A Benchmarking Method for Visitor Management by National Park Agencies

Susan A. Moore[1] and Ross Taplin[2]

[1]Murdoch University, Murdoch WA, Australia

[2]Curtin University of Technology, Bentley WA, Australia

About the Authors

Susan A. Moore leads the Nature Based Tourism Research Group at Murdoch University in Western Australia. Her research interests include nature tourism and biodiversity policy, with a special focus on national parks and other protected areas. Address correspondence to: School of Veterinary and Life Sciences, Murdoch University, South Street, Murdoch WA 6150 Australia. E-mail: S.Moore@murdoch.edu.au.

Ross Taplin is professor of statistics in the Business School at Curtin University in Western Australia. His research interests include quantitative research methods, including the measurement of visitor satisfaction and loyalty in tourism and leisure destinations.

Acknowledgments

This research was supported under the Australian Research Council's Linkage Projects funding scheme (project number LP100200014). Data for these analyses were provided by the WA Department of Parks and Wildlife, with special thanks to Amanda Smith and Michael Tuffin. Comments from the anonymous reviewers improved the manuscript.

Abstract

Performance evaluation has only recently entered the lexicon of national park visitor management, in response to accountability concerns, commercialization of services, and fiscal constraints. Benchmarking, as part of such evaluations, is widespread practice in the hospitality sector but has been slow making its way into park visitor management. As such, the aim of this paper is to develop and apply benchmark importance-performance analysis (BIPA), as a refinement of importance-performance analysis, to a system of national parks. BIPA, as developed in this paper, provides a methodology for the meaningful system wide comparison of attributes, such as the provision of information and the quality and standard of specified facilities, and of relative park performance. The parks managed by the Department of Parks and Wildlife in Western Australia and their visitors are used as a case study. The case study analysis shows that BIPA is a simple, accurate technique for benchmarking the performance of a suite of attributes across a park system and the relative performance of the parks themselves, thereby providing much-needed data for system wide planning and management decisions.

Keywords: Australia, benchmarking, important-performance analysis, national park, performance evaluation, visitor satisfaction

A Benchmarking Method for Visitor Management by National Park Agencies

Societal interest in how public funds are expended, combined with declining budgets for public sector activities such as park management, have resulted in a rapidly growing interest by national park managers and researchers in performance evaluation (Buckley, 2009; Hockings, Cook, Carter, & James, 2009; Leverington, Lemos Costa, Pavese, Lisle, & Hockings, 2010; Weaver & Lawton, 2011). Having information on the comparative performance of their parks is essential for managers allocating limited resources. Additionally, information is increasingly required on the efficacy of management to account for expenditure of public funds in park management (Hockings et al., 2009; Leverington et al., 2010). This paper focuses on understanding relative performance within an organization, with possible extensions to inter-organizational comparisons noted in the conclusion (Taplin, 2012a).

Benchmarking – "a systematic procedure of comparative measurement with the objective to achieve continuous improvement" (Wober, 2002, p. 2) – offers promise as a means of comparing performance. There has been, however, limited use of benchmarking in non-profit oriented tourism (Fuchs & Weiermair, 2004; Kozak & Nield, 2004; Wober, 2002) with little written in relation to visitor attraction research (Leask, 2010) and, equally as surprising, little published in the peer-reviewed literature specifically regarding visitors and tourists to parks and other protected areas (Taplin & Moore, 2012). Benchmarking allows comparisons, often in a search for best practice, in organizations sharing similar operating environments (CNPPAM, 2002; Leask, 2010). This makes the methodology highly suited to a system of parks where one organization is responsible for managing all destinations and visitors in that system.

Evaluation of entire park systems, which create opportunities for benchmarking, has entered protected area research and management over the past two decades, supported by

methodologies developed by the International Union for the Conservation of Nature World Commission on Protected Areas (for details, see Hockings Stolton, Leverington, Dudley, & Courrau, 2006). Thousands of protected area management effectivenesss (PAME) assessments have been undertaken by protected area agencies and conservation non-government organizations since the 1990s (Hockings et al., 2006; Leverington et al., 2010). Visitor and tourism management to date, however, have received limited attention in these, often being considered as a threat rather than an asset (Weaver & Lawton, 2011) and with only 1 of 33 headline indicators specifically focused on visitors (Leverington et al., 2010). Worboys (2007), in his comprehensive provision of evaluation subjects, importantly emphasized the importance of measuring and comparing visitor satisfaction across a protected area system.

Importance-performance analyses are potentially useful for reporting on and benchmarking visitor satisfaction (Pearce, 2006; Tonge & Moore, 2007; Wade & Eagles, 2003) and have been widely applied in travel, tourism, leisure and recreation, education, management, healthcare, and banking research (Azzopardi & Nash, 2013; Huang, 2010; Oh, 2001; Tonge, Moore, & Taplin, 2011; Wade & Eagles, 2003). These analyses use visitor responses to questions, presented in a questionnaire, about the importance and performance of a number of service attributes (e.g., provision of information) and facility attributes (e.g., cleanliness of toilets). For each attribute, its performance and importance are located on a grid, relative to crosshairs that allocate the attributes to one of four quadrants (Martilla & James, 1997; Oh, 2001; Tonge et al., 2011; Wade & Eagles, 2003). Each quadrant has different implications for the managers, including maintaining, decreasing, and increasing management efforts (Figure 1). As such, it provides a simple tool for comparing the relative performance of attributes (Azzopardi & Nash, 2013).

<INSERT FIGURE 1 ABOUT HERE>

Such analyses have rarely been extended to a national park system; rather, application has focused on a single park (Taplin & Moore, 2012). When used for a single park (e.g., Tonge & Moore, 2007), IPA has provided valuable data on the relative performance of attributes at that destination. Pearce (2006) noted the value of such efforts in facilitating measurement of relative rather than absolute satisfaction levels, as this provides the critical information required for benchmarking. IPA thus has potential as a comparative tool, for application across a park system, but has had limited application to date.

This paper contributes to filling this significant gap by reporting on the development and application of a modified form of IPA, benchmark importance-performance analysis (BIPA). BIPA, through comparing the performance and importance of an attribute at one park with the mean performance and importance of the same attribute in all parks, enables benchmarking of the performance of each attribute across the park system. This enables system wide evaluations of the performance of specific facilities and services to be readily made. It also allows evaluation of the relative performance of national parks in the system. Traditional IPA is much less suited for this task, without the modifications developed in this paper, as it relies on comparing the performance of individual attributes against a mean of all attributes. This combined mean loses information and may introduce bias as visitors likely to respond differently to different attributes. As such, the aim of this paper is to develop and apply benchmark importance-performance analysis (BIPA), as a refinement of importance-performance analysis, to a system of national parks.

Benchmarking

The focus of the research reported in this paper is internal benchmarking, where units, branches – or in this case parks – compare themselves with other units within the same organisation (Kozak, 2004; Pearce & Benckendorff, 2006; Wober, 2002). Internal benchmarking can help identify organisational strengths and weaknesses and improve

efficiency. It can also highlight best practice and use this as an example to improve performance across an organisation. Other forms include external, sector and strategic benchmarking. External benchmarking involves comparisons with rival, non-competing or partner organisations (Kozak, 2004; Pearce & Benckendorff, 2006; Taplin, 2012a; Wober, 2002). Sector benchmarking can be undertaken by industry associations, and include many companies, to improve the performance within that sector (Wober, 2002). Strategic benchmarking is noted as another approach, where the aim is to identify winning strategies that underpin successes (Fuchs & Weiermair, 2004; Pearce & Benckendorff, 2006).

Benchmarking in the tourism industry has numerous, previously reported advantages (Kozak, 2004). Included are helping organisations understand their strengths and weaknesses, improving customer satisfaction by establishing standards and measuring against them, allowing organisations to realise what is possible, promoting change and facilitating improvements through providing data on performance, and using a cost-effective approach to creating a pool of good ideas (Kozak, 2004; Leask, 2010; Pearce & Benckendorff, 2006; Wober, 2002). It was originally used in tourism to identify performance gaps, but is increasingly used by national tourism organisations to conduct situational analyses with the objective of facilitating best practice (Leask, 2010). For national parks in the 2000s, benchmarking current management against best practice was widely investigated and advocated by the Australian and New Zealand Natural Resource Management Ministerial Council as a means for improving park management (CNPPAM, 2002). Destination benchmarking in tourism has encompassed inter- and intra-country comparisons, for example, 61 European cities, Scotland versus 6 other countries, 15 destinations in the EU, and English regional tourist boards (Kozak, 2004; Leask, 2010; Wober, 2002).

