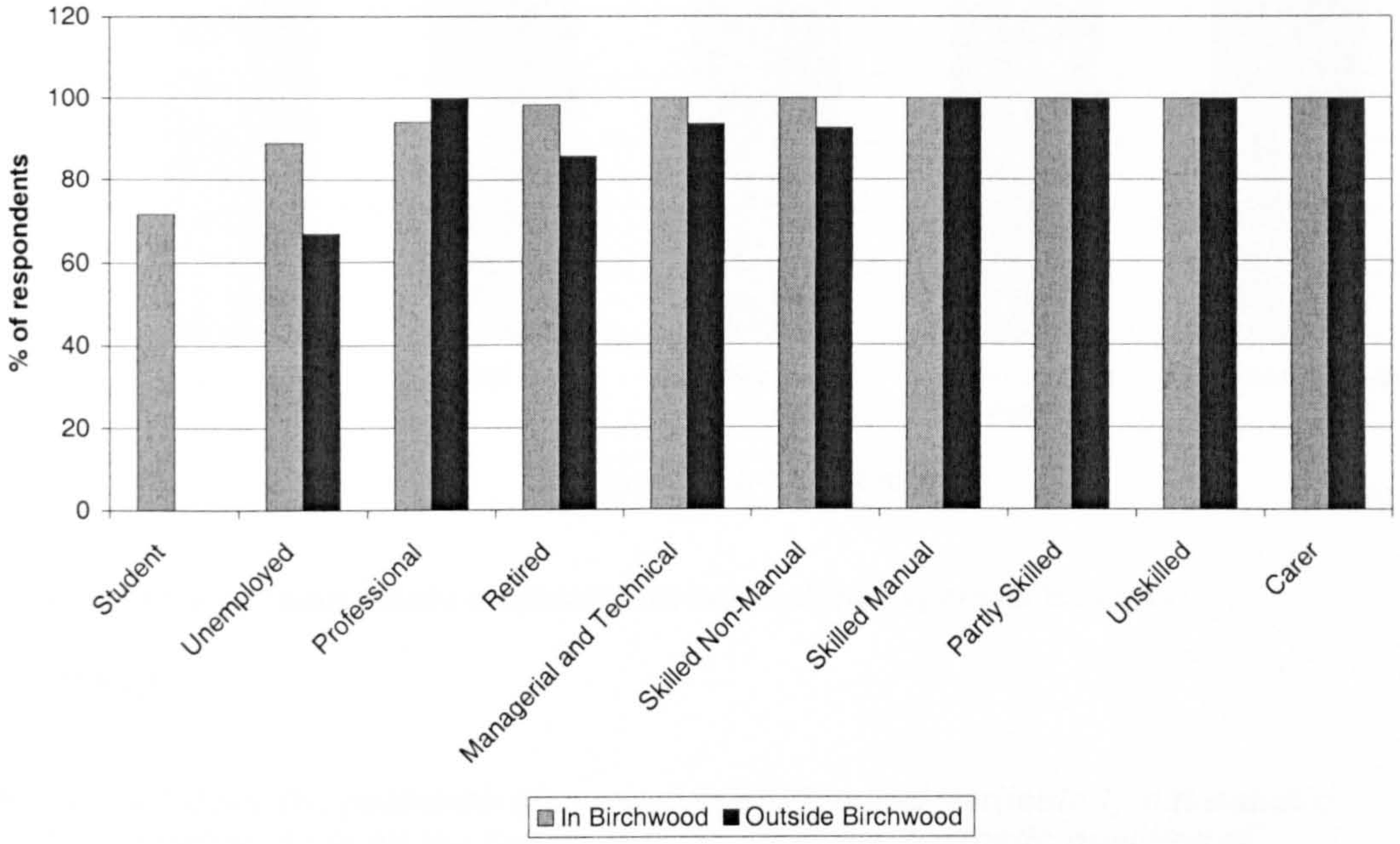


Figure 6.23 Effect of occupation on respondents' approval for "birds and wildlife"

Educational attainment

The respondents' perception of the traffic on their street varied significantly according to their level of educational attainment: Chi-Square x^2 = 9.605; df = 4; p = 0.045. As figure 6.24 shows respondents with higher levels of educational attainment were more likely to find the traffic on their street acceptable. None of the other aesthetic factors were significantly affected by the educational attainment of the respondents (table A5, Appendix 8).

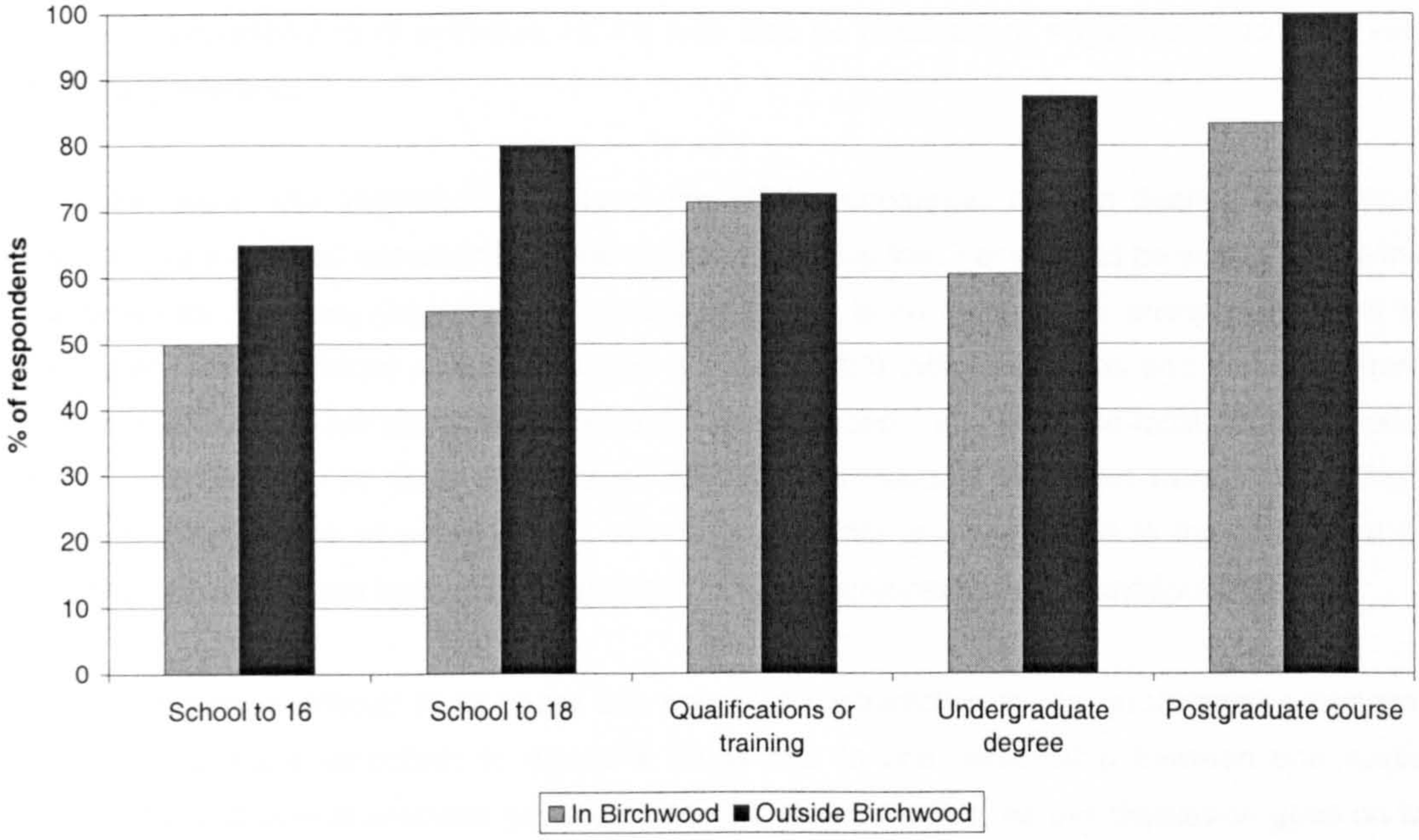


Figure 6.24 Effect of educational attainment on respondents' approval for traffic

Discussion

What impact does the presence of woody vegetation and particularly naturalistic woody vegetation have on the public perception of the aesthetic qualities of residential streets and surroundings?

An overwhelming majority of the respondents from Birchwood (94%) said that they liked the "trees and greenery" on their street. Only 14 % of these respondents said that they wanted to change "public green issues", and out of these only 16 respondents thought the amount of trees and greenery in Birchwood was excessive, compared to 12 who wanted more trees and greenery. It therefore seems reasonable to assume that most of Birchwood residents are satisfied with the amount of "trees and greenery" on their street.

Fewer respondents from outside Birchwood (85%) said that they liked the "trees and greenery" on their street, but this level of satisfaction is surprisingly high given that these respondents generally had much less vegetation on their street. There are a number of possible explanations for this. Firstly, it may be that people select a place whose characteristics most closely correspond with their aesthetic preference to live in. Secondly, it may be that many respondents took this question to mean: "Do you like or dislike the trees and greenery that are on your street?" rather than "Do you like or dislike the *amount of* trees and greenery that are on your street?" Thirdly, it must be remembered that due to an error in identifying the respondents' addresses in Coppice, six out of 25 of the respondents from this control HCA, actually did have a large amount of woody vegetation on their street. The data collected in this study does not indicate which of these explanations is the more likely, perhaps a combination of factors is at work here.

Respondents who live in higher housing density HCA's like the visual appearance of their street less. The different characteristics of individual HCA's may also be positively or negatively associated with respondents' preference.

On the other hand, the vegetation density of the HCA's apparently has no bearing on whether respondents like the visual appearance of the street where they live. Yet it would be wrong to assume that the presence of woody vegetation on residential streets is an irrelevant or unimportant factor in aesthetic preference for those streets. As figure 6.2 (page 123) indicates, "trees and greenery" were liked by over 92% of the sample as an element of the streetscape, and were the most popular aspect of the street second only to "birds and wildlife". Unpopular aspects of the street were "car parking", "traffic" and "maintenance of public areas". Although the latter issue is linked to the perception of vegetation on the street (see below), it is clear that "trees and greenery" are not unpopular *per se*.

At first sight it seems difficult to reconcile this apparent contradiction in the questionnaire findings. However, it is perhaps unrealistic to expect a crude one to one relationship between one single aesthetic factor and overall aesthetic preference for the street. Further, as this discussion goes on to suggest, even the apparent link between high housing density and low aesthetic preference is more complex than first appears, and probably has more to do with other factors that are linked to high housing density.

During the interviews many respondents answered questions about the visual appearance of places by talking about the people who occupy them. For example, when asked about the visual appearance of her street, a resident of the high vegetation density HCA Nightingale replied:

> **Mrs H**: "Well it has changed a little bit in the last 12 months but people seem to, it's only my end of the Nightingale Close actually...people seem to keep their gardens very nice, and the people are very nice, although I don't see a lot of them, I'll go days and never see anybody, but on the whole I find it very pleasant I find it very pleasant down here, I find at the end I don't have traffic passing me by, don't get much interference a few people tend to jump over the wall now and then. "

Although there is a clear link here between the people who live in Nightingale and the way they look after their gardens, which affects the visual appearance of the street, this respondents' answer is concerned predominantly with non-visual factors: nice neighbours, (whom she feels a little isolated from), freedom from traffic (peace and tranquillity) and little interference from others (apart from the youths that jump over the wall at the end of the street from time to time). Thus it seems that, for many people, the separation of the visual appearance of a place from other aspects of the way it feels to live there is artificial. This issue came up again during the interviews in the context of the discussion of Birchwood as a whole, and is referred to again in Chapter 7, "Place Identity" (page 193).

It also became clear during the course of the interviews that although this part of the questionnaire was about vegetation on the street itself, for many respondents this included vegetation adjacent to their homes on all sides, and the discussion that follows therefore includes references to vegetation all around the respondents' homes.

From the interviews it became apparent that respondents from Birchwood have both positive and negative feelings towards the woody vegetation that forms part of the streetscape, and surrounds their homes. On the positive side, such vegetation was said to improve the quality of the environment, give the street its character, screen traffic and other buildings, create privacy and seclusion, impart a sense of containment and security as well as having a number of other intangible benefits that are described in Chapter 7, "Place Identity". On the negative side, respondents complained about shade, damp, disturbance from branches tapping at the window, damage to services and structures, untidiness, encroachment, isolation and insecurity. Woody vegetation on the street was said by some to be a safety hazard for children. It was feared that children could run out from behind clusters of shrubs into the path of oncoming traffic. It was also felt that such vegetation clusters could hide potential assailants, as well as providing a haven for anti-social activities. Whilst a number of respondents felt that rubbish tended to collect in shrubby vegetation, some also felt that replacing this vegetation with grass was not necessarily a solution, as this was prone to dog fouling, and was less attractive than the original shrubs.

The questionnaire data revealed a slight but significant tendency for respondents from high housing density HCA's to find the "trees and greenery" on their street less attractive. The interviews clarified the role of housing density in the perception of "trees and greenery". Here three different respondents from high housing density HCA's give their opinions about the woody vegetation around their homes:

> **Mrs B**: "Well the problems were the greenery at the back, they've cut it back a lot now, but at one point it was that overgrown it used to make this living room dark, when it rained all the rubbish came from the back into my garden."

> **Mrs Sh**: "if they kept it they kept low enough and neat enough there's no problem with them, and if they if they hadn't planted them so close to, I mean a lot of the bushes that are round the houses are actually planted virtually against the walls, and when they're not maintaining them properly they weigh up the walls, and it cause damp and all sorts to the houses so maybe they should have made a better plan of exactly how far they should have been planted to the house, and to brickwork and how, you know how much maintenance they were going to take in the future because when they were first put in I mean they were only little tiny things weren't they?"

> **Mrs T**: "The outside of the house that out there I think it's an eyesore now I had a tree a very big tree and it took a lot of the light it cracked, it's cracked under my wall outside and it it's cracked a flag with the roots, and they come one day, he didn't come in and he said that the tree was fine but he hadn't been in here to see how dark it made it anyway in the end because they had to do the pavement outside again because it had cracked I think then they decided that enough was enough so they cut the tree down, but the outside there is just they've just few months back now cut it down a bit..."
>
> "if they're playing out there you can't see them, you can't so you have to keep going in and out, in and out, now when Keith was alive we wanted to get a petition up to get it taken down, and one or two neighbours disagreed, they said that if it was made flat you'd get, and it was grass, you'd get dogs, you get dogs there anyway but at least you can see your children and you know the way things are at the moment you've got to be so careful..."
>
> "so I had to keep, when Shannon and like little Matthew come I'm in and out, in and out, making sure that they're still there, cause otherwise. And at winter it is terrible because it's pitch black you can't see who's hiding in them trees I mean it frightens me coming back from the shop because you just can't see and all they've said is if we get another petition up fair enough they'll look into it but"
>
> **AJ**: "So is it fair to say that you've never really liked those bushes since you moved in?"
>
> **Mrs T**: "No no, see they were flat they were quite low,"
>
> **AJ**: "Small yeah,"

Mrs T: "If they'd keep them,"

AJ: "Yes, so that you could see over them yes,"

Mrs T: You could see over them I mean before honestly you just wouldn't have believed how high they were."

The interviews demonstrated clearly that respondents from lower housing density HCA's had similar concerns. Here three different respondents from low housing density HCA's give their views about the vegetation surrounding their homes:

Mr M: "yeah the trees are starting to need quite a bit of maintenance people have tree surgeons in to do this and that and I've topped trees quite a bit if that hadn't been done then I'm sure we would feel over tree'd, they would have been overpowering, too tall blocking light out and that's been a complaint hasn't it that you've needed more light on the rest of the garden?"

Ms S: "they've landscaped it obviously and lovely, but really would you want to plant Elm trees, trees that will eventually grow to 90 feet within yards of people's homes, I don't think so but I'm very loath to say anything to the Council because they don't do half measures, it's either leave it or it goes down to the ground, which now off the record but my partner had a chain saw and we manage the trees at the back, and if we hadn't have managed the trees at the back it would be so dark in here it would be unbelievably dark."

Mr Sp: "I mean I had a cherry tree in the garden which I demolished."

AJ: "Yes right why did you demolish it?"

Mr Sp: "When I had the path paved, for me the tree was just a bit too big and I was, there was some cotoneaster underneath it as well, and I wanted to make something that was a little bit less obtrusive right in the drive, I wasn't worried about it damaging the roots ultimately affecting the house, I mean that was a reasonable distance away, I used that as an opportunity to get rid of it but I planted lower vegetation since to keep the slightly open aspect, the trees are nice on the edge if you want, we've got a quite small close it's only 13 houses I don't think it can quite cope with too many big trees."

There is both a striking similarity and a difference between the comments made by the respondents from the high and low housing density HCA's. All the respondents share similar concerns about the vegetation, but the steps they take to deal with these concerns are different. The respondents from the high housing density areas do not maintain or remove the vegetation themselves, they are dependent on the Council or Housing Association to do it for them, and consequently they are unable to determine the frequency and manner in which the vegetation management is carried out. On the other hand, the respondents from the low housing density areas do manage the vegetation themselves (even where it is beyond their own boundaries), either in person or by getting tree surgeons in, and therefore have a greater sense of power and control, which comes across clearly in the above excerpts.

The above comments are representative of the comments made by many of the respondents from the high vegetation density HCA's during the interviews, which explains the questionnaire finding that significantly fewer respondents from high vegetation density HCA's like the "maintenance of public areas" on their street. Remarkably few respondents, including those from the high housing density HCA's, wanted the offending vegetation to be removed, rather they wanted the maintenance regime to be improved.

There are other reasons why respondents from high vegetation density HCA's should be less likely to like the trees and greenery around their homes. As Chapter 5, "Physical and Demographic Characteristics of the Case Study Area", indicates the dwellings in the low and medium housing density HCA's were generally privately owned, whereas 67% of the dwellings in the high density HCA's were rented. Thus respondents in the lower housing density HCA's generally had the ability to choose their immediate surroundings by buying a property in the place of their choice, whereas the respondents in the high housing density areas generally had more limited choice by virtue of being tenants.

Further tests were carried out on the variables housing tenure, overall aesthetic preference for the street and approval for the "maintenance of public areas", in order to test the hypothesis that housing tenure plays a significant role in the perception of these matters. In the questionnaire respondents were asked whether their homes were rented or privately owned. Their replies were then converted to a nominal binary variable where 1 was "rented" and 2 was "privately owned". This variable was then tested against the variable representing overall aesthetic preference for the street (see page 119 for an explanation of this variable) using a Mann-Whitney Test: $z = -3.522$; $p < 0.0001$. Respondents who owned their own homes expressed significantly greater levels of aesthetic preference for their street than respondents whose homes were rented (table 6.25).

Mean preference for street	Location in relation to Birchwood	
	In Birchwood	Outside Birchwood
Housing tenure		
Rented	3.59	2.60
Privately owned	4.07	4.11

Table 6.25 Effect of housing tenure and location in relation to Birchwood on mean aesthetic preference for the street

The housing tenure variable was then tested against the variable representing approval for maintenance of public areas on the street (see page 119 for an explanation of this variable) using a Chi-Square test: $x^2 = 8.187$, $df = 1$; $p = 0.004$. Respondents who rented their homes were far less likely to approve of this aspect of their street (table 6.26). Although "maintenance of public areas" is a broad concept that could potentially cover many different aspects of on-street maintenance the interviews suggested that, in Birchwood, the foremost issue in respondents' minds was the maintenance of woody vegetation.

