BOTSWANA'S
Protected
Important Bird Areas

Status and Trends Report
2009

Compiled by

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Acronyms

BLB	BirdLife Botswana
BLI	BirdLife International
CBD	Convention on Biological Diversity
CKGR	Central Kalahari Game Reserve
DEA	Department of Environmental Affairs
DWNP	Department of Wildlife and National Parks
EIS	Environmental Information System
IBA	Important Bird Area
KTP	Kgalagadi Transfrontier Park
PA	Protected Area
RSPB	Royal Society for the Protection of Birds
WBDB	World Bird Data Base

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Executive Summary

In 1998, BirdLife Botswana (the BirdLife partner in Botswana) identified and documented 12 sites as Important Bird Areas (IBAs) of Botswana. However, monitoring efforts at these sites have lacked adequate co-ordination and the success of management and conservation efforts have, therefore, been difficult to gauge. In 2007, BirdLife Botswana, together with seven other African countries (Burkina Faso, Burundi, Uganda, Kenya, Tunisia, Zambia and Zimbabwe) benefited from European Commission funding to pilot a reporting mechanism for biodiversity through the monitoring of birds at IBAs using the Pressure-State-Response model adapted from the global IBA monitoring framework.

In Botswana, the target sites for the project are IBAs overlapping protected areas, of which there are seven: Chobe, Linyanti Swamps, Okavango Delta, Makgadikgadi Pans, Central Kalahari Game Reserve, Mannyelanong and Kalahari Transfrontier Park IBAs. This is the third year of project implementation and this report summarizes the analysis of data and information gathered during 2009 and compares them with the figures from the 2008 report. Out of the seven protected IBAs of the project focus, 2009 records were received from all of them as well as Lake Ngami, which is not a site included in the project scope, but the data recorded from this site were included in the analysis anyway as they were seen to be important and relevant IBA.

State

As a result of the low numbers of bird counts recorded and submitted in 2009, the habitat quality was used more often to assess the state of the IBAs. The overall state of the IBAs was good, with only the Okavango, Makgadikgadi and CKGR scoring below good (moderate). The Makgadikgadi and CKGR IBAs have decreased in habitat condition by one each since 2008, owing mainly to the pressures of fire, poisoning and poaching. Chobe, Linyanti and Lake Ngami IBAs have, however, experienced increases in their condition owing largely to the exceptionally large flooding that occurred during the winter period of 2009 in these wetlands, providing larger safer habitat for the water bird trigger species. The Okavango also experienced exceptional flooding, but scores stayed the same as a result of the disturbance factor of tourism operations and other pressures outlined below (in this report).

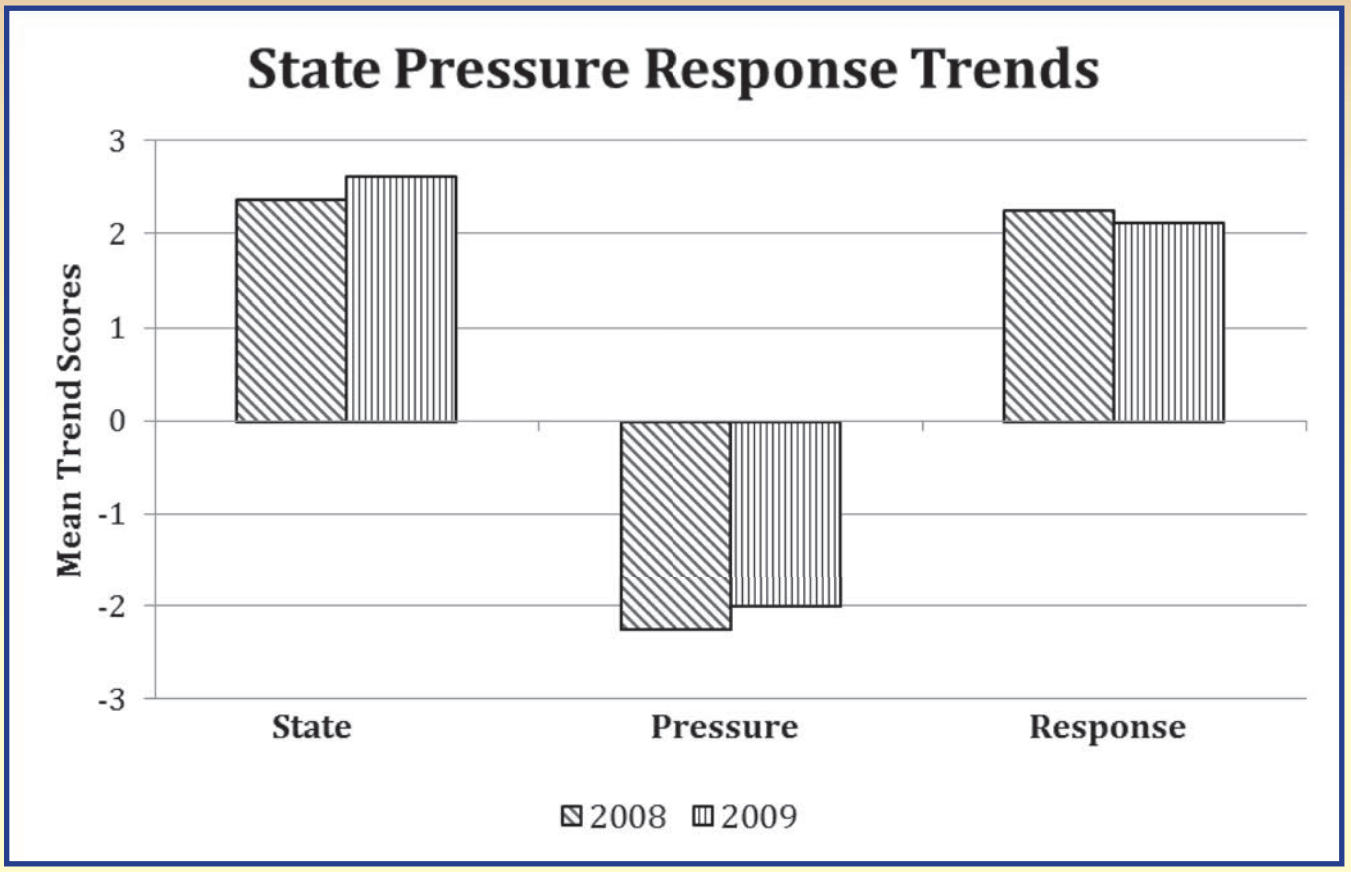
Pressure

A summary of Botswana's protected area pressures shows that Mannyelanong Game Reserve received the highest pressure scores; -3 owing to the severe threat to the small population of vultures from poisoning. Lake Ngami, on the other hand, received a pressure score of -1, where disturbance from cattle, fishing and bird shooting were sited as the biggest threats. All other IBAs were scored -2 for the state of their pressures. In comparison with last year's pressure scores, all of the IBAs, except for Mannyelanong Game Reserve received the same or better scores, i.e. their pressure scores were the same or improved. Scores for the Okavango, Makgadikgadi and Lake Ngami IBAs increased positively by one.

Response

Submissions from recorders regarding conservation measures and management interventions remained largely the same as those identified last year. This meant that the scores for response indicators also changed little from last year. There were a few exceptions; Makgadikgadi Wetland system has improved in terms of its response indicators, largely owing to the DWNPs progress in creating a sanctuary for the flamingo breeding colonies on Sua Pan. In addition, the process of developing an integrated management plan for the wetland has begun, to co-ordinate improved sustainable development and the effective conservation and appropriate management of its resources, including its biodiversity. The CKGR has received some bad media coverage regarding the Bushman removal and the resulting development that has been conducted there (controversial mining prospecting and tourism operations) and subsequent negative scoring as a result.

In conclusion, records, although received from all of the IBAs, were not as numerous as in 2008, with relatively few figures for trigger species numbers. The information received was, however, adequate to successfully assess the state of habitat condition, the current state of pressures and make a good assessment of the conservation and management activities that are either being developed or being implemented in the country's protected IBAs. Biodiversity at protected areas, as shown by birds as a proxy, remains stable, with considerable pressures, reduced slightly from 2008 and considerable conservation efforts being maintained.



The state of the protected IBAs in Botswana is generally good as the habitats are relatively undisturbed by human impact. Four IBAs overlap completely with existing protected areas, where Government following recommendations is undertaking conservation action and monitoring programs outlined in existing management plans for these sites. However, there is no room for complacency and BirdLife Botswana continues to monitor globally and nationally threatened birds. None of the species in Botswana is endemic – there are only two near-endemics, viz. the Slaty Egret, which has approximately 85% of its global population in the Okavango Delta, and the Short-clawed Lark, which has more than 90% of its global population in South-eastern Botswana. Also, while substantial conservation measures are being implemented, these are not comprehensive and are limited by resources and capacity. BirdLife Botswana and independent researchers still conduct most IBA and/or trigger species research and monitoring in these areas.

The main concerns that need immediate effective intervention exist in the form of wildlife and habitat destruction from fire, poisoning, overfishing and water pollution. There are some encouraging positives with the development and implementation of new protected areas and management planning progress and these actions and activities will certainly help maintain biodiversity in these IBAs in the future.

In addition, great progress has been made in strengthening partnerships between BirdLife Botswana, Botswana's Department of Wildlife and National Parks, and the Department of Environmental Affairs. As well as strengthening and coordinating biodiversity monitoring in protected areas, this report has been used as one of the key indicators used in the governments annual CBD reports. Valuable relations have been forged and maintained with community based Site Support Groups, independent researchers, private tourism operators, and the general public, all of whom have contributed considerably to this monitoring programme.

1 INTRODUCTION

In 1998, BirdLife Botswana (the BirdLife partner in Botswana) identified and documented 12 sites as Important Bird Areas (IBAs) of Botswana (Barnes, 1998). These sites are (listed with the IBA numbers in parenthesis):

- Chobe National Park (BW001);
- Linyanti Swamps (BW002);
- Okavango Delta (BW003);
- Lake Ngami (BW004);
- Central Kalahari and Khutse Game Reserve (CKGR) (BW005);
- Makgadikgadi Pans (BW006);
- Mannyelanong Hill (BW007);
- Tswapong Hills (BW008);
- Bokaa Dam (BW009);
- Phakalane Sewage ponds (BW010);
- South Eastern Botswana (BW011), and;
- Kalahari Trans frontier (Gemsbok) National Park (BW012).

The Chobe and Okavango Delta IBAs have the richest avifauna, with 433 and 464 species respectively.

The majority of IBAs in Africa (57% of the 1,230 sites) overlap to varying degrees with some kind of protected areas (PAs). Although not all IBA boundaries in Botswana are adequately defined on a map, descriptions of them in Botswana's list of IBAs (Barnes et al., 1998) indicates that some follow the boundaries of already designated protected areas while others follow the bio-geographical boundaries of their respective habitat or ecosystem. Of Botswana's twelve IBAs identified in Botswana, seven of Botswana's Important Bird Areas are partially or entirely covered by some form of designated protected area, under the Botswana government's Wildlife and National Parks Act (Figure 1).