Only a handful of peer-reviewed published examples of benchmarking visitor and tourism management of national parks and other natural attractions exist. One example is an

analysis benchmarking visitor satisfaction from 88 studies on different continents and in different settings including zoos, national parks, campgrounds, attractions, environmental activities and scenery (Pearce, 2006). The different scales in the different studies, and the broad sweep of destinations, make interpretation of the results from this study challenging. Several other studies have collected primary data from a number of attractions and then made comparisons under the rubric of benchmarking. Pearce and Benckendorff (2006) benchmarked Australian tourist attractions including museums, farms, gardens, theme parks, casinos and others, using quantitative (e.g., visitor numbers, total profit) and qualitative (e.g., perception of quality) measures. They found wildlife parks and aquaria exceeded the mean performance of other attractions for a number of measures. Parks were not central to their focus.

Two other studies focus specifically on comparing visitor management across park systems, one published in the peer-reviewed literature (Wade & Eagles, 2003) and the other as an industry report (Yardstick Board, 2010). Additionally, Ryan and Cessford (2003) provided satisfaction data amenable to benchmarking, for visitors to national parks in the Coromandel Peninsular of New Zealand, but did not explicitly undertake this process. Wade and Eagles (2003), in their study of visitors to Tanzania's national parks, compared the perceptions of importance and performance held by different visitor segments regarding attributes such as friendliness of guide, availability of information and cleanliness of washrooms. As they compared segments, relative performance can be determined for these segments but not for parks. Yardstick Parkcheck (Yardstick Board, 2010) is a benchmarking system for visitor management of national, state and municipal parks and open spaces. Visitors rate the importance of specific park services and amenities and their satisfaction with them using a 5-point scale, with the gaps between importance and satisfaction (i.e.,

performance) for 10 attributes (e.g., park gardens and trees, park seats and tables, toilets) shown using bar graphs.

System wide collection and analysis of data is slowly becoming the norm for many protected area management agencies, in large part due to the IUCN-led PAME assessments (Hockings, Stolton, & Dudley, 2004; Hockings et al., 2006; Leverington et al., 2010; Moore, Smith, & Newsome, 2003). Leverington et al. (2010) describe these PAME assessments as third level assessments, where the aims are improving management, increasing accountability, and setting resourcing priorities. At this level, monitoring and measurement focuses on broad, system wide concerns such as the proportion of visitor facilities with sustainable use (NSW Environment and Heritage, 2013) or the existence of visitor monitoring surveys (PAN Parks, 2013). This paper addresses the fourth level of assessment – detailed monitoring – where the condition and trend of specific protected area values, in this case visitors' experiences and the adequacy or otherwise of the facilities and services, are the focus.

Unfortunately, few park agencies have the resources, perceived imperative and social research skills to design these fourth level system wide visitor data collection systems, and can obtain and allocate the requisite funding and then undertake cross-system analyses that are meaningful to staff yet simple to execute (Griffin, Moore, Crilley, Darcy, & Schweinsberg, 2010; Pearce & Benckendorff, 2006). Additionally, a lack of attention to monitoring by park agencies remains a fundamental problem (Buckley, Robinson, Carmody, & King, 2008). IPA offers a straightforward approach to qualitative measures of visitor satisfaction, and the BIPA modification developed and applied in the study reported below offers this much needed benchmarking opportunity for park agencies.

Importance-Performance Analysis

The majority of benchmarking studies in tourism focus on customer satisfaction as a

qualitative measure of performance (Kozak, 2004). Satisfaction with particular attributes, such as staff friendliness and the standard of facilities, has been measured using IPA. Arguments persist, however, regarding its application, with particular foci for these arguments being the contribution of importance to determining overall satisfaction and the best location for the crosshairs (both addressed below), plus a number of other issues not specifically addressed in this paper (for reviews, see Azzopardi & Nash, 2013; Huang, 2010; Oh, 2001).

The usefulness of collecting both importance and performance information from visitors has been hotly debated. Researchers such as Crompton and Love (1995) concluded that importance data hampers the prediction of overall satisfaction and recommended researchers collect only attribute performance information. Importance values have also been criticized as it is believed they are influenced by performance. Hence considerable research has evolved around indirectly determining the importance of attributes through statistical techniques such as correlation and multiple regression (Azzopardi & Nash, 2013; Baker & Crompton, 2000; Deng, 2007; Huang, 2010). Taplin (2012a) established that the poor prediction of overall satisfaction using importance reported directly by visitors was due to these being incorrectly used as absolute rather than relative measures. Rather than hamper the prediction of overall satisfaction from attribute performance, incorporating these importance values produced superior predictions of overall satisfaction compared to the use of statistical techniques. Furthermore, even if statistical techniques were employed to predict overall satisfaction, using the importance values reported directly by visitors improved predictions further. This justifies the use of importance as well as performance provided by visitors in IPA (Taplin, 2012a).

Placement of the guiding crosshairs in IPA remains controversial (Azzopardi & Nash, 2013; Huang, 2010; Oh, 2001; Taplin, 2012b; Tarrant & Smith, 2002). The purpose of the

crosshairs is to suggest to managers where their priorities for management might lie (Figure 1). One popular choice has been their placement at the scale midpoint (recommended by Oh, 2001). Another has been placing them at the grand mean for importance and performance (Ryan & Cessford, 2003). The former results in most attributes lying in the "keep up the good work" quadrant as respondents tend to give high importance and performance scores (Taplin, 2012b). The latter has the advantage that attributes end up located in all four quadrants, which is useful information for managers if they want to know the relative priority of attributes for management attention.

IPA has been applied to individual parks (e.g., Tonge & Moore, 2007; Tonge et al., 2011) and less so to data obtained from a number of parks (e.g., Burns, Graefe, & Absher, 2003; Wade & Eagles, 2003). Studies based on data aggregated across a number of parks do not allow evaluation of the relative performances of parks. For example, Burns et al.'s (2003) study of water-based recreationists in U.S. Army Corps of Engineers lakes in ten U.S. states explored the relation between IPA and overall satisfaction using the aggregate data set; however, comparisons were not made between the lake destinations. Wade and Eagles (2003) applied IPA to various visitor segments for protected areas in Tanzania but the findings were not related to specific parks.

The aim of the study reported in this paper, of developing and applying BIPA, was addressed through three interrelated research objectives:

1. Developing BIPA as a methodology by modifying IPA to compare the means for individual attributes at a park with the mean of the same attribute across all parks rather than the IPA approach of calculating a single mean using all attributes and then comparing the importance and performance of individual attributes with it.

2. Applying BIPA to analyze an existing data set from visitor surveys conducted in Western Australian national parks to illustrate how the relative performance of attributes across a park system can be benchmarked.
3. Reflecting on the utility of this methodology for park managers in terms of accuracy and ease of use.

Method

A description of the data set and national parks in Western Australia follows. How BIPA was developed and applied and brief details on its advantages relative to IPA conclude this section.

This study relied on a comprehensive data set collected by the WA Department of Parks and Wildlife (DPaW). The Department manages 275,000 km^2 (10.3%) of the land area of Western Australia for nature conservation, recreation, and associated purposes. Lands managed include national parks, conservation parks, and nature reserves. In Australia, the responsibility for managing most national parks and many other protected areas rests with state governments rather than the national government. A total of 15.75 million visits were made in 2010 to lands and waters managed by this Department (DEC, 2011).