	Location in relation to Birchwood	
	In Birchwood	Outside Birchwood
Housing tenure	%	%
Rented	52	25
Privately owned	70	76

Table 6.26 Effect of housing tenure and location in relation to Birchwood on approval for "maintenance of public areas"

These additional test results add credence to the hypothesis that people who rent rather than own their homes, and who therefore have less control over their immediate surroundings, are more likely to articulate negative views about trees and shrubby vegetation in close proximity to their homes.

Further, in most of the lower housing density HCA's, the external spaces in the street were not only larger than in the higher housing density HCA's, they were also mainly private spaces: most of the external space was given over to private drives and gardens. Respondents in these areas therefore had a larger private buffer zone between their dwellings and any woody vegetation over which they have no direct control. Their back gardens also tended to be larger with the result that vegetation along their boundaries was further away.

These issues of control and proximity highlighted the need for respondents to personalise their own living space: a need that was articulated by a number of respondents during the interviews. When asked about the woodland structure planting one respondent from a high housing density HCA said:

> **Mrs W**: "as a general thing I think it's alright, but I just think it's encroached on the living space, so we're sort of on the periphery, it was somewhere where you could go outside of where you live,"

Here two other respondents from lower housing density HCA's explained their feelings about personalising their immediate living spaces:

> **Mr S**: "well I think everybody should have the right to develop their own little ...plot you know every English man's house is his castle isn't it, it's your own little plot of land you should be able to do as you want with it and not be dictated to by you know I think you know as I say if they came and said oh no this is this is...you know you plant this range of plants and it's you know we expect it to look like this you know like conservation areas which is not, then I'd probably feel quite mixed about that probably plant something that they didn't want to get".

> **Mr Sm**: "I do think that if people know have had a certain design imposed on them the chances are that out of a desire for independence they will try to subvert it,"
>
> "we were told that we weren't supposed to cultivate the front gardens and I presume meaning growing potatoes, but I mean people have in fact put little hedges and people have put little flower beds and people have done all sorts of things out at the front there so they have in fact altered it."

During the course of the interviews many respondents from low and medium housing density HCA's described how they had removed the original planting put in by the builders and contractors at the time their homes had been constructed, usually from their front gardens. For the respondents from the high housing density HCA's the position was slightly different: for them the focus was on getting nearby vegetation outside their boundaries (either on the street or beyond one of their other boundaries) modified or removed. Due to the smaller size of their plots, compared to the plots in the medium and low density HCA's, such vegetation was closer to them and therefore constituted more of an annoyance or threat. However, respondents from low and medium housing density HCA's were also concerned about the management of woody vegetation beyond their own boundaries, particularly those with unusually narrow plots.

It is therefore apparent that the existence of woody vegetation on residential streets and around people's homes is an important factor in determining the way they feel about their home and its immediate surroundings: such vegetation has the potential to be the object of both positive and

negative regard. It seems that housing density mediates residents' perception of woody vegetation through its link with issues of control, choice and proximity.

It is difficult to determine to what extent the character of woody vegetation (formal and horticultural as opposed to naturalistic) plays a part in respondents' overall aesthetic preference for their street, as this was not a variable that was controlled for in the study. Not all of the original planting in Birchwood is naturalistic in character. Some of the original street planting in the low and medium housing density areas, particularly in Gorse Covert, and, to a lesser extent, in Locking Stumps, has some formal and horticultural qualities, whereas the planting in some of the high and medium density housing areas in Oakwood has a more naturalistic character. It could therefore be argued that it is the naturalistic character of the vegetation that causes significantly greater numbers of respondents from high housing density HCA's in Birchwood namely Fern, Rawlings and Redshank, to disapprove of the vegetation on their street, as well as issues related to proximity and control.

Out of the ten respondents who were interviewed from the high housing density HCA's only one expressed views about the character of the vegetation on the street. This respondent was particularly critical of the naturalistic look:

> **Mrs W:** "they're sort of tatty shrubs, they're not nicely planted sort of landscape you know they put things in to cover an area they haven't sort of planned it...and made it a bit nicer you know they're sort of scrubby, I mean my hedge at the front is sort of odd mix of wild roses and yew and very overgrown"
>
> "I mean the hedges should have been all one type of privet or they should have fenced them off you know not used sort of mixed because they don't grow together properly so they don't make a proper hedge, the yew things like that are very very invasive plants they've used".

This respondent said she would prefer:

> "maybe little conifers or rockeries or low growing plants maybe since I've got them they're all big I just wouldn't buy them I think things that are sort of smaller and low growing perhaps rockeries or things that are edged I suppose, and sort of contained rather than..."

However, for the other respondents from the high housing density HCA's, vegetation maintenance and management, rather than species selection, or the character of the vegetation, were the main issues. Further, respondents from Rawlings- a high housing and vegetation density area with extremely naturalistic qualities- liked their "trees and greenery" more than the respondents from every other HCA in the study, except Ringwood and Lords. The data therefore suggests that it is the size and structure of woody vegetation, as well as its proximity, rather than its character (formal and horticultural or naturalistic) that evokes negative feelings.

Do the residents of Birchwood find the visual appearance of their street attractive compared to the residents of other areas?

Overall there is no evidence that residents of Birchwood like the visual appearance of their street more than the residents of other areas in Warrington. As figure 6.1 (page 122) shows the characteristics of individual HCA's, including their housing density, seem more strongly associated with respondents' overall aesthetic preference for their street than their location in relation to Birchwood. If anything, figure 6.1 demonstrates that respondents from the low and medium density control areas from outside Birchwood, Coppice and Shakespeare, actually liked the visual appearance of their street slightly

more than their Birchwood counterparts. On the other hand, figure 6.1 also indicates that the respondents from Vulcan liked the visual appearance of their street far less than respondents from any other HCA, including the equivalent high housing density HCA's from Birchwood, namely Fern, Rawlings and Redshank.

There are no obvious explanations for these differences. None of the individual demographic factors tested for had any apparent impact on respondents' overall aesthetic preference for their street. The respondents from Coppice and Shakespeare have no demographic characteristics in common that would explain why the residents of both areas find their street so attractive. However, as Chapter 5, "Physical and Demographic Characteristics of the Case Study Area" explains, there are major differences in the demographic make-up of the HCA's. The explanation is likely to be a complex mixture of demographic factors, and the age and characteristics of the HCA's themselves.

What contribution does the presence of woody vegetation and particularly naturalistic woody vegetation make to aesthetic appreciation of residential streets, compared to other factors, and which issues have the biggest negative impact on residents' perception of the aesthetic qualities of their street?

As previously indicated "trees and greenery" are amongst the most positively regarded visual aspects of the street identified in this study, compared with "birds and wildlife", "maintenance of public areas", "traffic", "car parking", "maintenance of gardens", "visual appearance of houses", "outlook" and "street layout" (figure 6.2, page 123). The most negatively regarded aspects are "maintenance of public areas", "traffic", and "car parking". These are also the only aspects that are associated with vegetation density: respondents in HCA's with higher vegetation densities are significantly more likely to disapprove of these aspects of their street.

However, the association between disapproval of "maintenance of public areas", "traffic", "car parking" and high vegetation density does not stand scrutiny. As figure 6.4 (page 125) shows, respondents from two out of the three high vegetation density HCA's (Lords and Rawlings) generally approved of "maintenance of public areas" compared to HCA's with equivalent housing densities. It was really only the respondents from Nightingale and Fern who disapproved of this aspect of their street. There is an obvious reason for this that has nothing to do with vegetation density. Nightingale and Fern have the highest proportions of respondents aged over 59 of all the HCA's, and respondents in this age group were significantly more likely to disapprove of this aspect of their street (figure, 6.19, page 143).

During the interviews it became clear that respondents from Lords felt strongly about traffic due to the existence of a busy through road, Lords Lane, bisecting their HCA. This was the only HCA in the study that was subject to through traffic. When complaining about the traffic on their street, respondents from this area were actually referring to the traffic on Lords Lane, even though many of them lived on side streets off Lords Lane itself. Once Lords is removed from the equation it becomes apparent that the only high or medium vegetation density HCA where traffic is considered to be a problem is Nightingale.

The association between disapproval of "car parking" and high vegetation density also failed to withstand close examination. Although the respondents from two out of the three high vegetation density HCA's, Lords and Nightingale, together with respondents from Fern (a medium vegetation density HCA with a relatively high vegetation score), disliked the car parking on their street more than respondents from HCA's with equivalent housing densities, once again, the residents of Rawlings, the third high vegetation density HCA were the exception. Further, more respondents from Ringwood, a low vegetation density HCA, also found parking to be a particular problem in their area.

However, despite the fact that "trees and greenery" were a popular aspect of the street the HCA's that are high in vegetation density were not the most popular overall. There were a number of consistently high-scoring areas, namely Hamsterley, Hazelborough, Ringwood and Coppice. The first three of these were all situated in the Gorse Covert area of Birchwood and consisted of low to medium density housing set in a low to medium density vegetation cover. The last, Coppice, was the highest scoring area overall. Notably, this was actually the low housing density "control" area from outside Birchwood with a very low vegetation density. However, an interesting incidental finding in relation to Coppice was that, out of the 12 respondents from the entire sample who said they wanted more trees and greenery, three were from this HCA -12% of the total respondents (n=25) from this HCA. It should also be noted that six respondents from a part of Coppice that was relatively high in vegetation density were inadvertently included in the sample, and that the higher levels of approval for the visual appearance of the street found in this HCA may actually relate to the presence of this vegetation. Interviews with two of the respondents from this part of Coppice support this interpretation.

Taken in isolation from each other, none of the demographic factors explain why their residents consider these four areas more attractive. Thus it seems that the crucial differences must lie in a combination of demographic factors, and/or in the design and layout, and/or in the context of these HCA's. In terms of demographic factors and overall design and layout, there is nothing to distinguish Hamsterley, Hazelborough and Ringwood from the less highly scoring low housing density areas, namely Lords and Cadshaw; they all consist of cul-de-sacs containing predominantly one or two-storey dwellings with their own separate driveways, pedestrian access and front and rear gardens. Gorse Covert was the final district of Birchwood to be constructed, and Coppice was built in the 1990's and was therefore the most recent of all the HCA's. Presumably private housing development reflects the popular aspirations of its time, and attracts an influx of people who identify with those aspirations. As time goes by, aspirations change. It seems plausible that there is a connection between the age of a development and the regard in which it is held its residents.

There is also one other characteristic that Gorse Covert and Kingswood (where Coppice is situated) have in common. Unlike all the other districts in the study, neither contains any high housing density housing (social housing). As indicated earlier in this chapter (page 147) and in Chapter 7, "Place Identity" (page 193), a crucial part of satisfaction with housing environment and place identity is satisfaction with the local community. Many respondents from Gorse Covert showed antipathy and fear towards Oakwood, the nearest area of social housing, during the interviews. They were keen to distinguish Gorse Covert from Oakwood:

> **Ms C**: "the Gorse Covert part of Birchwood is an attractive area cause not all Birchwood because it sounds really snobby but they've got the new town they've council property they've got they do have a bit of trouble down to towards well beyond Oakwood and to you know towards the Birchwood centre they I think it was the estate agent said to me there's some parts that he wouldn't go to on his own so this particular part is attractive".

What difference does housing density make to public attitudes towards these issues?

The picture that began to emerge through the analysis of the data relating to the aesthetic factors was of a declining level of satisfaction with many of these factors as housing density increased. However, it is unlikely to be housing density *per se* that is responsible for this decline. There are numerous different types of high density housing that are perfectly acceptable to their residents, and highly sought after. One example is the new fashion for city living in purpose-built high-density flats, but there are older examples such as the Barbican in the City of London. This trend is more likely to be a reflection of a lower level of satisfaction with the circumstances of daily living connected with factors such as unemployment, poverty, lower levels of educational attainment and ill health.

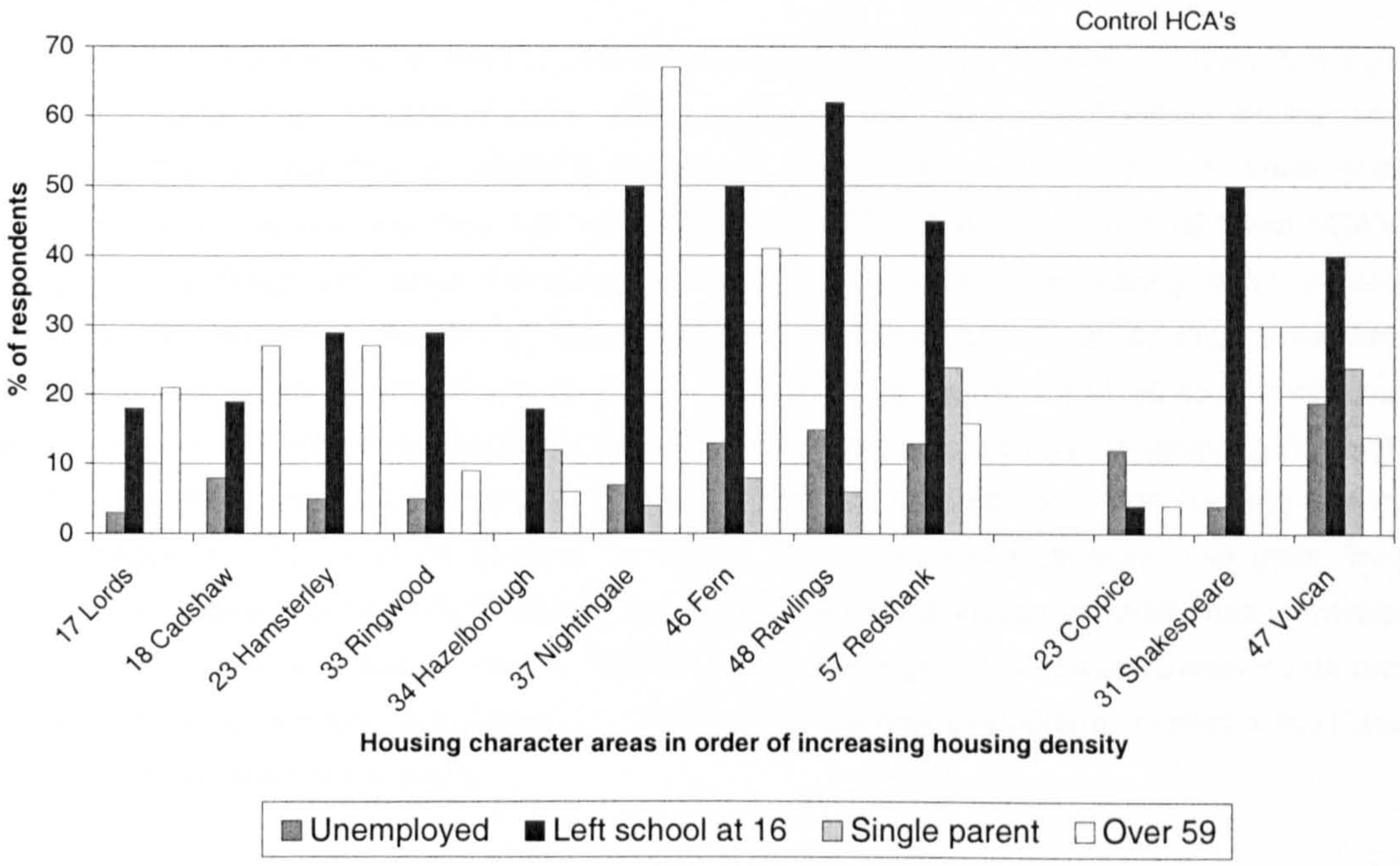


Figure 6.25 Indicators of deprivation in housing character areas (source- postal questionnaire)

As figure 6.25 confirms respondents from the high housing density HCA's of Fern, Rawlings, Redshank and Vulcan were more likely to be unemployed, have lower levels of educational attainment, to be single parents or be over 59. Whilst these characteristics are not synonymous with deprivation, where they occur together, as in this example, it seems likely that poverty and deprivation are also present. These four factors are very similar to those used in the Index of Multiple Deprivation (Department of the Environment, Transport and the Regions, 2000). It is interesting to note that in Shakespeare there is a level of educational attainment comparable with some of the high housing density areas, together with a relatively high proportion of respondents that are over 59. Despite this, respondents from Shakespeare expressed a high level of satisfaction across most of the aesthetic factors. Given that 96% of the respondents in Shakespeare own their own homes, compared with

much lower proportions of home ownership amongst respondents with similar demographic profiles in the high housing density areas (see Chapter 5, "Physical and Demographic Characteristics of the Case Study Area") it seems likely that the main factor that distinguishes respondents from Shakespeare from their demographic counterparts is prosperity. This assumption is supported by the fact that Shakespeare has one of the lowest levels of unemployment of all the HCA's. This suggests that prosperity may be another generator of satisfaction with housing environment.

An additional explanation is that where choice of accommodation is restricted because of financial constraints, people are inevitably less satisfied with their living conditions. On the other hand, where people have made a significant financial investment in selecting their accommodation it is perhaps more likely to match their needs and aspirations. This interpretation is supported by the finding that respondents who rented their homes as opposed to owning them expressed significantly lower levels of aesthetic preference for the visual appearance of their street (page 150).

However, the considerably higher levels of satisfaction expressed by the respondents from Rawlings, compared to other high housing density areas, suggests that there are housing models and streetscapes that are capable of mitigating the impact of deprivation. It is difficult to know what differentiates Rawlings from the other high housing density HCA's. Certainly, out of all these HCA's, Rawlings has the design and layout that is most similar to the four most highly scoring HCA's, namely Hamsterley, Hazelborough, Ringwood and Coppice: it is a series of cul-de-sacs containing predominantly two-storey dwellings with their own front and rear gardens and obvious fronts and backs to the houses. However, Rawlings also has high vegetation density, suggesting that high vegetation density is not incompatible with residential aesthetic satisfaction in high housing density areas, provided that the other elements of the design and layout are acceptable. The other, less popular, high housing density HCA's namely, Redshank, Fern, and Vulcan generally had a greater housing mix contained in a juxtaposition of layouts. Some dwellings did not have obvious fronts and backs and not all had gardens (see Chapter 5, "Physical and Demographic Characteristics of the Case Study Area", for detailed descriptions).

Another interesting aspect of the data in the context of housing density is Vulcan's low performance against virtually all of the aesthetic factors: respondents from Vulcan expressed the lowest level of overall aesthetic preference for their street and, generally speaking, the highest levels of disapproval for the specific aesthetic factors. There are several possible explanations for this. The first is that respondents from Vulcan have higher levels of deprivation than the respondents from every other HCA in the sample. According to the questionnaire data Vulcan has the highest number of unemployed respondents and, jointly with Redshank, the highest number of single parents. Another explanation is that Vulcan shares many of the characteristics of the least popular HCA's including unconventional street layouts with no obvious front and back to the houses. However, there is no evidence that it is the absence of vegetation in Vulcan (Vulcan being one of the three control areas from outside Birchwood) that contributes to the overall low level of satisfaction across all the aesthetic factors.

