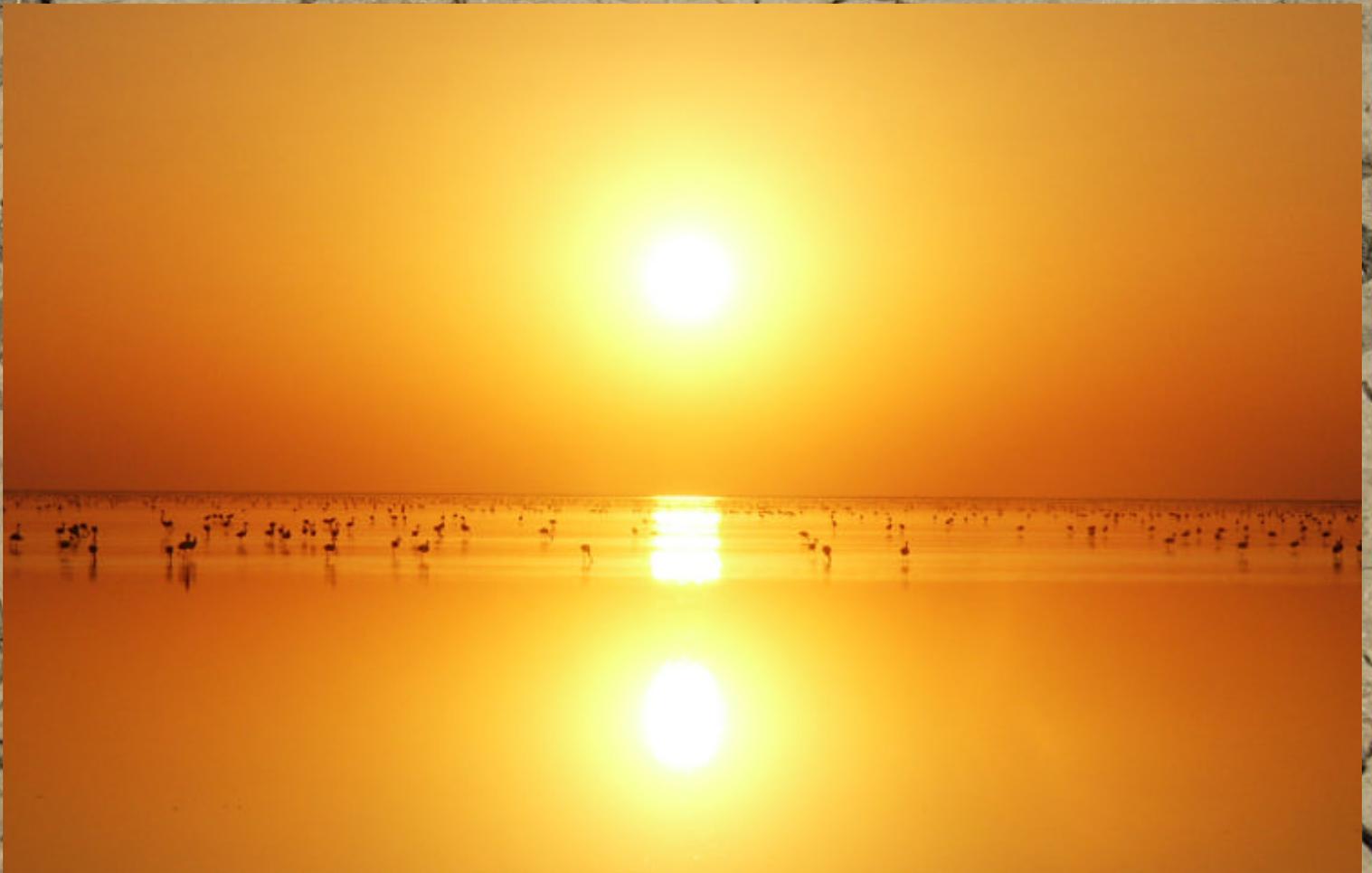


**MAKGADIKGADI PANS
IMPORTANT BIRD AREA
MONITORING REPORT 2009**





BABBLER
SPECIAL SUPPLEMENT No. 3



MAKGADIKGADI PANS
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MONITORING REPORT 2009

March, 2010

by G McCulloch, P Hancock, J Soopu and L Rutina



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INTRODUCTION

As part of Birdlife Botswana's commitment to maintaining a network of sites that are critical for birds both nationally and internationally, the Makgadikgadi Pans Important Bird Area (IBA) is monitored annually following BirdLife's global monitoring framework. This framework is based on the State – Pressure – Response model that has been adopted by the Convention on Biological Diversity (CBD), and this report is divided into three parts paralleling these components.

Part 1 deals with the state of the Makgadikgadi Pans IBA, with particular emphasis on the 'trigger' species of birds that 'qualify' the area as an IBA.

