Coming of Age: History and Trends in Outdoor Recreation Research

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Introduction: From Diversity to Direction

One of the most distinctive characteristics of outdoor recreation research is its inherent diversity (Manning, 1998). First and foremost, outdoor recreation itself is diverse by definition, as it addresses both people and the natural environment. Issues in outdoor recreation are conventionally distributed into environmental science concerns (e.g., ecological impacts) and social science concerns (e.g., crowding and conflicting uses).

This paper deals only with social science research in outdoor recreation. But even within the social science domain, outdoor recreation research may be approached from a variety of disciplinary perspectives, including sociology, psychology, geography, political science, and economics. Finding commonality and trends within these discipline-based studies can be complex. Indeed, simply finding the research in the variety of journals and other publication sources in which it is reported can be difficult.

Outdoor recreation research also tends to be isolated in space and time; studies are widely scattered geographically and are conducted over varying periods. At least on the surface, an early study of developed campgrounds in an Eastern park can be difficult to integrate with a more recent study of wilderness use in the West. Outdoor recreation has also been subject to wide methodological diversity. Even though the dominant research approach has been to survey on-site visitors, there has been substantial variation in sampling techniques, the scope of such studies, and the way in which important variables have been conceptualized and measured.

Finally, substantive findings from outdoor recreation are also diverse. Visitors to parks and related areas participate in a variety of outdoor recreation activities, represent a broad spectrum of socio-economic and cultural characteristics, and often report varying attitudes and preferences regarding a host of recreation management issues.

However, within this broad diversity, several theoretical, methodological and substantive directions and trends can be observed. Dominant trends include: (i) evolution of recreation research from primarily empirically based studies of visitor characteristics and use patterns to more theoretically based studies of visitor behaviour; (ii) development of conceptual frameworks that allow integration of multiplex studies; (iii) development of theoretical models of important recreation issues; and (iv) continuing evolution of recreation...
research to address emerging societal problems and issues. These trends are briefly described and illustrated in this chapter. These trends have substantial implications for both outdoor recreation research and management.

A History of Outdoor Recreation Research: Epistemological and Methodological Evolution

Outdoor recreation is not a discipline in the conventional academic sense. That is, it is not a basic branch of knowledge like biology, mathematics or sociology. It is an applied field of study focused on an issue or problem that has attracted the attention of a broad segment of society. Though research in outdoor recreation can be traced back 50 years or more (e.g., Meinike, 1928; Estes, 1939), sufficient attention was not focused on outdoor recreation for it to emerge as a field of study until after World War II. During the 1950s, rapid gains in economic prosperity, ease of transportation, increasing leisure time and other social forces converged to produce dramatic and sustained increases in the use of outdoor recreation areas. Problems in the form of environmental impacts and crowding began to attract the attention of both professionals and the public as manifested in articles in national magazines and professional journals (e.g., DeVoto, 1953; Clawson, 1956a). Outdoor recreation as a field of study had its genesis in this period.

The beginning of serious social scientific study in this field in the US, and perhaps worldwide, began with the Outdoor Recreation Resources Review Commission (ORRRC) report. ORRRC was a presidential commission established in 1958 to assess the status of outdoor recreation in America ( Hearst, Chapter 1). It published its widely read summary report, Outdoor Recreation for America, in 1961, along with 29 special studies (ORRRC, 1961). The peculiarity of outdoor recreation research before that time is evident in one of the special studies which reviewed the outdoor recreation literature. The introduction of the report stated:

The outline prepared as a guide for the bibliographic search assumed the existence of a substantial body of material relating rather directly to outdoor recreation. As the actual hunt progressed, the true situation—that the field is so yet that of outdoor recreation has been but sketchily treated—became more and more evident.

(Litterman of Congress, 1962, p. 21)

The bibliographical catalogue of the Library of Congress had no subject heading, 'outdoor recreation'. Fewer than ten entries were found in this study that referred to outdoor recreation in its titles.