The questionnaire used for this study was implemented statewide in 2008, its design informed by research conducted elsewhere (e.g., Ryan & Cessford, 2003; Wade & Eagles, 2003) and reported in Moore et al. (2009). Information was collected on visit and visitor characteristics; satisfaction with the visit; and visitor perceptions regarding the importance and performance of attributes such as facilities provision and maintenance; enjoying nature; information; availability of activities; safety, crowding, and visitor behavior; and value for money (Table 1). The questionnaire has a scale of 1-5 for responses with respect to importance (1 = *not at all important*; 5 = *extremely important*) and performance (1 = *not at*

all satisfied; 5 = *extremely satisfied*) for the 23 attributes. This paper draws on the importance and performance results from these surveys.

<INSERT TABLE 1 ABOUT HERE>

DPaW's standardized questionnaires are distributed on site by staff and volunteers. The target population is the general public who visit DPaW-managed lands and waters. Adult visitors are intercepted and asked to self-complete the questionnaire. These are handed out in a range of parks across the state. Sampling is stratified by weekdays and weekends and includes both public and school holidays and nonschool holiday periods. Only those parks with more than 70 surveys were included in this study to enable accurate estimates of visitor performance and importance. The parks[1] included in this study ranged from primitive parks in the remote and little developed Kimberley region of Western Australia (e.g., Mitchell River National Park) to the popular developed park, the peri-urban Yanchep National Park (Table 2). Also included were iconic destinations such as Hamelin Pool Marine Nature Reserve with its ancient stromatolites and Walpole-Nornalup National Park characterized by tall trees and rivers.

<INSERT TABLE 2 ABOUT HERE>

Using the DPaW data for 23 attributes and 13 parks, this paper illustrates how benchmarking can be performed across a system of parks using BIPA. Using the mean importance and performance ratings for each attribute at each park as the fundamental data, a variety of simple tables and figures are used to illustrate how management decisions can be informed by benchmarking.

The BIPA approach has three advantages over traditional IPA for cross-park benchmarking. First, it removes any bias caused by visitors responding to different attributes in different ways. For example, the response *extremely important* for the attribute "feeling

[1]For the purposes of this study, the term *parks* encompasses national parks and reserves managed by DPaW.

safe in the park" is unlikely to be comparable to the same response for the attribute "receiving value for money." Safety and money may invoke different emotional responses, in which case comparing importance or performance for an attribute with the mean across all attributes in IPA may be misleading.

Second, BIPA allows comparison and thereby identification of relative best practice or performance shortcomings for an attribute across a park system. Traditional IPA may identify attributes requiring management attention; however, it provides no insights into how improvement may be achieved. By benchmarking against other parks, BIPA not only identifies parks where performance is low but corresponding parks where performance is high. This enables managers to quickly identify where best practice may be found to serve as a role model to motivate ways to improve performance.

Third, BIPA can identify parks where performance is generally low (or high) across all attributes. For example, it may be possible under BIPA for all the attributes at a particular park to fall within the "concentrate here" quadrant relative to the performance of the attributes across the park system.

Results

Two applications of BIPA are provided here for illustrative purposes. The first application gives the relative performance of attributes and parks across the park system. The second one shows the performance of attributes in a single park relative to attribute performance across the system. Both applications are intended to provide managers with accurate and easy-to-use information, an interest foregrounded above as Objective 3 and addressed in more detail in the Discussion section. A total of 2,458 questionnaires was sourced for this study, with the sample size for each park provided in Table 2. Mean importance and mean performance ratings are reported for the 13 parks for each of the 23

attributes (Tables 3 and 4 respectively). The parks are given as rows, and the attributes as columns. Tables 3 and 4 provide the starting point for the following analyses.

The first set of benchmarking results is for the relative performance of attributes and parks across the park system. These results are presented in two forms: first as tabulated results for all attributes for all parks on a quadrant basis (Table 5), and second for an individual attribute across all parks (Fig. 2). For the first, the two quadrants chosen were quadrant I (keep up the good work) where there is exemplary practice that can be copied and quadrant IV (concentrate here) where extra management effort is required, as high importance makes these two quadrants of the greatest interest for managers (Figure 1). In Figure 2, the attribute "Interesting guided walks…" was selected for illustrative purposes.

<INSERT TABLES 3, 4 & 5 ABOUT HERE>

<INSERT FIGURE 2 ABOUT HERE>

Ongoing concerns have been expressed regarding the reliability with which attributes are placed in a particular quadrant. As such, this study drew on the approach of Tonge et al. (2011) to place a statistical reliability on the location of attributes in the plot space. In Table 5 "++" indicates the entire 95% confidence interval lies within the "keep up the good work" quadrant (QI) and we can be confident the attribute is within this quadrant after taking into account sampling variation, The "+" indicates that the mean performance and importance ratings are sufficiently close to one of the crosshairs that if we extrapolate from the sampled visitors to all visitors the attribute could fall within a different quadrant (see Tarrant & Smith, 2002). Similarly "--" indicates confidence the attribute lies within the "concentrate here" quadrant (QIV) and "-" indicates the attribute could be within a different quadrant. Using this analytical approach, the parks where attributes require additional resources/management are Karijini (12 attributes in quadrant IV, 3 significantly) and Lane Poole (9 attributes in quadrant IV, 2 significantly) (Table 5). Mt Franklin South has no attributes in the

"concentrate here" quadrant, suggesting management attention may not be required; however, other parks such as Cape Range display superior performance on many attributes (16 attributes in quadrant I, 6 significantly).

While Table 5 provides a summary across all attributes and all parks and hence provides an overall perspective for management, it only summarizes information concerning the quadrant. The use of quadrants has been criticized as potentially misleading since interpretation should differ depending on where the attribute lies within a quadrant (Oh, 2001), although this is partially alleviated by indicating whether the attribute lies within the quadrant with 95% confidence. More detailed interpretation is provided by examining each attribute individually. In Figure 2, attribute 15, "Interesting guided walks..." has been used for illustrative purposes. Again, Karijini appears as the potential focus of management attention (for this attribute) relative to other parks in the system. Not only is performance on this attribute relatively low compared to other parks but the importance of this attribute is relatively high compared to other parks.

The second set of benchmarking results shows the performance of attributes in a single park relative to attribute performance across the system. The associated plots provide a complementary fine-grained analysis on a park-by-park basis, additional to the results in Table 5. In Figure 3, using Karijini for illustrative purposes, the mean importance and performance ratings for each attribute in that park has been benchmarked against the corresponding mean rating for each attribute across parks (bottom row of Tables 3 and 4). For example, Karijini has a mean importance rating for attribute 1 of 4.0, above the benchmark of 3.7 (last row, Table 3) giving a difference of 4.0 – 3.7 = 0.3. In Figure 3 the differences between values at Karijini and the benchmarks are plotted rather than the raw Karijini performance and importance values. This is so the crosshairs are consistently placed at zero for all attributes (Azzopardi & Nash, 2013; Taplin, 2012b). If the raw values were plotted, the

crosshairs must be placed in different positions for each attribute making the plot impossible to read and interpret.

<INSERT FIGURE 3 ABOUT HERE>

The results in Figure 3 suggest the need for additional management attention at Karijini, relative to the other benchmarked parks, with a majority of the attributes falling in the "concentrate here" quadrant (QIV) and only one attribute in the "possible overkill" quadrant (QII). Mt Frankland South, a park that had no attributes in the "concentrate here" quadrant in the system wide BIPA analysis (Table 5), produces a very different looking BIPA plot (Fig. 4). It has no attributes in Quadrant IV, with most in Quadrants I and II (keep up the good work; possible overkill). On a park system level, this result suggests no additional resources are required and Mt Frankland South could act as a benchmark site for good practice.

<INSERT FIGURE 4 ABOUT HERE>

Discussion

BIPA provides a technique for agencies to compare and hence benchmark the relative performance of parks within their management system. This assists with strategic decisions including the allocation of resources within and between parks, and identifying agency strengths and weaknesses, especially where superior performance can be used to improve efforts elsewhere. Importance and performance means for each attribute at each park provided the basis for these analyses, and were interpreted and presented in a variety of ways to identify exemplary and poor performing attributes as well as the parks where such performance were occurring. These analyses provide accurate data for managers both on attributes of interest and the relative performance of parks within their systems. Only a handful of such studies are reported in the peer-reviewed literature, even though there is

increasing demands for such methodologies and data to assist with accountability and strategic decision-making (Griffin et al., 2010).