Part 2 focuses on pressures or threats to the IBA - these were originally identified by Tyler and Bishop (1998), but some of these have been superseded and a current set of issues has been identified through fieldwork. These threats are ranked so that they can be incorporated into the World Bird Database (WBDB).

Part 3 of the report describes the conservation actions undertaken in response to the identified threats. These actions are a measure of progress made towards addressing or mitigating the threats. The actions are also objectively ranked for incorporation in the WBDB.

BACKGROUND

The Global Monitoring Framework

The global monitoring framework requires that the trigger species are monitored in an objective way to determine their trends. The trigger species for the Makgadikgadi Pans IBA are shown in Table 1 below:

Table 1. Trigger species for the Makgadikgadi Pans IBA (Tyler and Bishop, 1998)

<p>1. <u>Globally Threatened Species</u></p> <p>? Cape Vulture.</p> <p>? Lesser Kestrel</p> <p>? Wattled Crane.</p> <p>? Pallid Harrier.</p> <p>? Lesser Flamingo</p> <p>? Black-winged Pratincole.</p> <p>? Lappet-faced Vulture.</p> <p>? White-backed Vulture.</p> <p>? Chestnut-banded Plover</p>
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2. Range- and Biome-restricted species

- ? Burchell's Sandgrouse.
- ? Bradfield's Hornbill.
- ? Hartlaub's Babbler.
- ? Kurrichane Thrush.
- ? Arnot's Chat.
- ? White-throated Robin-Chat.
- ? Kalahari Scrub-Robin.
- ? Barred Wren-Warbler.
- ? Stierling's Wren-Warbler.
- ? Burchell's Starling
- ? Meves's Starling.
- ? White-bellied Sunbird.

3. Congregatory waterbirds

- ? Great White Pelican
- ? African Spoonbill
- ? Greater Flamingo
- ? Kittlitz's Plover

Data on the status of the Lesser Flamingo – the key trigger species – were gathered by Dr G McCulloch as part of a long-term commitment to monitoring this species. Concurrently with the Lesser Flamingo monitoring, information was also obtained on the Greater Flamingo and Great White Pelican. There were no new data gathered on any other species, and it is presumed that their status and trends have not changed significantly since 2007 which is the last time that quantitative information was gathered on some of the trigger species.

The Global Monitoring Framework also requires information on the pressures or threats to birds and/or their habitats in the Important Bird Area, and the conservation actions being taken to address them. It is necessary to rank the threats according to their scope (extent), severity and timing, in order to identify the most important one. Customised IBA monitoring forms were used to capture the information on threats and conservation action (see sample in Appendix 1). These forms were completed by individuals living in or adjacent to the IBA, as well as organizations operating in the area, under the EU-RSPB funded project “Instituting effective monitoring of Protected Areas (Important Bird Areas) as a contribution to reducing the rate of biodiversity loss in Africa”. The information from the monitoring forms was supplemented with additional data on threats and conservation action collected during the UNDP-GEF funded project “Strategic Partnerships to Improve the Financial and Operational Sustainability of Protected Areas”.

The Makgadikgadi Framework Management Plan

Towards the end of the period under review, work commenced on drafting a Framework Management Plan for the Makgadikgadi, under the auspices of the Department of Environmental Affairs. The overall aim of the Framework Management Plan (FMP) is ‘to

improve people's livelihoods through wise use of the wetland's natural resources' and this is premised on the following guiding principles:

- ? Holistic planning must benefit rural livelihoods and the environment
- ? Special attention needs to be paid to vulnerable groups in the area
- ? Local stakeholders should be involved in the preparation, planning and implementation
- ? The local population must develop a sense of 'ownership' of the management plan
- ? The plan components should be implemented by government, private sector and civil society, and
- ? Resource conservation and management benefits long-term development opportunities and livelihoods.

Although the project only started in November, 2009, there was at least one useful output which contributed to this monitoring report: the boundaries of the Makgadikgadi Wetland System were defined, and these were adopted as the official delineation of the Makgadikgadi Pans Important Bird Area. The various options for the boundary are shown in Figure 1 below (map courtesy Framework Management Plan – Department of Environmental Affairs and Centre for Applied Research).