What impact do the demographic factors gender, age, occupation and education have on these perceptions and concerns?

Surprisingly perhaps, the demographic factors impacted on very few of the aesthetic factors but there were nevertheless some interesting associations.

Female respondents from Birchwood were significantly less likely to approve of the "maintenance of gardens by occupiers" on their street than male respondents. Interestingly, this pattern was not repeated outside Birchwood.

Liked "maintenance of gardens by occupiers"		**Female**		**Male**	
Housing character area		**Count**	**%**	**Count**	**%**
Nightingale	Yes	11	61	7	9
	No	2	100	0	0
Redshank	Yes	13	50	13	50
	No	8	80	2	20
Rawlings	Yes	11	46	13	54
	No	4	80	1	20
Hamsterley	Yes	11	52	10	48
	No	0	0	0	0
Hazelborough	Yes	6	40	9	60
	No	0	0	0	0
Ringwood	Yes	9	50	9	50
	No	2	100	0	0
Lords	Yes	21	55	17	45
	No	0	0	0	0
Cadshaw	Yes	12	52	11	48
	No	0	0	1	100
Fern	Yes	19	68	9	32
	No	5	63	3	38

Table 6.27 Effect of gender and housing character area on tendency to approve of "maintenance of gardens by occupiers"

Table 6.27 shows that the tendency to disapprove of this aspect of the street was confined mainly to the high housing density HCA's namely Redshank, Rawlings and Fern. There was a similar, but far less pronounced gender difference in approval for this aspect of the street in the high housing density control HCA from outside Birchwood, namely Vulcan. In Vulcan 58% (n= 7) of the female respondents as opposed to 42% (n=5) of the male respondents said that they disliked this aspect of the street. It may be that women in general are more interested in home making, and that gardens are seen as an extension of the home. Perhaps there is a greater need for domestic gardens to be seen to be orderly and maintained in Birchwood, because of the apparent disorder of the surrounding woodland, which is not present to the same extent around Vulcan.

Younger respondents were more likely to dislike "birds and wildlife". This finding should not be overemphasised, for, as table 6.28 shows, only six out of the 242 respondents from Birchwood who expressed a view actually disliked "birds and wildlife".

		Yes		No	
Liked "birds and wildlife"		Count	%	Count	%
Age of respondent	15-24	14	82	3	18
	25-34	23	96	1	4
	35-44	55	98	1	2
	45-59	74	100	0	0
	Over 59	69	99	1	1

Table 6.28 Effect of age on Birchwood respondents' attitude to "birds and wildlife"

It is, however, striking that in Birchwood, five out of the six respondents who professed to dislike "birds and wildlife" were aged below 44, and outside Birchwood six out of seven were aged below 44. There are probably a variety of reasons for this trend. Research to date does support the idea that younger people, and particularly teenagers, are less engaged with the natural world than both children and older adults (Lyons, 1983; Herzog et al, 2000), being more preoccupied with their own issues and interests. Research currently underway in the landscape department of the University of Sheffield also suggests that younger people prefer formal or ornamental landscape treatments to naturalistic ones (Garcia-Albarado, unpublished).

A female respondent from the Fern HCA aged between 35 and 44 also expressed views about "birds and wildlife" that were more than just disinterest or disengagement:

> **Mrs W**: "I just think that it's incongruous that because we're in a residential area and there's sort of wildlife brought in and I think if I was going to see it I'd want in a wood or a forest or I'd got to somewhere, it just seems it's too urban and I think the birds are a nuisance because we have millions of magpies and they sort of nest in the eaves etcetera and I just it doesn't marry to me... it's almost sort of vermin like".

Older respondents in Birchwood were also significantly more likely to be critical of the "maintenance of public areas" on their street but this pattern was not found outside Birchwood (figure 6.19, page 143). The most obvious explanation for this is that in Birchwood 46% of respondents aged over 59 live in high housing density areas where "the maintenance of public areas" has been shown to be more of an issue generally (figure 6.5, page 126). Another 23% of respondents in this age group live in Nightingale, a medium housing density area with high vegetation density. Nightingale is the only medium housing density HCA in the study with public areas that are covered in naturalistic woody vegetation. In marked contrast to this, outside Birchwood, 64% of respondents aged over 59 lived in a medium housing density HCA, Shakespeare, with very little vegetation on the street.

As table 6.29 shows older respondents were also more likely to approve of the "outlook from [their] own house and garden", though this trend was more pronounced inside Birchwood. Whereas only 59% of 15-24 year olds liked the "outlook from their own house and garden", 91% of the over 59 age group liked this aspect of their street.

		Yes		No	
Liked "outlook from their own house and garden"		Count	%	Count	%
Age of respondent	15-24	10	59	7	41
	25-34	17	74	6	26
	35-44	49	91	5	9
	45-59	67	89	8	11
	Over 59	63	91	6	9

Table 6.29 Effect of age on respondents' attitude to "outlook from [their] own house and garden"

This marked trend would be easy to explain if more elderly people lived in the low housing density HCA's, where preference for the overall aesthetic appearance of the street, and most aspects of the street were higher; but this was not the case. On the contrary, 46% of the respondents who were over 59 lived in three high housing density HCA's namely, Redshank, Rawlings and Fern. Although there was a general tendency across the age groups for greater numbers of respondents from the high housing density HCA's to dislike this aspect of their street it is clear that the predominant trend related to age rather than the different characteristics of the HCA's. There is no obvious explanation as to why older people should be more likely to approve of this aspect of their street; perhaps it is rather that older people prefer to spend more time at home, and their homes are somewhere they feel safe. The questionnaire also sought information about the respondents' favourite leisure activities. As table 6.30 clearly show older respondents are more likely to rate "leisure activities at home" as most important, and younger respondents are more likely to rate "going out" as their most important leisure activity.

Mean Importance of leisure activities

Age of respondent	**Leisure activities at home**	**Going out**
15-24	2.72	3.56
25-34	3.43	3.42
35-44	3.69	3.17
45-59	3.80	2.75
Over 59	3.98	2.65

Table 6.30 Effect of age on respondents' attitude to "leisure activities at home" and "going out" (source- postal questionnaire)

Older respondents were also more likely to approve of the "visual appearance of the houses" and "the way the street is set out", both in and outside Birchwood, though these trends were clearer among respondents from Birchwood (figure 6.20 and 6.22, pages 143 and 144). The data collected in this study does not suggest a reason for these trends. Perhaps they are more to do with the previously mentioned attachment that elderly people feel for their homes, rather than a purely visual aesthetic judgement.

Unemployed and student respondents were less likely to approve of "birds and wildlife" and "trees and greenery" than respondents from the other occupation categories, both in and outside Birchwood. Neither finding should be over-emphasised, as there were only 12 respondents who disliked "birds and wildlife", and only 25 who disliked "trees and greenery". Further, there were only 30 unemployed respondents and eight students in the sample. In the case of the students this trend can probably be

explained by the previously noted tendency for younger people to be more pre-occupied with their own issues, and less interested in nature and the environment (Lyons, 1983; Herzog et al, 2000).

There was also a trend for respondents with lower levels of educational attainment to be less tolerant of the levels of traffic on their street, both in and outside Birchwood. As previously noted, respondents with lower levels of education attainment were more likely to live in the high housing density HCA's. Data collected by the postal questionnaire indicates that respondents from high housing density HCA's were more likely to report "cars speeding" and "joyriding" on their street (tables 6.31 and 6.32), which may well explain why they were also more likely to find the "traffic" on their street unacceptable.

Incidence of "cars speeding"	Yes		No	
Housing density	Count	%	Count	%
Low	28	33	58	67
Medium	25	39	39	61
High	73	68	34	32

Table 6.31 Effect of housing density on Birchwood respondents' tendency to report "cars speeding" on their street (source- postal questionnaire)

Incidence of "joyriding"	Yes		No	
Housing density	Count	%	Count	%
Low	0	0	86	100
Medium	6	9	58	91
High	29	27	78	73

Table 6.32 Effect of housing density on Birchwood respondents' tendency to report "joy riding" on their street (source- postal questionnaire)

Emerging themes and ideas

The findings and discussion from this chapter are summarised in Chapter 10, "Conclusions", and are not therefore dealt with in detail here. This section describes briefly some of the themes and ideas that emerged from this part of the study.

Generally speaking the Birchwood respondents liked the look of their street. "Trees and greenery" were a valued part of the streetscape, though respondents had both positive and negative feelings towards the woody vegetation on their street. Respondents from higher housing density HCA's were less satisfied with the visual appearance of their street, and most aspects of it, but this may be linked with the deprivation that exists in these HCA's, rather than with high housing density itself. These respondents were significantly less likely to like the "trees and greenery" on their street; but this seemed more to do with issues of proximity, lack of control and lack of freedom to choose their own accommodation and surroundings, than dislike for the vegetation itself. Further, the respondents' aesthetic evaluation of their surroundings could not be separated from other considerations, particularly their feelings about other inhabitants and their activities.

The planners' and designers' attempts to create "gardenesque" landscapes within the housing areas do not appear to have had a significant impact on the respondents in this study, suggesting that these

measures were too esoteric to be noticed or appreciated by the general public. Many respondents expressed the desire to personalise their own front gardens and had removed trees and shrubs planted by the Development Corporation, or by private developers, in order to facilitate this process of personalisation. These intimate, personalised landscapes can be seen as the first stage in a gradient of appropriate landscape treatments within the urban fabric, ranging from landscapes with strong evidence of human influence close to people's homes and the activities of daily living, to wilderness landscapes for recreation and adventure, situated further away, as originally suggested by Manning (1982), and Dowse (1987). Getting the balance right seemed to be particularly important for elderly respondents, whose favourite leisure activities were carried out at home, and for whom the outlook from their own house and garden was particularly important.

Introduction and research questions

Chapter 2, "Literature Review" has explored how trees have an iconic significance for some urban dwellers (Hull et al, 1994), and how naturalistic green and wooded urban spaces have special values and meanings for them (Burgess et al, 1988; Bussey, 1996; Tartaglia-Kershaw, 1980). As we have seen, the planners and designers themselves ascribed certain cultural meanings to the proposed new naturalistic landscape of Birchwood. Firstly, there was a belief that people's lives would be enriched through contact with nature, and that this would result in an enhanced understanding of environmental issues. Secondly, it was felt that exposure to nature stood for tranquillity, stress-relief, contemplation, and self-realisation. Thirdly, there was a feeling that coming to live in the "countryside" represented an ideal for urban dwellers, and that Birchwood's new landscape would be a form of countryside.

This chapter explores the values and meanings that Birchwood's residents attach to its naturalistic woodland landscape. Whilst Chapter 6, "Aesthetic factors", examined their attitudes towards residential streets and their immediate surroundings, this chapter focuses on the perception of Birchwood's woodland structure, and the naturalistic woodland landscapes forming part of that structure.

Thus the research questions that gave rise to this part of the research are:

- Are Birchwood's naturalistic woodland landscapes valued by its residents, compared to other places in the locality?
- What meanings do they attach to these places?
- Do Birchwood residents approve of its woodland structure and how closely is the naturalistic woodland setting identified with Birchwood as a place?

Methodology

Questionnaire design

These issues were addressed partly in Part 3 of the postal questionnaire entitled "Your Local Area", and during the interviews. Part 3 contained two questions that requested respondents to identify up to 3 places they particularly liked or disliked in the local area. "Disliked" places were included in case there were some respondents who disliked Birchwood's green and wooded spaces, but also to obtain a more complete picture of popular and unpopular places in Birchwood. Part 3 was prefaced by the following explanation:

> "The questions in this section are about your local area. By "your local area" we mean the area within a radius of one mile of your home."

The respondents were then asked (question 11):

> 11 In the spaces provided please name up to 3 places you **particularly like** anywhere in your local area, not including your own home and garden. *Please give enough detail to enable us to find the places ourselves*

1st place
2nd place
3rd place

They were also asked (question12):

12 In the spaces provided please name up to 3 places you **particularly dislike** anywhere in the whole of your local area, not including your own home and garden. *Please give enough detail to enable us to find the places ourselves*

1st place
2nd place
3rd place

It was intended that these questions should be identical to each other, apart from the positive and negative emphasis, but through an oversight during the editing process they differed by the inclusion of the words "the whole of" in question 12.

Data analysis

In the event only the respondents' first named places were used, in order to simplify the analysis as much as possible. These places were categorised into five categories, namely "green spaces", "outdoor recreational spaces", "indoor recreational spaces", "footpaths" and "other". "Green spaces" includes references to specific places such as Risley Moss or "central gardens in close", as well as more generalised references to local green spaces such as "local park", "surrounding greenery" or "open country nearby". "Outdoor recreational spaces" comprises seventeen references to Birchwood Golf Club and one reference to a play area. "Indoor recreational spaces" includes references to shops, shopping centres, pubs, social clubs and sports centres. The "footpaths" category is self-explanatory. The "other" category is a miscellany, including references to places outside Birchwood, such as the village of Croft, references to specific districts in Birchwood, or generalised references to the whole of the local area.

The data from question 11 was converted into six variables, details of which are set out in table 7.1: one nominal (categorical) variable with five values reflecting each of the five categories; and five nominal (binary) variables where the values 1 and 2 indicated whether the respondent's reply fell within or outside of one particular category. The nominal (categorical) variable was used to find out

which categories represented the respondents' favourite places overall, whereas the nominal (binary) variables were used to look at the effect of variations in the experimental or independent variables (e.g. housing density) on the respondents' choice of one particular type of place (e.g. "green spaces").

Type of variable	Values represent	Number of variables
Nominal (categorical)	1="green spaces" 2="outdoor recreational spaces" 3="indoor recreational spaces" 4="pathways" 5="other"	1
Nominal (binary)	1= Type of place respondent particularly liked e.g. "green spaces" 2= Where the respondent had picked one of the other four categories	5

Table 7.1 Variables relating to data from question 11

The replies to question 12, in which respondents were requested to identify up to three places they particularly disliked in the local area, were dealt with in a similar manner. Again, only the respondents' first named places were used. These were categorised into seven categories namely "local facilities", "roads and motorways", "tips, derelict land and structures", "built-up areas", "large built structures", "paths, bridges and underpasses", and "green spaces". "Local facilities" included references to local shops and pubs. "Roads and motorways" comprised references to local residential streets, as well as main roads and motorways. "Tips, derelict land and structures" includes references to a landfill site and to disused land or buildings. "Built-up areas" were whole districts that respondents identified as being unsafe, such as Oakwood, Birchwood, Blackbrook or Longford. "Large built structures" were places such as shopping centres, sports centres, and railway stations. "Paths, bridges and underpasses" is self-explanatory. "Green spaces" included the same types of references to places referred to in relation to question 11.

Type of variable	Values represent	Number of variables
Nominal (categorical)	1="local facilities" 2="roads and motorways" 3="tips, derelict land and structures" 4="built-up areas"" 5="large built structures" 6="pathways, bridges and underpasses" 7="green spaces"	1
Nominal (binary)	1= Type of place respondent particularly disliked e.g. "local facilities" 2= Where the respondent had picked one of the other six categories	7

Table 7.2 Variables relating to data from question 12

The data from question 12 was converted into eight variables, details of which are set out in table 7.2: one nominal (categorical) variable with seven values reflecting each of the seven categories; and seven nominal (binary) variables where the values 1 and 2 indicated whether the respondent's reply fell within or outside of one particular category. The nominal (categorical) variable was used to find out which categories represented the respondents' most disliked places overall, whereas the nominal (binary) variables were used to look at the effect of variations in the experimental or independent

variables (e.g. housing density) on the respondents' choice of one particular type of place (e.g. "local facilities").

All of the dependent variables from questions 11 and 12 were then analysed against vegetation and housing density, HCA, district and location in relation to Birchwood, and the demographic variables gender, age occupation and education, apart from the two categorical variables derived from the replies to questions 11 and 12 respectively, which were only needed to provide a descriptive overview of this portion of the data.

Two different statistical tests were used to carry out this analysis, as explained above in tables 3.8 and 3.9 (Chapter 3, "Methodology", pages 47 and 48).

Design and analysis of the in-depth interviews

The main relevance of the interviews to place identity was as an opportunity to follow up the respondents' replies to questions 11 and 12 in order to find out more about the perceived qualities and characteristics of the places that the respondents liked or disliked; and to address issues regarding Birchwood's naturalistic woodland setting and woodland landscapes that were not covered in the postal questionnaire.

As previously indicated, sample interview schedules are annexed in Appendix 5 and 6, and the method of analysis of the interview data is explained above, in Chapter 3, "Methodology". page 52.

Results

Question 11- "In the spaces provided please name up to 3 places you particularly like anywhere in your local area, not including your own home and garden."

Overall, the respondents were most likely to choose "green spaces" as their favourite places in the local area (figure 7.1), followed by "indoor recreational spaces". The proportions of respondents from inside and outside Birchwood choosing particular categories were broadly similar for most categories, although respondents from outside Birchwood were more like to choose "indoor recreational spaces" as their favourite places.

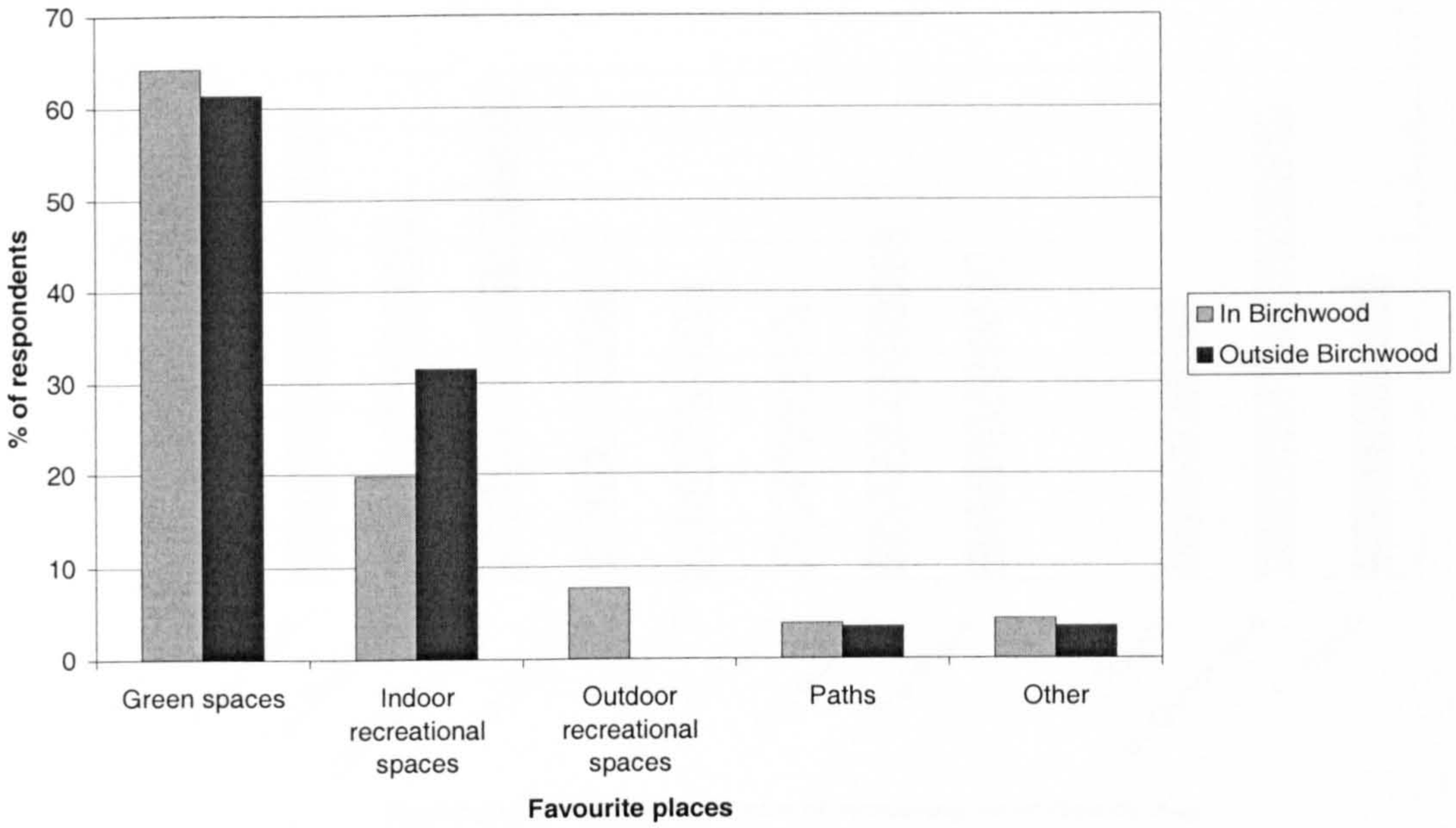


Figure 7.1 Effect of location in relation to Birchwood on respondents' choice of favourite places in the local area

"Green spaces"

Differences between HCA's and districts in Birchwood and the impact of vegetation and housing density

The respondents' propensity to choose places that fell into the category of "green spaces" as their favourite places in their local area (as opposed to other types of places) varied significantly according to which HCA they lived in, and according to the vegetation density of their HCA (table 7.3). Respondents from lower vegetation density HCA's were more likely to pick "green spaces" as their favourite places (table 7.3 and figure 7.2). Housing density had no significant impact on the respondents' choice.