Most of the early research in outdoor recreation was ecologically oriented. This was, at least in part, because most outdoor recreation managers were professionally trained in the traditional biological disciplines or fields of study, including forestry and wildlife biology (Lime, 1972; Hendee and Stankey, 1975). An early observation noted that social scientists traditionally paid little attention to the broad issues of leisure and recreation. The multidisciplinary nature of outdoor recreation, however, gained recognition in the post-World War II period. Social problems such as crowding began to supplement traditional concerns for environmental impacts, and participants in outdoor recreation activities were recognized as having socioeconomic characteristics, attitudes and preferences that might be of interest to park and outdoor recreation managers. Emphasis on the social aspects of outdoor recreation was furthered in the 1960s and early 1970s by a series of calls for research on outdoor recreation in several major social science disciplines, including sociology (Cotton, 1971; Hendee, 1971), economics (Clawson and Ketchum, 1963), psychology (Driver, 1971), geography (Mitchell, 1969), and a more multidisciplinary approach (Laube, 1966).

Early social science research in outdoor recreation and leisure in general was primarily descriptive, focusing on the activities and social characteristics of participants. The ORRRC studies noted earlier are examples of this type of research. Early observers criticized this work as 'little more than a reporting of survey data' (Berger,
1961) and 'sweat empiricism' (Meyersohn, 1969). A thrust of a strong theoretic foundation, along with an overemphasis on applied problem solving, has been a consistent criticism of outdoor recreation research (Mounfield, 1970; Hendricks and Burdge, 1972; Crumell and Lewko, 1976; Parish et al., 1983; Hendricks et al., 1984; Izard, 1986). For example, as analysis of papers published in the Journal of Leisure Research from 1978 to 1982 concluded that two-thirds 'lacked an explicit statement about the theoretical basis of the study' (Hendricks et al., 1984).

However, evidence suggests this has changed over time as outdoor recreation research has developed and matured. As early as 1979, it was noted that the field of outdoor recreation was beginning to move beyond the descriptive phase and into more explanatory studies (Mounfield, 1970). Moreover, synergistic effects of outdoor recreation and leisure research were beginning to materialize. A study of participation in water-based recreation published in 1974, for example, noted that 'in the investigation of any problem area there must be a systematic and rigorous effort by many so that studies are progressive and research findings are accumulative. If a critical mass of theoretical and substantive knowledge is to emerge' (Field and Creak, 1974). The authors concluded that, in the study of leisure, we are getting of age. The same year, an assessment of research published in the Journal of Leisure Research marked a distinct conclusion. The study of leisure is approaching the threshold of real accomplishment (Burdge, 1974).

Progress in recreation research is evident in more recent analyses. An examination of papers published in four recreation-related journals from 1983 to 1990 found that most included a theoretical or conceptual framework (Hendricks et al., 1994). Moreover, there is evidence that recreation research has proved effective and efficient. A study of the US Department of Agriculture (USDA) Forest Service found that most important innovations in outdoor recreation management were derived from research Anderson and Schlenker, 1993; Schlenker et al., 1993). The study concluded that recreation research and management are considered important and successful by managers and researchers. A second USDA Forest Service study assessed the value of social scientists more broadly and concluded that:

social science research can help managers work more effectively with their clients and partners to increase 'customer satisfaction', control public support for recreation management programs and policies, reduce controversy and conflict, reduce the need for restrictive rules, laws, and regulations relating to recreation management and use and reduce management costs (Lukes et al., 1996).

The effectiveness of recreation research in the National Park Service also has been documented (Machlis and Getty, 1993). Finally, an economic study suggests that, based on efficiency, we may be under-investing in outdoor recreation-related research (Bangston and Ba, 1993).