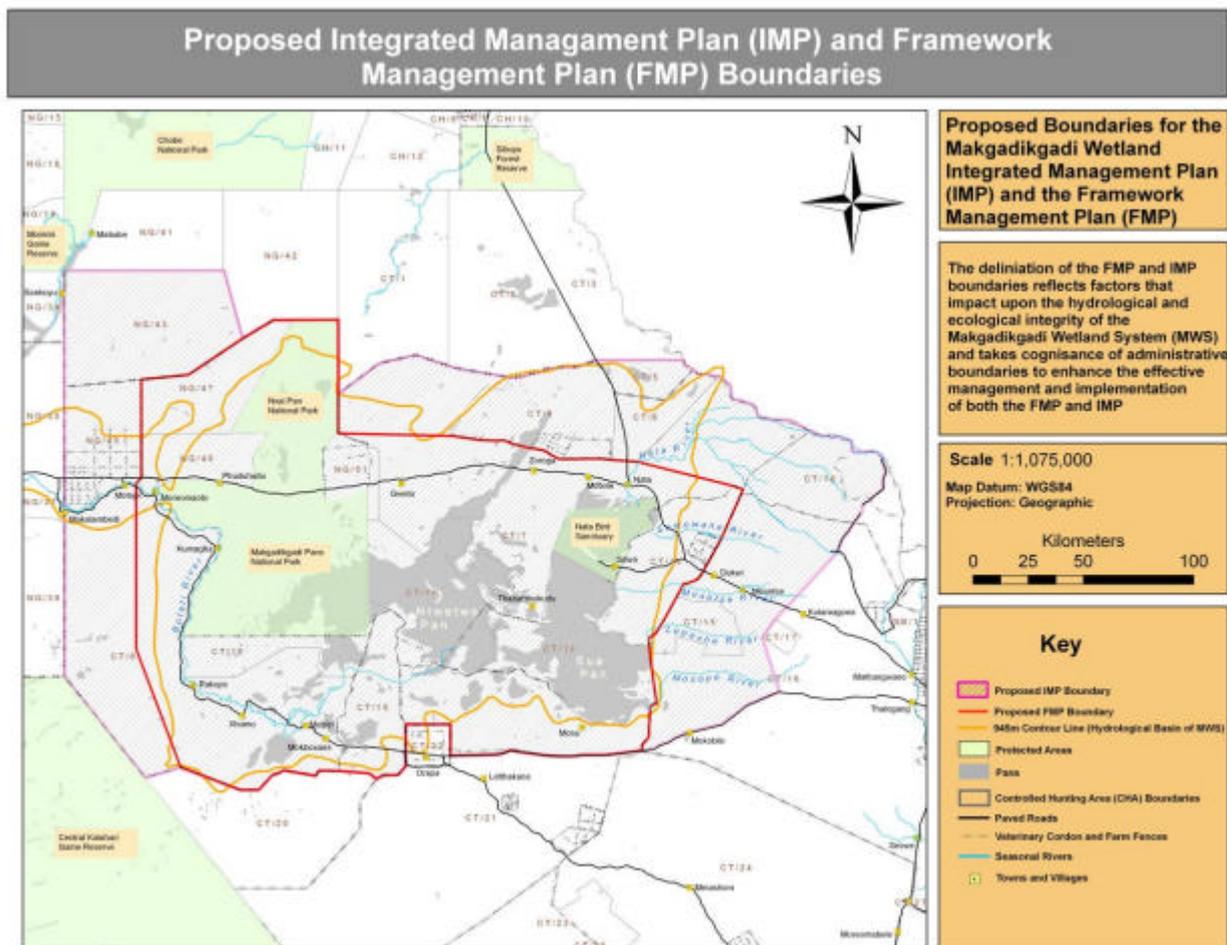


Figure 1. Map showing the boundary of the Makgadikgadi Wetland System/Important Bird Area.

The purple-pink line indicates the boundary of the Makgadikgadi Wetland System and the boundary of the Integrated Management Plan area. It is the preferred boundary for the Makgadikgadi Important Bird Area because it is based on the 945m contour which defines the

shoreline of Paleo-Lake Makgadikgadi (see yellow line) – this describes the greater Makgadikgadi basin which is a discrete ecological unit. The 945m contour is however not always visible on the ground, nor does it always coincide with existing land use and infrastructural boundaries, so it has been adjusted to give the alignment shown by the purple-pink line. This boundary includes all the key areas for birds, particularly the trigger species.

ENVIRONMENTAL FEATURES

Rainfall and hydrology

Annual wet season (October – May) rainfall figures for the Makgadikgadi area are shown in Figure 2; they are from the nearest meteorological stations, at Sua Pan, from 1991 to 2008, and from Nata Police rain gauge prior to 1991. They show that the long-term wet season average is approximately 450mm annually, and that in 2008 and 2009 rainfall was well above average.

Rainfall is important for waterbirds, especially the flamingos – research has shown that flamingo breeding, for the most part, is only successful when rainfall exceeds the wet season average rainfall of 450mm. The amount of total rainfall during the wet season has a profound affect on the amount and period of flooding (Figure 3). The north basin of Sua Pan is the deepest part of the Pan and floods more frequently and for longer periods. During years of below average rainfall, Sua Pan dries out completely while flamingos or pelicans are still breeding, which can result in total breeding failure. A large hydrological input from the Nata River, which drains a 22,000 square kilometre catchment that stretches into Zimbabwe, can however, contribute to large flooding in the north basin of Sua Pan, independently of local rainfall, and contribute significantly to successful breeding. It is thus important when interpreting the results of monitoring, to separate changes in bird numbers due to environmental factors, from those as a result of human impact.