The Chobe National Park and Kalahari Trans frontier National Park IBA completely overlap with their respective National Parks, the Linyanti Swamps IBA is partially protected by the Chobe National Park, the Makgadikgadi Pans IBA is partially protected by the Makgadikgadi Pans and Nxai Pans National Park in the west and the Nata Bird Sanctuary to the east, the Central Kalahari and Khutse Game Reserve and Mannyelanong Hill IBAs are both designated Game Reserves, and the Okavango Delta is partially protected by Moremi Game Reserve (see Appendix 1 for details of the extent of formally protected area coverage at each IBA).

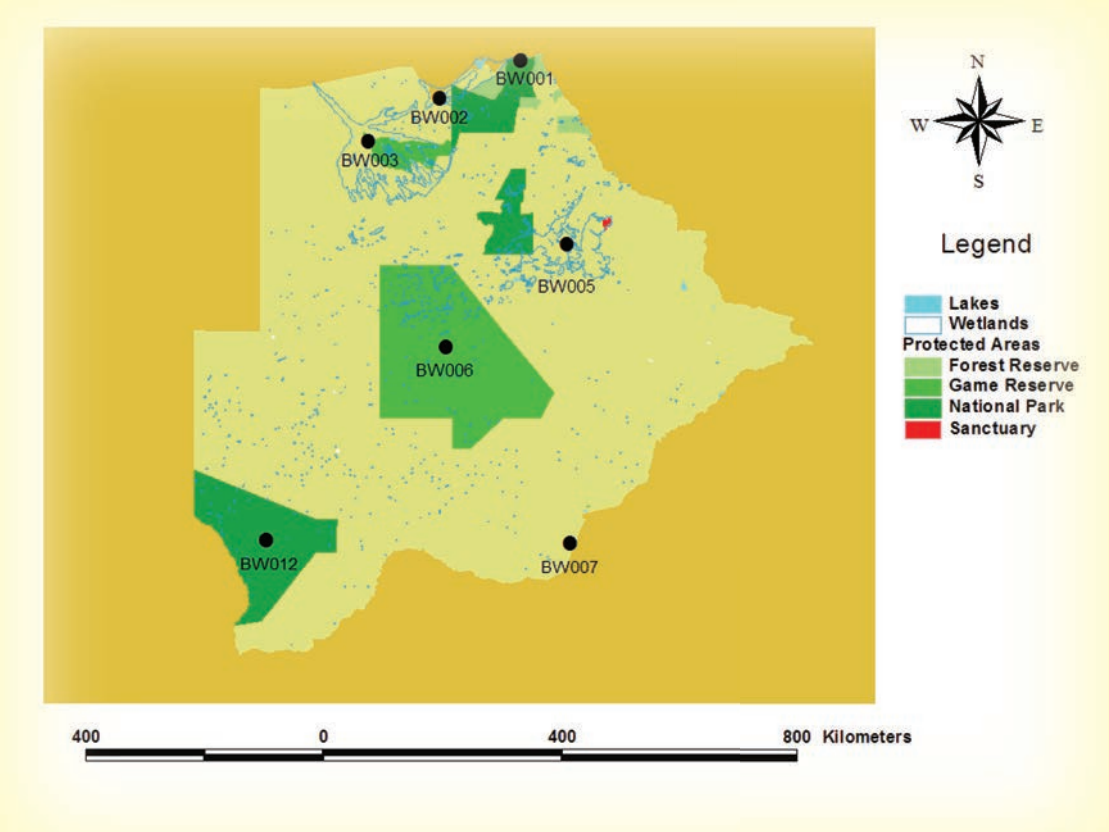


Figure 1. Map of Botswana's seven IBAs, identified by their IBA numbers, that partially or entirely overlap with

various designated protected areas: Chobe National Park (BW001), Linyanti Swamps (BW002), Okavango Delta (BW003), Makgadikgadi Pans (BW005), Central Kalahari Game Reserve (BW006), Mannyelanong Game Reserve (BW007) and the Kalahari Trans Frontier Park (BW012).

Even though a huge amount of work has been done by BirdLife Botswana in identifying and safeguarding these IBAs, monitoring efforts at these sites have suffered from a lack of adequate co-ordination. This has been largely due to insufficient funding for designing and achieving active participation of stakeholders in reporting on IBAs.

It has been widely accepted and appreciated that birds function as good indicators of ecosystems (Bennun, 2002; Birdlife international, 2004); particularly wetland health. Since they often respond very quickly to changes in their environment, their status can be a powerful indicator of changes to other organisms in the ecosystem, which are more often difficult to measure. Indeed, birds are monitored in many parts of the world, both for their intrinsic conservation interest and because they can act as indicators of ecological status (e.g. Owino et al, 2001, Tyler, 2001).

In 2007, BirdLife Botswana together with seven other African countries (Burkina Faso, Burundi, Uganda, Kenya, Tunisia, Zambia and Zimbabwe) benefited from European Commission funding to pilot a reporting mechanism for biodiversity at PAs using the Pressure-State-Response model adapted from the global IBA monitoring framework. This four-year project, which commenced in 2007, is regionally referred to as the "Instituting effective monitoring of protected areas (Important Bird Areas) as a contribution to reducing the rate of biodiversity loss in Africa" project. This report is a product of that project, which essentially aims at monitoring the biodiversity status and trends in those IBAs overlapping with protected areas, which comprise critical components of the world's natural ecosystems and biodiversity.

1.1 Overall Project Goal

Since monitoring is not coordinated in most countries, the project seeks to leverage the support from the national agencies mandated to manage biodiversity at protected areas to ensure that the process of monitoring is sustainable and embedded as a core activity that is undertaken on a daily basis. At the institutional and operational level, the Department of Wildlife and National Parks is mandated to manage, including monitor, biodiversity inside PAs and the Department of Environmental Affairs (DEA) reports to CBD on biodiversity (e.g. Anonymous, 2009). The project aims to achieve its goals through ensuring that appropriate capacity is built in the relevant institutions for monitoring and sustaining all stages of biodiversity monitoring at protected areas. The monitoring process should also generate information that is widely available and can be used by the relevant institutions to influence policy and management actions at various levels.

As indicator species, birds have many advantages as a group to use for biodiversity monitoring. They are known more than other groups of organisms and have been shown to be effective indicators of biodiversity richness as opposed to other animals and plant groups. Birds have also been recognized as an excellent barometer for environmental health, especially in detailed studies where summary biodiversity assessment data from a range of species may be obtained.

This project aims to use IBA trigger species to facilitate a coordinated and sustainable monitoring programme of indicators of biodiversity and ecosystem health at the projects target sites; those IBAs in Botswana that overlap with protected areas, as listed above. In doing so, this monitoring programme aims to support and strengthen the coordination and capacity of the DWNP in monitoring biodiversity, while providing a useful tool to facilitate its use in national reports and decision making processes. In Botswana the programme has successfully gained full support, especially the Department of Wildlife and National Parks, without which there would be very little success.

1.2 Aims and Objectives of this report

The report outlines the status of the habitat and/or species, pressures or threats and conservation efforts at PAs overlapping Important Bird Areas (referred to in some parts of this report as protected Important Bird Areas) for 2009. Since not all species could be covered for biodiversity monitoring, birds were used as indicator species. As this is the second of its kind, the report will primarily present baseline data regarding the current scenario, where possible, with respect to avifauna in protected Important Bird Areas and also compare this years data with that of 2008 to show the trend in protected IBA status, pressures and response variables.

2.0 BACKGROUND TO MONITORING IMPORTANT BIRD AREAS

2.1 What are IBAs?

IBAs are generally sites of global conservation importance for birds and other biodiversity identified using standard internationally agreed criteria, which are objective, quantitative and scientifically defensible. The sites must, wherever possible, be large enough to support self- sustaining populations of those species for which they are important. These sites are distinct areas amenable for practical conservation and part of a wider, integrated approach to conservation and sustainable use that embraces sites, species, habitats, and people. IBAs are identified on the basis of the presence of globally threatened species, range restricted species, and biome restricted species or congregations. Species, which are considered in identifying the site as important, are referred to as 'trigger' species. The 'trigger' species in Botswana have been listed in 'Important Bird Areas of Botswana by Tyler and Bishop (1998); see Appendix II for a list of the trigger species identified for each of the protected IBAs.

2.2 The IBA Programme

The Important Bird Areas (IBA) Programme of BirdLife International is a world-wide project launched in the mid 1980s aimed at identifying, monitoring and protecting a network of critical sites for the world's birds. The early stages of the Programme focused on developing national constituencies and identifying the sites, and the subsequent ones focus on activities to conserve and safeguard these sites in the long term, with effective monitoring and advocacy taking place. The aims of the programme are:

- Identify and document globally important places for bird conservation in Africa based on inclusion of endemic avifauna, threatened species, concentrations of numbers of individuals or species and representation of regionally characterized bird assemblages.
- Promote, develop and involve national organizations and contributors in the implementation of the programme.
- Increase national contributions to the programme through the promotion of institution- building, network development and training as appropriate.
- Publish and distribute widely a continental directory of sites, Important Bird Areas in Africa and associated islands.
- Promote the publication of national IBA directories in appropriate languages.
- Establish a database containing the critical IBA information in a way that can be maintained, updated and made available in individual countries and to the wider conservation community.
- Inform relevant national authorities, where appropriate, of the programme and seek their acceptance of its concept, aims and progress at the national level.
- Inform decision- makers at all levels of the existence and significance of Important Bird Areas.
- Encourage and initiate conservation actions at Important Bird Areas throughout the continent.

2.3 What is monitoring?

Monitoring involves repeated collection of information over time, in order to detect changes in one or more variables of interest. The general objective for monitoring is to evaluate the success of sustaining biodiversity by measuring specific indicators. Monitoring is a central part of the IBA process. IBA monitoring is needed both to assess the effectiveness of conservation measures and to provide an early warning of the extent of threats to biodiversity at a species, site, habitat, landscape and ecosystem level. Species are very sensitive to changes in their habitat quality and therefore there is an emerging need to understand what changes are relevant to sites and how these changes affect the survival of species for which the sites are designated as IBAs. Such information will help in adapting our interventions accordingly, as well as allocating the scanty resources effectively to the most deserving sites (BirdLife International, 2006).

At the site level, IBAs are monitored in order to:

- Detect and act on threats in good time. Monitoring data provide ammunition for advocacy and information for designing interventions;
- Assess the effectiveness of conservation efforts. Is investment in conservation actually bringing about an improvement? Are 'sustainable use' approaches really proving sustainable.

Nationally, IBA monitoring data provide information on biodiversity status and trends (BirdLife International, 2006). This has a great potential for generating information that could feed directly into the process of reporting to the Convention on Biological Diversity (CBD) and other international and (where appropriate) Multilateral Environmental Agreements (MEAs). It also allows the impacts of economic and environmental policies that affect more than one IBA to be assessed. A regular IBA status report is also a useful product for national advocacy (BirdLife International, 2006).