Evidence suggests that recreation research also has become multidisciplinary, even interdisciplinary. Early analyses of outdoor recreation noted its inherent multidisciplinary nature, and that research should span the traditional social science disciplines (National Academy of Sciences, 1969; Van Doren and Hult, 1971; Crumell and Lewko, 1976). A study of scholarly journals in recreation suggests that research is moving in this direction (Burdge, 1985). Authors and editors of these journals reveal a trend away from a disciplinary approach to outdoor recreation to a more multidisciplinary treatment. Contributions from the traditional social science disciplines of sociology, psychology, and economics have declined relative to contributions from researchers in the broader park, recreation and related departments, whose studies are broader in nature and more appropriate to problem solving in an inherently interdisciplinary field. If the quality of outdoor recreation research is debatable, the quantity is not. Last 11 years after the same literature base uncovered by the CRSS studies, a Million—
graphs on outdoor recreation carrying capacity was developed, containing 208 citations (Steeney and Lins, 1975). A 1979 bibliography on the subject of river recreation contained 335 citations (Anderson et al., 1978). One of the bibliographies included in this citation has nearly a thousand citations, while the others have more than a thousand (Schulberger et al., 1983; Kass et al., 1990; Dagle, 1993). Despite this apparent increase in outdoor recreation research, basic information on use and users of parks and related areas remains patchy at best. A recent survey of areas managed by the National Park Service found that most parks lacked basic, visitor-related information, including socioeconomic characteristics, residence and satisfaction (Manning and Wang, 1988).

Research in outdoor recreation has, then, evolved to the classic manner of most emerging fields of study. Most early studies were descriptive and exploratory, substituting data for theory, and were discipline-based. An expanding data base allowed more conceptual and analytical development, and ultimately a more multidisciplinary and interdisciplinary approach. These trends are evident in the scholarly journals in which recreation research is reported. The early studies of the 1950s and 1960s are found in journals of sociology, psychology, economic and forestry. As research activity expanded, the developing field of outdoor recreation created its own multidisciplinary scholarly publication outlets, including the Journal of Leisure Research in 1965, Leisure Sciences in 1977, and the Journal of Park and Recreation Administration in 1983.

Development of Conceptual Frameworks: Carrying Capacity and Other Paradigms

The preceding section suggests several trends in outdoor recreation research, all of which are methodological and epistemological. However, there have been a number of substantive advances as well, including the development of several conceptual framesworks that provide a more holistic or integrated structure from which to understand and ultimately manage outdoor recreation. A long-standing example of such a conceptual framework is carrying capacity.

Rapidly expanding recreation in the 1950s and 1960s gave rise to concerns over appropriate use levels of outdoor recreation areas. While interest in the impacts of recreation on the natural resource base predominated, attention was beginning to shift to the effects of increased use on the quality of the recreation experience. Early studies prompted theorists to search for a conceptual framework to help formulate outdoor recreation policy. A resulting paradigm was carrying capacity.

Carrying capacity has a rich history in the natural resource professions, substantially predating its serious adoption in the field of outdoor recreation. In particular, the term has received wide use in wildlife and range management, where it refers to the number of animals of any one species that can be accommodated over time in a given habitat. Perhaps the first suggestion for applying the concept of carrying capacity to outdoor recreation was recorded in the mid-1930s. A National Park Service report on policy recommendations for parks in the California Sierra posed the question, How large a crowd can be termed loose in a wilderness without destroying its essential qualities? (Sumner, 1938). Later in the report, it was suggested that recreation use of wilderness be kept within the carrying capacity. The concept of carrying capacity became a more formal part of the outdoor recreation field when it was used as a major issue by Daza (1971) in his problem analysis of outdoor recreation and as a result of its prominence in the deliberations and writings of the ORRSC (1962).

The first rigorous application of carrying capacity to outdoor recreation came in the early 1960s with a conceptual monograph by Wagar (1964). Perhaps the major contribution of Wagar's conceptual analysis was the expansion of carrying capacity from its dominant emphasis on environmental effects to a dual focus including social or...
experiential considerations. Wagar's point was that as more people visit an outdoor recreation area, not only the environmental resources of the area are affected, but also the quality of the recreation experience. Thus, carrying capacity was expanded to include consideration of the social environment as well as the biophysical environment.

