

An 'Interpretation Opportunity Spectrum': A New Approach to the Planning and Provision of Interpretation in Protected Areas

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Abstract

This paper presents a management model within which the development, delivery and continuing appraisal of interpretation programs might be framed. The model is based on and incorporates elements from the Recreation Opportunity Spectrum (Clark & Stankey, 1979) and provides a management framework for specifically addressing interpretation. Termed the Interpretation Opportunity Spectrum (IOS), it comprises six factors: audience; cultural values; physical setting; existing and desired infrastructure and services; resource-related activities; and management parameters. The six factors of the IOS model give consideration to both supply and demand side elements, and when integrated with each other, allows park managers to identify, develop and manage the range of opportunities for interpretation within a regional context as well as in individual settings.

Introduction

Interpretation is a core mission of natural resource management agencies. A variety of interpretive facilities and services can enhance user satisfaction as well as raise awareness, promote understanding, orient visitors to the facilities and attractions of an area, and if appropriate, act as a catalyst for behavioural change in individuals. In this way, interpretation is widely viewed as one of the most effective methods available to planners and managers for protecting the natural, cultural, ecological and recreational values of natural resources (Knudson, Cable & Beck, 1995; Wearing & Neil, 1999). However, the development of interpretation is influenced, just as other management techniques are, by a number of significant issues. Natural resource managers face challenges in managing the increasingly complex interactions between natural resources and users. For example, global demand for outdoor recreation opportunities has grown substantially and rapidly in the past three decades (c.f. Cordell 1999; Gartner & Lime, 2000). In addition, an increasing diversity among outdoor recreationists and tourists has accompanied this significant growth in demand. Other factors have also come into play. For example, most public agencies are being confronted with shrinking levels of funding and resources now and most likely in the future, thereby requiring more cost-effective methods and programs. Societal support for the conservation and preservation of natural resources generally has increased and intensified, and the performance of natural resource management agencies is being scrutinised by and is answerable to government and the public (Archer & Wearing, 2002).

One of the major difficulties for planners and managers in dealing with the changing and dynamic nature of outdoor recreation is having cutting edge models and

frameworks to guide the decision making process. New approaches or modifications to existing planning models are needed that continually improve effectiveness and efficiencies in allocating increasingly scarce resources. We propose a strategic and integrated framework for the planning and management of interpretation that is based on the Recreation Opportunity Spectrum (Clark & Stankey, 1979), and is developed from recent empirical research related to park visitor needs and satisfaction (Griffin & Archer, 2001; Archer & Griffin, 2002a; Archer & Griffin, 2002b). The shift towards visitor based management frameworks away from manager perceptions of what resource users want requires the development of approaches that accommodate user needs within management frameworks (Wearing & Huyskens, 2001). The purpose of this paper is to introduce and outline an alternative framework for planning and managing interpretation in protected areas, and which also can be directly integrated within existing management structures. It is hoped in the future that other forms of management structures can be developed that advance these ideas.

Planning frameworks in protected area and visitor management

A variety of management and planning frameworks have been developed over the last four decades that address issues concerning carrying capacity and visitor impacts. One of the more extensively used planning frameworks is the Recreation Opportunity Spectrum (ROS), which was developed by researchers in the U.S. Forest Service (Clark & Stankey, 1979). The ROS was originally developed for natural resource managers with responsibility for remote or wilderness areas. At the heart of the ROS framework is the idea of maximising the range of recreational opportunities available to the public. The framework encompasses varying classes of recreational development from modern to primitive based on specific site and management characteristics that influence recreational opportunities. It assumes that in selecting opportunities, users are presented with choices of activities, settings and experiences.

One of the strengths of the ROS framework is its relative simplicity for planners and managers to use and apply. This is evidenced clearly by the widespread use of the ROS framework and modified versions by natural resource agencies worldwide (Driver 1990; Butler & Waldbrook, 1991; Boyd & Butler, 1996). In a conceptual sense, the ROS sought to operationalise the relationships between a recreation setting, users of a recreation setting, and the kinds of experiences they seek. However, criticisms can be made of the ROS framework in that it fails to sufficiently incorporate science-based information on visitors' motivations, expectations and satisfaction in planning for recreational settings, and is generally based on the manager's perception of the setting and its use. Thus, it can be argued that the ROS model is constrained to a narrow range of underlying assumptions and values: for example, how does it cope with ethnic use of a setting if the managers only examine euro-centric use (c.f. Floyd 1999; Wearing & Costa, 2001).