2.4 The BirdLife global monitoring framework

In Botswana, monitoring of these areas and the avian biodiversity they contain has largely been built on the use of a global monitoring framework developed by BirdLife International (2006). The monitoring tool is based on a Pressure–State-Response model - Pressures are threats facing the trigger species and/or the habitat for the trigger species; the State refers to the condition or situation of the habitat or population of the trigger species; and the Responses are the conservation actions taken to reduce the threats or improve on habitat conditions. This monitoring tool uses the weakest link approach, which detects change without giving details on the cause of the change. The weakest link approach identifies the most negatively affected habitat or species to be considered for management or intervention. Consistency in monitoring is crucial in ascertaining the actual measure of the population over time.

2.5 What should we Monitor?

In order that IBAs can be managed to conserve important bird populations and other biodiversity, we need to understand what is happening to IBAs in relation to those bird species for which the sites qualify. We cannot monitor every relevant attribute of an IBA, so we need to choose indicators that are appropriate for our conservation goal. The Birdlife International Monitoring Framework places indicators into a 'Pressure–State–Response' framework; an approach that has also been adopted by the CBD (Figure 2):

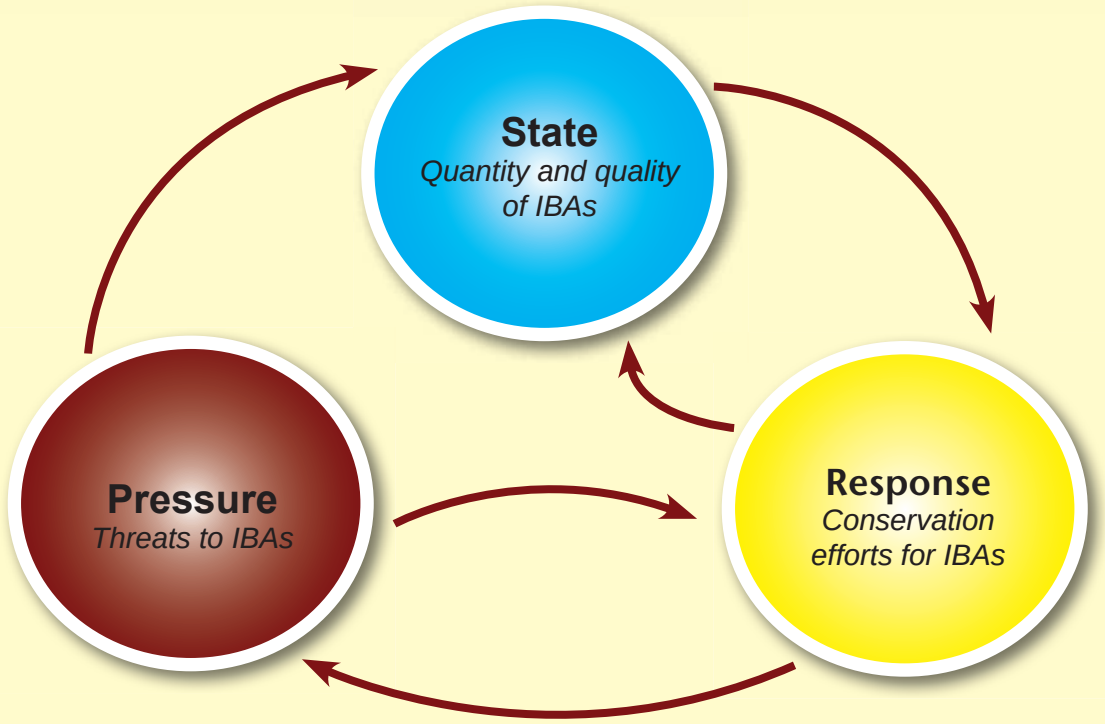


Figure 2. The relationship between indicators of pressure, state and response

Pressure

Pressure indicators identify and track the major threats to important bird populations at IBAs. Examples include rates of agricultural expansion, over-exploitation and pollution.

State

State indicators refer to the condition of the site, with respect to its important bird populations. State indicators might be population counts of the birds themselves. They might also be measures of the extent and quality of the habitat required by these birds.

Response

Response indicators identify and track conservation actions: for example, changes in conservation designation, implementation of conservation projects and establishment of LCGs.

2.6 Monitoring history

In 2006, monitoring protocols for IBAs in Botswana were produced. In 2007, a comprehensive monitoring report for three IBAs (Lake Ngami, Makgadikgadi Pans and Linyanti Swamps) was then produced (BirdLife Botswana, 2007). 2009 saw the beginning of the engagement and training of monitors from all stakeholders, which resulted in the first baseline data report. In the long run, the intention is to monitor and assess all other IBAs and protected areas.

3. METHODOLOGY

3.1 Application of the global monitoring framework

IBA monitoring was guided by the IBA global monitoring framework (Birdlife International. 2006). IBA monitoring sheets were distributed to all stakeholders to facilitate data entry and information gathering, summarized by the Status, Pressure, Response format and methodology below. To facilitate collation of the data and information gathered, IBA specific data sheets were designed per IBA (see Appendix III for an example of a completed IBA data form (the first page) for Chobe National Park IBA).

3.1.1 Status of the birds and habitat

The state indicator refers to the state of the bird species in terms of numbers recorded for a particular site or the condition of a particular habitat for the trigger species, ranked according to Table 1, below. A recorder can monitor the species number or the habitat condition or both depending on the recorder's confidence. The basic assessment of the habitat is considered in relation to the trigger species.

Status				
	0	1	2	3
Habitat	Very poor	Poor	Moderate	Good

3.1.2 Pressures/threats

Several threats were identified for a particular IBA and all described further by being assigned scores using Table 2 as a key to scoring. Scores were then summed to get a total impact score. A pressure or threat with a high score became a major threat at the site of assessment. It is worth noting that the summation is assigned a negative, as it is an unwanted item i.e. the more negative it is the more intense it is.

Table 2. Key to assigning scores to the threats or pressures to the bird species or habitat.

Scores				
	0	1	2	3
Timing	Past, unlikely to return, no longer happening	To happen beyond four years (long term)	To happen within four years (short term)	Happening now
Scope	Small area/ few individuals (>10%)	Some of the area/small population (10-50%)	Most of the area/ population (50-90%)	Whole area/ population (>90%)
Severity (Over 10 years or 3 generations)	No deterioration (<1%)	Slow deterioration (1-10%)	Moderate deterioration (10-30%)	Rapid deterioration (>30%)

3.1.3 Conservation measures/ response

Conservation measures at each site were recorded and assigned scores using guidance from Table 3, on the next page.

Table 3. Key to recording the management intervention at the site and scores used in assessing different action types

Action type Scores				
	0	1	2	3
Conservation designation	Little or no IBA covered (0 - 10%)	Some IBA covered (10-49%)	Most IBA covered (50-90%)	Whole area (more than 90%)
Management plan	No management planning has taken place	No management plan but management planning has begun	Management plan exists but out of date or not comprehensive	Comprehensive and appropriate management plan exists that aims to maintain or improve the populations of species
Conservation action	Very little or no conservation action is taking place	Some limited conservation initiatives in place	Substantive conservation measures being implemented but not comprehensive and limited by resources and capacity	Conservation measures needed for the site are being comprehensively and effectively implemented

3.2 Sources of information

Recorders from the Department of Wildlife and National Parks (park wardens and wildlife officers), tour operators (mainly professional guides), and members of the communities around protected Important Bird Areas were trained using the BirdLife International Global Monitoring Framework version 1.2 (2006), as outlined above. Appendix IV shows the list of recorders that contributed to the data and information gathering in 2009.

In addition to the data that was collated on the IBA monitoring data forms, additional information from the bi-annual waterfowl counts at some of the IBAs was used where necessary to augment or fill in data gaps in species numbers. A review of current management plans for the protected areas overlapping Important Bird Areas was carried out to obtain information relating to, and to put into context the Response indicator of the global monitoring framework.

3.3 Analysis and presentation approach

Information was analyzed for each site and presented accordingly to obtain the status quo on the state, pressure and response indicators:

State:

- The highest number of each species recorded on an individual IBA monitoring form was documented in tabular form for each IBA to indicate its status with regard to the trigger species populations;
- Habitat status was used to score each IBA and the resulting scores were compared for each IBA using a graph, with a graph illustrating the change in habitat condition (scores) from 2008 also included;

Pressures:

- Pressures were identified for each IBA and listed in a table to summarize them and their frequency of use by recorders;
- The pressures score for each IBA were compared in a graph and a comparison with pressure scores form 2008 highlighted using a graph;

Responses:

- The list of responses (conservation/management actions) for each IBA were identified and listed in a table to identify what actions were taking place and where;
- Response scores for each IBA were compared among IBAs and with 2008 response scores using grpahs;

Trends:

Overall state, pressure and response scores were summarized in a graph for 2009 and compared with similar overall scores for 2008 to identify the current trend by plotting the difference in the average state, pressure and response scores for each year.

Recommendations:

Based on the amount and quality of the data received this year and the resulting information and analysis, a set of recommendations were made to highlight where improvements can be made in the current monitoring programme, its coordination and to any of the information that contributes to IBAs and its effective management and conservation of biodiversity within.

Action type

4.0 RESULTS

4.1 Findings and discussion

Records were received from all seven i.e. Chobe National Park, Linyanti, Okavango Delta, Makgadikgadi Pans, Central Kalahari Game Reserve, Mannyelanong Game Reserve and Kgalagadi Trans Frontier Park. Lake Ngami is not a site considered in the scope of this project but the data recorded from this site were included in the analysis as they were seen to be important and relevant. In the long run, the intention is to monitor and assess all other IBAs and protected areas.

4.1.1 State indicators

Records for the numbers of trigger species recorded at each site varied considerably among the IBAs, with more records coming from the Okavango, where there were more recorders compared to those IBAs that relied on DWNP recording e.g. KNP and CKGR. Trigger species numbers for these IBAs were scanty and only numbers for some species were provided for some of the IBAs and counted on occasion. Table 4 lists the trigger species identified and their highest number counted by an individual recorder, at each IBA during 2009.

Out of all the IBAs monitored, the highest number of trigger species records came from three sites, the Chobe, Linyanti, Okavango Delta and Makgadikgadi. Types of bird species recorded varied from raptors to wetland birds, with raptors being more considerably more numerous in the Chobe National Park. Of particular interest were the population estimates of Lesser Flamingo (77,491) and Greater Flamingo (14,798) counted on Sua Pan in the Makgadikgadi Pans IBA by independent researcher Graham McCulloch. The Lesser Flamingo count results outnumbered the total estimate for Southern Africa, (~65,000), indicating the importance of this IBA for Lesser Flamingos in Southern Africa. The species has increased significantly since the mid-1990s according to the researcher, owing to a succession of successful breeding events at Sua Pan during a number of good rainfall seasons over the last five years.

Table 4. Trigger species and their highest recorded number for each protected **IBA**.