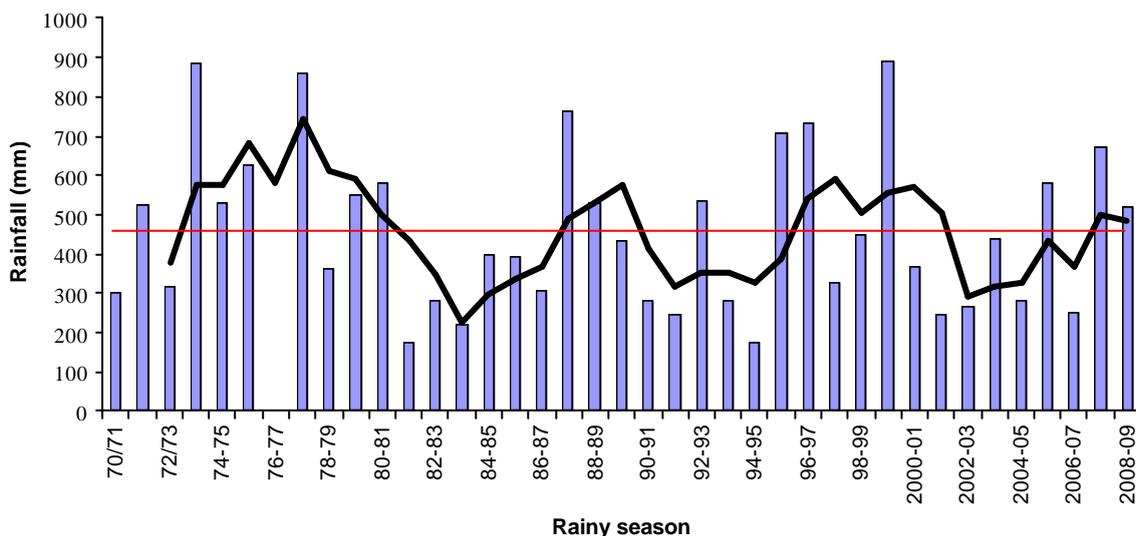


Figure 2: Annual rainfall totals for the wet seasons (Oct – May) of 1970-71 to 2008-09 (blue bars). Figures were collected from Sua Pan Meteorological station, on Sua spit, and Nata Police Station rain gauge, prior to 1991. Average annual rainfall for the period is indicated with a red line, at 450mm. The bold black line represents the three year moving average.



Figure 3. Images of Sua Pan in contrasting years of flood. The image on the left illustrates the extent of flooding after an exceptional rainfall season (March, 2000), with deep (pale turbid) floods in the north basin, which remained flooded for the entire year. The image on the right illustrates flooding after a low rainfall season (February, 2002), when flooding only occurred in the north basin and lasted for four months. Water depth is noticeably shallower on the western edge of the flooded areas, where the flood area gradually recedes as it dries.

Fire

The distribution and extent of fires in the Makgadikgadi area during 2008 and 2009 are shown in Figures 4 and 5 – from the Web Fire Mapper for Botswana (<http://maps.geog.umd.edu/>)

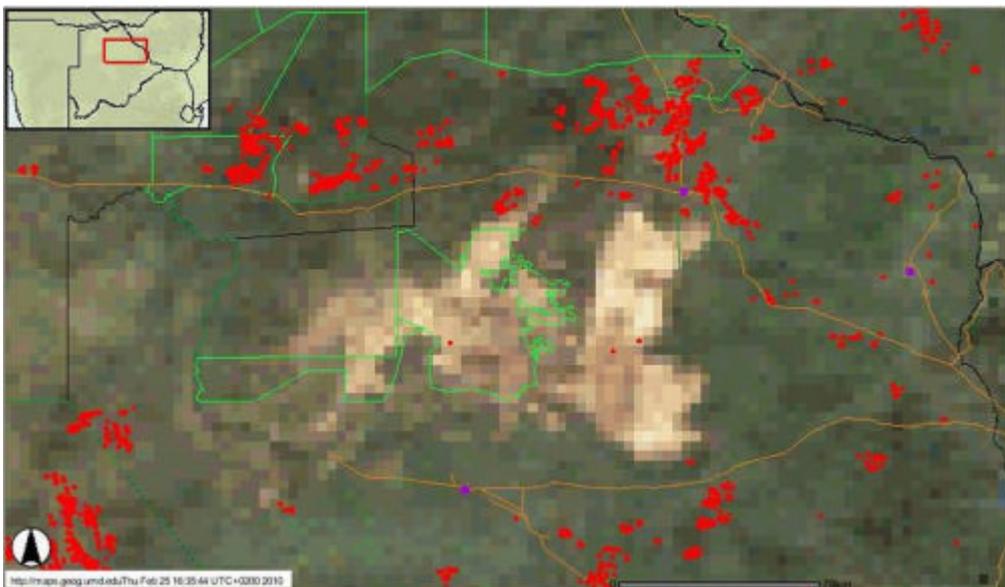


Figure 4. Botswana web fire mapper image showing the areas of the Makgadikgadi IBA and surrounds that were burnt during 2008 (red dots).