Case study: New South Wales National Parks and Wildlife Service (NPWS)

Responsibility for the management and conservation of national parks in New South Wales, Australia rests with the state National Parks and Wildlife Service agency (NPWS). As of 2001, NPWS had legislative responsibility for 161 separate national parks throughout the state of NSW, comprising nearly 4.4 million hectares (NPWS

2001a). In responding to increasing levels of visitation, NPWS has usually hardened sites and/or incrementally added facilities and services so as to increase capacity. Decisions on where, how, when and what facilities should be provided have in most instances been made based on the personal opinions and expertise of staff within the agency. In many cases, sites have been altered to accommodate the increasing numbers of visitors, and this has often led to a change in the characteristics of the settings and visitor experiences. However, in the last decade efforts have been made by NPWS management to develop and apply zoning based management frameworks that are modelled on the ROS.

The NPWS national parks estate contains a range of physical and cultural landscapes and varying capacities for infrastructure and facilities at different sites. All parks contain demonstrably different capabilities in terms of the activities or uses they can support and the kinds of visitor experiences they provide. Increasingly, visitor research is showing that NPWS may not be efficiently and effectively allocating resources for recreation and tourism where they are most needed or appropriate (NPWS, 2001b). Recent visitor studies (see Griffin & Archer, 2001; Archer & Griffin, 2002a; Archer & Griffin, 2002b) conducted by researchers from the University of Technology, Sydney and funded by the Cooperative Research Centre for Sustainable Tourism (CRC Tourism) provide empirical verification that NPWS is currently struggling to adequately match visitor facilities and programs, including interpretation, with the needs of its visitors. This is most likely a reflection of the fact that facilities in NSW national parks have generally been provided or upgraded with little real knowledge or understanding, on the part of managers, of the needs of the park visitor and their satisfaction.

Planning for interpretation

In many cases, managing and planning for interpretation remains fragmented and lacking in strategic direction despite most natural resource management agencies, including NPWS, now recognising (by way of organisation mission and objectives statements) the importance of interpretation to achieving conservation and recreation objectives. The unconnected and haphazard delivery of interpretive facilities and services in many outdoor settings resulting from a lack of integration with broader agency goals and other planning frameworks reinforces shortcomings in many interpretive programs. Within Australia in particular this has been a problem for some time as interpretation and education have continued to be treated separately from the strategic natural resource management process (c.f. Beckmann 1987; McArthur & Hall, 1996; Archer & Wearing, 2002).

The 'Interpretation Opportunity Spectrum'

Under the National Parks and Wildlife Act 1974 (NSW), the NPWS is required to provide opportunities for park visitors to learn about and advance their understanding and appreciation of the natural and cultural values contained in the park estate. NPWS corporate planning documents and individual park plans of management (POM) give acknowledgement to this responsibility. As it applies to national parks, the concept of interpretation is intended to be an agent in protecting the quality and integrity of the park resources (natural and cultural) and enhancing the visitor experience. In the context of NPWS, interpretation refers to information that has the objective of

facilitating an understanding and appreciation of park assets and values. Furthermore, its aim also is to enhance user satisfaction as well as raise awareness of important park issues.

The idea of an Interpretation Opportunity Spectrum is introduced as a logical and defensible re-formulation of the original Recreation Opportunity Spectrum. The modification of the ROS framework is not new and has been attempted previously, and with some success, in other contexts such as the Tourism Opportunity Spectrum (Butler & Waldbrook, 1991) and the Ecotourism Opportunity Spectrum (Boyd & Butler, 1996).

As with the ROS model, the fundamental structure of the IOS framework is simple. It provides for the specifying of interpretation objectives in terms of broad classes of interpretive opportunity, and does so by identifying indicators of these opportunities that allow for distinctions to be made. The IOS framework has been designed to be an integral part of the strategic park planning process. Indeed, the POM process now acknowledges the need to provide visitors with a range of interpretive opportunities to enhance visitor experiences and assist in park management and the protection of park values (NPWS, 2001c). Where the ROS framework acknowledges the important role of providing a range of visitor experience opportunities, and where interpretation contributes to the visitor experience, we contend that planning processes in national park management must allow for opportunities for a range of interpretive experiences. The IOS framework can assist managers by:

1. enabling interpretation of natural and cultural resources to be better focused in order to meet organisational and visitor needs
2. determining where interpretive and educative facilities and services are most needed and where they are not required
3. assisting in the strategic management and planning process by providing an overview of interpretation opportunities within a region
4. providing a mechanism to show whether an appropriate balance of interpretation opportunities has been provided at the strategic, regional and park levels
5. better matching interpretation and education facilities and services to visitors' needs, preferences and experience, thereby ensuring high levels of visitor satisfaction.