Variable	**Test**	**Result**	**Exact significance = E Monte Carlo = MC**
HCA	Chi- Square	$x^2 = 19.079$; df = 8; p = 0.014.	
Vegetation density	Mann-Whitney	Z = -3.205; p = 0.001.	
Housing density	Mann-Whitney	Z = -0.282; NS.	
District	Chi- Square	$x^2 = 20.035$; df = 2; p < .0001.	

Table 7.3 Effect of HCA, vegetation and housing density and district on respondents' tendency to identify "green spaces" (as opposed to other types of places) as their favourite places in the local area

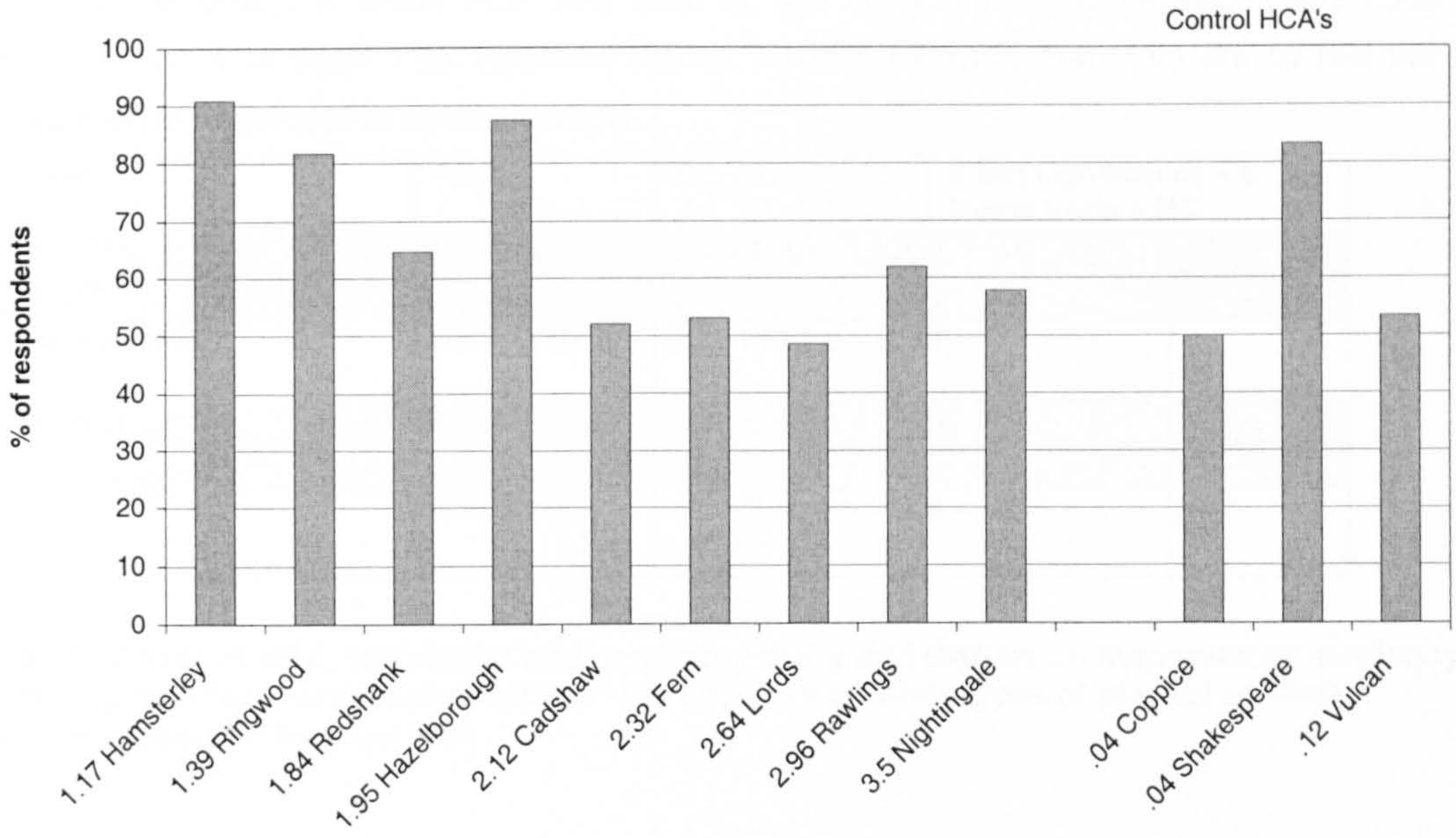


Figure 7.2 Effect of vegetation density on respondents' tendency to identify "green spaces" (as opposed to other types of places) as their favourite places in the local area

The district in which the respondents' HCA's were situated also had a significant impact on their tendency to choose "green spaces" as their favourite places in the local area. Respondents from Gorse Covert were far more likely to choose "green spaces", compared to respondents from both Oakwood and Locking Stumps (table 7.4).

	Green space	Other
District	%	%
Locking Stumps	51	49
Oakwood	62	38
Gorse Covert	87	13

Table7.4 Effect of district on respondents' tendency to identify "green spaces" (as opposed to other types of places) as their favourite places in the local area

Comparison between respondents living in Birchwood and the control group from outside

Whether the respondents lived in or outside Birchwood had no significant impact on their tendency to prefer "green spaces" over other types of places: Chi-Square $x^2 = 0.157$; df = 1; NS.

"Outdoor recreational spaces"

Differences between HCA's and districts in Birchwood and the impact of vegetation and housing density

The respondents' propensity to choose places that fell into the category of "outdoor recreational spaces" as their favourite places in their local area (as opposed to other types of places) varied

significantly according to which HCA they lived in, and according to the vegetation and housing density of their HCA (table 7.5). However, figures 7.3 and 7.4 show that there are no real trends related to either vegetation or housing density.

Variable	**Test**	**Result**	**Exact significance = E Monte Carlo = MC**
HCA	Chi- Square	$x^2 = 42.291$; df = 8; $p < .0001$.	MC
Vegetation density	Mann-Whitney	Z = -1.816; p = 0.069.	
Housing density	Mann-Whitney	Z = -5.142; $p < .0001$.	
District	Chi- Square	$x^2 = 25.588$; df = 2; $p < .0001$.	MC

Table 7.5 Effect of HCA, vegetation and housing density and district on respondents' tendency to identify "outdoor recreational spaces" (as opposed to other types of places) as their favourite places in the local area

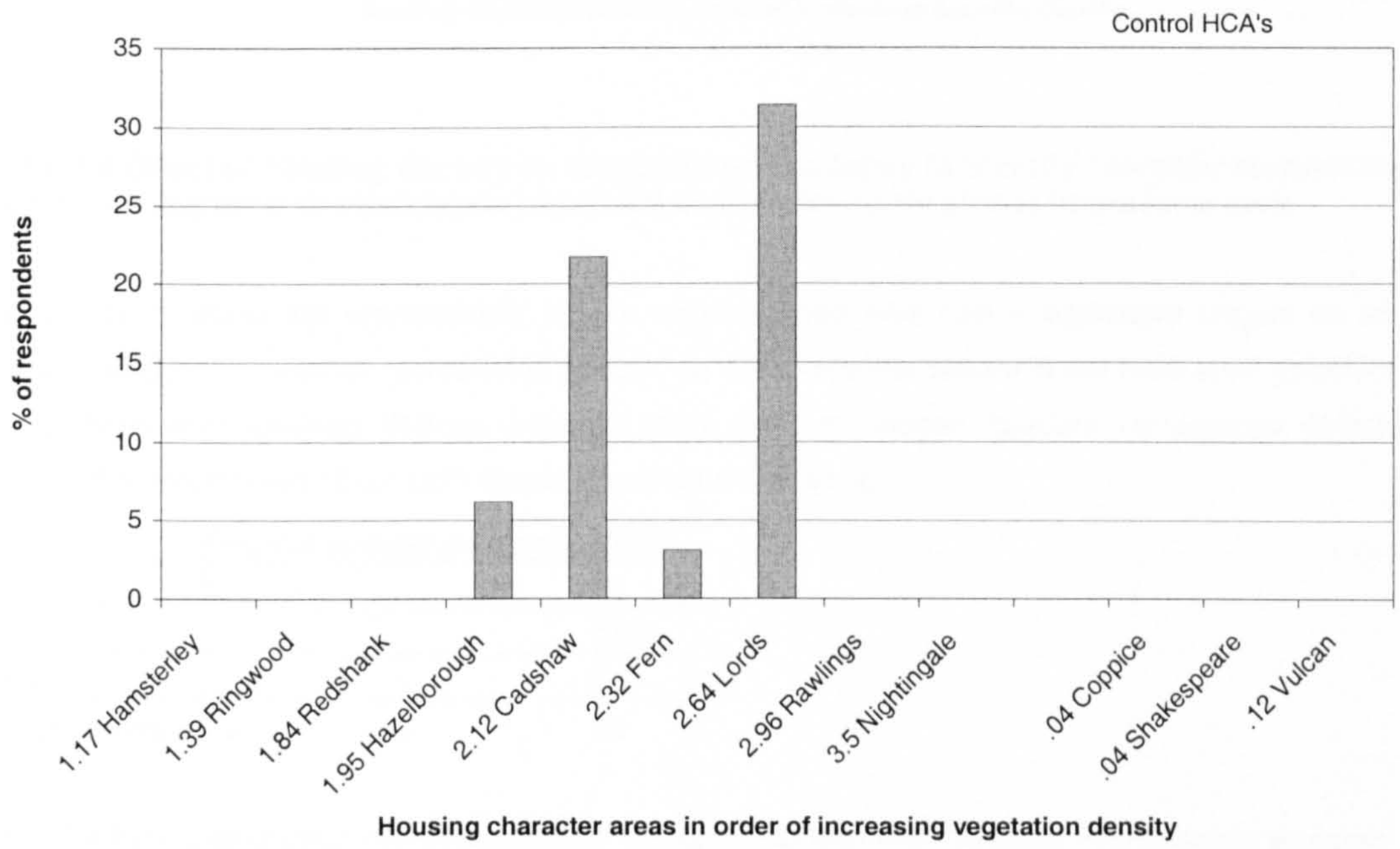


Figure 7.3 Effect of vegetation density on respondents' tendency to identify "outdoor recreational spaces" (as opposed to other types of places) as their favourite places in the local area

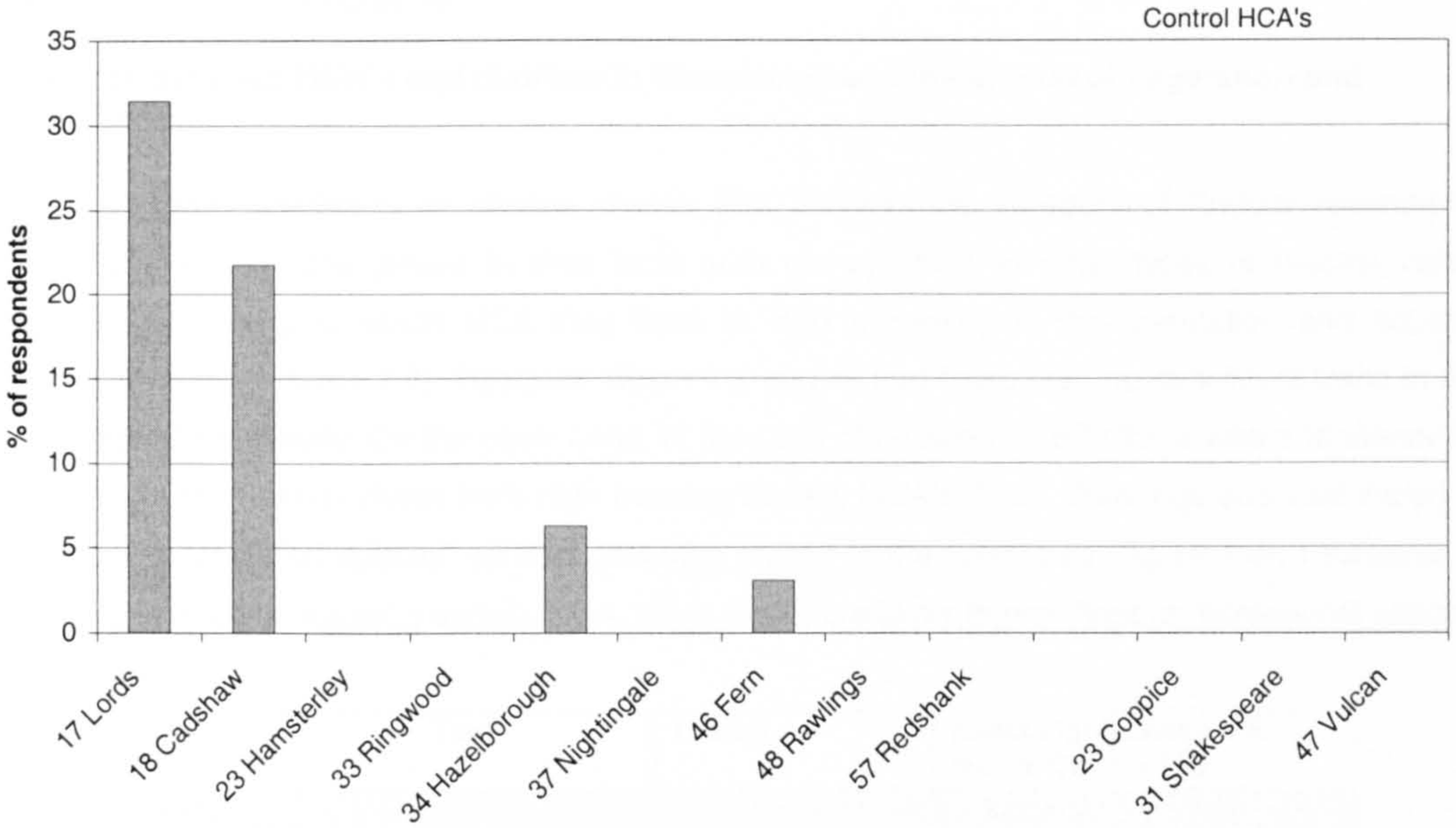


Figure 7.4 Effect of housing density on respondents' tendency to identify "outdoor recreational spaces" (as opposed to other types of places) as their favourite places in the local area

The district in which the respondents' HCA's were situated also had a significant impact on their tendency to choose "outdoor recreational spaces" as their favourite places in the local area (table 7.6). Respondents from Locking Stumps were far more likely to choose "outdoor recreational spaces", compared to respondents from both Gorse Covert and Oakwood.

	Outdoor recreational space	Other
District	%	%
Oakwood	0	100
Gorse Covert	2	98
Locking Stumps	19	81

Table 7.6 Effect of district on respondents' tendency to identify "outdoor recreational spaces" (as opposed to other types of places) as their favourite places in the local area

Comparison between respondents living in Birchwood and the control group from outside

The respondents' location relative to Birchwood had a significant impact on their tendency to prefer "outdoor recreational spaces" over other types of places: Chi-Square $x^2 = 4.716$; df = 1; $p < 0.029$ (exact significance used). Whereas 8% of respondents from Birchwood picked "outdoor recreational spaces", there were no respondents from outside Birchwood who picked this category.

"Indoor recreational spaces"

Differences between HCA's and districts in Birchwood and the impact of vegetation and housing density

The respondents' propensity to choose places that fell into the category of "indoor recreational spaces" as their favourite places in their local area (as opposed to other types of places) varied significantly according to which HCA they lived in, and according to the vegetation and housing density of their HCA (table 7.7). However, figure 7.5 shows that there was no consistent trend in the case of vegetation density. On the other hand, in the case of housing density there was a tendency for greater numbers of respondents from high housing density HCA's (Fern, Rawlings and Redshank) to pick "indoor recreational spaces" as their favourite places in the local area (figure 7.6). Residents of Nightingale, a medium housing density HCA, were also more likely to pick "indoor recreational spaces" (figure 7.6).

Variable	Test	Result	Exact significance = E Monte Carlo = MC
HCA	Chi- Square	$x^2 = 14.779$; df = 8; p = 0.064.	MC
Vegetation density	Mann-Whitney	Z = -2.705; p = 0.007.	
Housing density	Mann-Whitney	Z = -2.270; p = 0.023.	
District	Chi- Square	$x^2 = 8.475$; df = 2; p = 0.014.	