Implications for Managers

Park managers work at multiple levels and require information to work effectively and efficiently across the park system, and at the individual park level and at sites within a park. BIPA provides an accurate methodology for benchmarking across the agency, as well for an individual park and sites within that park. Although this paper applies BIPA to an agency composed of multiple parks it can similarly be applied to a single park with multiple sites. Griffin et al. (2010) emphasised the importance of collecting visitor data at these different management levels and using them to inform management. BIPA provides the means for doing so.

BIPA allows the identification of parks that are performing well and those needing attention, both essential foci of benchmarking. The methodology illustrated in this paper for the “keep up the good work” (good practice) and “concentrate here” quadrants (Table 5) can be applied to any of the four quadrants (as per Tarrant & Smith, 2002). The choice of quadrant and associated analysis will depend on the purpose of the benchmarking exercise undertaken. For the parks with the most attributes in the “keep up the good work” quadrant, the management effort may be as simple as a visit by managers from other parks to see and learn from the practices of managers at these better performing parks.

The two parks with the most attributes in the “concentrate here” quadrant were Karijini and Lane Poole. Karijini is a remote park with spectacular gorges and waterfalls and rough access roads, and Lane Poole is a popular camping destination close to Perth (the capital city of Western Australia). Including importance in the analysis allows very different parks to be compared because the performance of an attribute is being considered relative to its importance and not as an absolute measure. The results presented in Table 5 not only give

guidance to DPaW regarding the parks requiring more urgent management attention, relative to the other parks they are managing, but also suggest the attributes needing such attention and which other parks may be able to exemplify how improvements may be achieved. Directional signs, roads, and visitor maps in Karijini and safety and visitor behavior in Lane Poole are the highest priorities.

These results do not suggest that any of these parks are performing poorly in an absolute sense. In fact, satisfaction measures in parks typically reflect a *positivity bias* (Pearce, 2006; Ryan, 1995) where scores tend to be distributed towards the positive end of the ratings (4 or 5 in this study). In this study, most visitors appeared to be very satisfied with the performance of the park where they were surveyed: of the 13 parks, 10 had means of 4.0 and above. This makes performance recommendations relative rather than absolute, given these high scores, with relative comparisons also the cornerstone of internal benchmarking. Thus, parks such as Karijini and Lane-Poole warrant resourcing not because their performance is poor in any absolute sense but because they are located in a system where strategic planning and relative resourcing is required and their performance relative to other entities in that system suggests they require attention to their visitor management.

Protected area agencies such as DPaW also have other management objectives such as conserving the natural environment, which has primacy in many protected areas in Australia, in addition to visitor satisfaction. The balance of these multiple objectives demands input beyond BIPA (or IPA) resulting from visitor surveys. While BIPA may indicate areas requiring management action to increase visitor satisfaction such action may not be warranted to achieve other objectives. Nonetheless, it is essential for agencies to have system wide information on visitor satisfaction (and dissatisfaction) and BIPA provides this information readily.

Methodological Advances

Past literature on park tourism and visitor management has concentrated on applying IPA and any modifications of IPA to aggregated data (Ryan & Cessford, 2003; Tonge & Moore, 2007). When data are available from several parks they are generally aggregated (e.g., Burns et al., 2003; Eng & Niininen, 2005), apparently because differences between parks were not considered of interest or it was assumed no differences exist. The set of benchmarking tools provided and applied in this paper make such comparisons possible.

This approach has several advantages over previous approaches such as IPA for aggregated data or for individual parks or sites. First, BIPA removes any potential bias from visitors responding differently to different attributes. This is achieved by benchmarking performance and importance of an attribute at a park or site with the values of the same attribute at different parks rather than the values of different attributes at the same park. Second, unlike IPA, BIPA can identify parks that perform poorly (or well) on most attributes. Third, this paper has shown how park managers can easily access information that lets them know not only which parks or sites require more attention than others but also the attributes within these parks requiring attention. Although applying IPA to an individual park can set priorities for action within that park, it provides no information for allocating resources or evaluating performance across a park system.

Conclusion

In this paper we have provided a new methodology for benchmarking parks using a suite of attributes reflecting visitors' perceptions of the quality of services and facilities. This new BIPA methodology centers on comparing the mean ratings for individual attributes at a park with the mean ratings of the same attribute across all parks rather than the IPA approach of calculating a single mean using all attributes and then comparing the importance and performance of individual attributes with it. The application of this methodology to a

comprehensive data set from visitor surveys conducted in national parks and reserves in Western Australia has illustrated how the relative performance of attributes across a park system can be benchmarked. In reflecting on this study, BIPA seems to provide an accurate and easy to use benchmarking method for park managers and their agencies.

Such benchmarking can stimulate improvements within an organization and enhance the efficiency and effectiveness of resource allocations (Wober, 2002). It can also, when made publically available, improve the transparency and accountability of agency activities, with both being increasingly demanded by the broader community with respect to park management (Hockings et al., 2004). And, it provides a means for *fourth level assessment* (Leverington et al., 2010) of visitor management where the focus is changes in conditions and trends.

This study offers a first step in benchmarking. External benchmarking, in which a park agency compares itself with other park agencies or other nature tourism providers, offers a promising series of steps in the future for improving practice, stimulating innovation, and overcoming complacency, ignorance, and arrogance (Kozak, 2004; Pearce & Benckendorff, 2006; Wober, 2002). For example, park state-level agencies in Australia could choose to benchmark among the states (Griffin et al., 2010) and in the United States, with its national system of parks, this type of benchmarking could be undertaken nationally, adding another element to their comprehensive visitor monitoring system (USDA FS, 2013). At a park level such agencies might also chose to benchmark their parks against other providers of tourism and leisure experiences in geographic proximity. Taplin (2012b) explains that competitive benchmarking for a wildlife park is equally as relevant to national parks and their performance and market positioning.

In addition to assisting agency practice and suggesting innovative directions for future practice, this study makes an important contribution to the peer-reviewed literature by

developing and documenting BIPA and associated analyses as a new methodology for reporting on park performance at both the system and park levels. It also makes the valuable link to benchmarking, a facet of park and visitor management poorly explored in the literature and identified as critical in progressing strategic planning and management (Pearce & Benckendorff, 2006).

References

Azzopardi, E., & Nash, R. (2013). A critical evaluation of importance-performance analysis. *Tourism Management, 35*, 222–233. DOI:10.1016/j.tourman.2012.07.007

Baker, D., & Crompton, J. L. (2000). Quality, satisfaction and behavioural intentions. *Annals of Tourism Research, 27*(3), 785–804.

Buckley, R., Robinson, J., Carmody, J., & King, N. (2008). Monitoring for management of conservation and recreation in Australian protected areas. *Biodiversity Conservation, 17*, 3589–3606. DOI 10.1007/s10531-008-9448-7

Buckley, R. (2009) Parks and tourism. *PLoS Biology, 7*(6): e1000143. DOI:10.1371/journal.pbio.1000143

Burns, R. C., Graefe, A. R., & Absher, J. D. (2003). Alternate measurement approaches to recreational customer satisfaction: Satisfaction-only versus gap scores. *Leisure Sciences, 25*(4), 363–380. DOI:10.1080/714044496

CNPPAM (Committee on National Parks and Protected Area Management). (2002). *A review of current approaches to performance measurement in protected area management. CNPPAM benchmarking and best practice program.* Natural Resource Management Ministerial Council. Retrieved from http://www.environment.gov.au/parks/publications/.../perf-measurement.doc

Crompton, J. L., & Love, L. L. (1995). The predictive validity of alternative approaches to evaluating quality of a festival. *Journal of Travel Research*, *34* (1), 11–24.