Factors influencing interpretive opportunities

A planning framework such as the IOS, which defines various opportunity classes, acknowledges that interpretation should not be homogenous across all parks/sites. Rather, consideration needs to be given to what interpretive facilities and services are appropriate, where they are most appropriately located, and the types of users most likely to benefit (and hence be satisfied) from specific, targeted messages and sources. The IOS model draws on the ROS in establishing the factors that influence the range of interpretive opportunities. It is argued that the same factors inherent in ROS are also applicable when making decisions on the types of interpretation products and services to provide, and where. However, in identifying the factors, the IOS framework differs and expands on ROS in two important ways: 1) the IOS incorporates a settings cultural values in determining interpretation opportunities; and

2) the IOS provides a more person-centred approach which, while still recognising the inherent importance of *supply-side* elements of the visitor experience, moves social (audience) and cultural considerations to the forefront of analysis. The reasoning behind this is that the broad purpose of interpretation is to capture the attention of the audience and positively influence individuals' knowledge, appreciation, awareness and behaviour. An interpretive experience can be thought of then as being framed by the interplay of six contextual factors:

- audience (social)
- cultural values
- physical setting
- existing and desired infrastructure and services
- resource-related activities; and
- management parameters

As the identification and mapping processes in the IOS model take place, information gathered on each of the six factors is then able to be integrated or overlaid with the others, so that areas with a demonstrated need and capacity for providing interpretive facilities and services can be identified (and vice-versa). Once the identification and mapping of the six factors is completed, the information is then transposed into a matrix similar to that used in ROS applications. The advantage of this approach is that, in effect, the IOS matrix can be overlaid onto the ROS management zones utilised in POM's. This ensures each interpretation opportunity class identified is reflective of particular recreation experiences.

Factor 1: Audience (Social)

Individuals interact with the natural environment in a variety of contexts. Interactions are diverse and aimed at realising something of value or benefit to the individual. Those who visit national parks in their leisure time differ in their socio-economic backgrounds and do so for varying and often multiple reasons. Wearing (2002) argues that the meaning each individual takes from an interpretive experience is constructed according to their own social and cultural background, the purpose of the visit, their companions, preconceived and observed values of the host culture, as well as the marketing images of the destination. Differences between individuals will mean that some will want simply to enjoy a day out and safely use the facilities provided for their comfort, while others will want to actively discover and learn about their surroundings. In the former example, interpretation may involve giving information designed to maximise visitor safety and comfort such as directional signage, maps and site management information. In the latter example, interpretation may involve explaining the value, history and significance of particular natural and cultural features.

Interpretive facilities, publications and activities are the vehicles through which a setting's natural and cultural values, as well as its management issues, are communicated. However more needs to be done to better direct these to identified visitor groups through effective target messages, and the aim of the IOS framework is to enable this to be carried out and incorporated into the management process. By developing an inventory of existing interpretive techniques, associated facilities and publications, and undertaking an assessment of visitor satisfaction with these

techniques, then at the regional or individual park level, the IOS framework can assist in linking interpretation messages to target groups based on what will satisfy them and hence be most likely taken on board by the visitor. The IOS model enables the natural resource management agency to refine how it provides interpretation and education resources, thus saving scarce financial resources and also allowing more effective communication to user groups.

Factor 2: Cultural values

Comparatively little management attention has been given in the past to the significant cultural values contained in many park settings. Indeed, there are many fascinating stories to be told and interpreted to visitors as well as the broader community about the history and cultural significance of our national parks. In Australia, as in many other countries, the indigenous history preserved by these settings is not only of local and national importance, but in many instances, is of interest internationally as well. For many people, national parks provide one of only few opportunities to develop a first hand appreciation, understanding and awareness of the historical and cultural links with our past, and consequently, play a vital role in strengthening public support for the protection of cultural and natural heritage. The interpretation of a settings cultural heritage and significance is therefore of paramount importance. The cultural value inherent in a setting will vary in terms of its historical background, significance, extent and complexity, and interpretation opportunities will need to consider these defining elements.