Table 7.7 Effect of HCA, vegetation and housing density and district on respondents' tendency to identify "indoor recreational spaces" (as opposed to other types of places) as their favourite places in the local area

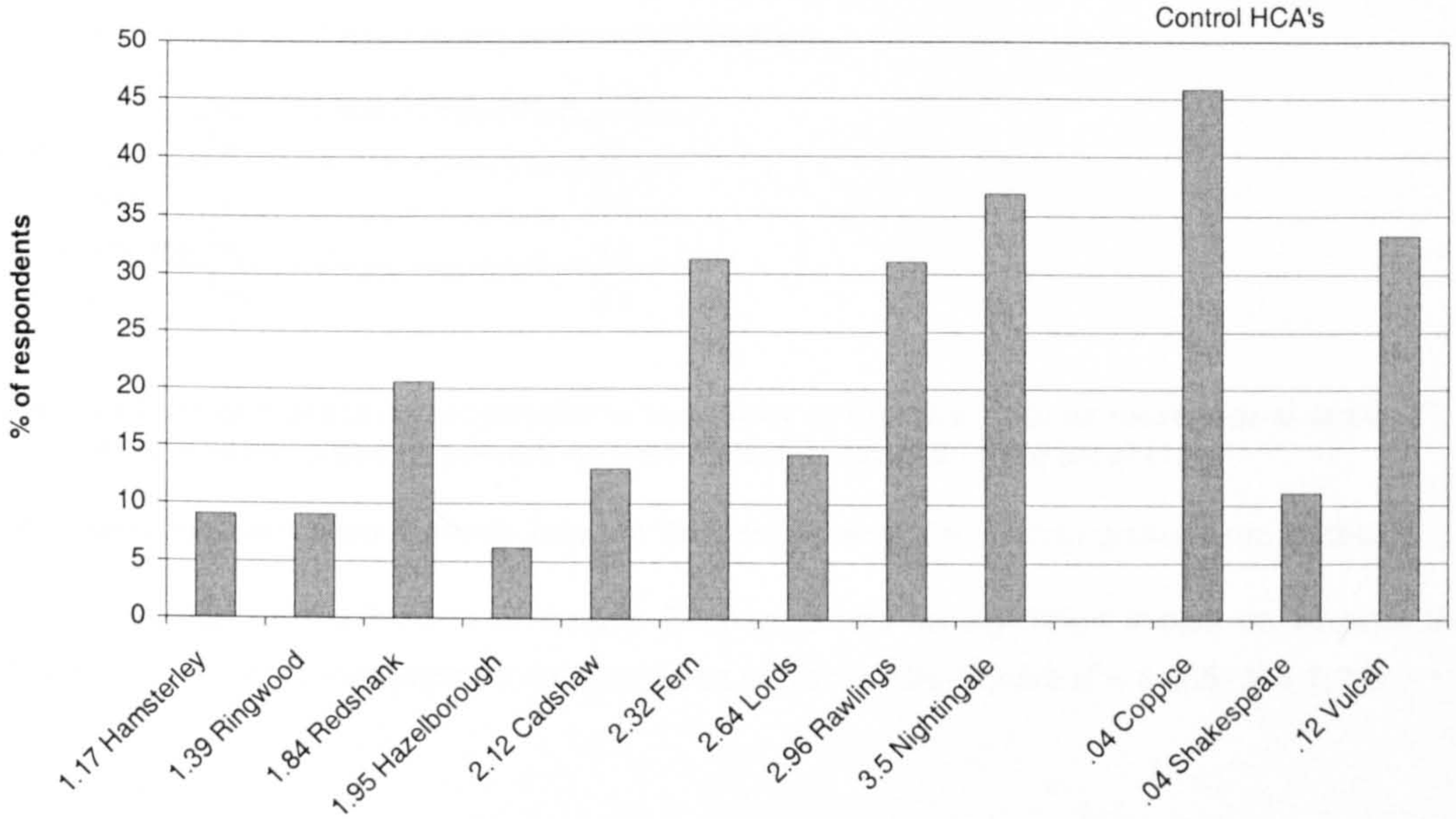


Figure 7.5 Effect of vegetation density on respondents' tendency to identify "indoor recreational spaces" (as opposed to other types of places) as their favourite places in the local area

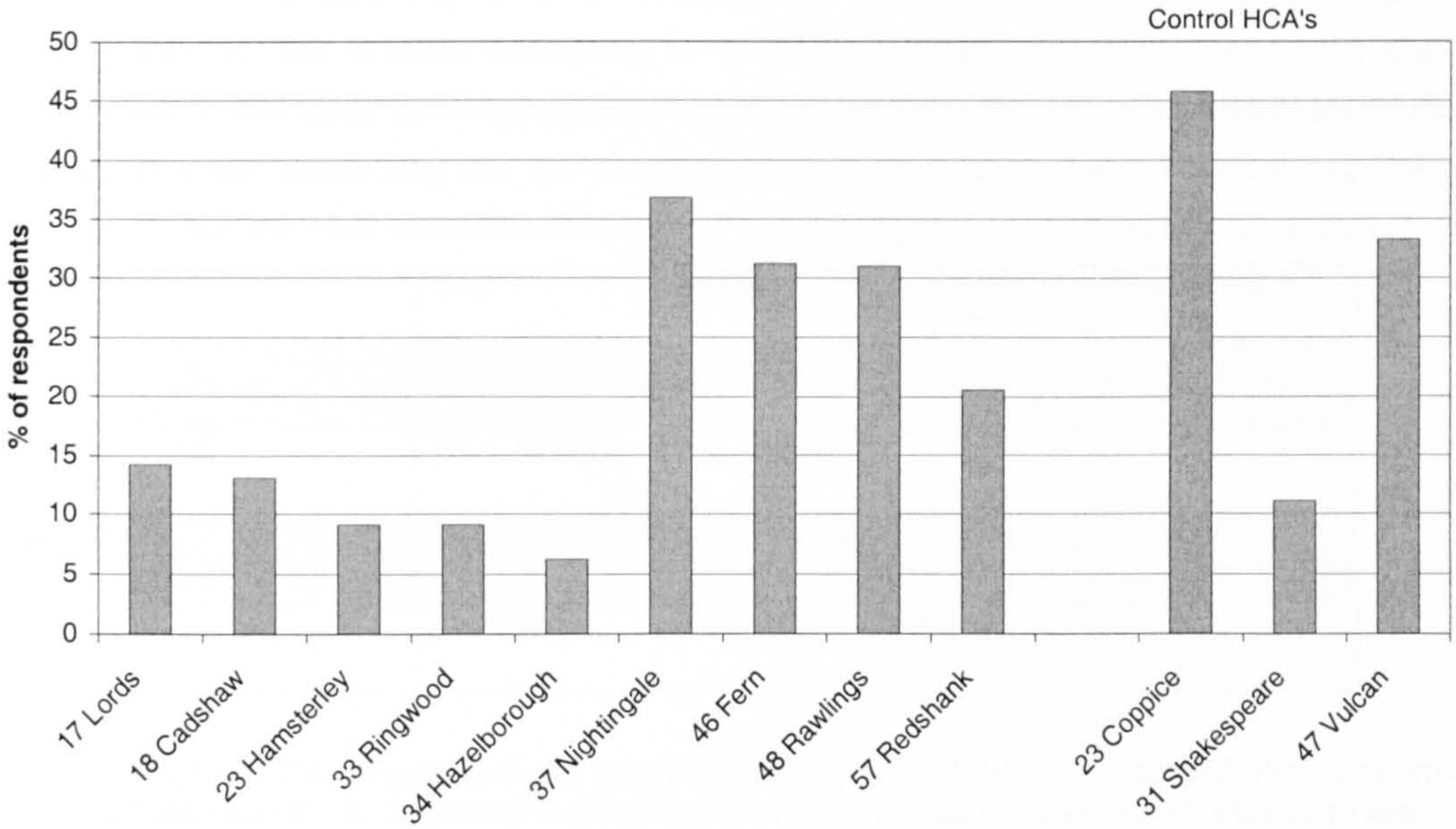


Figure 7.6 Effect of housing density on respondents' tendency to identify "indoor recreational spaces" (as opposed to other types of places) as their favourite places in the local area

The district in which the respondents' HCA's were situated also had a significant impact on their tendency to choose "indoor recreational spaces" as their favourite places in the local area (table 7.8). Respondents from Oakwood were more likely to choose "indoor recreational spaces", compared to respondents from both Gorse Covert and Locking Stumps.

	Indoor recreational space	Other
District	%	%
Gorse Covert	8	92
Locking Stumps	20	80
Oakwood	28	72

Table 7.8 Effect of district on respondents' tendency to identify "indoor recreational spaces" (as opposed to other types of places) as their favourite places in the local area

Comparison between respondents living in Birchwood and the control group from outside

Whether the respondents lived in or outside Birchwood had no significant impact on whether they preferred "indoor recreational spaces" to other types of places: Chi-Square $x^2 = 3.665$; df = 1; NS.

"Pathways"

Differences between HCA's and districts in Birchwood and the impact of vegetation and housing density

The respondents' propensity to pick "pathways" as their favourite places in the local area was not affected by the HCA they lived in, nor by its vegetation or housing density, nor by the district in which

the HCA was situated (table 7.9). Only nine respondents from Birchwood picked "pathways" as their favourite places, but this is worth mentioning as "pathways, bridges and underpasses" have already been identified in this study as the places that are most commonly thought of as unsafe for adults in Birchwood. It is also noteworthy that five out of these nine respondents came from Locking Stumps, the district in which the most respondents identified "paths, bridges and underpasses" as unsafe.

Variable	**Test**	**Result**	**Exact significance = E Monte Carlo = MC**
HCA	Chi- Square	$x^2 = 8.827$; df = 8; NS.	
Vegetation density	Mann-Whitney	Z = -.286; NS.	
Housing density	Mann-Whitney	Z = -.117; NS.	
District	Chi- Square	$x^2 = 1.477$; df = 2; NS.	

Table 7.9 Effect of HCA, vegetation and housing density and district on respondents' tendency to identify "pathways" (as opposed to other types of places) as their favourite places in the local area

Comparison between respondents living in Birchwood and the control group from outside

Whether the respondents lived in or outside Birchwood had no significant impact on whether they preferred "pathways" to other types of places: Chi-Square $x^2 = 0.017$; df = 1; NS.

"Other"

No analysis of the "other" variable was carried out as this was a miscellaneous collection of responses; it is most unlikely that any meaningful trends would have emerged as only 4% of respondents gave answers that were put into this category.

Question 12- "In the spaces provided please name up to 3 places you particularly dislike anywhere in the whole of your local area, not including your own home and garden."

Forty-one per cent of the respondents from Birchwood who chose to answer this question said that they particularly disliked "local facilities", followed by "roads and motorways" (14%) and "built-up areas" (12%) (figure 7.7). Outside Birchwood the position was quite different: most respondents disliked "roads and motorways" (37%) or "built-up areas" (28%), with only 17% disliking "local facilities".

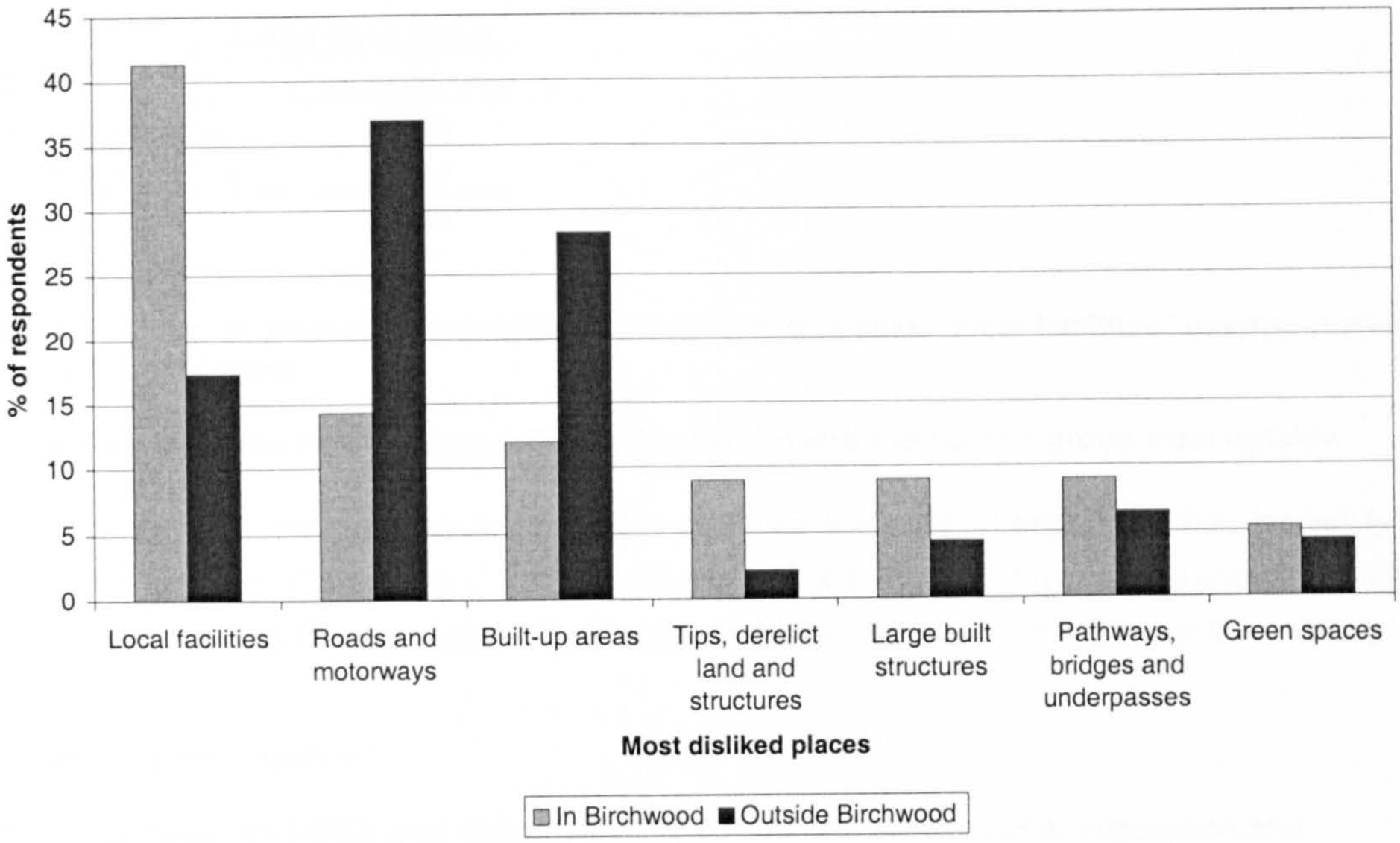


Figure 7.7 Effect of location in relation to Birchwood on respondents' choice of places in the local area they particularly dislike

"Local facilities"

Differences between HCA's and districts in Birchwood and the impact of vegetation and housing density

The respondents' propensity to dislike "local facilities" (as opposed to other types of places) was not affected by the HCA they lived in, nor by their vegetation or housing densities (table 7.10).

Variable	Test	Result	Exact significance = E Monte Carlo = MC
HCA	Chi- Square	$x^2 = 11.737$; df = 8; NS	
Vegetation density	Mann-Whitney	Z = -1.548; NS.	
Housing density	Mann-Whitney	Z = -1.902; NS.	
District	Chi- Square	$x^2 = 8.931$; df = 2; p = 0.011.	

Table 7.10 Effect of HCA, vegetation and housing density and district on respondents' tendency to dislike "local facilities" (as opposed to other types of places)

However, the district in which the respondents' HCA's were situated did have a significant impact on their tendency to dislike "local facilities" (table 7.10). Respondents from Oakwood were far more likely to choose "local facilities" compared to respondents from Gorse Covert and Locking Stumps, although all three districts had "local facilities" (table 7.11)

	Local facilities	Other
District	%	%
Locking Stumps	32	68
Gorse Covert	33	68
Oakwood	55	45

Table 7.11 Effect of district on respondents' tendency to dislike "local facilities" (as opposed to other types of places)

Comparison between respondents living in Birchwood and the control group from outside

The respondents' location relative to Birchwood also had a significant impact on their tendency to dislike "local facilities": Chi-Square $x^2 = 8.945$; df = 1; p = 0.003. Figure 7.7 (page 173) shows that 41% of respondents from Birchwood disliked "local facilities", compared to only 17% of those from outside.

"Roads and motorways"

Differences between HCA's and districts in Birchwood and the impact of vegetation and housing density

The respondents' propensity to dislike "roads and motorways" (as opposed to other types of places) was not affected by the HCA they lived in, nor by their vegetation or housing densities (table 7.12).

Variable	Test	Result	Exact significance = E Monte Carlo = MC
HCA	Chi- Square	$x^2 = 10.393$; df = 8; NS	
Vegetation density	Mann-Whitney	Z = -0.536; NS.	
Housing density	Mann-Whitney	Z = -1.883; NS.	
District	Chi- Square	$x^2 = 6.289$; df = 2; p = 0.043.	

Table 7.12 Effect of HCA, vegetation and housing density and district on respondents' tendency to dislike "roads and motorways" (as opposed to other types of places)

However, the district in which the respondents' HCA's were situated did have a significant impact on their tendency to dislike "roads and motorways" (table 7.12). Respondents from Locking Stumps were more likely to choose "roads and motorways" compared to respondents from Gorse Covert and Oakwood (table 7.13).

	Roads and motorways	Other
District	%	%
Gorse Covert	8	93
Oakwood	10	90
Locking Stumps	23	77

Table 7.13 Effect of district on respondents' tendency to dislike "roads and motorways" (as opposed to other types of places)

Comparison between respondents living in Birchwood and the control group from outside

The respondents' location relative to Birchwood also had a significant impact on their tendency to dislike "roads and motorways": Chi-Square $x^2 = 11.836$; df = 1; p = 0.001. Figure 7.7 (page 173) shows that 14% of respondents from Birchwood disliked "roads and motorways", compared to 37% of those from outside.

"Built-up areas"

Differences between HCA's and districts in Birchwood and the impact of vegetation and housing density

The respondents' propensity to dislike "built-up areas" (as opposed to other types of places) was not affected by the HCA they lived in, nor by its vegetation or housing density (table 7.14).

Variable	Test	Result	Exact significance = E Monte Carlo = MC
HCA	Chi- Square	$x^2 = 12.744$; df = 8; NS	
Vegetation density	Mann-Whitney	Z = -1.694; NS.	
Housing density	Mann-Whitney	Z = -1.307; NS.	
District	Chi- Square	$x^2 = 6.5$; df = 2; p = 0.034.	MC

Table 7.14 Effect of HCA, vegetation and housing density and district on respondents' tendency to dislike "built-up areas" (as opposed to other types of places)

However, the district in which the respondents' HCA's were situated did have a significant impact on their tendency to dislike "built-up areas" (table 7.14). Respondents from Gorse Covert were more likely to choose "built-up areas", compared to respondents from Oakwood and Locking Stumps (table 7.15).

	Built-up areas	Other
District	%	%
Oakwood	6	94
Locking Stumps	12	88
Gorse Covert	23	78

Table 7.15 Effect of district on respondents' tendency to dislike "built-up areas" (as opposed to other types of places)

Comparison between respondents living in Birchwood and the control group from outside

The respondents' location relative to Birchwood also had a significant impact on their tendency to dislike "built-up areas": Chi-Square $x^2 = 7.305$; df = 1; p = 0.007. Figure 7.7 (page 173) shows that 12% of respondents from Birchwood disliked "built-up areas", compared to 28% of those from outside.

"Tips, derelict land and structures"

Differences between HCA's and districts in Birchwood and the impact of vegetation and housing density

The respondents' tendency to dislike "tips, derelict land and structures" (as opposed to other types of places) varied significantly according to the HCA they lived in, and its vegetation density (table 7.16). However, as figure 7.8 shows, there is no real trend connected with vegetation density. The apparent trend is caused by large numbers of respondents from the lower vegetation density HCA's from Gorse Covert (Hamsterley, Ringwood and Hazelborough) having a particular dislike for the municipal tip located close to Gorse Covert.