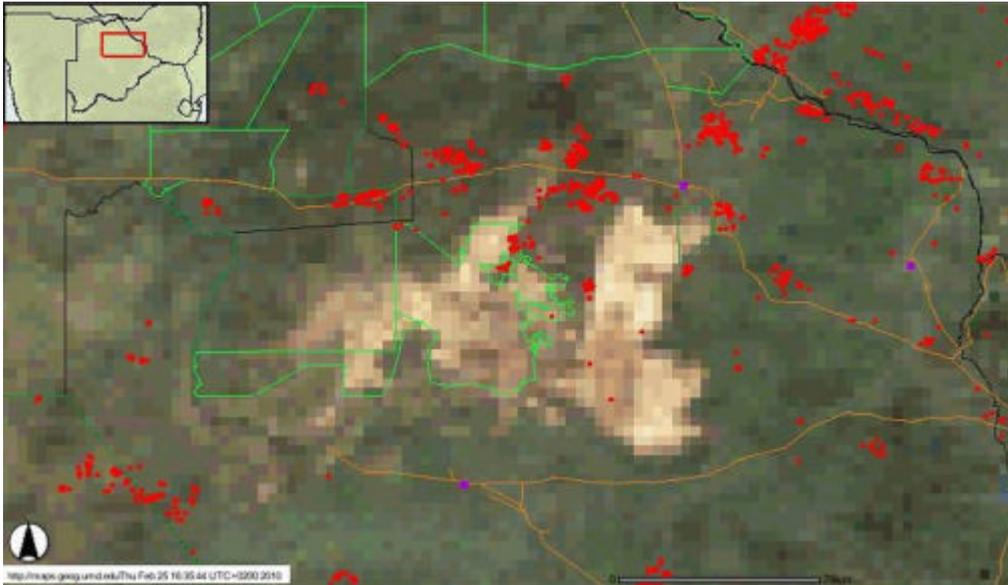


Figure 5. Botswana web fire mapper image showing the areas of the Makgadikgadi IBA and surrounds that were burnt during 2009 (red dots).

There were relatively few wildfires within the IBA during the period under review. Obviously the pan surface areas used by waterbirds, including flamingos, do not burn due to the complete absence of vegetation, so fires are not a factor of concern for these species. However, the Makgadikgadi Pans IBA is also important for nesting Lappet-faced and White-backed vultures, and it is encouraging to see that during 2008 and 2009 there were no fires in the key nesting areas for these species *i.e.* the Makgadikgadi Pans National Park, and the area between Ntwetwe and Sua Pans (uncontrolled fires burning during winter could have destroyed nesting trees and disrupted breeding). Generally, fires are more common and widespread following summers of good rainfall.



Figure 6. Trees destroyed by fire in the Gweta area of the IBA (Photo: P Hancock)

PART 1 – STATE OF THE MAKGADIKGADI PANS IBA

As mentioned in the Background section, little new data on the numbers and trends of the trigger species were collected during the period under review, with the exception of the two flamingo species, and the Great White Pelican (all collected concurrently during aerial surveys). Information on these species was obtained by G McCulloch, and is presented below:

Lesser Flamingo



Photo: G McCulloch

Numbers

The Southern African Lesser Flamingo population has been estimated to number between 55,000 and 65,000 individuals during the mid-1990s. This seems to be an underestimate since at times, Sua Pan, Kamfers Dam and the Goldfields wetlands in South Africa, and Etosha Pan in Namibia, together, support more than that number. The question that arises is: is there a highly mobile local population that moves en masse from one location to another, or is it a small 'resident' population which is at times supplemented with tens of thousands (perhaps hundreds of thousands) of birds from East Africa? This has been previously suggested, but there is still no direct evidence for any movement of birds between the two regions.

In order to determine the size of the Southern African population, a co-ordinated survey took place during late July, 2008. During the survey, all sites that have supported more than 750 Lesser Flamingos were counted (technically the definition of a key site is one at which >1% of the Southern African population has been counted sometime during the past five years).

The flamingos in the Makgadikgadi have been monitored using a standard aerial survey methodology for the past decade. On the 31st July, a Cessna 172 was used to overfly the remaining flooded area in the north of Sua Pan, where the flamingos were concentrated. It is essential to fly at 2,000 ft above the birds so that they are not disturbed. A digital camera was used during the survey to capture images for counting - each entire flock was photographed. When the flock was too large to be captured on one photograph, a sequence of photographs was taken to record its entirety. In addition, the Greater Flamingo population was surveyed in the same way. On this occasion, it was relatively easy to separate the species, owing to the Greater Flamingos being out in the deeper waters.