SPECIES	Chobe National Park	Linyanti Swamps	Okavango Delta	Lake Ngami	Makgadikgadi Pans	Central Kalahari Game Reserve	Mannyelanong Game Reserve	Kalahari Trans-frontier Park
Lappet-faced Vulture	25	4	2		5			6
White headed Vulture	25	2						
White-backed Vulture	150	120			27			
Wattled Crane		28	1400		3			
Slaty Egret			4000					
Great Egret								
Little Egret								
Greater Flamingo					14,798			
Lesser Flamingo					77,491			
Red-billed Teal								
Hottentot Teal								
Comb Duck								
Whiskered Tern								
Black-winged Stilt								
Bateleur			2					
Kori Bustard					4			
Kalahari Scrub-Robin								
Burchell's Starling								
Sociable Weaver Nests								35
Burchell's Sandgrouse								
Cape Vulture							5	
Martial Eagle					2			
Lesser Kestrel								1
Bradfield's Hornbill	200				2			
Marabou Stork	150							
Woolly-necked Stork	20							

As a result of the low numbers of bird counts recorded and submitted in 2009, the habitat quality was used more often to assess the state of the IBAs (Figure 3). The overall state of the IBAs was good, with only the Okavango, Makgadikgadi and CKGR scoring below good (moderate). Figure 3 shows that the Makgadikgadi and CKGR IBAs have decreased in habitat state each since 2008, owing mainly to the pressures of fire, wildlife conflict and poaching. Chobe, Linyanti and Lake Ngami IBAs have, however, experienced increases in their condition owing largely to the exceptionally large flooding that occurred during the winter period of 2009 in these wetlands, providing larger safer habitat for the water bird trigger species. The Okavango also experienced exceptional flooding, but scores stayed the same as a result of the disturbance factor of tourism operations and other pressures outlined below.

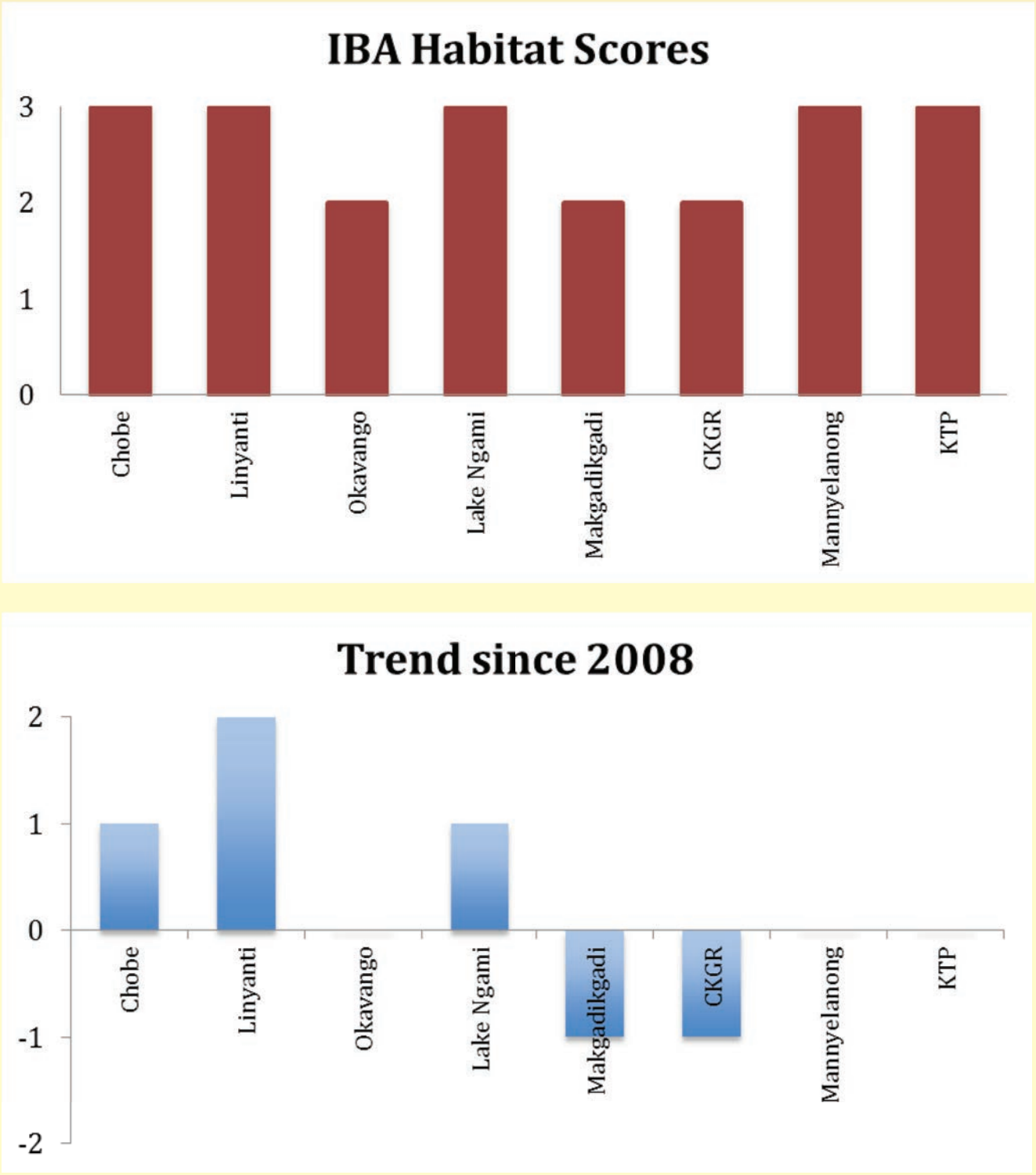


Figure 3. IBA habitat scores collated from the data forms for each IBA in 2009 and the trend (difference in scores) since 2008.

4.1.2 Pressure indicator

Threats identified by recorders in Botswana's protected IBAs increased in number compared to the previous year, from twenty to twenty two different threat types. Table 5, below, provides a summary of the status of threats for these IBAs in 2009, with the average pressure score provided for each threat, at each IBA. The IBAs with the most threats are Makgadikgadi (15) and Chobe National Park (5). Makgadikgadi's threats are considerably more numerous as a result of the associated impacts and threats that come from mining in the area (the Soda Ash mine, the nearby Diamond mines and some newly established Copper mines). Those threats at Chobe are largely a result of the increase in impacts and pressures on the system and its trigger species in the surrounding area from farming (and its associated conflict activities, e.g. poisoning) and pollution.

A summary of the state of Botswana's protected area pressures is illustrated in figure 4, below. Mannyelanong Game Reserve received the highest pressure scores; -3 owing to the severe threat to the small population of vultures from poisoning. Lake Ngami, on the other hand, received a pressure score of -1, where disturbance from cattle, fishing and bird shooting were sited as the biggest threats. All other IBAs were scored -2 for the state of their pressures.

In comparison with last year's pressure scores, all of the IBAs, except for Mannyelanong Game Reserve received the same or better scores, i.e. their pressure scores were static or improved. Scores for the Okavango, Makgadikgadi and Lake Ngami IBAs increased by one. These changes in pressure scores are, however, hard to evaluate in the light of what has really changed on the ground and, because they are fairly subjective to the reporter's knowledge and opinion, change according to changes in the recorders at each site. Nonetheless, the pressures of these major wetlands have reduced somewhat during 2009 owing to the exceptional extent of flooding during the year experienced in all of these wetlands, reducing access, disturbance and resulting impacts.

Table 5. Threats identified by recorders in Botswana's protected IBAs, in 2009.

Threats	Chobe National Park	Linyanti Swamps	Okavango Delta	Lake Ngami	Makgadikgadi Pans	Central Kalahari Game Reserve	Mannyelanong Game Reserve	Kalahari Trans-frontier Park
• **Poisoning of by farmers**	2		2				3	
• **Disturbance by cattle**				1				
• **Over-fishing**	1.6			1				
• **Water quality reduction/pollution by sewage**	2				1.6			
• **Habitat conversion by development**	1.6							
• **Hunting; subsistence and sport**	2				1.3			
• **Road construction**								1
• **Fire**		2	2		1.3	2.3		2.3
• **Habitat destruction by elephants**		1.6						
• **Poaching in NP**						1		

• **Mining activities**					2	1.3		
• **Powerline obstacles**					2			
• **Tourism desturbance**			2		1.6			
• **Proposed Dam**					1			
• **Long-term ground water level impacts**					2			
• **Invasive species**					1			
• **Problematic natural species**					1.6			
• **Solid waste pollution**					1			
• **Air-bourne pollution**					1			
• **Noise pollution/ disturbance**					1			
• **Light pollution**					1			
• **Natural climate alterations**					1.6			
Total Threats per site, reported by DWNP (D) or independent researchers (IR)	5 (IR)	2 (D)	3 (D)	2 (IR)	15 (IR)	3 (IR)	1 (D)	2 (D)

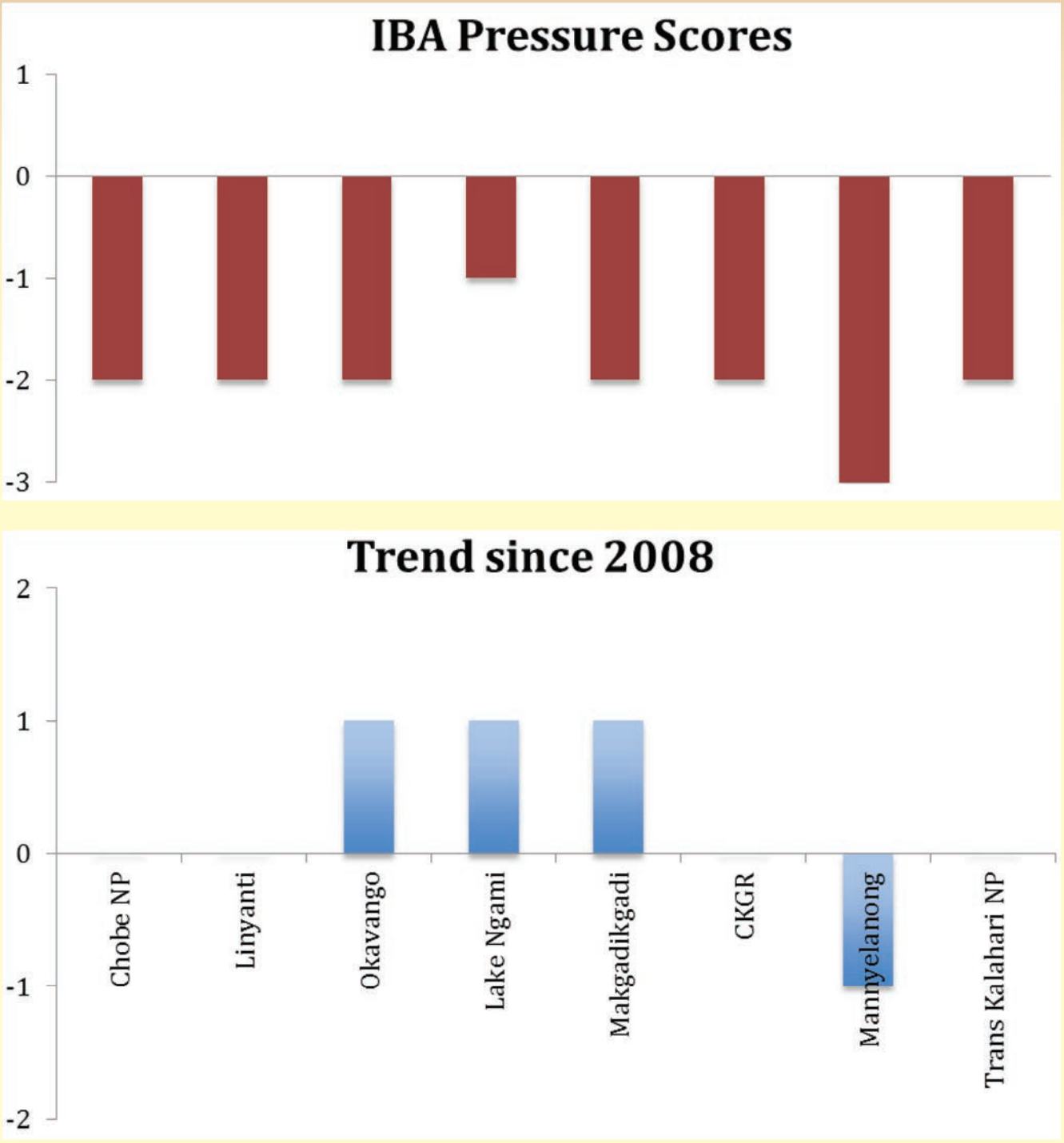


Figure 4. IBA pressure status scores collated from the data forms for each IBA in 2009 and the trend (difference in scores) since 2008.