Wagar's original conceptual analysis hinged at a third element of carrying capacity, and this was described more explicitly in a subsequent paper (Wagar, 1968). Noting a number of misconceptions about carrying capacity, it was suggested that carrying capacity might vary according to the amount and type of management activity. For example, the durability of biophysical resources might be increased through practices such as fertilizing and irrigating vegetation, and periodic rest and rotation of impact sites. Similarly, the quality of the recreation experience might be maintained or even enhanced in the face of increasing use by means of a more even distribution of visitors, appropriate rules and regulations, provision of additional visitor facilities and educational programmes designed to encourage desirable user behaviour. Thus carrying capacity, as applied to outdoor recreation, was expanded to a three-dimensional concept: environmental, social, and managerial considerations.

Carrying capacity has attracted intensive focus as a research and management concept or paradigm in outdoor recreation. Several bibliographies, books and review papers have been published on carrying capacity and related issues, and these publications contain hundreds of citations (e.g. Stankey and Lime, 1972; Graefe et al., 1984; Shelby and Heberlein, 1986; Stankey and Manning, 1986; Kuss et al., 1990). Yet despite this impressive literature base, efforts to apply carrying capacity to recreation areas has often resulted in frustration. The principal difficulty lies in determining how much impact or change should be allowed within each of the three components that make up the carrying capacity framework: the naturalness of environmental resources, the quality of the recreation experience, and the extent and direction of management actions.

The growing research base on outdoor recreation indicates that increasing recreation use often causes impact or change to the environmental, experiential or managerial components of carrying capacity. However, despite increasing knowledge about recreation use and resulting impacts, the critical question remains: how much impact or change should be allowed? This issue is often referred to as the 'limits of acceptable change' (Frittsell and Stankey, 1972). Some change in the recreation environment is inevitable, but sooner or later the amount, nature or type of change may become unacceptable. But what determines the limits of acceptable change?

Recent experience with carrying capacity suggests that answers to the above question can be found through formulation of management objectives and associated indicators and standards of quality (e.g. Lime and Stankey, 1971; Stankey et al., 1986; Stankey and Manning, 1986; Shelby et al., 1992; Manning and Lime, 1996; National Park Service, 1997b). This approach to carrying capacity focuses on defining the type of visitor experience to be provided. Management objectives are broad, narrative statements defining the type of visitor experience to be provided. Indicators of quality are more specific, measurable variables reflecting the essence or meaning of management objectives; they are quantifiable proxies or measures of management objectives. Indicators of quality may include elements of the biophysical, social and management environments that are important in determining the quality of the visitor experience. Standards of quality define the minimum acceptable condition of each indicator variable.

Research has given rise to several frameworks for determining and applying carrying capacity to outdoor recreation areas. These frameworks include Limits of Acceptable Change (LAC) (Stankey et al., 1986; McCool and Cole, 1997), Visitor Impact Management (VIM) (Graefe et al., 1990) and Visitor Experience and Resource Protection (VERP) (Manning et al., 1996b; Hof and
Development of Theoretical Models: Crowding and Other Issues

Substantive advances in outdoor recreation research have also focused on a growing number of issues or topical areas. These issues have been the subject of many studies whose findings can be synthesized into theoretical models that guide further research and management. Crowding is a prominent example of such an issue.

There is a relatively long history of concern over the effects of increasing use on the quality of the recreation experience, beginning even before the post-World War II boom in recreation participation (e.g. Adams, 1930; Leopold, 1934). Shortly after the beginning of the period of rapidly expanding outdoor recreation in the 1950s and 1960s, a number of popular articles began to generate widespread interest in this topic (e.g. DeVoto, 1953; Clansworth, 1959a).