A total of 53 images captured the entire Lesser Flamingo population with 36 for the Greater Flamingo population. Each image was opened in Photoshop and the individual birds were counted using a hand held counter and placing a red dot on each, once counted (Figure 7).

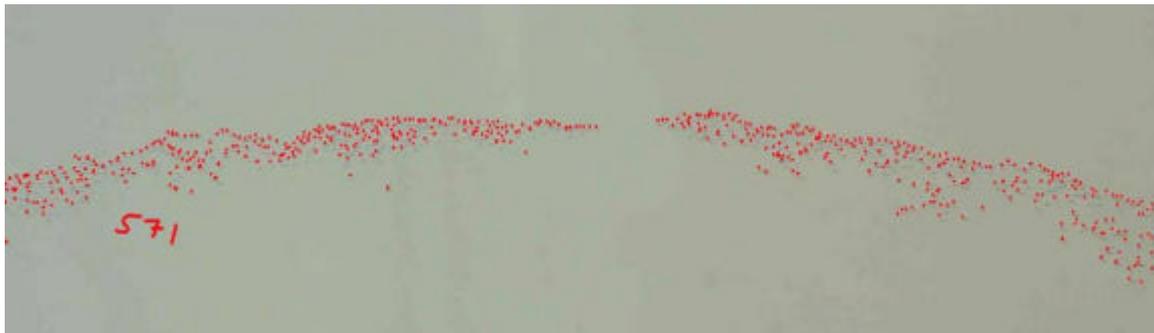


Photo: G McCulloch

Figure 7. A total count of part of a Lesser Flamingos flock.

When the numbers were very large, a grid layer was placed on the image and the average number of birds per square was multiplied by the total squares covering the flock, as shown below (Figure 8).

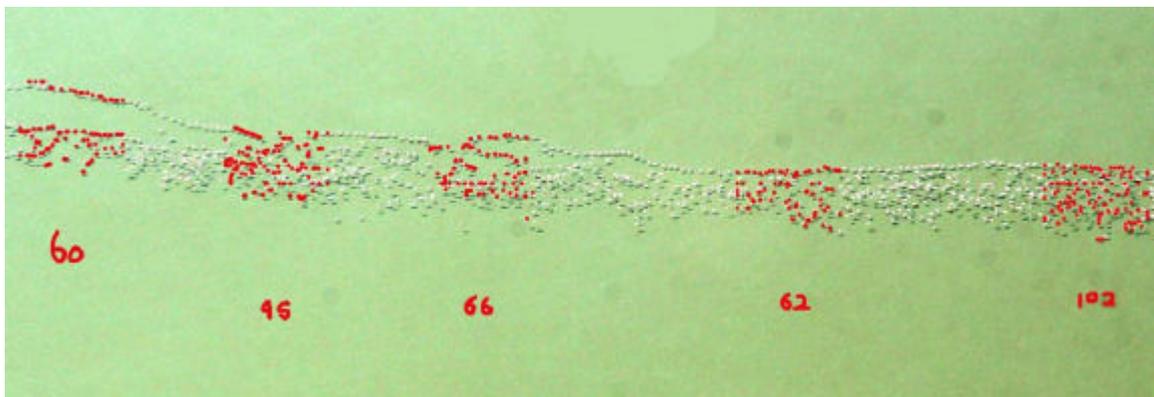


Photo: G McCulloch

Figure 8. A sample count (>40%) of part of a large flock, using a grid layer (not in picture) to identify sample squares.

At least 25% of the total area covered by the flamingos on a slide was counted, when using this sample technique. The number of individuals per slide varied from 64 to 5928 for the Lesser Flamingos and from 14 to 1124 among the Greater Flamingo slides. The results were as follows:

Lesser Flamingo: 77,491 Greater Flamingo: 14,798

The results were very interesting in that **the total population of Lesser Flamingos on Sua Pan outnumbered the total estimate for Southern Africa, (~65,000)**. These figures will be augmented by additional counts from around the region and a new population estimate for the region will be produced. It is clear though, that Sua Pan is the one of most important sites for Lesser Flamingos in Southern Africa. It is apparent that this species has increased significantly since the mid-1990s. This is due largely to the successful breeding season of 2005/6, when an estimated 90,000 chicks fledged (see Figure 9 overleaf). For this species to breed successfully, the summer rainfall (between October and May) must exceed a minimum of 300mm so that the breeding area is flooded adequately and for a long enough time for the birds to complete their breeding cycle. Wet seasons with more than the annual average rainfall

amount of 450mm produce optimal breeding conditions and allow the birds to successfully raise their young on a wet pan, when predation and physiological stresses are significantly reduced.