DEC (Western Australian Department of Environment & Conservation) (2011). Park finder. An online visitor's guide to Western Australia's parks, reserves and other recreation areas. Retrieved from http://www.dec.wa.gov.au/component/option,com_hotproperty/Itemid,1584/

Deng, W. (2007). Using a revised importance-performance analysis approach: The case of Taiwanese hot springs tourism. *Tourism Management, 28*(5), 1274–1284. DOI:10.1016/j.tourman.2006.07.010

Eng, Y., & Niininen, O. (2005). An integrative approach to diagnosing service quality of public parks. *The Journal of Services Marketing, 19*(2), 70–80. DOI:10.1108/08876040510591385

Fuchs, M., & Weiermair, K. (2004). Destination benchmarking: An indicator-system's potential for exploring guest satisfaction. *Journal of Travel Research, 42*(3), 212–225. DOI:10.1177/0047287503258827

Griffin, T., Moore, S. A., Crilley, G., Darcy, S., & Schweinsberg, S. (2010). *Protected area management: Collection and use of visitor data volume 1: Summary and recommendations.* Gold Coast, Australia: Sustainable Tourism Cooperative Research Centre.

Hockings M., Cook C. N., Carter R. W., & James, R. (2009). Accountability, reporting, or management improvement? Development of a State of the Parks assessment system in New South Wales, Australia. *Environmental Management*, *43*, 1013–1025. DOI: 10.1007/s00267-009-9277-9

Hockings, M, Stolton, S., & Dudley, N. (2004). Management effectiveness: Assessing management of protected areas? *Journal of Environmental Policy and Planning*, *6*(2), 157–174. DOI:10.1080/1523908042000320731

Hockings M., Stolton S., Leverington F., Dudley N., & Courrau J. (2006). *Evaluating effectiveness: A framework for assessing the management of protected areas*. Gland, Switzerland and Cambridge, UK: IUCN.

Huang, S. S. (2010). A revised importance-performance analysis of tour guide performance in China. *Tourism Analysis*, *15*(2), 227–241. DOI: 10.3727/108354210X12724863327803

Kozak, M., & Nield, K. (2004). The role of quality and eco-labelling systems in destination benchmarking. *Journal of Sustainable Tourism*, *12*(2), 138–148. DOI:10.1080/09669580408667229

Leask, A. (2010). Progress in visitor attraction research: Towards more effective management. *Tourism Management, 31,* 155–166. DOI:10.1016/j.tourman.2009.09.004

Leverington F., Lemos Costa K., Pavese H., Lisle A., & Hockings M. (2010). A global analysis of protected area management effectiveness. *Environmental Management*, *46*, 685–698. DOI:10.1007/s00267-010-9564-5

Martilla, J. A., & James, J. C. (1977). Importance-performance analysis. *Journal of Marketing, 41*(1), 77–79.

Moore S. A., Smith A. J., & Newsome D. N. (2003). Environmental performance reporting for natural area tourism: Contributions by visitor impact management frameworks and their indicators. *Journal of Sustainable Tourism*, *11*, 348–375.

Moore, S. A., Crilley, G., Darcy, S., Griffin, T., Taplin, R., Tonge, J. et al. (2009). *Designing and testing a park-based visitor survey.* Gold Coast, Australia: Sustainable Tourism Cooperative Research Centre.

NSW Environment and Heritage (2013). Chapter 7. Opportunities for public appreciation and enjoyment (State of the Parks 2004 – summary). Retrieved from http://www.environment.nsw.gov.au/sop04/sop04ch7.htm

Oh, H. (2001). Revisiting importance-performance analysis. *Tourism Management, 22*(6), 617–627.

PAN Parks (2013). PAN Parks verification manual. Principles and criteria 1-3. January 2008. Retrieved from http://www.panparks.org/sites/default/files/Principles_1-3.doc.pdf

Pearce, P. L. (2006). The value of a benchmarking approach for assessing service quality satisfaction in environmental tourism. In B. Prideaux, G. Moscardo, & E. Laws (Eds.), *Managing tourism and hospitality services: Theory and international applications* (pp. 282–299). Wallingford, UK: CABI.

Pearce, P., & Benckendorff, P. (2006). Benchmarking, usable knowledge and tourist attractions. *Journal of Quality Assurance in Hospitality and Tourism, 7*(1-2), 29–52. DOI:10.1300/J162v07n01_03

Ryan, C. (1995). *Researching tourist satisfaction.* London, UK: Routledge.

Ryan, C., & Cessford, G. (2003). Developing a visitor satisfaction monitoring methodology: Quality gaps, crowding and some results. *Current Issues in Tourism, 6*(6), 457–507.

Taplin, R. H. (2012a). The value of self-stated attribute importance to overall satisfaction. *Tourism Management, 33*(2), 295–304. DOI:10.1016/j.tourman.2011.03.008

Taplin, R. H. (2012b). Competitive importance-performance analysis of an Australian wildlife park. *Tourism Management, 33*(1), 29–37. DOI:10.1016/j.tourman.2011.01.020

Taplin, R., & Moore, S.A. (2012). Benchmarking for visitor management in parks. In P. Fredman, M. Stenske, H. Liljendahl, A. Mossing, & D. Laven (Eds.), *Proceedings. The 6th international conference on monitoring and management of visitors in recreational and protected areas. Outdoor recreation in change – current knowledge and future challenges* (pp. 234–235). Stockholm, Sweden, August 21-24, 2012. Retrieved from http://www.mmv2012.se/

Tarrant, M. A., & Smith, E. K. (2002). The use of a modified importance-performance framework to examine visitor satisfaction with attributes of outdoor recreation settings. *Managing Leisure, 7*(2), 69–82. DOI:10.1080/13606710210137246

Tonge, J., & Moore, S. A. (2007). Importance-satisfaction analysis for marine-park hinterlands: A Western Australian case study. *Tourism Management, 28*(3), 768–776. DOI:10.1016/j.tourman.2006.05.007

Tonge, J., Wegner, A., Moore, S. A., & Smith, A. J. (2009). *Designing and testing a park-based visitor survey for protected areas in Western Australia.* Murdoch, Australia: Murdoch University.

Tonge, J., Moore, S. A., & Taplin, R. (2011). Visitor satisfaction analysis as a tool for park managers: A review and case study. *Annals of Leisure Research, 14*(4), 289–303. DOI:10.1080/11745398.2011.639339

USDA FS (United States Department of Agriculture Forest Service) (2013). National visitor use monitoring program. Retrieved from http://www.fs.fed.us/recreation/programs/nvum/

Wade, D. J., & Eagles, P. F. J. (2003). The use of importance-performance analysis and market segmentation for tourism management in parks and protected areas: An application to Tanzania's National Parks. *Journal of Ecotourism, 2*(3), 196–212.

Weaver, D. B., & Lawton, L. J. (2011). Visitor loyalty at a private South Carolina protected area. *Journal of Travel Research, 50,* 335–346. DOI:10.1177/0047287510362920

Wober, K. W. (2002). *Benchmarking in tourism and hospitality industries: The selection of benchmarking partners.* Wallingford, UK: CABI.

Worboys, G. L. (2007). *Evaluation subjects and methods required for managing protected areas* (Doctoral thesis, Griffith University, Gold Coast, Australia).

Yardstick Board (2010). *Yardstick Parkcheck. Parks survey report 2009/2010*. Yardstick Board. Mt Maunganui South, New Zealand: New Zealand Recreation Association, International Federation of Park and Recreation, Parks and Leisure Australia and the Institute of Public Works Engineering Australia.