Variable	Test	Result	Exact significance = E Monte Carlo = MC
HCA	Chi- Square	$x^2 = 29.931$; df = 8; $p < .0001$.	MC
Vegetation density	Mann-Whitney	Z = -3.089; p = 0.002.	
Housing density	Mann-Whitney	Z = -1.695; NS.	
District	Chi- Square	$x^2 = 28.489$; df = 2; $p < .0001$.	MC

Table 7.16 Effect of HCA, vegetation and housing density and district on respondents' tendency to dislike "tips, derelict land and structures" (as opposed to other types of places)

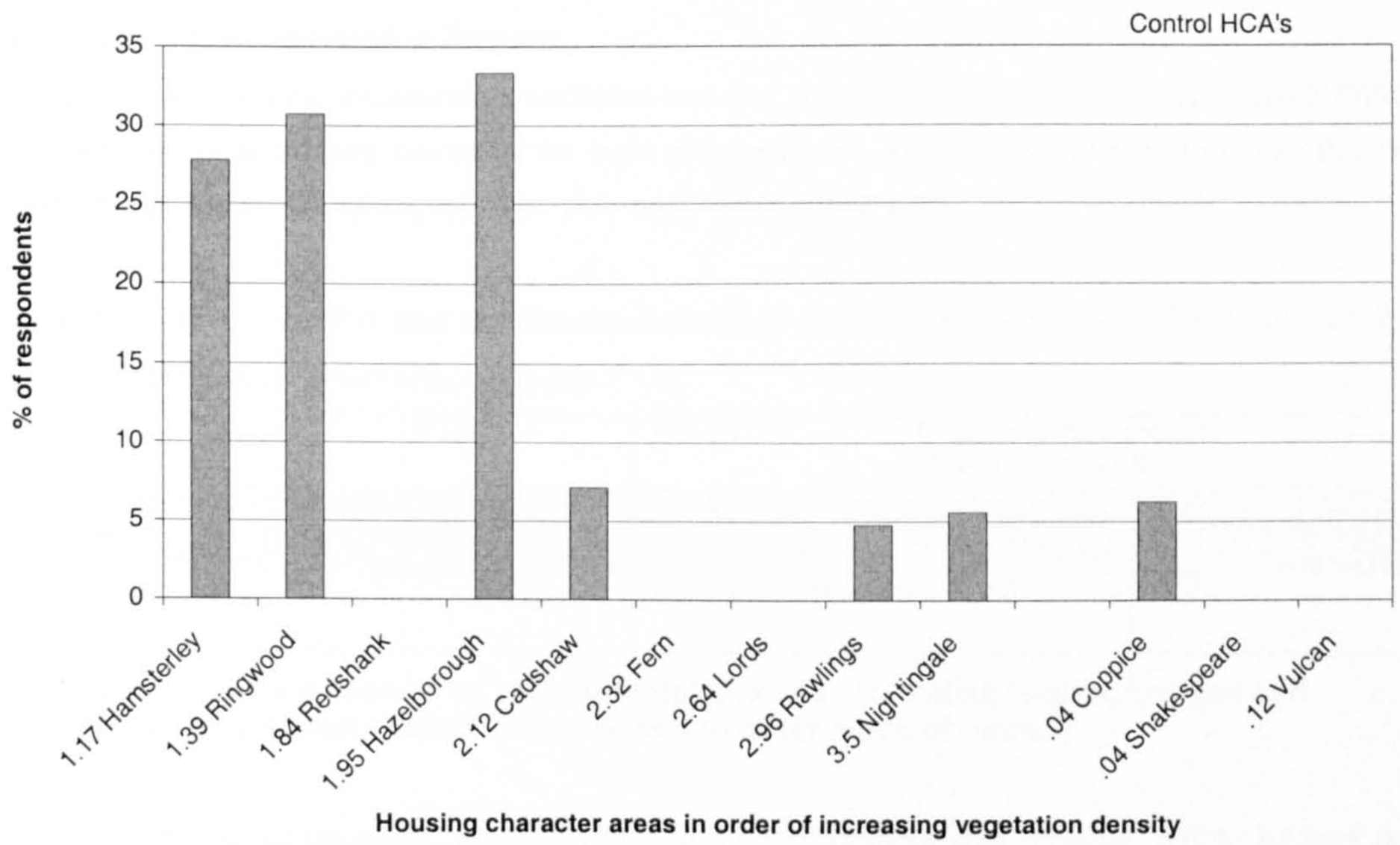


Figure 7.8 Effect of HCA, vegetation density on respondents' tendency to dislike "tips, derelict land and structures" (as opposed to other types of places)

This explains why the district in which the respondents' HCA's were situated had a significant impact on their tendency to dislike "tips, derelict land and structures" (table 7.16). Respondents from Gorse

Covert were more likely to choose "tips, derelict land and structures", compared to respondents from Oakwood and Locking Stumps (table 7.17).

	Tips, derelict land and structures	Other
District	%	%
Locking Stumps	2	98
Oakwood	3	97
Gorse Covert	30	70

Table 7.17 Effect of district on respondents' tendency to dislike "tips, derelict land and structures" (as opposed to other types of places)

Comparison between respondents living in Birchwood and the control group from outside

The respondents' location relative to Birchwood had no impact on their tendency to dislike "tips, derelict land and structures": Chi-Square $x^2 = 2.406$; df = 1; NS.

"Large built structures, Paths, bridges and underpasses and "Green spaces"

The respondents choice of "large built structures", "paths, bridges and underpasses" and "green spaces" as places they particularly disliked in the local area was not significantly affected by any of the independent variables dealt with so far in this chapter, namely the HCA of the respondents, its vegetation and housing density, the district in which the HCA's were situated, and the respondents' location relative to Birchwood (for non significant test results see tables A6, A7 and A8, Appendix 8).

The impact of demographic factors

None of the demographic independent variables had any significant impact on the respondents' choice of favourite, or most disliked places in the local area, with two exceptions, referred to below (for non significant test results see tables A9, A10, A11 and A12, Appendix 8).

The respondents' occupation was significantly associated with their tendency to dislike "paths, bridges and underpasses" and "green spaces" (table 7.18).

Variable	Test	Result	Exact significance = E Monte Carlo = MC
"Paths, bridges and underpasses"	Chi- Square	$x^2 = 20.574$; df = 9; p = 0.027.	MC
"Green spaces"	Chi- Square	$x^2 = 18.877$; df = 8; p = 0.048.	MC

Table 7.18 Effect of occupation on respondents' tendency to dislike "paths, bridges and underpasses" and "green spaces" (as opposed to other types of places)

Greater proportions of unskilled, unemployed and student respondents disliked "paths, bridges and underpasses" in their local area, though respondents from the managerial and technical, skilled non-manual, skilled manual and retired categories also disliked these places (figure 7.9). However, the test results were barely significant and these findings should not be over-emphasized. Whilst there were some similarities between the choices made by respondents from inside and outside Birchwood, no real pattern emerged.

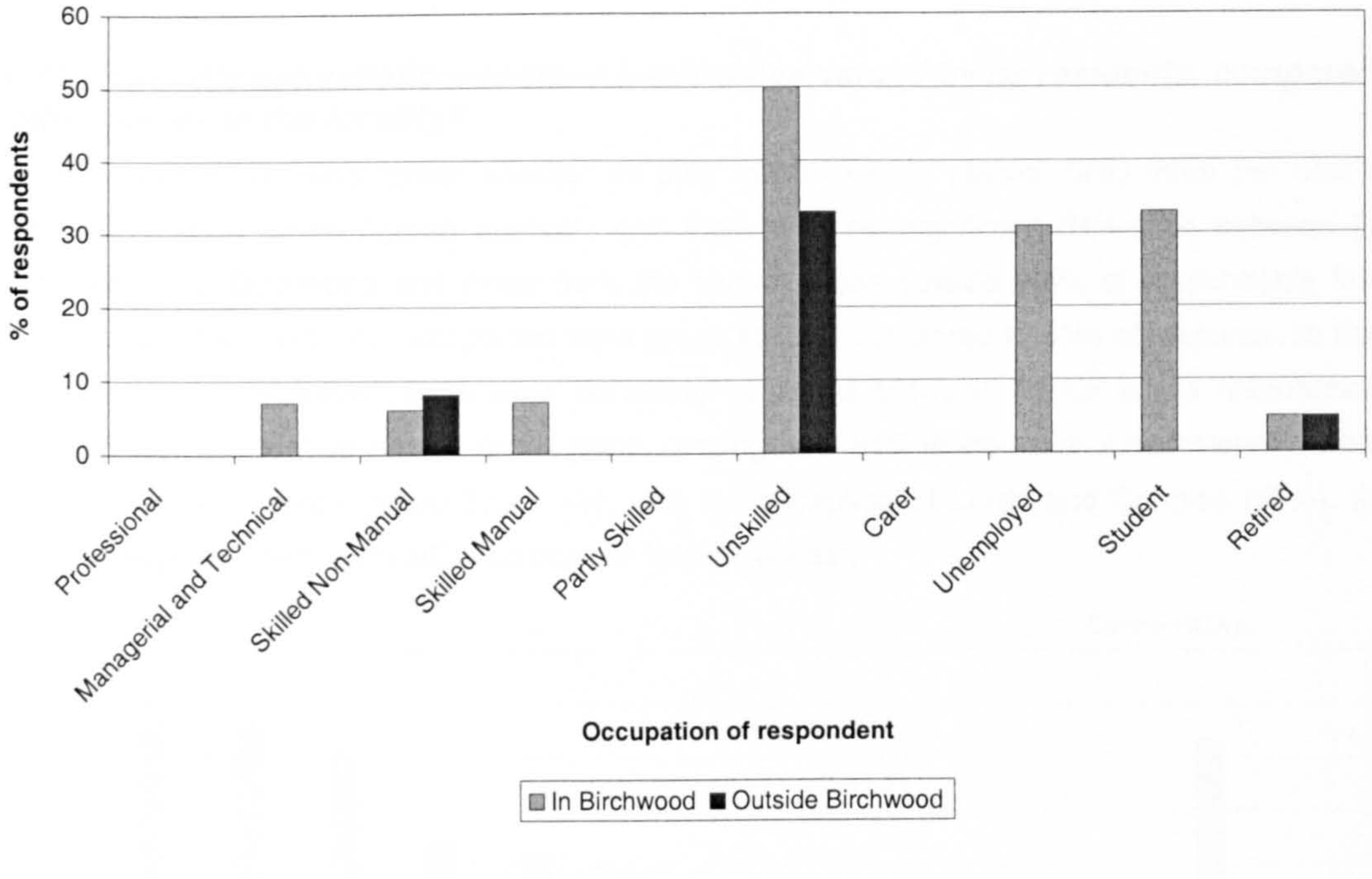


Figure 7.9 Effect of occupation on respondents' tendency to dislike "paths, bridges and underpasses" (as opposed to other types of places)

Few respondents said that they disliked "green spaces", but skilled non-manual and student respondents formed the greatest proportions of those that did (figure 7.10). Outside Birchwood greater proportions of carers and unemployed respondents said that they disliked these places (figure 7.10).

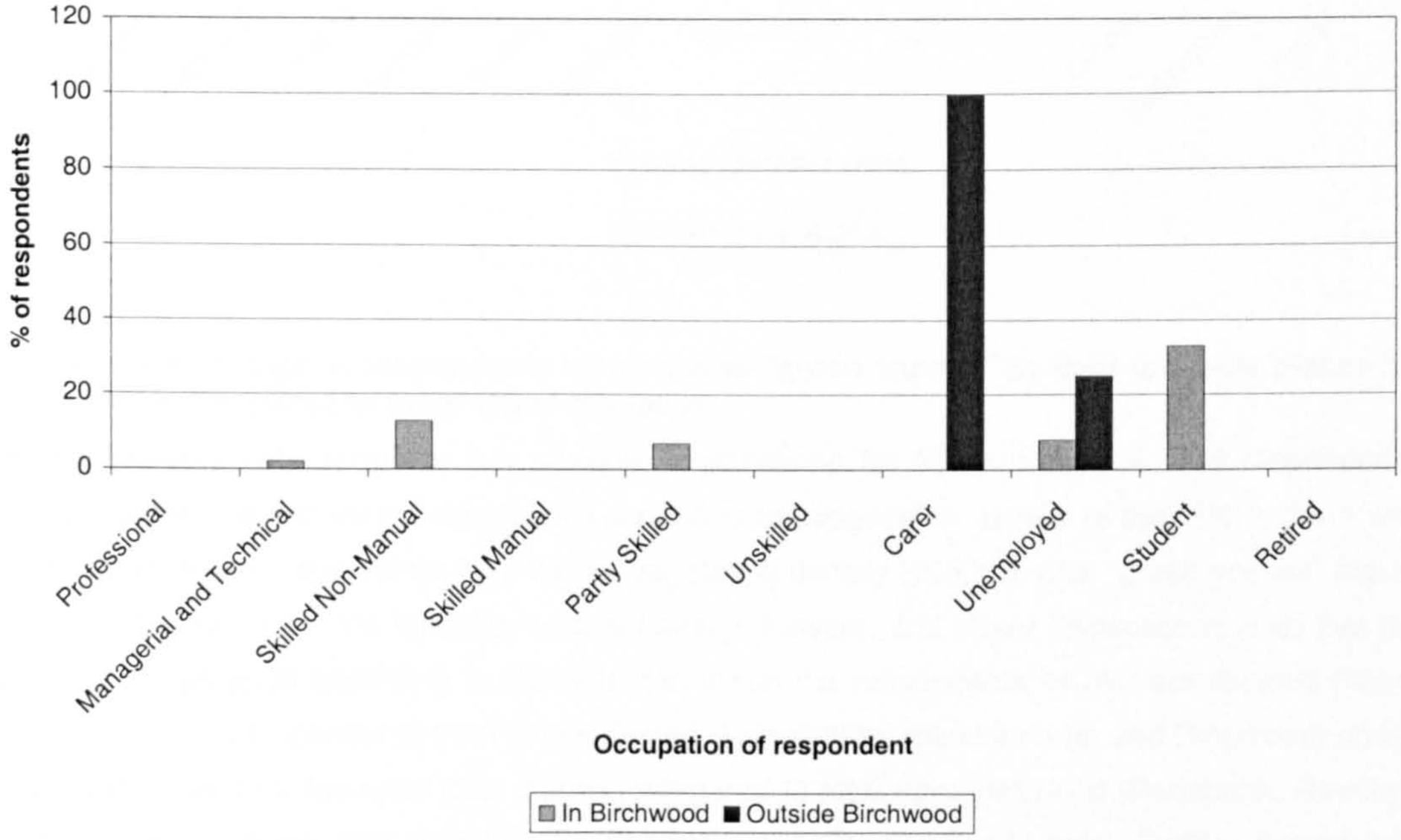


Figure 7.10 Effect of occupation on respondents' tendency to dislike "green spaces" (as opposed to other types of places)

Discussion

Are Birchwood's naturalistic woodland landscapes valued by its residents, compared to other places in the locality?

Most respondents identified "green spaces" as their favourite local places. Sixty three per cent of respondents overall chose "green spaces", and there was no significant difference between the respondents from Birchwood and those from the control areas outside: 64% of respondents from Birchwood said their favourite local places were green spaces, compared to 61% of respondents from outside Birchwood. However, there were surprising variations between HCA's in the respondents' choice of "green spaces" as their favourite place, ranging from 91% in the case of Hamsterley, to only 49% in the case of Lords (figure 7.11). Yet, with the exception of Lords and Coppice (50%), the majority of respondents in each HCA did choose "green spaces".

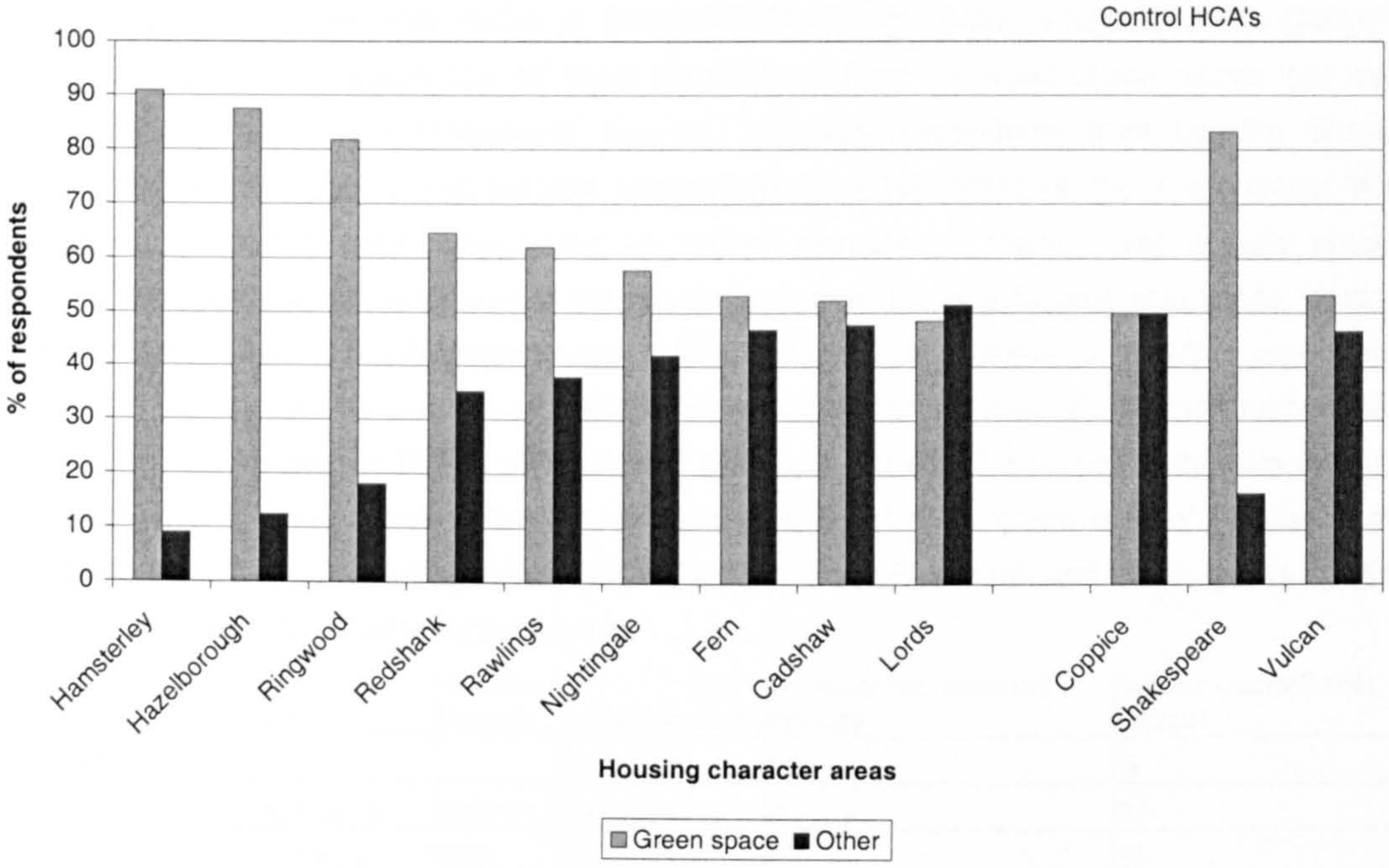


Figure 7.11 Percentage of respondents who choose "green spaces" as their favourite places in the local area, compared to other types of places.