Breeding success

In order to determine breeding success, two aerial surveys were conducted in 2008, one on 13th March and another on 3rd April, and photographs of the entire breeding colonies, and of the chick crèches close to them were taken from a light aircraft at 1,500ft agl. The results were as follows:

13th March: 1,687 breeding pairs on nests, and a total of 8,850 chicks in crèches, resulting in a total of **10,537 breeding pairs**

3rd April: a crèche of **2501 chicks** were remaining at the colony.

This is a considerable decrease in the numbers of Lesser Flamingo breeding on Sua Pan compared to years with similarly good/above average rainfall (Figure 9). A possible reason for the low numbers of breeding Lesser Flamingo could be the development of a new breeding site on Kamfers Dam in South Africa the previous year. Over ten thousand chicks were successfully raised on this new breeding island in 2008.

Lesser Flamingo Breeding success in the last decade (1998 - 2009)

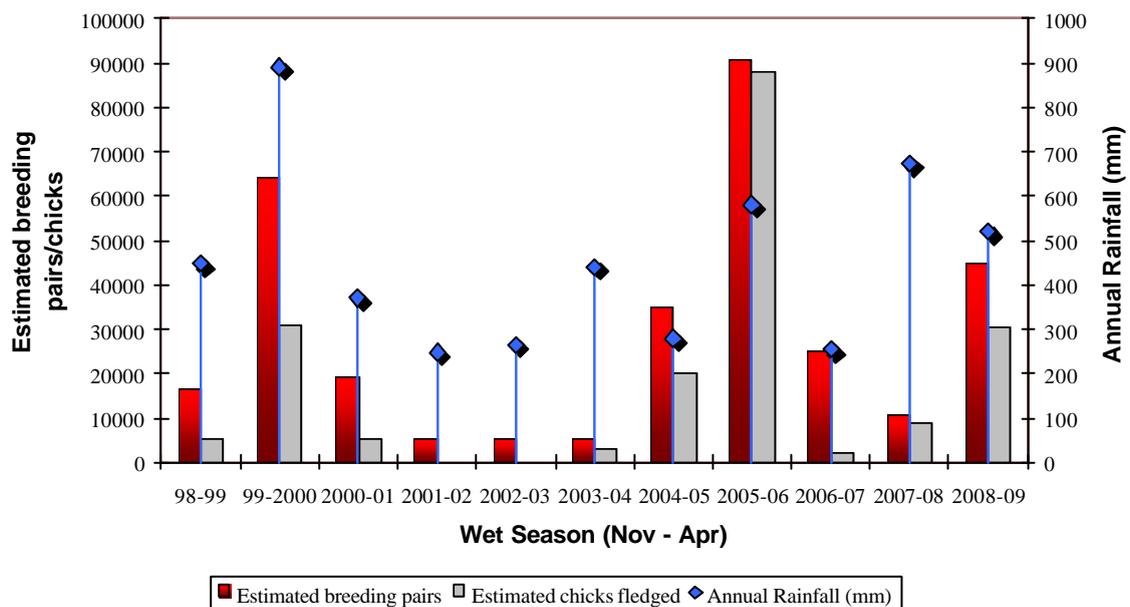


Figure 9. Breeding success of Lesser Flamingos relative to rainfall, during the period 1998 to 2009.

A single aerial survey over the flamingo breeding colonies, on the 2nd March 2009, revealed that the flamingos had again successfully raised chicks at their traditional breeding colonies:

2nd March: 14,179 active nests were counted, and a total of **30,552 chicks** formed large crèches, resulting in a total of **44,731 pairs** of Lesser Flamingo breeding in 2009.

Overall, it is clear from the above that the Lesser Flamingo – the key trigger species – at Sua Pan is doing relatively well.

Greater Flamingo



Photo courtesy W Tarboton

Numbers

The Sua Pan Greater Flamingo population was counted concurrently with the Lesser Flamingos on 31st July, 2008, and this revealed a total of 14,798 birds. These were almost entirely adults, and it was apparent that a lot of the population present on Sua Pan earlier in the year, during the breeding season (December – April 2008) had already left. A total of 32,766 breeding Greater Flamingo adults raised 16,383 chicks during the year (see below), and therefore over half the adults and the majority of the chicks had left Sua Pan by July to spend the winter, non-breeding season elsewhere.

Breeding success

The number of breeding Greater Flamingos during 2008 was monitored concurrently with the Lesser Flamingo during the same aerial surveys in March and April. They were recorded breeding at a small colony with the Lesser Flamingos, as well as at two other sites. The results were as follows:

13th March: a few hundred adults were still on nests, and over 16,383 chicks were counted in crèches next to the main colonies, resulting in a total of **16,761 breeding pairs** (see Figure 10 below).



Photo: G McCulloch

Figure 10. Part of a crèche of chicks near a Greater Flamingo colony, including chicks of different ages.