Fire and poisoning were the most frequent and highest scoring pressures to occur in protected IBAs, occurring at, respectively, five and three sites and scoring an average of, respectively, 2 and 2.3. This differs somewhat from the highest scoring threats recorded in 2009, which were tourism activities, fires and disturbance to the habitat. Fires, again posed one of the most severe threats to trigger species and their habitat. The following threats on protected IBAs are highlighted for serious consideration as they have serious long-term impacts and ramifications on the conservation of the IBA trigger species and biodiversity in general, and require regulation and improved long-term conservation action and management interventions.

Fire

Fires impact birdlife in a number of ways; they cause damage to and loss of reed-beds that were important as roost or breeding sites and have also killed young birds, such as egrets and Squacco Herons, in their nests at breeding colonies. Fires also result in the loss of many old dying or mature trees which are important as nest sites for many hole-nesting birds as well as providing invertebrate food for species such as woodpeckers and Wood-Hoopoes. Standing dead wood is a very important resource for many bird species.

Owing to a recent wet period in Botswana's climate, recent wet seasons have provided higher than average rainfall. This has resulted in large amounts of biomass in the vegetation, particularly, among the grass sword of large grasslands across all protected areas in Botswana. Large-scale fires during 2008 have been among the worst experienced in recent history, with large areas being affected especially in the CKGR resulting in many plants and animals perishing (Figure 5). Figure 2 shows fire occurrences in Botswana from 2007 to 2009. On average, fire impacts on Botswana's IBAs have been ranging between a combined pressures score of 4 and 5.67. The extent of fires in consecutive years suggests that habitat deterioration due to human induced fires is followed by a small improvement the following year and vice visa, indicating a two year biomass accumulation period before fires become widespread and destructive (Figure 5). Fire impact on Botswana's IBAs appears, however, more pronounced on IBAs in central and western Botswana compared with those in northern Botswana. Among other factors that may explain this trend is that part, or most of the areas surrounding IBA in northern IBAs comprise wetlands (natural fire breaks) or are leased by private companies who actively manage fire outbreaks and conduct preventative fire management.

The frequency and extent of fire incidents has increased, in general, in recent years as a result of an increased number of fire generating activities in and around the protected areas, like farming activities, grass cutting and poaching with their associated camps. Indeed, evidence shows that many of the fires that occur in many of the remote areas of the country originate along access roads and tracks, as a result of campfires and or cigarette disposal.
It is important, therefore, to address two major issues in relation to this increased occurrence and spread of fires:

1. Reduce their causes by increased awareness and prevention of the dangers of camp fires and cigarette disposal, for example, if not extinguished properly, and;

2. Improve fire management in protected areas by building on and improving existing management programmes; fire extinguishing techniques and pro-active preventative measures.

Improve fire management in protected areas by building on and improving existing management programmes; fire extinguishing techniques and pro-active preventative measures.

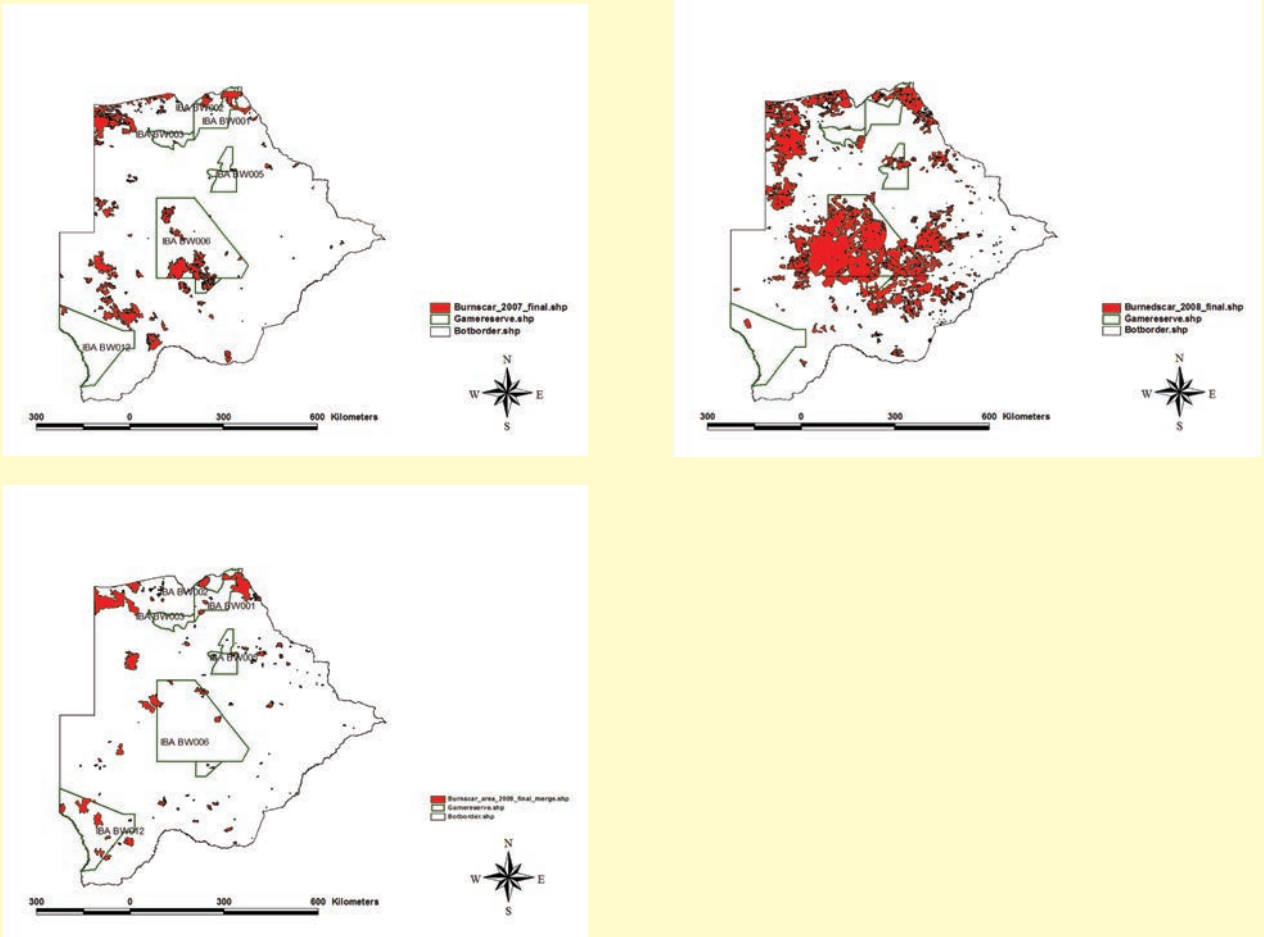


Figure 5. The extent of area damaged by fires in Botswana during the dry seasons of 2007, 2008, and 2009.

Poisoning

In August of this year, BirdLife Botswana (through Pete Hancock) initiated a formal request for action against the use of illegal poisoning of birds and mammals, addressed to the Minister of Environment, Wildlife and Tourism. The following comes from this informed request for action;

In the past two years, a minimum of 160 globally threatened vultures have been poisoned in northern Botswana in three major incidents. Typically, large numbers of vultures (in excess of 50) are killed at each incident, and this constitutes the single greatest threat to the birds in Botswana. Where it was possible to identify the poison used, it was an agricultural insecticide, Carbofuran, but some poisoning incidents almost certainly involved a second insecticide, Aldicarb. The motives for the poisoning vary: In most cases, the vultures are innocent victims of attempts to kill 'problem' predators, but at least one incident - in the Xudum area of the Okavango – the vultures were targeted by poachers who claimed that the birds were alerting the authorities to their activities. It is believed that the poisons are being brought illegally into the country from Zimbabwe, in small, unlabelled packages (which are illegal) and sold on the street as 'rat poison'.

Other African countries, notably Kenya, are working towards a complete ban of these insecticides, and Botswana should do the same. However, a ban alone will not suffice. Botswana already has the legislation needed to curb illegal use of these pesticides – it needs to be enforced more rigorously in conjunction with a ban. For example, when the Police check vehicles passing through the veterinary gates, they should be looking for unlabelled packages of the poisons (the environmental NGO community can produce awareness posters for the police showing what the poisons look like).

A picture showing some of the poisoned vultures

Wetland pollution

Pollution of wetlands is becoming an increasingly concerning threat. Chobe River, in particular, is seriously threatened by pollutants from the upper Zambezi catchment and the local Chobe town sewage treatment inadequacies and resulting piping of sewage into the river system. Agrochemicals, sewage and industrial effluents threaten the ecology of the river and it is suggested that this reduction in water quality is impacting the quality and quantity of the fish populations, on which many of the water birds and trigger species in this IBA feed and may even have long term ramifications on the health and well being of the birds themselves, through bio-accumulative and bio-magnification impact of some of the pollutants.

The Okavango IBA, although not suffering such severe water pollution is prone to similar pollution impacts if the necessary preventive measures, regulations and management interventions are not imposed across the nation. Sua Pan is also vulnerable to chemical pollution of a different kind, with the pumping of the remaining effluent left over after soda ash is extracted from the deep sub-surface brine, at the Soda ash mine. This effluent has a very different chemical composition to that of the surface flood waters and threatens to alter it in the long-run, a consequence that would have serious implications to the biodiversity of the pan and the food source of the flamingo and other wetland bird populations on the pan. In addition, the development of two new copper mines on the catchment of Sua pan is cause for concern with regard to resulting chemical pollutants that are likely to accumulate on the pan in years to come if necessary precautionary measures and management are not taken seriously and enforced.