The questionnaire data suggests two possible explanations for these variations. The respondents' choice of "green spaces" varied significantly according the vegetation density of their HCA: there was a tendency for fewer respondents from higher vegetation density HCA's to pick "green spaces" (figure 7.2, page 167). However, the tendency was not straightforward, and closer inspection reveals that the responses are grouped according to the district in which the respondents' HCA's are situated (figure 7.11). Thus 87% of respondents from Gorse Covert (Hamsterley, Hazelborough and Ringwood) chose "green spaces" as their favourite local places, compared to 62% from Oakwood (Redshank, Rawlings and Nightingale) and only 51% from Locking Stumps (Fern, Cadshaw and Lords). Further, if there was a link between lower vegetation density and respondents' choice of "green spaces" one would expect greater proportions of respondents from the control HCA's outside Birchwood, where vegetation density is lowest, to choose "green spaces", but this was not the case. There were the same dramatic

variations between the control HCA's as there were amongst the HCA's from inside Birchwood (figure 7.11).

It seems therefore, that the explanation for these differences may lie in the characteristics of the district, and in some ways this is a more logical explanation. The respondents were asked to identify places they particularly liked in their "local area", and this was defined in the questionnaire as "the area within a radius of one mile of your home". Obviously the answer to the question will depend to some extent on what the "local area" contains (and whether the respondents' perception of the "local area" was the same as the definition that was suggested to them!).

However, the explanation is probably more complex than that. The questionnaire data also suggests that the personal characteristics of the respondents are relevant to their choice. Locking Stumps and Oakwood are within a one mile radius of Birchwood Shopping Centre, whereas Gorse Covert is outside this radius. After "green spaces" most respondents from Oakwood chose places that were later categorised as "indoor recreational spaces", whereas respondents from Locking Stumps predominantly chose "outdoor recreational spaces" (table 7.19). Most of the respondents from Oakwood whose replies were categorised as "indoor recreational spaces" had actually chosen Birchwood Shopping Centre, and most of the respondents from Locking Stumps who chose "outdoor recreational spaces" had actually chosen Locking Stumps Golf Club. However, not all the respondents from Locking Stumps picked "outdoor recreational places" after "green spaces". Only the respondents from the low housing density HCA's of Lords and Cadshaw did so. The respondents from the high housing density HCA, Fern, picked "indoor recreational spaces" after "green spaces". Likewise, the respondents from the high housing density HCA's in Oakwood, Redshank and Rawlings also picked "indoor recreational spaces" after "green spaces".

	HCA	Housing Density	Green spaces	Outdoor recreational spaces	Indoor recreational spaces
In Birchwood			%	%	%
Oakwood	Nightingale	Medium	58	0	37
	Redshank	High	65	0	21
	Rawlings	High	62	0	31
Gorse Covert	Hamsterley	Low	91	0	9
	Hazelborough	Medium	88	6	6
	Ringwood	Medium	82	0	9
Locking Stumps	Lords	Low	49	31	14
	Cadshaw	Low	52	22	13
	Fern	High	53	3	31
Outside Birchwood					
	Coppice	Low	50	0	46
	Shakespeare	Medium	83	0	11
	Vulcan	High	53	0	33

Table 7.19 Effect of HCA and district on respondents' choice of "green spaces", and "outdoor" and "indoor" recreational spaces as their favourite places in the local area

As previously indicated in this chapter (table 7.7 and figure 7.6, pages 170 and 171) respondents from high housing density HCA's were significantly more likely to pick "indoor recreational spaces" as their favourite places in the local area. However, as in the case of the aesthetic factors (Chapter 6, page 155), it is unlikely that it was housing density itself that was influencing the respondents' choices. It is more likely (somewhat paradoxically) that the tendency to prefer shopping centres to "green spaces" is connected with the deprivation that has already been shown to be associated with high housing density in the Birchwood area.

However, deprivation may not the only factor that is related to the respondents' tendency to choose "indoor recreational spaces" as their favourite places in the local area. Nightingale is a medium housing density HCA in Oakwood. A much greater proportion of the respondents from Nightingale chose "indoor recreational spaces" compared to its medium housing density counterparts, Hazelborough and Ringwood. This is probably explained by the fact that Nightingale has a greater proportion of respondents aged over 69 than any other HCA in the study (67%). Data collected in response to questions elsewhere in the questionnaire (not the subject of a separate chapter in this thesis) confirms that, in Birchwood at least, shopping was a more important activity for the over 59's (figure 7.12).

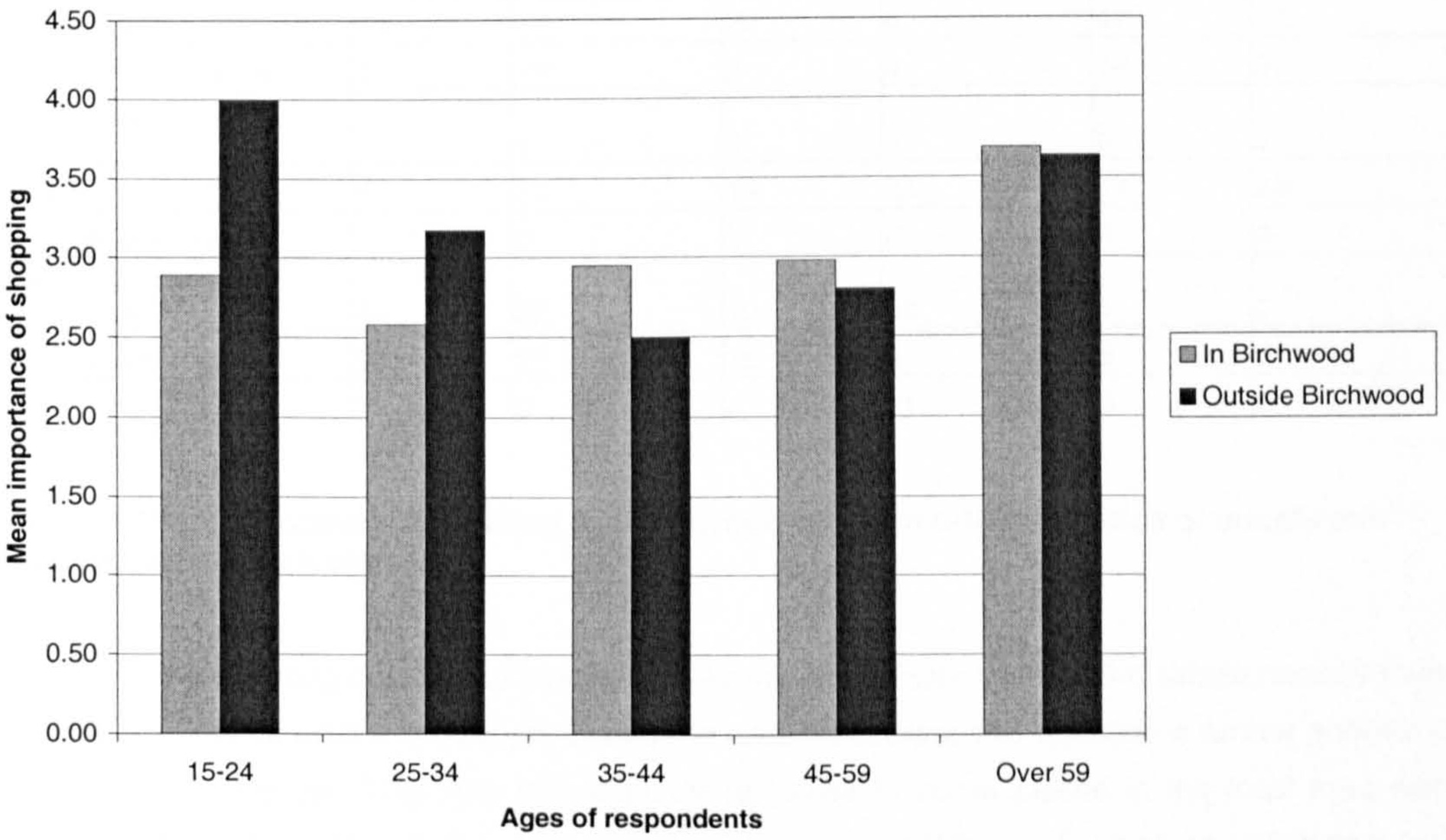


Figure 7.12 Effect of age on respondents' preference for shopping

It is noteworthy that these overall trends are very similar in the control HCA's outside Birchwood, with one notable exception (table 7.19). After "green spaces" the respondents from Coppice, a low housing density HCA, preferred "indoor recreational spaces". This is probably explained by the fact that there are two large retail areas in close proximity to this HCA. This begs the question of whether the results would have been different if there was a shopping centre within a one mile radius of Gorse Covert:

would "indoor recreational spaces" then have been more popular there as well? It is impossible to answer this question. However, it should be emphasised that, even where there are competing attractions in the local area such as Locking Stumps Golf Course, or the Gemini Retail Park near Coppice, around 50% of respondents still said that "green spaces" were their favourite places in the local area.

An interesting facet of the questionnaire data was the way in which "green spaces" figured differently in different parts of the data. As mentioned in Chapter 8, "Safety", page 221 below, after "paths, bridges and underpasses", "green spaces" were regarded as the most unsafe places in the local area in Birchwood (table 7.20). Twenty eight per cent of the Birchwood respondents who answered this question thought that local "green spaces" were unsafe during the day time, and 18% thought them unsafe after dark. Yet, as discussed above, 64% of respondents chose "green spaces" as their favourite places in Birchwood. Further, when asked to identify places they particularly disliked in the local area, only 5% of Birchwood respondents chose "green spaces" (4% of respondents from outside Birchwood).

	Unsafe day time places		Unsafe places after dark		Disliked places in local area	
	In Birchwood	Outside Birchwood	In Birchwood	Outside Birchwood	In Birchwood	Outside Birchwood
	%	%	%	%	%	%
Local facilities	13	7	20	6	41	17
Roads and motorways	4	13	2	6	14	37
Tips, derelict land and structures	0	0	0	0	9	2
Built up areas	4	27	13	28	12	28
Large built structures	1	0	3	6	9	4
Pathways, bridges and underpasses	47	27	40	39	9	7
Green spaces	28	27	18	6	5	4
Other	2	0	4	11	0	0

Table 7.20 Effect of location in relation to Birchwood on respondents' choice of unsafe and disliked places in the local area

This raised the interesting question of whether it was the same respondents who simultaneously found these types of spaces attractive and yet unsafe? In order to answer this question a further analysis of the data was carried out. This time the respondents' three favourite places in the local area were compared with the three places they had identified as unsafe, during the day time and after dark (see Chapter 8, "Safety"), and with the three places that they had identified as unsafe for children (see Chapter 9, "Children"). It was found that 21% of the entire sample had chosen one or more favourite "green spaces" that they also identified as unsafe, either for themselves or for children. For the purposes of this analysis only pathways were included in the definition of "green spaces". Interestingly, 25% of the Birchwood respondents chose favourite "green spaces" that they also regarded as unsafe, whereas only 9% of the control sample did so.

	%
Oakwood	15
Locking Stumps	18
Gorse Covert	51

Table 7.21 Effect of district on respondents' tendency to choose favourite places that they regard as unsafe

Table 7.21 shows that the percentage of respondents who responded in this manner varied markedly between districts in Birchwood. Respondents from Gorse Covert were far more likely to display this ambivalence towards the places they particularly liked in the local area. This ambivalence related mainly to "green spaces". Less than 5% of the whole sample chose other types of favourite places, e.g. shopping centres, which they also regarded as unsafe. This is an extremely important finding as it confirms that many people do hold complex feelings about "green spaces", as some earlier research indicates (Burgess et al, 1988). Green spaces that are regarded as unsafe may also be highly valued, and their potential to engender feelings of insecurity should not therefore be a reason for excluding them from the urban fabric.

The respondents' contradictory attitudes towards "green spaces" are in marked contrast to their attitudes towards "local facilities", " roads and motorways" and "built up areas" (table 7.20, page 182). These local places were both feared and disliked; but there were no respondents who picked "local facilities", "roads and motorways" or "built up areas" as their favourite places. "Pathways, bridges and underpasses" occupy a midway position between "green spaces" and "local facilities", " roads and motorways" and "built up areas". "Pathways, bridges and underpasses" "were thought to be the most unsafe local places across the whole sample, both during the daytime and after dark. Yet although only 4% (n = 9) of respondents who answered the question picked "paths" as their favourite places, only 9% of Birchwood respondents said they disliked them (7% of respondents from outside Birchwood). Thus there is a clear distinction to be drawn between local places that are sometimes feared, but liked ("green spaces"), those that are both feared and disliked ("local facilities", " roads and motorways" and "built up areas"), and finally, those that are feared but not disliked ("paths, bridges and underpasses").

As in the case of favourite places, the respondents' choice of places they disliked in the local area was related to the characteristics of particular districts, and of the respondents themselves. Thus respondents from Oakwood were significantly more likely to dislike "local facilities", respondents from Locking Stumps "roads and motorways", and respondents from Gorse Covert "built-up areas" and "tips, derelict land and structures". As will be seen "local facilities" were considered unsafe (Chapter 8, "Safety", page 224 below) and disliked (table 7.11, page 174) by respondents from all three districts in Birchwood, and by respondents from the control HCA's outside Birchwood. The interviews revealed that within all three districts in Birchwood it was the presence of young people hanging around adjacent to the local shopping areas that accounted for the respondents' negative feelings about these places. The question arises as to why respondents from Oakwood should feel more strongly. The answer probably lies in the demographic profile of the respondents from Oakwood. Forty three per cent of the respondents aged over 59 in the entire sample live in Oakwood. Two out of the five

Oakwood respondents from this age group who were interviewed recounted how they had been the victims of attempted robbery (mugging) by young people in the area, and another Oakwood interviewee from this age group knew of similar incidents. The presence of young people by the shop was clearly a cause for concern given the previous incidents that had taken place, particularly as in Oakwood the local shop is also the Post Office, where many elderly respondents collect their pensions.

As explained earlier (Chapter 5, "Physical and demographic profile of the case study area", page 90) Locking Stumps is the only district in Birchwood that contains a through road, as well as being the district that is located closest to the business parks in Birchwood. The through road is used for commuting by many of the business park employees, and becomes very congested at times. This would explain why "roads and motorways" have particularly negative connotations in Locking Stumps.

The presence of the municipal tip just to the north of Gorse Covert explains why respondents from Gorse Covert felt strongly about this issue, but at first sight it is difficult to explain why they should also pick built-up areas. The majority of respondents whose responses were put into this category had picked Oakwood (8 out of 9 respondents) and some of the interviews explained why respondents from Gorse Covert should particularly dislike Oakwood:

> **AJ**: "I was quite interested that that you picked the Forest Park as somewhere where you know, somewhere particularly unsafe, because you also said that Pestfurlong Hill and Risley Moss were your, you know and the Circular Footpath...were some of you're your...places you particularly liked,...but you didn't pick one of them...as being...particularly unsafe,...and I just wondered what the difference between the Forest Park was and those places?
>
> **Mrs L**: "I could be horrible and say...no the majority of the Council Houses...are over in Oakwood.
>
> **AJ**: "Yeah so it's closer to Oakwood essentially?
>
> **Mrs L**: "It is yeah...and I think when they're roaming round well they roam on the park"

This respondent was one of several interviewees from Gorse Covert who made essentially negative comments about Oakwood and its inhabitants.

Although there do seem to be connections between respondents' personal characteristics and their perception of places in the local area, touched on above, these connections are not reflected in the statistical analysis of the dependent variables against the demographic variables of gender, age, occupation and education. The only statistically significant associations were between occupation and the respondents' perceptions of "paths, bridges and underpasses" and "green spaces".

Table 7.22 shows that proportionately greater numbers of unskilled, unemployed and student respondents disliked "paths, bridges and underpasses". Care should be taken when interpreting this data, as the numbers of respondents in these occupation categories are extremely small, especially in the unskilled and student categories.

	Paths, bridges and underpasses		Other	
	Count	%	Count	%
Professional	0	0	13	100
Managerial and Technical	3	7	38	93
Skilled Non-Manual	1	6	15	94
Skilled Manual	1	7	13	93
Partly Skilled	0	0	14	100
Unskilled	1	50	1	50
Carer	0	0	2	100
Unemployed	4	31	9	69
Student	2	33	4	67
Retired	2	5	38	95

Table 7.22 Effect of occupation on respondents' tendency to dislike "paths, bridges and underpasses" (as opposed to other types of places)

Skilled non-manual, and student respondents were significantly more likely to dislike local "green spaces" but in this case the numbers of respondents in the different occupation categories were too small to make any meaningful comments (table 7.23).

	Green spaces		Other	
	Count	%	Count	%
Professional	0	0	13	100
Managerial and Technical	1	2	40	98
Skilled Non-Manual	2	13	14	88
Skilled Manual	0	0	14	100
Partly Skilled	1	7	13	93
Unskilled	0	0	2	100
Carer	0	0	2	100
Unemployed	1	8	12	92
Student	2	33	4	67
Retired	0	0	40	100

Table 7.23 Effect of occupation on respondents' tendency to dislike "green spaces" (as opposed to other types of places)

What meanings do Birchwood residents attach to its naturalistic woodland landscapes?

The interviews disclosed that Birchwood's green and wooded spaces, and the vegetation and wildlife found in those spaces had a variety of meanings for the interviewees. These can be grouped together under 5 headings:

- A feeling or belief that Birchwood was making a precious contribution towards the conservation of nature and wildlife and that, in Birchwood, humans can co-exist with nature;
- An awareness of seasonal change;
- The potential to engender transcendental experiences;
- Rural idyll;

- Relaxation, tranquillity and stress relief.

The conservation of nature and wildlife and human coexistence with nature

Many respondents from Birchwood articulated what amounted to relief that Birchwood provides nature and wildlife with habitats in which to thrive. Many respondents saw Birchwood as making an important contribution to nature and wildlife conservation, and one interviewee even put this in a global context:

> **AJ**: "what is why is that [wild animals and birds] a sort of valuable thing to have, in your sort of daily life?
>
> **Mr Sh**: "I think it's because it keeps you in such a reality in nature you know we're not the only ones on planet there is other things going on round you even though we are concrete and everything, these things have still got to be there, they've still got to live, so they've still got to find something, somewhere to go so somewhere or other as they've proved here, even though you built up an area, give nature something as well, and we could all live together you know."

Many Birchwood interviewees, with different personal circumstances and demographic characteristics, shared this feeling. This particular respondent had moved to Birchwood from the inner-city area of Salford when he was a thirteen year old boy, at the time when Birchwood was first built.