Adoption of the concept of carrying capacity, particularly the expansion of the concept to include social carrying capacity component, provided a convenient foundation on which to base theoretical and empirical crowding research. Wegar's (1964) conceptual analysis of carrying capacity is an appropriate place to begin discussion. This analysis suggested that, "When too many people use the same area, some traditional wildland values are lost." This was illustrated with a series of hypothetical relationships between crowding and a number of human motivations inherent in outdoor recreation participation. Early empirical studies of crowding (e.g. Lucas, 1964; Stankey, 1973) were followed by theoretical developments. Several theorists developed a quantitative model of the effects of increasing use on the recreation experience, based on the economic concept of marginal utility (Clewson and Knetch, 1966; All-bridge, 1973). Substituting recreation visits for input and satisfaction for output, the theoretical constructs of production economics suggest that as visitors are added to a recreation area, the marginal satisfaction of each individual visitor will progressively decline due to crowding, and that total or aggregate satisfaction will increase. This process continues until the marginal satisfaction of the 8th visitor no longer exceeds the drop in satisfaction of previous visitors. At this point, aggregate satisfaction begins to decline and social carrying capacity has been reached.

The driving force behind this model is an assumed inverse relationship between use level and satisfaction; for the individual, increased use causes decreased satisfaction. This approach to crowding has been called the "satisfaction model" (Heberlein and Shelby, 1977). However, subsequent theoretical and empirical studies have suggested that crowding is considerably more complex. These studies have led to development of an expanded crowding model.

An expanded model of crowding incorporates findings from three broad areas of research: (i) normative definitions of crowding; (ii) coping behaviors; and (iii) methodological issues. The normative approach to crowding suggests that use level is not interpreted negatively as crowding until it is perceived to interfere with or dis-
Evolving Issues: Race, Ethnicity and Other Concerns

Research in outdoor recreation continues to evolve to meet societal interests and needs. An important example of expanding research interest is the relationship between race/ethnicity and outdoor recreation. Interest in effects of race and ethnicity on recreation have been evident since the very early stages of outdoor recreation research. Two of the ORRRC studies in the early 1960s for example, reported significant differences in outdoor recreation participation between blacks and whites (Stuesser, 1962; Mueller and Gurin, 1962). Interest in this issue expanded in the 1960s and early 1970s, in part as a function of the civil rights movement. Racial unrest in this period was attributed, at least in part, to poor quality and inequitable distribution of recreation opportunities (National Advisory Commission on Civil Disorders, 1968; Washburne, 1978). Contemporary concern over issues of equity and social and environmental justice has focused additional research attention on this issue. Interest in this subject area is likely to continue to grow in intensity and importance as minority populations of several types continue to expand relative to the traditional white, Euro-American majority. Research tends to fall into one of two basic categories: (i) studies that explore differences in recreation patterns between or among racial and ethnic groups; and (ii) studies that attempt to explain such differences.

Research on recreation patterns associated with subcultural groups has been conducted in a variety of contexts and has employed varying research methods. However, study findings have been nearly universal in their conclusion that whites participate more often than minority populations (particularly blacks and Hispanics) in traditional outdoor recreation activities (e.g. Washburne, 1978, Washburne and...
Wall, 1986; Stamps and Stamps, 1985; West, 1989; Dwyer, 1993; Johnson et al., 1997b). The ONSPCC studies noted above were the first to document this pattern, and it has been found to persist over time. A national survey conducted in 1977, for example, found that blacks participated less than whites in a statistically significant degree in several outdoor recreation activities, including camping, boating, hiking/backpacking, hunting, skiing and sightseeing at historical sites or natural wonders (Washburne and Wall, 1986). Similarly, a more recent on-site survey conducted at a nationwide sample of federal and state parks and outdoor recreation areas found that blacks comprised only 2% of all visitors while representing 11.7% of the US population (Hartman, and Over- savest, 1990).