FIGURES

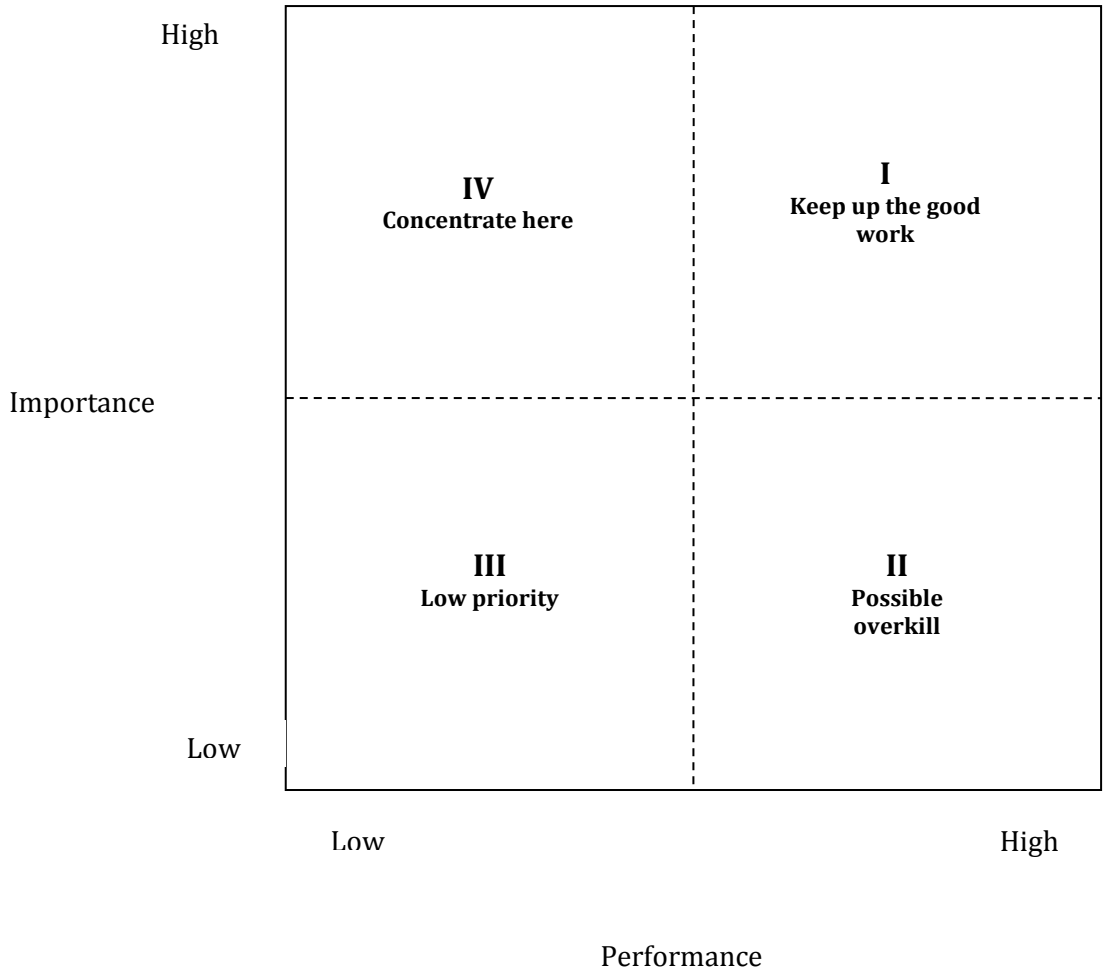

Figure 1. Importance-performance plot (after Oh, 2001).

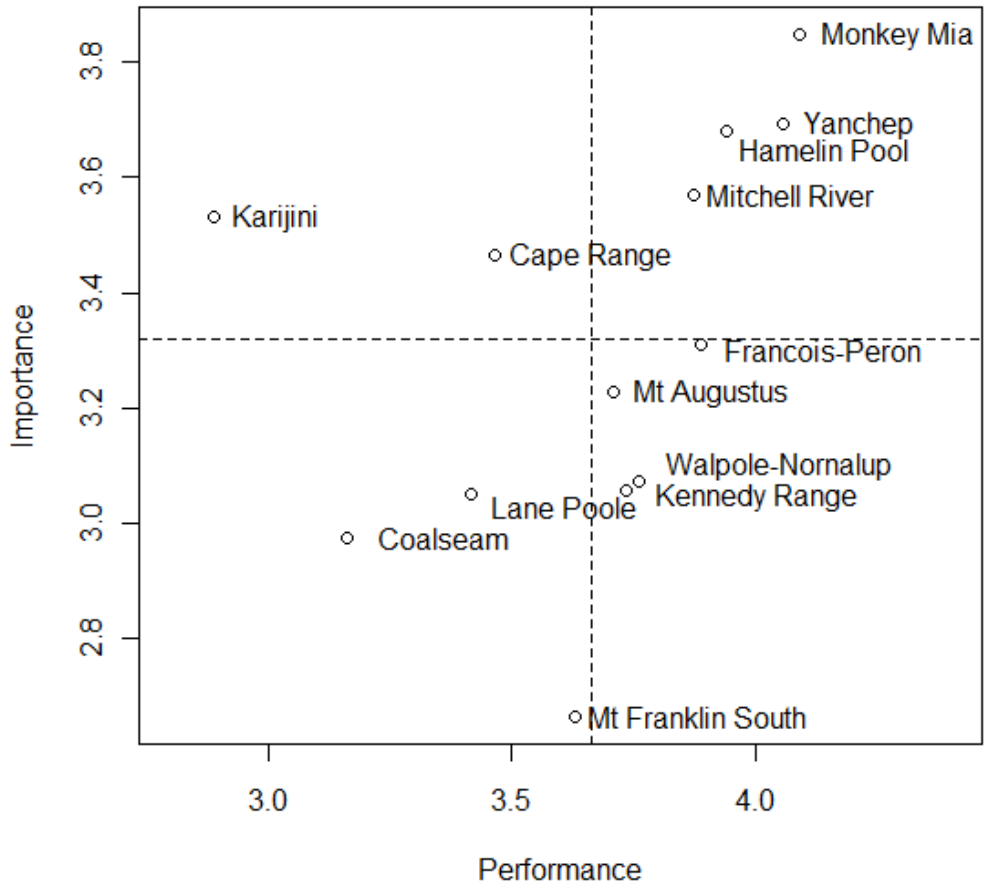

Figure 2. BIPA plot for attribute 15 (“Interesting guided walks/talks by rangers/others”).

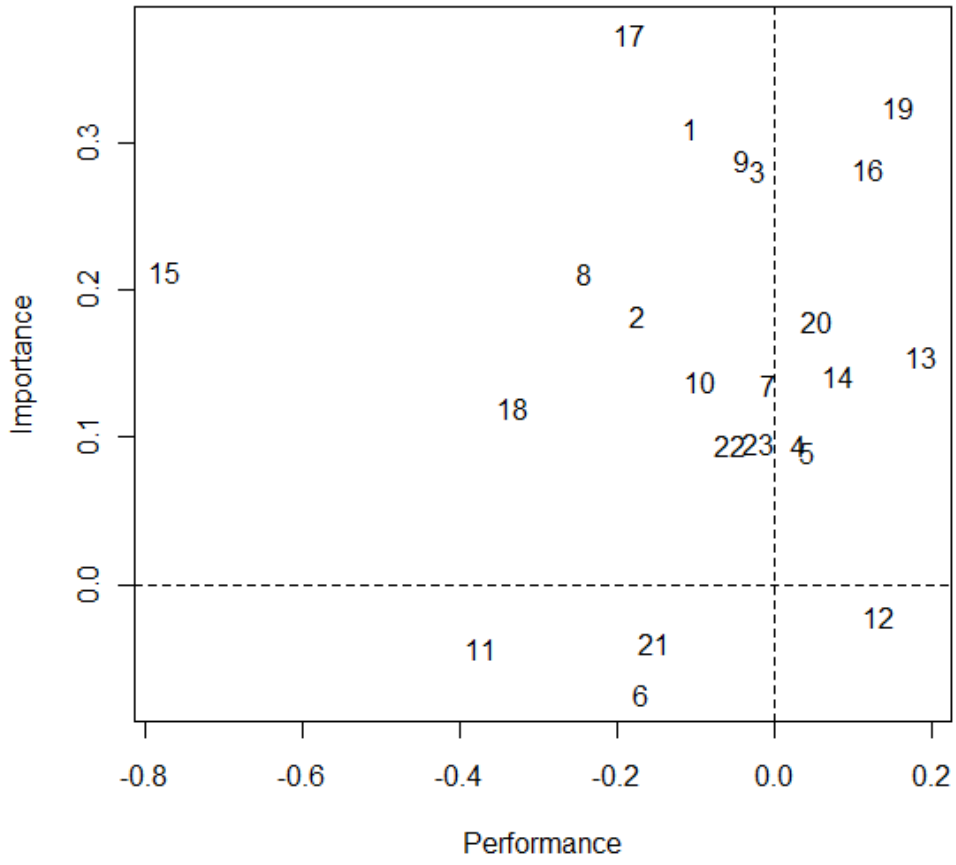

Figure 3. BIPA plot for Karijini, park 6 (see Table 1 for attribute details).