4.1.3 Response indicator

Botswana total area: 578,150 km2 of which 242,120 km2 (41.9%) is set aside for conservation. About 17 percent of the country has been set aside as national parks and game reserves, with 20 percent set aside for wildlife management areas. Though this is the case, management of these sites still lacks co-ordinated monitoring be it of species or habitat. Out of the twelve IBAs, only six are protected and the rest are not. Some sites though not protected such as the Tswapong Hills and South-eastern Botswana, hold globally threatened species, namely the Cape Vulture and Short-clawed Lark respectively.

Submissions from recorders regarding responses or conservation measures and management interventions were varied for different sites, but remained largely the same as those identified last year. This meant that the scores for response indicators changed little form last year (Figure 6).

There were a few exceptions; Makgadikgadi IBA has improved in terms of its response indicators, largely owing to the plans and its progress in creating a sanctuary for the flamingo breeding grounds on Sua Pan (see more details below). In addition, there are plans to develop an integrated management plan for the wetland, to co-ordinate improved sustainable development and the effective conservation and appropriate management of its resources, including its biodiversity. Other sites have seen some improvements in site-specific management actions, e.g. improved legislative management requirements, as a result of the 2008 implementation of the Okavango Management Plan and the subsequent set up of the Bio-Okavango project (funded through GEF/UNDP) that has been forming strategic partnerships with various institutes and NGOs and conducting various implementing activities in and around the Okavango delta.

In the CKGR, things have deteriorated somewhat owing to the conflict with the bushman removal from the reserve and the bad media coverage the reserve and the country's efforts that have received. Also, some new tourism developments have been made at Tau Pan and in the north western side of the reserve, which has both improved the monitoring and control of poaching and illegal activities in these areas, as well as leading to heightened disturbance by tourism activities, supply vehicles and other development activities in the areas.

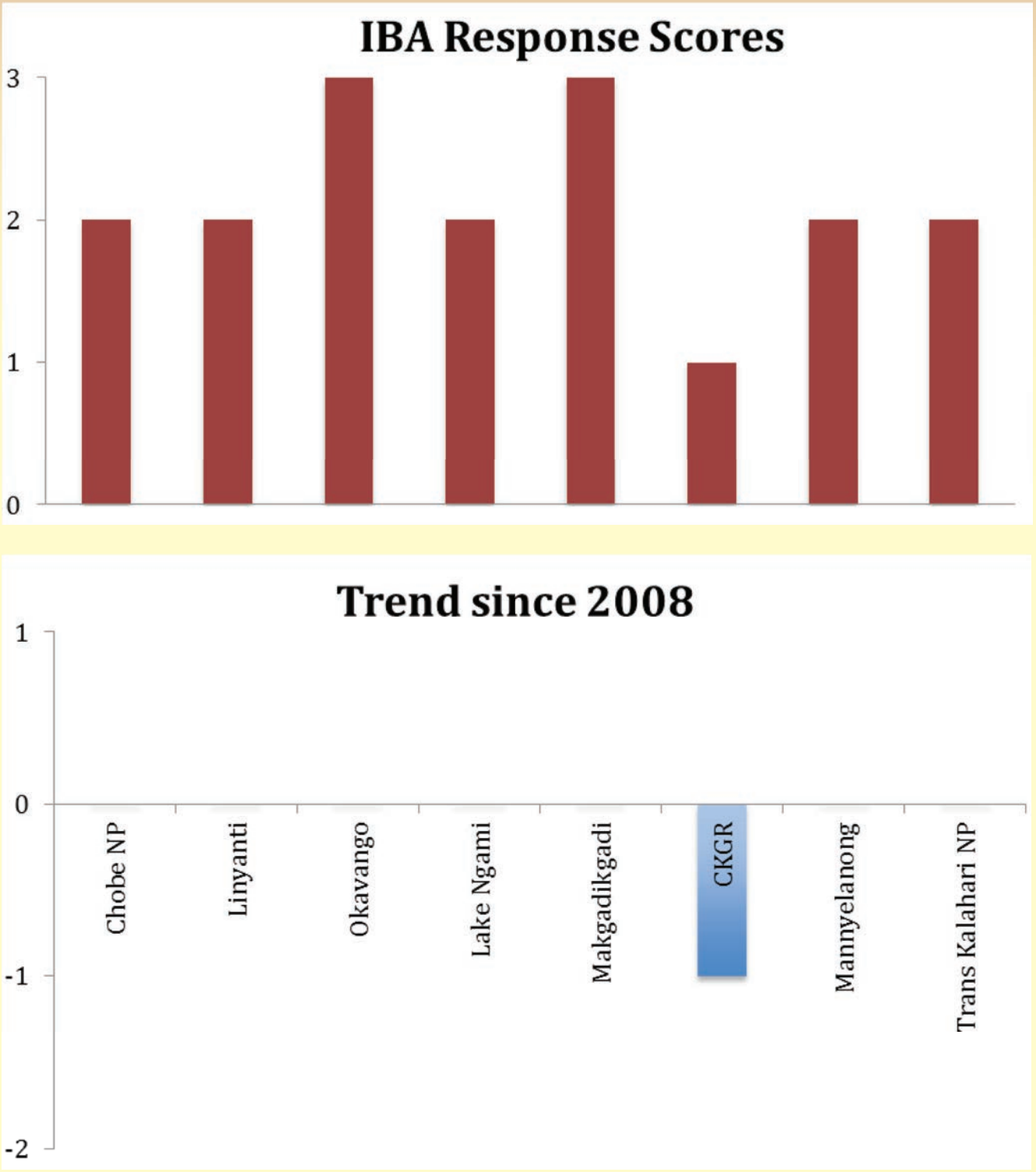


Figure 6. IBA response indicator scores collated from the data forms for each IBA in 2009 and the trend (difference in scores) since 2008.

4.1.3.1 Focus on Makgadikgadi: RESPONSE /CONSERVATION ACTIONS

The Makgadikgadi is the only site in Botswana and one of four in Southern Africa where flamingos breed. The following very significant conservation actions were initiated/undertaken during 2009:

Towards the end of 2009, the Department of Wildlife and National Parks initiated the process of designating the core flamingo breeding area in the southern part of Sua Pan as a flamingo sanctuary (Figure 7). This area will provide strict protection to most if not all the breeding sites used by both Lesser and Greater flamingos over the past two decades. Regulations governing the area are still being drafted, and it expected that it will be formally gazetted during early 2010.

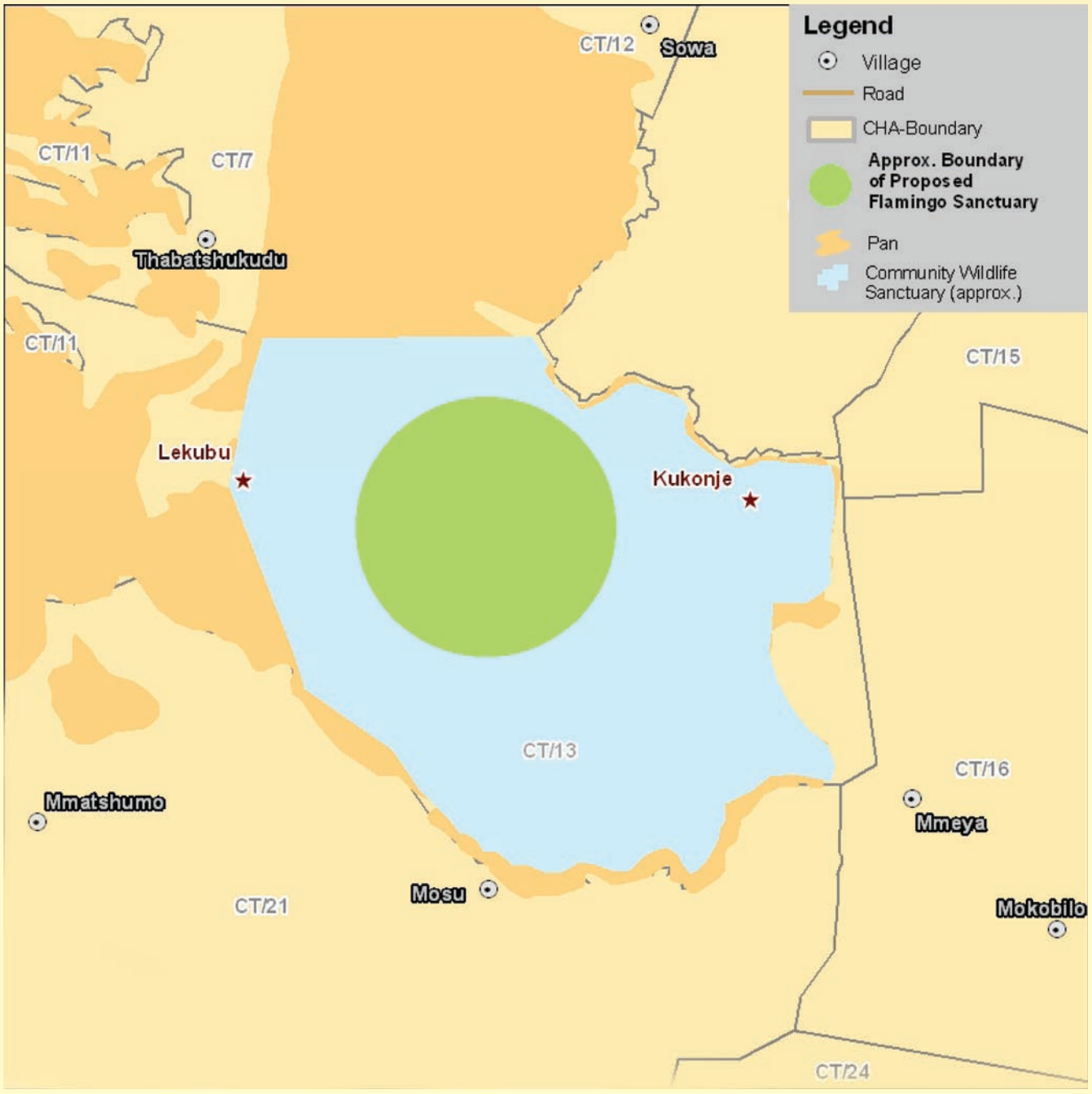


Figure 7. Approximate location of proposed flamingo sanctuary (green circle)

In January, 2009, BirdLife Botswana in conjunction with the Government of Botswana, launched a project in the Makgadikgadi entitled 'Strategic Partnerships to Improve the Financial and Operational Sustainability of Protected Areas'. This project originally included a component on the Nata Sanctuary (see the 2007 Makgadikgadi Monitoring Report) but the subsequent involvement of a private company and the Botswana Tourism Organisation in the area resulted in BirdLife Botswana moving its focus to the southern part of Sua Pan where the flamingo breeding sites are located. During 2009, two capacity-building workshops were held with the communities of Mmeya, Mosu and

Matshumo in CT 21 south of Sua Pan. During the first workshop all three communities expressed their interest in working together as part of the project, to protect the area around the proposed flamingo sanctuary and embark on birding-tourism projects in the area as a way of improving the livelihoods of the people in the villages. BirdLife Botswana will be continuing to work with these communities through their community Trusts, to promote avi-tourism and protect the flamingo breeding sites, for the next three years.