In addition to participation rates, studies have also found a variety of differences in recreation patterns and preferences among subcultural groups (e.g. Kelly, 1980; Washburne and Wall, 1980; Dwyer and Hutchinson, 1990; Blaha, 1992; Geemann et al., 1992; Pavecek et al., 1997). Most of these studies have addressed differences between whites and minority subcultural groups, particularly blacks and Hispanics. Findings suggest that, compared to whites, minority subcultural groups tend to:

- Use and prefer "urban-oriented" recreation facilities and services.
- Participate in larger groups that often include extended family and friends and consist of more diverse age groups.
- Use and prefer more highly developed facilities.
- Participate in activities that are more diverse and sport-oriented.
- Have a longer length of stay at recreation sites.
- Use areas that are closer to home.
- Use land-based rather than water-based areas.
- Make more intensive use of facilities and services.

A second basic area of research has focused on why there are differences in recreation behavior among subcultural groups. Research in this area has been both theoretical and empirical. Three basic theories have been advanced to explain differences in recreation behavior among subcultural groups. The first two theories were developed in a seminal study by Washburne (1978). This study suggested what were perceived to be the competing theories of marginality and ethnicity. The theory of marginality suggests that minority subcultural groups, particularly blacks, suffer from economic and related disadvantages as a result of historic discrimination. These disadvantages act to inhibit participation in outdoor recreation by means of cost, transportation, information, location and other barriers. The theory of ethnicity, on the other hand, suggests that differences in recreation behavior are a function of subcultural values; subcultural groups such as blacks and ethnic minorities reflect cultural values different from the dominant white, European-American culture, and these values manifest themselves in recreation behavior. A third basic theory has been developed more recently and focuses on racism or inter racial relations (West, 1989).

This theory suggests that minority subcultural groups may experience personal or institutional forms of discrimination that inhibit their participation in selected recreation activities. A number of studies have addressed and tested these three basic theories (e.g. Washburne, 1978; Washburne and Wall, 1980; Kloos-Edwards, 1981; Stamps and Stamps, 1985; Floyd et al., 1985, 1984; Shimow et al., 1990; Johnson et al., 1997a, 1998). Tests of the marginality and ethnicity theories are often addressed in the same studies. The most common research approach is to measure recreation behavior across two or more subcultural groups while statistically controlling for a variety of socioeconomic variables such as income and education. This allows direct comparison of individuals of similar socioeconomic status. If differences in recreation behavior are reduced or eliminated in such tests, then this suggests support for the theory of marginality. If differences persist then this suggests support for the theory of ethnicity.
Several studies have also asked respondents more directly about barriers to participation in outdoor recreation as a means of testing the marginality and ethnicity theories. Tests of the interracial relations theory generally rely on surveys to determine the extent to which minority subcultural groups report having been subject to personal or institutional discrimination, and the degree to which this is a barrier to participation in outdoor recreation.

The research indicates some support for all of the three basic theories described above. This has led to a more contemporary view that the relationship between recreation behaviour and subcultural factors is complex and can be understood only through consideration of multiple and possibly interrelated influences (McDonald and Hutchison, 1986; West, 1986; Johnson et al., 1990b, 1998). For example, clearly there are strong interrelationships between subcultural groups and socioeconomic status: historic patterns of segregation and discrimination are reflected in lower socioeconomic status of blacks and other minority subcultural groups. It is reasonable to suggest, therefore, that subcultural values may be influenced by socioeconomic status and that both the marginality and ethnicity theories may influence recreation behaviour.

Research on race and ethnicity suggests some important management implications. To the extent to which the marginality theory is valid, special efforts should be made to increase equal access to outdoor recreation. Potential actions within the scope of individual managers include provision of public transportation, location of parks and outdoor recreation areas closer to minority population areas, and development and marketing of recreation programmes more directly to minority subcultural groups. Management implications of the ethnicity theory are quite different. To the extent to which this theory is valid, recreation facilities and services should be designed to meet the recreation-related values of minority subcultural groups. The literature suggests such adaptations might include an emphasis on more developed facilities closer to home and facilities designed for larger groups and more active users. Finally, the racism or interracial relations theory suggests that managers should re-examine their agencies and programmes for evidence of institutional discrimination (e.g. discriminatory pricing policies) and should be proactive in furthering programmes to promote racial harmony.