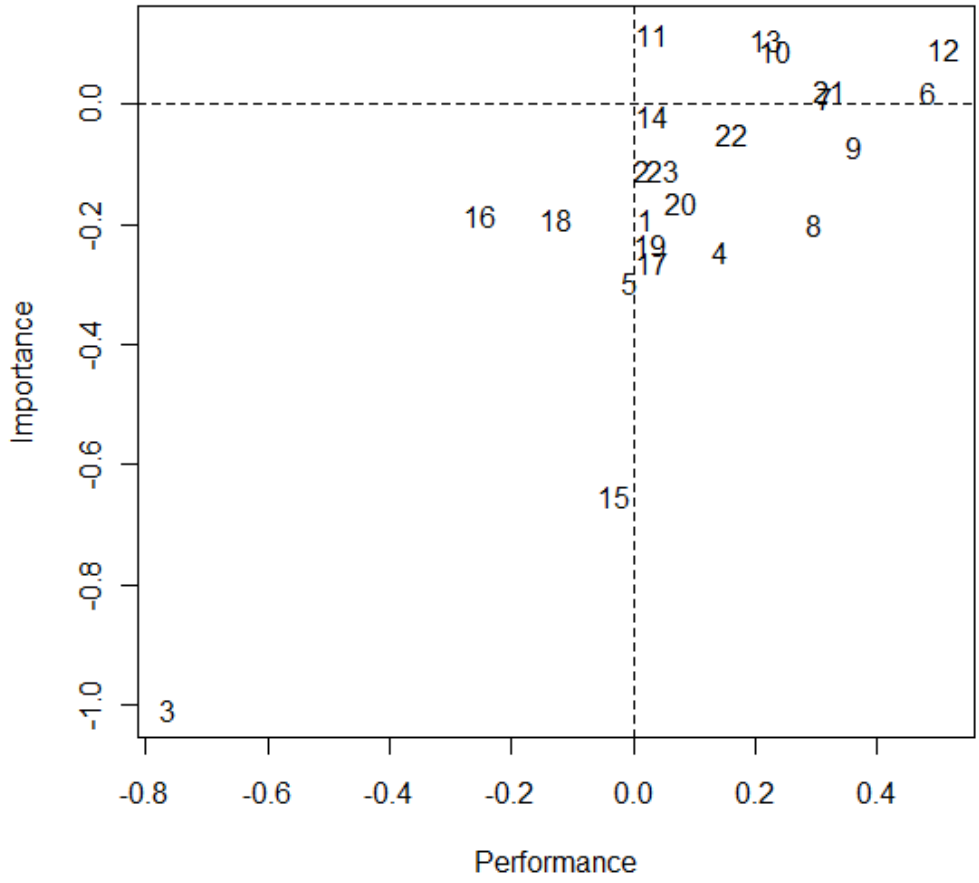

Figure 4. BIPA plot for Mt Frankland South, park 4 (see Table 1 for attribute details).

Table 1

Attributes From the WA DPaW Statewide Survey

Attribute
1. Pre-visit information about the park was easy to obtain
2. Useful directional road signs in the park
3. Access to friendly, responsive park staff
4. Access to toilet facilities
5. Clean, well presented toilet facilities
6. Clean, well presented picnic/barbecue facilities
7. Clean, well presented camping facilities
8. Well designed and maintained roads
9. Well designed and maintained walking tracks/trails
10. Able to enjoy nature in this park
11. Sightings of native wildlife/birds
12. Access to water (e.g., lake, river, ocean)
13. Healthy water condition (e.g., lake, river, ocean)
14. A broad range of activities available (e.g., walking, picnicking, birdwatching)
15. Interesting guided walks/talks by rangers/others
16. Interesting information on culture (e.g., Aboriginal, non-Aboriginal heritage)
17. Useful guides/maps in the park
18. Useful information on plants and animals in the park
19. Clear information about visitor safety
20. Feeling safe in the park
21. Not too many other visitors present
22. Other visitors generally well behaved
23. Receiving value for money for fees paid to ~~DEC~~ DPaW during this visit (e.g., entry fees, camp fees)

Table 2

National Parks and Reserves Included in the Study (With the Sample Sizes)

Name	Description	Sample size
1. Hamelin Pool Marine Nature Reserve (D)	In Shark Bay World Heritage Area; one of only two sites globally with living stromatolites; sightseeing	76
2. Mt Augustus National Park (P)	Biggest single rock in the world; camping, hiking and sightseeing opportunities	97
3. Cape Range National Park (I)	In Ningaloo World Heritage Area; scenic gorges and range; camping, hiking, snorkelling, swimming	128
4. Mt Frankland South National Park (D)	Part of Walpole Wilderness; contains Mt Frankland and tall eucalyptus forests; camping, hiking, sightseeing, canoeing, swimming	91
5. Mitchell River National Park (P)	Gorges, waterfalls and Aboriginal rock art; camping, hiking, swimming	176
6. Kennedy Range National Park (P)	Mesa extending above plains, with cliffs and gorges; camping, hiking	191
7. Karijini National Park (I)	Gorges rock pools, and waterfalls; camping, hiking, sightseeing, swimming	197
8. Lane Poole Reserve (D)	Eucalyptus forests along rivers, popular camping destination; camping, hiking, canoeing, rafting, swimming, mountain biking	198
9.Coalseam National Park (I)	Spring wildflowers; camping, hiking, wildflower appreciation	252
10. Monkey Mia Reserve (D)	In Shark Bay World Heritage Area; bottlenose dolphins visit and interact with visitors; wildlife viewing, camping, swimming, fishing	258
11. Yanchep National Park (D)	Grassed, shaded picnic area close to Perth (WA capital), with caves, koalas and kangaroos; picnicking; hiking, hotel and accommodation	518
12. Walpole-Nornalup National Park (D)	Tall eucalyptus forests, granite peaks, rivers; Valley of the Giants Tree Top Walk; camping, hiking, sightseeing, canoeing, swimming	193
13. Francois-Peron National Park (I)	Red coastal sand dunes and turquoise water; part of Shark Bay World Heritage Area; sightseeing, 4WD, camping, boating, swimming	83

Notes. P = primitive, I = intermediate, D = developed (according to ROS; see Clark & Stankey, 1979). Source: DEC (2011).