However, the idea of cultural values extends further to also include the cultural values and background of the (potential) audience, whether visitor or non-visitor. Interpretation needs to progress to the stage where it incorporates the 'other' within its role; for example ethnic groups and their conceptual views of nature. Historically, little attention has been paid by protected area managers to understanding the cultural background and values of park visitors and how these influence their use of and attitudes, opinions, and beliefs towards the natural environment in general and national parks particularly. Making interpretation accessible and meaningful to other less dominant groups in society requires, as Aplin (2002) describes, an effort on the part of interpreters and associated agencies to step outside their own social context and inside someone else's. Similarly, Driver et al. (1996:5) observe that 'if public land managers are to be responsive to the changing needs and values of an increasingly multicultural citizenry in management planning, they must work toward a fuller understanding of those needs and values.'

Past studies, most of which have originated from the U.S, have shown that ethnic/cultural minority groups differ to individuals of White, European heritage in terms of their lower levels of national park visitation, environmental values and perceptions, and use of interpretive information (see for example, Floyd 1999; Thapa, Graefe & Absher, 2002). More research focusing on these issues is needed. Off-site interpretation provides further opportunities for interpreters and managers to reach marginalised ethnic/cultural minorities in the wider community and deliver appropriate messages.

Factor 3: Physical setting

The physical values of a setting help define and give meaning to the kinds of experiences available to the visitor as well as guide the management effort. By physical setting we are referring to the scenic, geological, biological and ecological characteristics of a specific area or landscape. The personal enjoyment of scenery and natural landscapes is central to most outdoor recreation experiences and opportunities. Experiences in national parks of a highly satisfying nature are therefore generally dependent on the preservation of quality natural settings. In terms of the IOS framework, the physical setting is an important factor as it links scenery and natural landscapes with visitor needs and satisfaction outcomes. It does so by guiding the identification and development of specific interpretive themes and content based around the physical characteristics of a setting.

Factor 4: Infrastructure and services

Existing and desired infrastructure and services will vary in terms of number, extent, scale and visibility across the recreation opportunity spectrum. From an interpretation standpoint, this factor is composed of interpretive facilities and services including visitor information centres, displays, brochures, maps, signs and guided walks etc. They may occur in isolated locations in the setting or they may be extensively located. Interpretation infrastructure may cater to visitor safety and convenience or it may focus on facilitating enjoyment and learning, or both. It is possible however that existing facilities may be inappropriately located, inconsistent with the desired recreational setting or not meet visitor needs. For example, a “developed” recreation setting that provides for intensive use and large groups but has little or no interpretive or advisory information may be considered as one that is unbalanced. As another example, wilderness seekers may accept few, if any, formal facilities and displays as this would conflict with their desired experiences and personal preferences, as well as management objectives.

Factor 5: Resource related activities

Whilst it is important that only those recreational activities that are sustainable and appropriate to the physical, cultural, social and management elements of a given setting are permitted, visitor (dis) satisfaction with their participation in various activities is determined, in part at least, by the provision (or absence) of related interpretive and advisory information. The nature of the recreational activity provides guidance for determining the type and level of interpretation so as to maximise the enjoyment of the participant. Particular activities lend themselves to certain types of interpretation more easily than others. For instance, in the case of bushwalking, the quality of the experience can be improved if information is provided on the location and length of walking tracks, time taken to traverse, as well as any particular points of interest. Alternatively, high-risk activities such as canyoning or abseiling require risk management messages.

Factor 6: Management parameters

Interpretation programs and services should be related to the corporate goals of the relevant management organisation. Just as appropriate natural resource management

requires clear and explicitly stated objectives, so too does interpretation need to be based on clear objectives rather than on broad and often vague statements. Furthermore, there is a need to integrate interpretation objectives with other strategic management and planning frameworks to ensure the protection of park values and the IOS framework works towards achieving this goal. The level of on-site management is a critical factor in defining the type of interpretation opportunities to be made available to visitors in various settings. Different types of interpretation are appropriate for different settings. For example, extremely fragile environments need minimal impact messages, regardless of visitor preferences. As another example, in the context of “wilderness” settings, it may be more appropriate to deliver interpretation off-site and require visitors to access this pre-visit.