Along with race and ethnicity, a number of other contemporary issues are evolving in the outdoor recreation literature, including the relationship between gender and outdoor recreation (Henderson, 1990, 1997; Chapter 2: Shaw, 1994), the appropriate role of user fees in outdoor recreation management (Reiling et al., 1992; Landgren, 1996) and the characteristics and impacts of new forms of outdoor recreation such as mountain biking (Watson et al., 1991; Chavez et al., 1993; Chavez 1996a,b).

Conclusions: Trends and their Implications

Outdoor recreation research has clearly evolved and matured over the past several decades. The beginning of serious social science research in outdoor recreation can be traced to the ORRRC in the early 1960s. Since then, the outdoor recreation research literature has expanded dramatically. Even though this literature is diverse in terms of theoretical approaches, research methodologies and issues addressed, several trends are evident.

First, recreation research has evolved from primarily empirically based studies of visitor characteristics and use patterns to more theoretically based studies of visitor behaviour and the underlying meanings of outdoor recreation. Thus, the literature has evolved from primarily descriptive studies to more analytical and explanatory studies.

The theoretical bases of outdoor recreation research have evolved from more disciplinary-based studies derived from sociology, psychology and economics, to more interdisciplinary studies conducted by scientists educated and housed in park, outdoor recreation and related departments.
Second, the research-based literature in outdoor recreation has been synthesized to develop a number of conceptual frameworks that are useful for integrating multiple studies, and ultimately guiding further research and management. Examples include carrying capacity, the Outdoor Recreation Opportunity Spectrum, indicators and standards of quality, and several classification systems of recreation management practices and related management processes or handbooks. Third, the synergistic effects of an accumulating body of research have developed a strong theoretical understanding of a number of important issues in outdoor recreation, including crowding, conflict, motivations and benefits, substitutability and specialization. Fourth, issues addressed in outdoor recreation research continue to evolve to meet societal interests and needs. Examples of such issues include the relationship between outdoor recreation and race, ethnicity and gender, the appropriate role of fees in outdoor recreation management, and the characteristics and impacts of new forms of outdoor recreation such as mountain biking.

These trends have had substantial implications for both recreation research and management. The evolving, multidisciplinary, explanatory approach to outdoor recreation research has developed a stronger theoretical foundation for understanding outdoor recreation. Resulting theoretical models have provided an intellectual framework within which to integrate multiple studies, and helped guide additional research by isolating important variables and relationships as well as suggesting a series of hypotheses for further empirical testing. A stronger theoretical basis for understanding outdoor recreation has contributed, in turn, to recognition of outdoor recreation as an important, applied field of study with concomitant academic department, scholarly journals, and an established scientific literature.

Management of outdoor recreation has benefited directly from advances in the research base. As noted earlier in this chapter, a recent study of the USDA Forest Service found that most important innovations in outdoor recreation were derived from research (Anderson and Schneider, 1993; Schneider et al., 1993). Theoretical models of crowding, conflict, motivations and benefits in recreation, substitutability of recreation activities, and recreation specialization have allowed for management of these issues on a more informed basis. Moreover, conceptual frameworks developed from the recreation literature have resulted in a series of structured approaches designed to guide recreation management. Examples include Limits of Acceptable Change, Visitor Experience and Resource Protection, and the Recreation Opportunity Spectrum. Finally, outdoor recreation research can evolve to address emerging management issues such as the relationship between outdoor recreation and race, ethnicity and gender, the appropriate role of fees in outdoor recreation, and new forms of outdoor recreation such as mountain biking.

The evolution of outdoor recreation research has been instrumental in building a foundation for outdoor recreation as a professional field of study. Research has resulted in a strong, multidisciplinary, theoretical and empirical scientific literature. This body of knowledge can and should be used to guide future research, and to inform management action. Moreover, this scientific literature should be incorporated into professional education programs aimed at both students and practitioners. In these ways, research can help the field of outdoor recreation continue its professional evolution and its 'coming of age'.