In November, 2009, work commenced on producing a Framework Management Plan for the whole Makgadikgadi Wetland System, with the appointment of a comprehensive team of consultants to supplement personnel from the Department of Environmental Affairs. This plan should be completed by the end of 2010, and will form the basis for developing and implementing a more comprehensive Integrated Management Plan. Bird conservation issues feature quite highly on the agenda of the planning team

4.1.4 Pressure, State and Response Trends

Records, although received from all of the IBAs, were not as numerous as in 2008, with relatively few figures for trigger species numbers. The information received was, however, adequate to successfully assess the state of habitat condition, the current state of pressures and make a good assessment of the conservation and management activities that are either being developed or being implemented in the country's protected IBAs. Biodiversity at protected areas, as shown by birds as a proxy, remains stable, with considerable pressures, reduced slightly from 2008 and considerable conservation efforts being maintained (Figure 8).

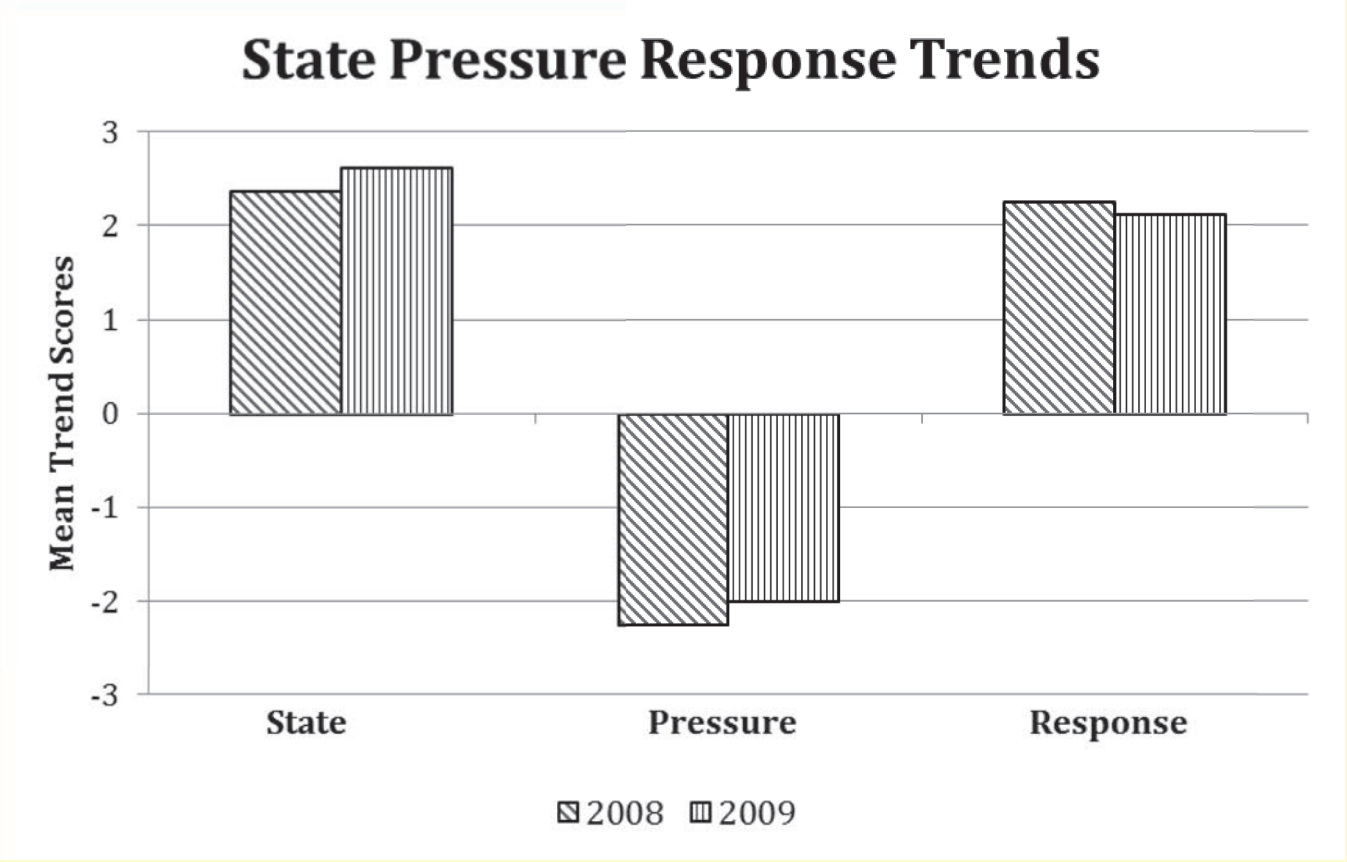


Figure 8. State, Pressure and Response trends since 2008.

5. Conclusions

In conclusion, records, although received from all of the IBAs, were not as numerous as in 2008, with relatively few figures for trigger species numbers. The information received was, however, adequate to successfully assess the state of habitat condition, the current state of pressures and make a good assessment of the conservation and management activities that are either being developed or being implemented in the country's protected IBAs. Biodiversity at protected areas, as shown by birds as a proxy, remains stable, with moderate threats and considerable conservation efforts. The main concerns that need immediate effective intervention exist in the form of wildlife and habitat destruction from fire, poisoning, overfishing and water pollution. There are some encouraging positives with the development and implementation of new protected areas and management planning progress and these actions and activities will certainly help maintain biodiversity in these IBAs in the future.

For the least unprotected areas (such as the Linyanti Swamps and Lake Ngami), there is an indication that there has been significant pressure, but moderate habitat conditions remain with little management interventions. Sites such as the Okavango Delta recorded good values for state and considerable conservation measures but also a notable amount of pressure still remain that need to be acted on. It is, therefore, critical that this information be used to channel management interventions in the appropriate direction that will address current threats to biodiversity at the site. Sometimes, if what causes the ecosystem imbalance is not known, the tendency is to depend on speculations and real threats at the site continue unabated. This is one example where it is really important to document, monitor and assess threats continually.

The state of the protected IBAs in Botswana is, therefore, generally good since the habitats are largely undisturbed by human impact. Four IBAs overlap completely with existing protected areas, where Government following recommendations is undertaking conservation action and monitoring programmes outlined in existing management plans for these sites. While substantial conservation measures are being implemented, these are not comprehensive and are limited by resources and capacity. BirdLife Botswana and independent researchers still conduct most IBA and/or trigger species research and monitoring in these areas.

This IBA status and trends report is a national tool that can and should be used to guide decision making, development planning, enhance collaborative partnerships and reporting on international obligations including the Convention on Biological Diversity (CBD). To this effect, great progress has been made in strengthening partnerships between Birdlife Botswana, Botswana's Department of Wildlife and National Parks, and the Department of Environmental Affairs. As well as strengthening and coordinating biodiversity monitoring in protected areas, this report has been used as one of the key indicators used in the governments annual CBD reports. In addition, valuable relations have been forged and maintained with community based Site Support Groups, independent researchers, private tourism operators, and the general public, all of whom have contributed considerably to this monitoring programme.

6. Recommendations

BIRDLIFE BOTSWANA

1. An update of the protected IBAs trigger species lists is required per site to take into account the new additions of threatened species to the IUCN Red Data list.

2. Efforts are required to define the IBA boundaries of some of the IBAs where boundaries are arbitrary and PA overlap is unclear, based on new research and PA management planning that have occurred since IBA identification in 1998. Remote sensing and GIS techniques would be invaluable in this regard.

3. Further training is needed on IBA monitoring and bird identification (trigger species), as well as data management among some of the stakeholders, particularly the DWNP given the frequency of staff turnover and the inconsistency of reporters and report quality as a result.

4. Improved co-ordination of and relations with the DWNP participants to ensure adequate form completion, quality control and timely submission, providing additional support to the DWNP focal point coordinator.

5. Site Monitoring Committees remains and area needing improvement. Birdlife should focus further concerted efforts in this direction be establish key SSGs where they are urgently required or support those already existing by way of additional participatory involvement encouragement and co-ordination, and capacity building.

6. Additional financial and human resources support should be sourced from stakeholders in the implementation of the programme and to ensure the sustainability of the monitoring.

7. Improve on the co-ordination and the platform for participants to give feedback on their involvement, and identify ways of motivating participants to continue monitoring.

8. Organise exchange visits for community participants so that best monitoring practices can be shared and interest is encouraged and improved.

Department of Wildlife and National Parks

9. Considerable efforts are required to ensure adequate form completion, quality control and timely submission of forms by participants from the DWNP at each protected IBA. Improved coordination by the DWNP focal point coordinator will help in this regard.

10. Before monitoring can be extended to unprotected IBAs, the system needs to show more signs of it being sustainable and engaging more recorders. DWNP could be extended to protected areas that are not IBAs first, which would satisfy the CBD requirements on biodiversity status in the protected areas. This would also help involve more officers and spread and improve monitoring capacity among DWNP officials.

11. The IBA global monitoring framework adoption in the DWNP could be improved by its further and sustainable incorporation into the general MOMS system, thereby, assisting the latter programmes effectiveness and successful implementation.

12. The most important threats, especially fires, poisoning, over-fishing and water pollution, should be acted upon through specific focused management interventions in the respective Pas by District wildlife officers and their subordinates;
    - Fire management needs considerable improvement in order to reduce the destruction of biodiversity, through effective clearing of fire breaks, back burning and improved patrolling practices (camp fire management) and community awareness of the dangers of fire mis-management;

    - Improved Human-Wildlife Conflict mitigation measures should include the enforcement of the ban on illegal pesticides used to kill predators and scavengers in the community surrounding Pas and nation-wide in general. Outreach programs could include submission of poisons for compensation, or other strategies to curb their use and the shocking slaughter of vultures and other raptors, as well as mammalian scavengers;

    - Bio-Okavango have implemented a project in the Okavango to identify and raise awareness of No-go fishing areas, in order to provide refuges for fish stocks and enforce the fishing ban during the fish breeding season. This project can be implemented by DWNP along waterways in the respective PAs at some of the other IBA sites.

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APPENDIX I: Degree of protected area coverage and other management designations for seven protected IBAs in Botswana.

IBA	Protected Area	Management Plan	Status of the management plan	Size of the IBA in Ha	% of IBA protected
Chobe	Chobe National Park	2002 (Final Draft)	Outdated, but appropriate for the objectives set	1 069 800	100
Linyanti	Chobe National Park & Chobe Forest Reserve	2002 (Final Draft) None	Outdated, but appropriate for the objectives set	20000	Unknown/ no well defined boundaries
Okavango Delta	Moremi Game Reserve Okavango Delta Management Plan area	2006 (Final Draft) Okavango Delta Management Plan	Not yet approved Approved and implemented since 2008	1 900 000	25% of the IBA area: (487100)
Makgadikgadi Pans	Makgadikgadi Pans and Nxai Pan National Park ('The Pans Parks') & Nata Bird Sanctuary	2006 2008, also Makgadikgadi Framework M P (MFMP)	Pans Parks MP approved, but out dated. Nata Bird Sanctuary MP: approved Currently being developed	1 200 000	IBA boundary not clearly defined but Pans Parks is 62% of IBA area (747800) Nata Bird Sanctuary: 1.7% (20000) 100% covered by MFMP area (3,645,200)
Central Kalahari Game Reserve	Central Kalahari Game Reserve	2003 (Final draft)	Not yet approved and out dated, but appropriate for objectives	5 600 000	100
Mannyelanong	Mannyelanong Game Reserve	1997 (final draft)	Outdated. Appropriate for the objectives set	**c.** 100	100
Kgalagadi Trans-frontier Park	Kgalagadi Trans-frontier Park	1997 (Approved)	Outdated. Tourism development framework in 2006. Appropriate for the objectives	2 840 000	100

APPENDIX II: List of Trigger Species found in the seven protected IBAs in Botswana.