Description of opportunity classes

Five classes of interpretation opportunity have been identified within the IOS framework. As can be seen in the example of an IOS matrix contained in Table 1, each of these five interpretation “classes” differs with respect to several dimensions, some of which are related specifically to interpretation. There will invariably be significantly more resources, both human and financial, allocated to interpretive facilities and services in “developed” settings compared with “wilderness”. The classification scheme used to describe the spectrum of interpretation opportunity classes has, for the purposes of this paper, been labelled from ‘not evident’ to ‘intensive’. At the two ends of the spectrum, Class 1 provides for no formal on-site interpretation, whereas Class 5 allows for highly diverse interpretation opportunities. We do acknowledge the fact that such labelling somewhat oversimplifies the nature of interpretation and that further testing of the model may lead to a more sophisticated breakdown. Interpretation opportunities vary in the depth and level of their content, they vary in the level of sophistication of the media used, in their permanence, and in their use of personal (face-to-face) delivery. Some interpretive programs and services are delivered on-site and others off-site. Some are aimed at informing, some educate, while others seek to inspire and transform.

Class 1: Not evident

Class 1 of the interpretation opportunity spectrum provides for no on-site interpretive displays or advisory information. This class of interpretation opportunity is generally appropriate for “wilderness” settings accessed by relatively few people who are experienced and self-reliant, and would prefer to experience remoteness and solitude with no evidence of human or management interference. In wilderness the emphasis is on off-site interpretation opportunities – visitors are encouraged to access websites, read books, and know the rules as well as the recreation opportunities prior to their visit. Settings for which this class of interpretation is appropriate preserve highly significant natural and cultural values, and once on-site, the visitor’s proclivity for cognitive learning, improved awareness, increased appreciation and personal satisfaction is internalised and achieved through the intensely intimate, individual and challenging nature of their interaction with the environment. Here almost all recreational activities are prohibited by management and such settings generally function with little or no management input except for tasks such as species protection, etc. In addition to the absence of any on-site interpretive facilities and signage, there are no visitor facilities provided by management.

Class 2: Minimal

In class 2 of the interpretation opportunity spectrum the visitor can expect minimal levels of interpretation opportunities, mostly in the form of advisory information on walking track distances and warnings on track conditions. Such information is generally provided off-site through NPWS offices and specialist activity guides and maps, or on-site at the start of tracks. This class of interpretation opportunity relates most closely to generally remote natural settings with high conservation significance and only minor evidence of human activity and management intervention. Visitors are generally highly experienced and self-reliant, seek remoteness and escape from their everyday lives, and typically undertake activities such as 'serious' bush walking, orienteering, rock climbing and camping. Visitors gain most satisfaction from the personal, self-fulfilling and challenging nature of interactions with the environment, providing them with highly personalised affective and cognitive benefits. There are minimal or no visitor facilities provided by management in this recreation setting, allowing for only low to moderate levels of low intensity recreational use depending on seasonal constraints and access that is restricted to motorised vehicles.

Class 3: Basic

Class 3 of the interpretation opportunity spectrum allows for a basic level of on-site interpretive and advisory signage. This class of interpretation is best suited to large natural settings containing places of moderate, but sometimes high, natural and cultural values. Visitors to these settings typically expect opportunities for nature appreciation, respite from everyday life and some degree of social interaction. Certain areas of the setting will require a moderate level of experience, and most visitors explore the setting either by foot or motorised vehicle. Management generally provides basic visitor facilities for walking, camping and picnicking activities. This type of setting is also popular with the private ecotourism market, and the information needs of ecotourists can and often are met by tour operators. The majority of visitors to this setting prefer that management provide a basic level of on-site interpretive and advisory information.

Class 4: Moderate

Class 4 of the interpretation opportunity spectrum provides for a moderate to high level of interpretation and is generally provided on- and off-site. This class of interpretation opportunity is most appropriate in settings of relative naturalness containing moderate conservation values. The provision of interpretation is a primary feature of this type of setting. The majority of visitors are day-trippers and tourists and there is frequent contact with other visitors including large groups. Other visitor facilities are common such as lookouts, picnic areas, walking tracks, tables and BBQs. Opportunities for recreation, scenic driving, picnicking and socialising are sought most by visitors. Domestic and international tourists in particular are highly motivated to improve their knowledge and learn about the natural and cultural values contained in the area they are visiting. The popular use of these settings by commercially guided tour groups presents additional opportunities for the provision of interpretation. Given the potential diversity of visitor needs in this type of setting, it is important to understand the interpretation and information needs and preferences of identified visitor groups through the commission of research.