Table 3

Mean Importance Ratings for Attributes by Park

Park	Attribute																							**Park mean**
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1. Hamelin Pool	3.5	4.2	4.0	4.1	4.0	3.8	3.8	3.9	4.0	4.2	3.9	3.8	4.3	3.7	3.7	3.7	4.1	4.0	3.8	4.0	3.5	4.1	3.9	**3.9**
2. Mt Augustus	3.7	4.2	4.0	4.1	4.2	3.5	3.9	3.9	4.2	4.2	3.7	3.2	3.4	3.7	3.2	3.3	4.1	3.7	3.8	4.1	3.5	4.2	3.9	**3.8**
3. Cape Range	3.8	4.2	4.3	4.3	4.4	3.6	4.2	3.9	3.9	4.4	4.0	4.3	4.6	4.1	3.5	3.3	4.2	4.0	4.0	4.2	3.8	4.4	4.2	**4.1**
4. Mt Frankland South	3.5	4.0	2.9	3.8	3.9	3.8	4.0	3.7	3.9	4.4	4.1	3.9	4.2	3.8	2.7	3.3	3.8	3.6	3.6	4.0	3.7	4.2	4.0	**3.8**
5. Mitchell River	3.9	4.1	3.9	4.1	4.3	3.6	3.8	3.9	3.9	4.3	3.8	4.1	4.4	3.7	3.6	3.6	4.2	3.7	3.8	4.1	3.7	4.3	4.1	**4.0**
6. Kennedy Range	3.8	4.2	3.9	3.9	4.2	3.5	4.1	3.7	4.0	4.3	3.9	2.8	3.2	3.6	3.1	3.2	4.1	3.7	3.5	4.0	3.7	4.3	3.9	**3.8**
7. Karijini	4.0	4.3	4.1	4.2	4.3	3.7	4.1	4.1	4.3	4.5	3.9	3.8	4.3	4.0	3.5	3.7	4.5	3.9	4.1	4.3	3.6	4.4	4.2	**4.1**
8. Lane Poole	3.6	4.1	3.9	4.2	4.3	3.9	4.3	4.0	3.8	4.3	3.8	4.3	4.5	4.0	3.1	3.0	4.0	3.6	4.0	4.5	3.7	4.5	4.2	**4.0**
9. Coalseam	3.5	4.1	3.9	4.0	4.4	4.0	4.1	4.0	3.8	4.2	3.9	3.0	3.6	3.7	3.0	3.3	4.0	3.7	3.5	4.1	3.5	4.3	4.0	**3.8**
10. Monkey Mia	3.8	4.1	4.3	4.3	4.3	4.0	4.1	4.1	4.0	4.4	4.1	4.3	4.4	4.0	3.8	3.7	4.1	3.9	3.9	4.2	3.8	4.2	4.2	**4.1**
11. Yanchep	3.4	4.0	3.9	4.1	4.2	4.0	3.8	3.7	4.0	4.3	4.2	3.6	4.1	4.0	3.7	3.7	4.1	3.9	3.8	4.3	3.4	4.2	4.1	**3.9**
12. Walpole-Nornalup	3.6	4.3	3.4	4.0	4.1	3.8	3.9	3.9	4.1	4.5	4.0	4.0	4.2	3.9	3.1	3.6	4.0	3.9	3.8	4.1	3.8	4.4	4.2	**3.9**
13. Francois-Peron	3.9	4.1	3.7	3.8	4.0	3.6	3.9	3.7	3.8	4.3	4.1	4.0	4.3	3.9	3.3	3.4	4.0	4.0	3.8	4.1	3.6	4.2	4.1	**3.9**
Attribute mean	**3.7**	**4.1**	**3.9**	**4.1**	**4.2**	**3.8**	**4.0**	**3.9**	**4.0**	**4.3**	**4.0**	**3.8**	**4.1**	**3.9**	**3.3**	**3.4**	**4.1**	**3.8**	**3.8**	**4.2**	**3.6**	**4.3**	**4.1**	

Note. See Table 1 for a description of the attributes and Table 2 for a description of the parks.

Table 4

Mean Performance Ratings for Attributes by Park

Park	Attribute																							**Park mean**
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1. Hamelin Pool	3.9	4.0	4.2	4.1	4.0	4.0	4.0	4.2	4.2	4.2	3.8	4.0	4.4	4.0	3.9	3.8	3.9	4.0	4.0	4.4	4.2	4.3	4.3	**4.1**
2. Mt Augustus	3.9	4.1	4.5	4.1	4.2	3.7	4.0	3.9	4.4	4.2	3.6	3.2	3.1	4.0	3.7	3.5	4.1	3.3	3.9	4.4	4.2	4.4	4.2	**3.9**
3. Cape Range	3.9	4.0	4.4	4.4	4.4	3.9	4.3	3.7	3.9	4.3	4.2	4.5	4.5	4.2	3.5	3.4	4.1	3.7	4.0	4.5	4.1	4.3	4.4	**4.1**
4. Mt Frankland South	3.9	4.1	3.5	4.3	4.2	4.6	4.5	4.2	4.5	4.5	3.9	4.5	4.2	4.1	3.6	3.3	4.0	3.6	4.1	4.5	4.4	4.4	4.3	**4.1**
5. Mitchell River	3.8	4.0	4.5	4.4	4.6	4.2	3.6	3.7	4.1	4.2	3.9	4.1	4.3	4.2	3.9	3.8	4.2	4.0	4.2	4.5	4.1	4.4	4.3	**4.1**
6. Kennedy Range	3.9	4.1	4.6	4.0	4.5	3.9	4.4	3.9	4.2	4.2	3.2	2.6	2.7	3.9	3.7	3.3	4.1	3.4	4.1	4.5	4.0	4.5	4.3	**3.9**
7. Karijini	3.8	3.9	4.3	4.2	4.2	3.9	4.1	3.7	4.1	4.2	3.5	4.1	4.2	4.2	2.9	3.7	3.8	3.4	4.2	4.5	3.9	4.2	4.3	**4.0**
8. Lane Poole	3.9	4.2	4.2	3.7	3.3	4.0	4.3	3.7	3.9	4.3	4.0	4.2	4.2	4.2	3.4	3.2	3.9	3.5	4.0	4.3	3.6	3.7	4.3	**3.9**
9. Coalseam	3.7	3.8	4.6	4.4	4.7	4.7	4.4	4.3	3.8	4.3	4.0	3.6	3.5	4.0	3.2	3.4	3.9	3.6	4.0	4.4	4.1	4.5	4.2	**4.0**
10. Monkey Mia	4.1	4.3	4.4	4.1	3.9	4.0	3.9	4.2	4.1	4.3	4.1	4.4	4.4	4.2	4.1	3.9	4.1	4.1	4.1	4.4	3.7	4.0	4.0	**4.1**
11. Yanchep	3.8	4.0	4.2	4.2	3.9	4.1	3.9	4.1	4.2	4.4	4.3	4.0	3.9	4.1	4.1	3.9	4.1	3.9	3.8	4.4	4.1	4.3	4.3	**4.1**
12. Walpole-Nornalup	3.9	4.1	4.0	4.2	4.1	4.2	4.3	4.0	4.3	4.4	4.0	4.3	4.3	4.2	3.8	3.6	3.8	3.7	4.1	4.4	4.3	4.3	4.4	**4.1**
13. Francois-Peron	4.0	4.1	4.1	4.2	4.1	4.0	4.0	3.5	3.9	4.2	4.1	4.0	4.3	4.0	3.9	3.8	4.0	3.8	3.9	4.3	4.1	4.2	4.2	**4.0**
Attribute mean	**3.9**	**4.0**	**4.3**	**4.2**	**4.2**	**4.1**	**4.1**	**3.9**	**4.1**	**4.3**	**3.9**	**4.0**	**4.0**	**4.1**	**3.7**	**3.6**	**4.0**	**3.7**	**4.0**	**4.4**	**4.1**	**4.3**	**4.3**	

Note. See Table 1 for a description of the attributes and Table 2 for a description of the parks.

Table 5

Attributes in the "Keep Up the Good Work" and "Concentrate Here" Quadrants for Each Park Under BIPA

Park	**Attribute**																						
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1. Hamelin Pool		-	-	-		-		+	+			+	+		++	+		+	-				
2. Mt Augustus	+	+	+					-	++														
3. Cape Range	+	-	++	++	++		++	-		+	+	++	++	+	-		+	+	-	+	+	+	+
4. Mt Frankland South						+	+			+	+	+	+								+		
5. Mitchell River	-		+	+	+			-				++	++		+	+	+		+		+	+	+
6. Kennedy Range	-	+	+		+		+										+				-	+	
7. Karijini	-	--	-	+	+		-	--	-	-			++	+	-	+	--	-	++	+		-	-
8. Lane Poole			-	-	-	-	++	-				++	++	+					-	--	-	--	+
9. Coalseam			+		++	++	+	+														+	
10. Monkey Mia	++		++	-	-	-	-	++	-	+	++	++	++	+	++	++	+	+	+	-	-		--
11. Yanchep			-	-	-	+				+	++			+	++	++	+	+		-			+
12. Walpole-Nornalup		+				+		+	+	+	+	++	+	+		-		+			++	+	+
13. Francois-Peron	+										+	+	++	-				+					

Notes. See Table 1 for a description of the attributes and Table 2 for a description of the parks.
++ = 95% confidence interval falls entirely in the "keep up the good work" quadrant; + = mean importance and performance fall in the "keep up the good work" quadrant; -- = 95% confidence interval falls entirely in the "concentrate here" quadrant; - = mean importance and performance fall in the "concentrate here" quadrant.