IBA 'Trigger' Species	Chobe National Park	Okavango Delta	Central Kalahari Game Reserve	Kgalagadi Trans-frontier Park	Mannyelanong Game Reserve	Makgadikgadi Pans	Linyanti Swamps / Chobe River
Lesser Kestrel	X	X	X	X	X	X	X
Pallid Harrier	X	X	X	X		X	
Racket-tailed Roller	X	X					X
Kalahari Scrub-Robin	X	X	X	X		X	X
Broad-tailed Paradise Whydah	X						X
Bradfield's Hornbill	X	X				X	X
Barred Wren-Warbler	X	X	X	X		X	
Coppery-tailed Coucal	X	X					X
Kurrichane Thrush	X	X				X	X
White-bellied Sunbird	X	X	X			X	X
Woolly-necked Stork	X						
Lappet-faced Vulture.	X	X	X	X		X	
Dickinson's Kestrel	X	X					
Chirping Cisticola	X	X					X
Burchell's Starling	X		X	X			
Burchell's Sandgrouse	X		X	X		X	X
Arnot's Chat	X	X				X	X
Meves's Starling	X	X				X	X
Hartlaub's Babbler	X	X				X	X
Stierling's Wren-Warbler	X					X	X
Marabou Stork	X	X					X
Lesser Moorhen	X						
Cape Vulture		X	X		X	X	X
Slaty Egret		X					X
Corn Crake		X					
Black-winged Pratincole		X	X			X	X
Sharp-tailed Glossy Starling		X					
Great Egret		X					X
Squacco Heron		X					
Saddle-billed Stork		X					
White-backed Duck		X					

Lesser Jacana		X					
Black-crowned Night-Heron		X					
African Darter		X					X
Little Egret		X					
African Skimmer		X					
Yellow-billed Egret		X					
Woolly-necked Stork		X					
Red-billed Teal		X					
Cattle Egret		X					
African Sacred Ibis		X					
Wattled Crane		X				X	X
Brown Firefinch		X					
Great White Pelican		X				X	
Rufous-bellied Heron		X					X
African Pygmy-Goose		X					
Collared Pratincole		X					
Goliath Heron		X					
Black Heron		X					
African Openbill		X					
African Spoonbill		X				X	
Spur-winged Goose		X					
Little Bittern		X					
Fulvous Duck		X					
Long-toed Lapwing		X					
White-backed Night-Heron		X					
Allen's Gallinule		X					
Denham's Bustard				X			
Sociable Weaver				X			
Lesser Flamingo						X	
Chestnut-banded Plover						X	
Greater Flamingo						X	
Kittlitz's Plover						X	
White-throated Robin						X	
White-headed Vulture							X
White-backed Vulture					X		X
Hottentot Teal							X
Miombo Rock Thrush							X

APPENDIX III: Part of a sample data form designed for the Chobe National Park IBA

Department of Wildlife and National Parks and BirdLife Botswana biodiversity monitoring forms

Name and Address.....Pete Laver P O Box 570, Kasane.....
Period of assessment: From...Jan 2009.....to....Dec 2010.....Date of assessment: ...26 May 2011.....
When was the visit to the IBA and for how long.....Frequent visits throughout the year of several hours to full days at a time.....
Do you live in or around the IBA.....Yes.....When did you visit the area and for how long.....
Reason for Visit.....Ecological research on banded mongoose , BirdLife Botswana monitoring projects.....

NB* USE INFORMATION YOU ARE **ONLY** SURE OF, TO THE BEST OF YOUR KNOWLEDGE WITHOUT SPECULATIONS

1. State of the species and habitat.

Name of IBA	Area covered by your assessment (state how much i.e whole or part (which part))	Estimates or counts of bird population (use maximum population number ever recorded for the assessment period)		Quantity of habitat (state wheather good, moderate, poor, very poor)	Quality of habitat (good , moderate, poor, very poor)	Comments where necessary for Quality, quantity and/or species counts
Chobe National Park	Frequent trips along the Chobe River from Kazungula to Ngoma (and through Lesoma Valley). Infrequent trips into the Chobe Enclave (villages of Mabele, Kavimba, Kachikau, Satau and Parakurungu) and infrequent trips to Savuti.	White-headed Vulture	50	Good	Good	
		Lappet-faced Vulture	25	Good	Good	
		White-backed Vulture	150	Good	Good	Breeding sites possibly limiting (in form of flat-topped Acacias) in areas where changing water tables and tree destruction by elephants may lead to high Acacia mortality. (Some elephant damage related to unseasonal provision of water at man-made pumped waterholes –for tourism or private benefit)

For more information on this monitoring programme contact BirdLife Botswana Office in Maun or Gaborone (00267 686 1036 or 00267 686 5816
Or any wildlife and national parks department research office in Gaborone, Kasane, Maun, Ganzi, or Tsabong
This has been made possible with financial assistance from the European Commission

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APPENDIX IV: List of contributors to the 2009 records

Recorder	Organization		Site for which information has been availed
	Name	Sector	
Glynis Humphrey	Okavango Wilderness Safaris	Private Sector	Xigera, Chiefs Island
Kgalalelo Moagi	Department of Wildlife and National Parks	Parks Authority	Makgadikgadi Pans
Onkgopotse July	Khwai Development Trust	Community (Site Support Group)	Okavango Delta
Marcus Kajuusa	Department of Wildlife and National Parks	Parks Authority	Makgadikgadi Pans
Ishmael Sikwane	Department of Wildlife and National Parks	Parks Authority	Moremi Game Reserve
Elizabeth Sefako	Department of Wildlife and National Parks	Parks Authority	Moremi Game Reserve
Okar Setswalo	Department of Wildlife and National Parks	Parks Authority	Okavango Delta
Sylvester Masimega	Department of Wildlife and National Parks	Parks Authority	Okavango Delta
Lucas Johannes	Department of Wildlife and National Parks	Parks Authority	Central Kalahari Game Reserve
Justin Soupo	Department of Wildlife and National Parks	Parks Authority	Khutse Game Reserve (included with Central Kalahari Game Reserve)
John Mosenya	Department of Wildlife and National Parks	Parks Authority	Khutse Game Reserve (included with Central Kalahari Game Reserve)
Bethuel Direng	Department of Wildlife and National Parks	Parks Authority	Khutse Game Reserve (included with Central Kalahari Game Reserve)
Morui Kebiditswe	Department of Wildlife and National Parks	Parks Authority	Central Kalahari Game Reserve
Oreemetswe Dingake	Department of Wildlife and National Parks	Parks Authority	Central Kalahari Game Reserve
Mr Ntema			Okavango Delta
Batshabi R Boikanyo	Department of Wildlife and National Parks	Parks Authority	Chobe National Park
Mothusi Jenamiso	Department of Wildlife and National Parks	Parks Authority	Chobe National Park

Benjamin Setlhong	Department of Wildlife and National Parks	Parks Authority	Moremi Game Reserve
Mothonyane Kobamelo	Department of Wildlife and National Parks	Parks Authority	Moremi Game Reserve
K Moroba	Department of Wildlife and National Parks	Parks Authority	Chobe National Park
Madimabe M E	Bosele Lake Ngami Conservation Trust	Community (Site Support Group0	Lake Ngami
Zenzele Mpofu	Department of Wildlife and National Parks	Parks Authority	Makgadikgadi Pans, Okavango Delta
Rebecca Ryan			Makgadikgadi pans
Onalenna Selema	Department of Wildlife and National Parks	Parks Authority	Okavango Delta
Stephanie Tyler	BirdLife Botswana	WI Waterfowl Counts Coordinator	All wetlands
Chris Brewster	BirdLife Botswana	Scientific Committee & Rarities Comm	Mannyelanong and South East records
Pete Hancock	BirdLife Botswana	Maun Branch	Okavango, Makgadikgad & Lake Ngami
Keddy Mooketsa	BirdLife Botswana	Common Bird MOnitoring	All IBAs
Graham McCulloch	Independent Researcher	Sua Pan Flamingo Research	Makgadikgadi
Pete Laver	Independent Researcher	Chobe NP Research	Chobe NP
Neil Taylor	BirdLife Botswana	Non Governmental Organization	Makgadikgadi Pans, Central Kalahari Game Reserve
Motshereganyi Virat Kootsositse	BirdLife Botswana	IBA Monitoring	Chobe National Park, Makgadikgadi Pans, Central Kalahari Game Reserve
Lesego Ratsie	BirdLife Botswana	IBA Monitoring	All
Benjamin Noga	Cape Vulture Environmental Club	Community (Site Support Group)	Mannyelanong Game Reserve
Moemedi Letshabo	Cape Vulture Environmental Club	Community (Site Support Group)	Mannyelanong Game Reserve
Ofentse Nthai	Cape Vulture Environmental Club	Community (Site Support Group)	Mannyelanong Game Reserve

APPENDIX V:

List of Bird species of national concern in Botswana, indicating those that are Vulnerable (VU) or Near Threatened (NT) in the IUCN Red Data List (2009), and those other species and bird groups protected under law by the Wildlife Conservation and National Parks Act 1992.

Species, New names: Roberts 7	Birds of National Concern	IUCN Status	Protected under Wildlife Act 1992
Lesser Kestrel	C	VU	Protected
Wattled Crane	C	VU	Protected
Lappet-faced Vulture	C	VU	Protected
Cape Vulture	C	VU	Protected
White-headed Vulture	C	VU	Protected
Lesser Flamingo	C	NT	Protected
Chestnut-banded Plover	C	NT	Protected
Black-winged Pratincole	C	NT	Protected
European Roller	C	NT	Protected
Maccoa Duck	C	NT	Protected
Pallid Harrier	C	NT	Protected
White-backed Vulture	C	NT	Protected
Martial Eagle	C		Protected
Bateleur	C		Protected
Kori Bustard	C		Protected
Southern Ground-Hornbill	C		Protected
Slaty Egret	C		Protected
Hooded Vulture	C		Protected
Grey Crowned Crane	C		Protected
Hamerkop			Protected
Secretarybird			Protected
African Spoonbill			Protected
All eagles			Protected
All buzzards			Protected
All kites			Protected
All vultures			Protected
All harriers			Protected
All sparrowhawks			Protected
All herons			Protected
All egrets			Protected
All falcons			Protected
All goshawks			Protected
All ibises			Protected
All pelicans			Protected
All storks			Protected
All bitterns			Protected