Class 5: Intensive

In class 5 of the interpretation opportunity spectrum the visitor would most likely be within a “developed” recreation setting and so can expect various opportunities for interpretive products and services of a highly diverse nature. Because “developed” settings attract the greatest diversity of visitors, there is a need not only for more interpretation (due to more visitors) but also more diverse interpretation, so that all learning styles and levels of information being sought are catered for. Both on- and off-site interpretation are provided here, and both face-to-face and non-personal media used. An array of interpretive techniques are appropriate including brochures, signage, maps, books and ranger-guided tours and talks. Typically, these settings attract relatively high proportions of international and domestic tourists. Independent visitors are typically motivated to visit these sites for sightseeing, learning, picnicking, socialising and recreation needs, and their experiences are usually short in duration (less than one day). They generally place high importance on the provision of on-site interpretive displays and advisory information, and expect to find information on significant natural and cultural attractions, locations of walking tracks, and related aspects such as the length of walk, time taken to complete and points of interest. Given the range of visitor groups that use these types of settings it is important that research is carried out to provide managers with a detailed understanding of the specific interpretation and information needs of different visitor segments. Although these settings are natural they are usually small in size and have been modified substantially to allow for intense recreational use and management interventions. Most types of activities are permitted, and high levels of infrastructure and facilities are provided.

Table 1. Example of Interpretation Opportunity Spectrum Matrix

INTERPRETATION OPPORTUNITY CLASS CHARACTERISTICS		Wild/undeveloped < -----> D eveloped No formed access < -----> Highly accessible Unmodified landscape < -----> Modified landscape No visitor facilities < -----> Full facilities provided No interpretive facilities < -----> Full interpretive facilities provided				
Recreation Setting		Wilderness	Wilderness/Natural	Natural	Natural/Developed	Developed
INTERPRETATION CLASS:		<i>NOT EVIDENT</i>	<i>MINIMAL</i>	<i>BASIC</i>	<i>MODERATE</i>	<i>INTENSIVE</i>
1. AUDIENCE (SOCIAL)						
Level and type of visitor use	Very low levels of use; rare or infrequent contact with others; groups generally small. Generally overnight camping use.	Low to moderate levels of use depending on season, track length, accessibility and associated activities and features. Mainly overnight camping with little day use.	Low to moderate levels of use depending on season and track length. Mixture of day visits and overnight camping.	Moderate to high levels of use; diverse visitor groups; mainly day visits, but some overnight stays are evident; frequent contact with other visitors including large groups (>10); tourists a significant proportion of total use.	High levels of use; very diverse visitor groups; mainly day visits; frequent contact with other visitors; large groups (>10) common; tourists the major proportion of total use.	
Level of experience/type of interpretation sought	High level of experience required including map reading and navigation skills; generally challenging for most users. Off-site interpretation needed.	High level of experience required including map reading skills; generally challenging; generally small range and level of interpretation required, both on- and off-site.	Some previous experience and map reading skills may be necessary; challenging to less experienced users; moderate interpretive needs.	Generally no previous experience or special skills required; degree of challenge depends on activity; diverse range of interpretive media and messages needed.	No previous experience or special skills required; no special challenges; diverse range of interpretive media and messages required.	
Main visitor groups	Wilderness seekers	Wilderness seekers; Active pursuits	Active pursuits; Leisure pursuits; Escape to nature	Escape to nature; Social/family outing; Nature lovers; Organised tour groups	Social/family outing; Nature lovers; Organised tour groups; Passers by	
2. CULTURAL VALUES						
Cultural significance of setting	Highly significant cultural values preserved. Off-site interpretation to highlight cultural significance.	Significant cultural values conserved. Any interpretation to highlight cultural significance.	Cultural values (some significant) conserved. Any interpretation to highlight cultural values.	Moderate cultural values protected. Some interpretation of cultural values required.	Moderate to low level of cultural significance. Optional as to whether cultural values interpreted.	
Cultural background of audience	This setting tends to attract mono-cultural visitors (e.g. most of White Western background).	May attract multi-culturally diverse visitors, but unlikely.	Visitors of various cultural/ethnic backgrounds possibly make use of this setting.	Visitors of various cultural/ethnic backgrounds make use of this setting. Interpretation programs to consider this.	Multi-cultural diversity among visitors particularly in urban national parks. Interpretation media/messages to be mindful of such diversity.	