Some respondents felt that they were connected to the nature and wildlife in Birchwood, as well as just having the ability to coexist with it. This sense of connection is powerfully evoked in a poem written by one of the interviewees:

> "Instincts"
>
> Autumn leaves are falling fast.
> Summer days have long since passed.
> Grasses turned to yellowish green
> This time of year the frosts are seen.
>
> Squirrels scuttle in the leaves,
> Seeking nuts that fall from trees.
> Birds are seeking worms and grubs,
> Darting wildly in the shrubs.
>
> Rabbits now are not so bold,
> In warrens deep, far from the cold.
> Hedgehog friend are rolled up tight,
> Slumbering long through winter night.
>
> Magpies chatter, high on nest,
> Numbers proving quite a pest.
> Frogs are still around you know,
> But all will hide before the snow.
>
> The fox is always on the prowl.
> At night you sometimes hear him howl.
> But most wild things have come to rest.
> Their instincts tell them what is best.
>
> A jogger sprints, he's going fast.
> Along the path he soon has past.
> Panting hard his breath is gasped.
> A walking stick I have to grasp.
>
> Heading home, I must be quick.
> For I am feeling Oh, so sick.
> Hunger pangs have got to me,
> I'm wandering what to cook for tea.

As cold night falls, I bolt the door.
Up the heat, then start to snore.
In a cosy bed, with a cup of tea.
Instincts working now for me.

Published with the kind permission of the author, Mr Stephen Rudge.

Another respondents saw his experiences of wildlife in Birchwood as a way of getting in touch with fundamental aspects of himself, and a more simple way of being that was in marked contrast to "ordinary life".

MrMc: "I don't know it gets you in touch with what you are really and away from all the hustle and bustle of ordinary life, life is such a massively accelerated race and it's just going faster and faster and more and more fraught that getting back to nature is quite wonderful really."

However, there were two interviewees in Birchwood who disliked the wildlife. One respondent described it as "incongruous" and "vermin-like" in a residential area (see Chapter 6, "Aesthetic Factors", page 158 for quotation), and another respondent thought that birds made a mess and that feeding them encouraged vermin. Both of these respondents lived in high housing density HCA's, and perhaps it was the proximity of the wildlife habitats and consequently the wildlife, as well as other residents feeding the birds close by in neighbouring gardens that caused or contributed to this negative reaction. The first respondent implied that she would feel differently about the wildlife if it were in a wood in the countryside:

Mrs W: "there's lots of rabbits, rabbits bring foxes there are foxes and squirrels, which is quite nice when you're walking with your children cause you can point things out but it just, it doesn't fit. If I was walking with my children I would go to a wood to see those things. I don't know it just sort industrial where sort of technical it just doesn't, it feels like they've been introduced in the wrong place, so it's not the countryside though we are not far from the countryside."

Awareness of seasonal change

Many Birchwood interviewees mentioned seasonal change as one of the positive aspects of Birchwood's woodland setting and particular places within it. When asked to explain why this awareness was important to them they gave different reasons: the seasons add interest and variety to a place, they impart a "sense of well being" and "cheer you up". There was also a suggestion that awareness of seasonal change may be another important link with natural cycles, similar to the feelings of connectedness felt by some respondents when looking at wildlife:

AJ: "how does it benefit you Risley Moss, how do you think it benefits you?

Mrs F: I'm just going back to the wildlife if you know the basic things of everything changing you know".

AJ: "Yes yeah so it's sort of just a seasonal thing."

...

Mrs F: "I like seasons."

AJ: "why do you think that is important?"

Mrs F: "I don't know I think we've lost a lot of our seasons in this cause I remember when I was a child it's your summers were hot long summer days and your winters was snowy and hard you know and your spring when all the flat I don't know we don't seem to have seasons any more so at least down there you've got the you know certain like little insects animals that happen in season so your seasons are back to what they were, do you understand?"

Again there is a sense that Birchwood is contributing to the perpetuation of natural cycles that are no longer present in modern urban life. For this respondent the seasonal change in Risley Moss also enables her to relive the intensity of childhood experiences of the seasons.

The potential to engender existential experiences

A small number of Birchwood interviewees described feelings of an existential nature, which they had experienced in Birchwood's green spaces:

> **Mr Sm:** "I mean if you go to there and you go down some of these roads that go out onto the Moss then they peter out if it's a if it's a sort of grim day you know the cumulous clouds or it's a bit, the sun's a bit low, you can suddenly feel in the middle of nowhere even though there are 2 railway lines that go across it and a big motorway and Irlam which was the large was a steel town of course until the steel went but it's still a place where people are quite remote".

> **Mr T:** "you can be walking round and then you won't see a nobody else is on the path but yourself it's that sort of it gives you a even though when you're walking the sort place there's buildings all round because the trees are there it does give you a feeling that you're all alone in a massive big place".

> **AJ:** "I think we've covered most of the things about Pestfurlong Hill, because that was the place you said it was your favourite place, what does having that place in the locality mean to you?
>
> **Mrs L:** "Oh it means a lot."
>
> **AJ:** "Does it? Yes yeah."
>
> **Mrs L:** "You know, you could go up there and lose yourself."

This need to "lose one's self" seems in some respects to be connected to the feelings that respondents described about wildlife and seasonal change: there is the same desire for a connection with the natural world, and a feeling that in making this connection they are getting in touch with something fundamental that is in marked contrast to the demands and time constraints of ordinary life.

Rural Idyll

When asked to define what they liked about Birchwood's woodland setting and the experience of living in Birchwood many Birchwood interviewees contrasted what they saw as its rural or semi-rural qualities with urban living. The words "rural" and "country" were used repeatedly by a large number of interviewees to describe Birchwood. For example:

> **Mrs SS:** "not proper country, but the next best thing if you like".

> **Mr CA:** "it's classed this as semi rural you see".

> **Miss C:** "they could have come along and just built houses taken all the woodland out, not had Risley Moss not had the forest park and they could have built on that so yeah they try to combine the 2 settings haven't they because there could have been they could have been a lot more houses and they would have the builders would have sold them I think no trouble them so they've I think they've worked very well together the things that you know houses and a country feel without it really being country but it but it doesn't feel false."

Living in a rural or semi-rural setting was seen as desirable for a number of reasons, including a number of functional aspects that are set out later in this chapter. For one respondent from a medium housing density HCA in Gorse Covert, living in this setting was seen as socially exclusive:

AJ: "Why is it important to you to not to live in the town environment?"

Miss C: "Probably because of the class thing yes yeah".

This aspect of living in a rural or semi-rural setting was not articulated by other respondents, but a view of living in this setting as highly desirable and synonymous with prosperity and upward social mobility was occasionally implied. Another respondent said he liked experiences of wildlife because:

Mr C: "I think it makes you feel like you're in the countryside rather than the town you know yeah."

AJ: "And why I mean it's very obvious or maybe sounds like a stupid question but why is that a good thing?"

Mr C: "Well I suppose I aspire to live in the countryside".

In fact, in Birchwood the green structure is not socially exclusive, as Birchwood does contain areas of social housing, but it seems that the woodland structure or "rural setting" has some capacity to distance or separate social from private housing. However, Oakwood, the largest area of social housing in Birchwood, was actively disliked by respondents from medium housing density HCA's in both Gorse Covert and Locking Stumps, suggesting that the woodland belts that separate these districts are only partially effective psychological barriers.

For many respondents living in a rural or semi-rural setting was desirable because it was seen as an antidote to the stresses and strains of city living:

AJ: "In what ways is your life different because you live in a very green area?"

Mr Mc: "I think it's more relaxed...it's lovely coming back from the city and coming back to it really is".

However, many respondents also saw Birchwood as combining all the advantages of rural and urban living:

AJ: "What do you think of Birchwood's woodland setting?"

Mr Sp: "Really nice, much better than the big cities, in a way it could be nice to live out in the middle of the country, but here you've got all the amenities yet you've got the feel of being, it's not in the country, on the edge of it."

Relaxation, contentment and stress relief

Most respondents saw both the trees and greenery, and the wildlife as having beneficial psychological effects. Words and phrases that were used to describe these feelings and experiences were: "peace and quiet", "escape", "relaxing", "tranquillity", "serene", "calming", "holiday", "interesting", "happiness", "contentment", "uplifting", and "less stressed". These feelings and experiences fall into two main categories. Firstly, experiences of the trees and greenery and wildlife in Birchwood were seen as a means of escape from the "humdrum" of daily life, a means of relaxation and stress relief. Secondly, these elements of Birchwood were seen as having the capacity to raise the spirits and bring about happiness and contentment.

One of the activities that was associated with the experience of escape and relaxation was watching or looking:

Mr Cr: "so we don't just walk, we're sort of looking, see what we can see".

Mrs B: "I love watching the squirrels".

AJ: "Why is that, can you say why that is?"

Mrs B: "I just think they're cute, I love the way they run up the trees and that, apart from when our Suki was chasing it the other day".

Mr B: "It's also a bit of a sign of tranquillity."

Mrs B: "Yeah".

Mr B: "If nature comes close to you then, certainly from my point of view"

Mrs B: "See I was brought up in a town".

Mr B: "it signifies more that it's a peaceful, tranquil existence rather than a hubbub of a urban existence".

Mrs R: "but it's something I really enjoy so...you know sitting for quiet minutes and sitting and watching things happen".

These experiences of looking and watching, and their link with escape, relaxation and stress relief, are an illustration of the Kaplan's theory of the restorative value of "quiet fascination". According to the Kaplans, nature provides humans with opportunities for passive contemplation that take them away from the constant information processing of their daily existence, even if only momentarily, and consequently relieve the mental fatigue that accumulates with that existence (Kaplan and Kaplan, 1989). Respondents with varied personal and demographic characteristics expressed these feelings and ideas: they were not restricted to one particular group.

A small number of Birchwood respondents did not necessarily regard the trees and greenery and wildlife in Birchwood as a source of psychological benefits, especially when these respondents felt that the trees and greenery were located too close to their homes. One female respondent did not share her husband's view of the woodland as something that cheered people up. Another female respondent resented the growth of the woody vegetation on her boundary because it prevented her from watching the people who walk past.

Do Birchwood residents approve of its woodland structure and how closely is the naturalistic woodland setting identified with Birchwood as a place?

The questionnaire was not designed to explore residents' perceptions of the use of naturalistic woodland as a structure for the new settlement of Birchwood but this aspect was extensively explored during the interviews.

With few exceptions, the interviewees from Birchwood felt very positive about the way in which woodland had been used as the principle means of structuring the new town. Even respondents who had reservations about aspects of the vegetation closer to their homes were enthusiastic about the structure planting. Out of the thirty one interviewees from Birchwood only three made criticisms of the use of the woodland as a setting for the new town. These criticisms were that there were too many trees, that the trees encroached too much on people's "living space" and that the woodland was unproductive and expensive to maintain.

The concerns about the quantity of trees were shared by a number of respondents, but with the one exception referred to above, these respondents saw the woodland as a much-valued aspect of their local environment, and their concerns focused on the maintenance and management of the woodland. These concerns were articulated as a need for strategic intervention, a decline in standards of maintenance since Birchwood was first built, a desire to see improved maintenance of vegetation bordering footpaths and lack of expertise of landscape operatives. There was also some evidence that the radical maintenance regimes associated with naturalistic vegetation, such as coppicing, are misunderstood and require more explanation then their horticultural equivalents. However, there was also a general acceptance that standards of maintenance had improved since Birchwood Town Council had become involved in the maintenance programme.

Whereas the on street planting in Birchwood does vary in character from formal and horticultural to naturalistic, the structure planting is predominantly naturalistic in character. All of the interviewees from Birchwood were happy with the naturalistic character of the structure planting though a small minority suggested the introduction of some exotic species, flowering and fruiting species and evergreens.

When asked about the advantages of the woodland structure planting the Birchwood interviewees mentioned:

- The proximity of the green spaces, allowing them to go out into the green areas without having to get in a car, or in some cases cross a road:

  Mr Sm: "I feel very lucky that if I want to go for an hour's walk I can do that with hardly having to walk across a road or along a road".

- The capacity of the woodland to absorb development and traffic and act as a buffer between different land uses:

  Mrs F: "there's a lot of greenery even though there might be a lot of traffic and a lot of businesses it's all hidden by all the shrubbery so you feel that there's all this going on so and you see we've got the motorways as well I mean you might be able to hear the traffic a little but it's it still feels like you're out in the country".

- The illusion of space created by the woodland:

  Ms S: "the nice thing about it I think is you can live on an estate but not feel hemmed in, I think that's what I like about it".

- The retention and incorporation of existing natural areas:

  Mrs F: "well it's good how they've tried to keep it I mean I don't know what it looked like before but I presume because it's Risley Moss it was a lot of nature and I think they've tried to keep that to the best that they can you know with all the building going on".

- The first impression of Birchwood generated by the woodland:

  Mrs L: "I just I just like the trees as you're coming up the expressway...you know, I think they're very colourful and you know, I'm not ashamed to tell anybody, oh you go up there and...you see, because it's a nice approach".

- The recreational potential of the woodland belts:

  Miss C: "there's lots of little pathways that even from Bramshill Close you can either go up the next Cul de Sac and just round and you're in the walk along. I know you're walking parallel with

> the road that's going up to the motorway but that's all woodland and all the other all the other closes and things you can get into the woodland very easily".

Although only 4% of the respondents from Birchwood who answered the question chose "pathways" as their favourite places in the local area, it was clear from the interviews that for many respondents they were a valued part of Birchwood, and that their woodland character was what made them special.

When asked about the disadvantages of the woodland structure planting the Birchwood interviewees only mentioned two aspects: safety and way finding. By far the most important of these two was the safety implications of the woodland. The issue of safety is discussed extensively in Chapters 8 and 9, "Safety", and "Children"). Yet it should be emphasised again that many respondents from Birchwood had simultaneously positive and negative feelings about the woodland and the green spaces within it: on one hand these were often the respondents' favourite places in the local area, on the other hand they were also places that these respondents would feel unsafe in, especially if alone after dark.

The second disadvantage mentioned related to the manner in which Birchwood's roads are completely separated from the built development by woodland belts, coupled with the fact that the main road system consists of a series of roundabouts and dual carriageways. It was felt that the roundabouts and roads in their woodland setting lacked differentiation, making way finding difficult for newcomers:

> **Mr C**: "I suppose it is if you're a stranger I mean it the roads don't have any sort of things that stand out you know where you are".

Recently Birchwood Town Council have taken to decorating the lampposts around these roundabouts with floral displays in hanging baskets. This type of embellishment was definitely not part of the original plan for Birchwood, and would undoubtedly have been seen as incongruous by the designers and planners, given their naturalistic approach. However, the hanging baskets were praised strongly whenever they were mentioned during the interviews. A number of different reasons were given: they set a good example and encourage residents to cultivate their own gardens and take pride in the place they live in, they are colourful, they make the area look more "upmarket" and they lift people's spirits. However, the recurring theme associated with the hanging baskets was that they symbolised caring:

> **Mrs Cr**: "we thought they were great when we saw them".
>
> **Mr Cr**: "that's good and they look after them".
>
> **Mrs SS**: "I think it's nice to see that someone's got a little bit of thought to do that and have the patience"
>
> **Mr M**: "yeah it makes it look no homely's not the word but it makes it look
>
> **Mrs M**: like somebody cares".

Whilst the issue of the hanging baskets may seem trivial, it stands for something much more significant. The roundabouts are essentially gateways to Birchwood, marking the transition from the naturalistic woodland belts to the built development, but in the original plan they were not sufficiently differentiated as such. There was certainly an attempt by the designers to vary the rhythm of the tree planting and to locate eye-catching trees species at key locations, but these strategies seem not to have had sufficient impact. It seems that flowers and colour, through their association with caring,

have the ability to mark the passage from the wilderness zone of the woodland to the cultivated zone of the built development, and that these kinds of symbols and markers are very important to people.

Despite the Birchwood interviewees' predominantly positive outlook on Birchwood's woodland setting surprisingly few respondents answered questions about *Birchwood's* physical appearance and identity by talking about the woodland. This was partly because there were different interpretations of what the name "Birchwood" means. For some respondents Birchwood is restricted to Birchwood shopping centre. For other respondents Birchwood is a collection of different areas with widely differing characteristics, not all of which they would want to be identified with:

> **AJ**: "Do you think Birchwood has a strong identity?"
>
> **Mrs L**: "No I don't think so...people that don't live here class Birchwood as Oakwood...and I don't like to be classed with Oakwood".

When asked about Birchwood's physical appearance and identity most Birchwood interviewees responded by talking about the community, or institutions and groups that represent the community such as the Birchwood Striders and the Parish Council:

> **AJ**: "Do you think Birchwood has a strong identity of it's own?"
>
> **Mr Sm**: "That I'm not so sure of because I think that most of the population are people who have moved here to escape from somewhere else in other words, I mean we went to get more Mancunians than Scousers over here whereas I think if you go to Great Sankey and places like that the accents change they're refugees from places Runcorn and places like that up here, very often either a lot of people come from this area over here I presume there are a few people from central Warrington that have move out here and I suppose there are people who have come to the North West or to this region entirely from somewhere else and therefore have no connection with the place".
>
> **AJ**: "And how do you think it will all look in 20 years time?
>
> **Mrs Cw**: "Oh I don't."
>
> **Mr Cw**: "Well if they don't if they don't keep hold of this trouble [here Mr Cw was referring to high levels of crime and anti-social activity in the area he had previously talked about during the interview]...they going to, it's going to go down the [inaudible]. People will start leaving and that".
>
> **AJ**: "Do you think that the woodland could be improved in any way? The sort of setting?
>
> **Mrs H**: "I don't think it could be improved in any way any more than it is now because I think there's certain, there's several people that don't see any beauty in the countryside and wreck it...I don't think it could be improved, if it could be improved if the people would improve, how they use it sort of thing".

Although there were also respondents who had far more positive opinions about Birchwood's community what is clear is that the physical characteristics of a place are not sufficient in themselves to confer a sense of identity. The people that live in a place also contribute to this.

Emerging themes and ideas

Green spaces are highly valued parts of the urban fabric, in Birchwood and Warrington at large. Birchwood's naturalistic woodland spaces are no exception, although some respondents are also fearful of these places, confirming that urban dwellers often hold ambivalent feelings towards naturalistic or wilderness like urban green spaces (Burgess et al 1988; Burgess, 1995).

The interviews suggested that within the 25 years of Birchwood's existence its residents have invested the landscape with rich meanings, to do with the conservation of nature and wildlife and human coexistence with nature; awareness of natural cycles and seasonal change; the potential to engender existential experiences; rural idyll; and relaxation, contentment and stress relief. These meanings are remarkably similar, in many respects, to the philosophical justification for the ecological woodland approach to Birchwood's landscape, put forward by its planners and designers (Chapter 4, "History and Context", page 83).

Birchwood's naturalistic woodland structure was very popular with most of the interviewees, and many different reasons were put forward for this. However, it seems that for many of its inhabitants local "identity" is related to the quality of the community, the activities that take place within it, and the institutions that represent it, rather than to the landscape. Aspects of the landscape symbolise these qualities: the hanging baskets at the roundabouts were a sign that someone or some body was caring for the community, and the work of the Parish Council landscape maintenance team was valued for the same reason.

These signs of human influence or cultivation of the landscape were welcomed as a sign of human activity and control, suggesting that, as a next step along the landscape gradient from the "personalised zone" introduced in Chapter 6, "Aesthetic factors", page 161, there should be a "cultivated zone" in which these signs of human influence are present. These concepts are elaborated further in later chapters, and particularly in Chapter 10, "Conclusions".