Table 1: continued

	<i>NOT EVIDENT</i>	<i>MINIMAL</i>	<i>BASIC</i>	<i>MODERATE</i>	<i>INTENSIVE</i>
5. PHYSICAL SETTING					
Description	Generally large areas (usually 5km narrowest dimension) with either very high natural values and/or "wild" qualities. Negligible evidence of non-traditional human activity. No formed access or alien tenure.	Generally "remote" areas with conservation significance. Only minor evidence of human activity and development, including management roads and walking tracks.	Natural area providing motorised and walking access and basic visitor facilities. Most visitors will use this setting to explore the park, either by car or on foot.	Includes areas of relative naturalness, with recreation facilities evident. All weather, motorised access is usually provided.	Includes major visitor facilities such as picnic areas, campgrounds, scenic drives and major access routes, information centres and car parks.
Principal purpose	Preservation of either "wild" values or significant natural and cultural values. May provide very low intensity, self-reliant recreation.	Conservation of significant natural and cultural values and low intensity recreation and catchment protection. May form a land bank for future wilderness setting.	Conservation of natural and cultural values and low to moderate intensity recreation with some facilities. Main setting to provide for scenic driving and bush walking.	Provides for moderate intensity, facilities-based recreation in a natural setting. Cognisant of the need to protect natural and cultural values.	Medium to high levels of recreation and social interaction in a natural setting.
Conservation values	May contain areas of very high conservation value or function, but large enough for natural process to occur without human interference.	High conservation value and function but usually smaller in size than wilderness setting, or where greater management inputs are required.	Generally moderate to high conservation value, although small areas may have very high values.	Generally moderate conservation value. Areas of higher conservation value should be avoided in this setting.	A natural, although modified, setting with moderate to low conservation values. Stable environment able to support use.
4. INFRASTRUCTURE AND FACILITIES					
Track length	Generally >half-day return trip	Generally >half-day; often extended (more than one day)	Variable length; often >half-day;	Generally from 1 hour up to half-day; less often >half-day	Generally <1 hour
Level of construction and maintenance	Nil	Minimal, if any, track construction (e.g. low key drains in specific problem areas only); infrequent maintenance limited to specific problem areas.	Minimal, if any, track construction (e.g. low key drains in specific problem areas only); infrequent maintenance limited to specific problem areas.	Well constructed with drains, track edging, handrails, steps, etc. wherever required; regular maintenance to cater for moderate to high use levels.	High standard of construction; designed for minimal maintenance; regular maintenance where required to cater for high use levels.

Table 1: continued

	<i>NOT EVIDENT</i>	<i>MINIMAL</i>	<i>BASIC</i>	<i>MODERATE</i>	<i>INTENSIVE</i>
Interpretation facilities and services	Nil on-site, although some information provided off-site, e.g. websites, books, NPWS offices.	Often nil; start of footpad only may be signposted and/or may be noted on wilderness interpretive signposting (located outside wilderness area).	Start of walking track often signposted; directional signs at junctions if required; generally no interpretive signposting (except to address specific management problems). Possibly ranger-led or commercial guided tours.	Well signposted at start of walking tracks and wherever required along track; often interpretive shelters, signposting, displays and/or leaflets. Often opportunities allow for ranger-led or commercial guided tours.	Extensive range of opportunities. Well signposted at walking track start and wherever required along track; interpretive shelters, signposting, displays and leaflets. May have visitor information centre on-site. Opportunities common for ranger-led or commercial guided tours.
Associated visitor facilities	Nil	Only basic visitor facilities provided where essential.	Generally informal lookouts and/or campsites (formalised where necessary to reduce visitor impacts).	Visitor facilities common, e.g. constructed lookouts.	Always associated with other facilities, e.g. constructed lookouts, picnic areas.
5. RESOURCE RELATED ACTIVITIES					
Main recreation activities	Bushwalking, nature study, abseiling, rock climbing, walk-in camping, fishing	Bushwalking, nature study, abseiling, rock climbing, water-based activities, camping, fishing	Bushwalking, camping, nature study, picnicking, water-based activities, scenic driving, fishing	Short/medium walks, picnicking, nature study, scenic driving, guided tours, water-based activities, other recreational activities	Short walks, picnicking, nature study, scenic driving, guided tours, water-based activities, tourist and other recreational activities
6. MANAGEMENT PARAMETERS					
Level of publicity	Not mapped on topographic maps; ideally little promotion by NPWS other than website.	Not mapped on topographic maps; may be published in specialist activity guides and/or maps; not included in NPWS publications except for website.	Generally mapped on topographic maps; may be published in specialist activity guides (especially National Parks Association type guides): generally not promoted in NPWS publications.	Mapped on topographic maps, promoted in NPWS and other publications including tourist publications.	Mapped on topographic maps, promoted in all relevant publications; specifically promoted for tourist use.
Mechanised access	No motorised surface access. Walking routes and canoe/raft access only. Only approved helicopter access.	No public vehicular access. Management access on 4wd tracks but usually at very low levels of use.	Access usually on unsealed roads and tracks, sometimes 4wd standard only. Access restrictions may apply.	All weather roads are provided for a moderate level of recreational use and are well signposted.	Very good all weather road access for all classes of vehicle.

	<i>NOT EVIDENT</i>	<i>MINIMAL</i>	<i>BASIC</i>	<i>MODERATE</i>	<i>INTENSIVE</i>
Role of interpretation and information in risk management	Any information makes clear that visitors assume full responsibility for personal safety and exercise special care where required; no management by NPWS for public risk.	Visitors assume full responsibility for personal safety and exercise special care where required; little, if any, management by NPWS for public risk; may be by general warning of track condition (on - or off-site).	Visitors generally required to assume responsibility for personal safety and exercise special care where required; information provided on walking track length, condition, grade and time taken to complete (on - or off-site).	Visitors required to maintain reasonable level of responsibility for personal safety especially in relation to natural elements (e.g. steep or slippery surfaces; cliff edges near tracks); managed by NPWS to minimise public risk, especially in relation to built features (e.g. staircases, bridges, lookouts).	Visitors required to maintain normal level of responsibility for personal safety; actively managed by NPWS to minimise public risk including high standard of construction and maintenance, regular safety inspections, and walking track information.

Conclusion

This paper has sought to address an important challenge facing park managers today: to develop interpretation as a sustainable and appropriately managed component of quality visitor experiences. Interpretation is one of the most widely used and effective management and planning regimes available to natural resource managers. In seeking to more explicitly link interpretation with strategic planning processes in protected area management, this paper has proposed a new model that may be useful in developing a more inclusive and strategic approach to managing the interactions between visitors and the natural environment by way of interpretation. The Interpretation Opportunity Spectrum model proposed here provides managers with a framework by which interpretation opportunities may be identified, located, planned for and managed.

That said, it is not the intention for the IOS framework to take an overly prescriptive approach, but rather it is designed to be adaptable to different circumstances without losing the essential elements of the model. Its aim is to demonstrate how one might provide a planning framework for interpretation that recognises and incorporates the inherent variability in natural resource management. The IOS matrix, as presented in this paper, is provided as an example and is based on circumstances only in the context of the national parks of New South Wales, Australia. We believe however that the IOS can be readily applied elsewhere, but contextual factors unique to particular settings, management agencies and user experiences will ultimately shape the spectrum of interpretive opportunities appropriate for a given location.

Of the six factors that comprise the IOS framework, three of them – audience (social), cultural values and resource related activities - can be determined from on-site (visitor) and off-site (community) studies. The remaining factors require input from the relevant management agency. In deliberately broadening management's focus to pay greater attention to the visitor perspective, the approach adopted by the IOS model seeks to connect the spectrum of recreation settings to the needs and satisfactions of targeted visitor groups in each setting type. Importantly, it also attempts to integrate a planning and management approach for interpretation that fits within broader NPWS strategic and park management processes, and enables the review and comprehensive inventorying of regional level interpretation opportunities. Because it is overlaid with current ROS zoning applications, and is combined with input from visitor/community studies, the IOS may allow the determination of any gaps in the distribution of opportunities for interpretive messages and information that should be filled, or point to those opportunities which are in excess supply. As the characteristics of recreational and tourist use and users of an area may change over time, it is important that managers have planning and management tools available to them that accommodate shifting demands and identify and plan for the consequences (impacts) of such changes.

The innovative and exploratory nature of the IOS model proposed in this paper warrants validation of the model through further research and testing. It is our view that the IOS model presents researchers, interpreters and protected area managers with an opportunity to test the validity of the model, both conceptually and in practice. To be effective, the IOS must be based on reliable and current data. Much more research

needs to be carried out on visitors to a region/site that identifies continually changing markets and develops profiles of each of the groups. Central to this is the development of a better understanding of the information needs of various audiences (both visitors and wider community) and evaluation of their satisfaction with such needs. It is incumbent on the management agency that they continually review and inventory the range of facilities and services provided across different settings. As with any model, the IOS framework proposed in this paper does by nature include a degree of generality. However, the fact that protected area managers face increasingly complex and difficult issues in meeting their mandate for conservation and public use makes the need for appropriate management frameworks even more important.

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