3rd April: a remaining **12,182 chicks** were counted in the last remaining flood water, with many of them already flying (see Figure 11 below).



Photo: G McCulloch

Figure 11. Part of a crèche of Greater Flamingo chicks, including chicks that have just fledged.

During 2009, the Greater Flamingos were recorded breeding on small colonies next to the Lesser Flamingos and on some calcrete islands:

2nd March: **150 adults** were still on nests around the main Lesser Flamingo breeding colony, and **35,486 chicks** were counted in crèches next the main island colonies, resulting in a total count of 36, 986 pairs breeding in 2009.

Analysis of breeding success over a ten year period, in relation to summer rainfall, shows that Greater Flamingos breeding success is enhanced above a certain rainfall threshold, owing to the fact that their breeding sites, located on small islands in the middle of the pan, are surrounded by water, and therefore, protected from predators. During years of below average rainfall levels, breeding success is negligible. In Figure 12 (overleaf), note that no counts were conducted during the drought years of 2001-02 and 2002-03 and so estimated chicks fledged for these years are absent. The figure given for the number of chicks fledged is taken from the number of chicks counted in crèches during the aerial surveys and assumes that all the chicks in the crèches will fledge and make it to the feeding grounds. This number, of course, varied from year to year according to flooding in the south basin of Sua Pan and the associated variation in predator pressure and mortalities as a result of physiological stress. McCulloch & Irvine, (2004) estimated that fledging success rate was very high during exceptional rainfall years, like that in 2000, owing to the resulting floods in the south basin of Sua Pan providing an ideal, predator and physiologically stress-free refuge for the chicks during the three month period before they fledged.

Greater Flamingo annual breeding success (1998 - 2009)

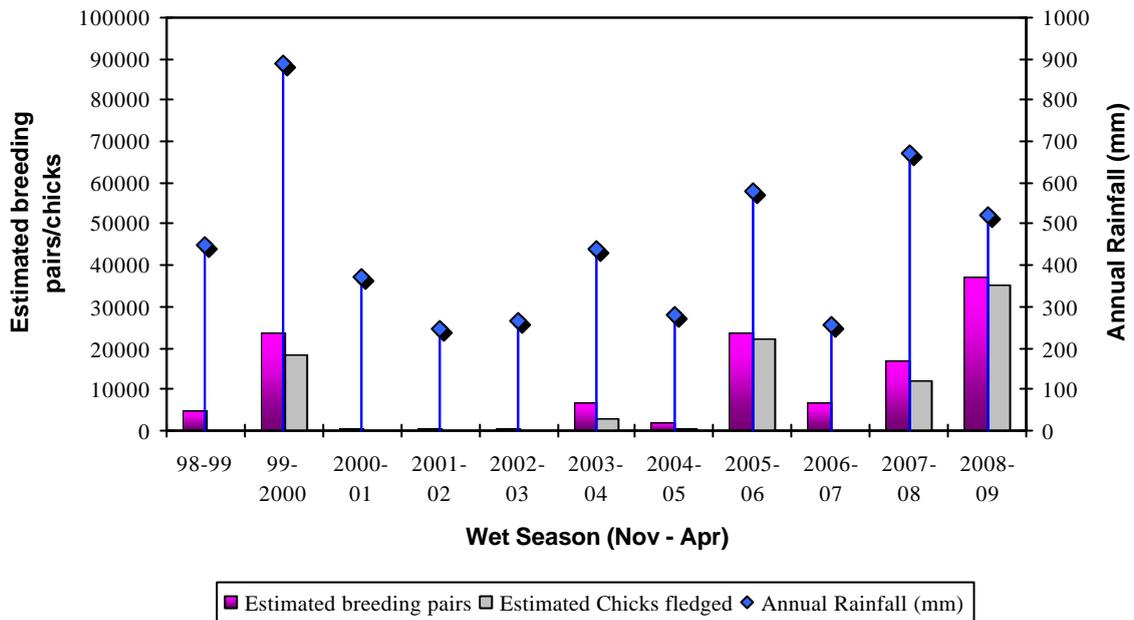


Figure 12. Breeding success of Greater Flamingos relative to rainfall, during the period 1998 to 2009.

The 2008 count, together with the good breeding success in recent years supports the contention that Greater Flamingos in Sua Pan are doing well at present. There are no cases of human disturbance or other human-induced factors impacting negatively on the species.

Great White Pelican

During the 2008 flamingo monitoring, over 2,600 Great White Pelicans were recorded breeding on sand spit islands at the Nata River mouth (Figure 13). There were approximately 650 chicks being fed by adults. This is the only breeding site for this species in Botswana. There are no other published data on the numbers and breeding success of this species in the Makgadikgadi, so there is no baseline with which to compare these figures; nevertheless, it appears as though this species bred well during 2008.

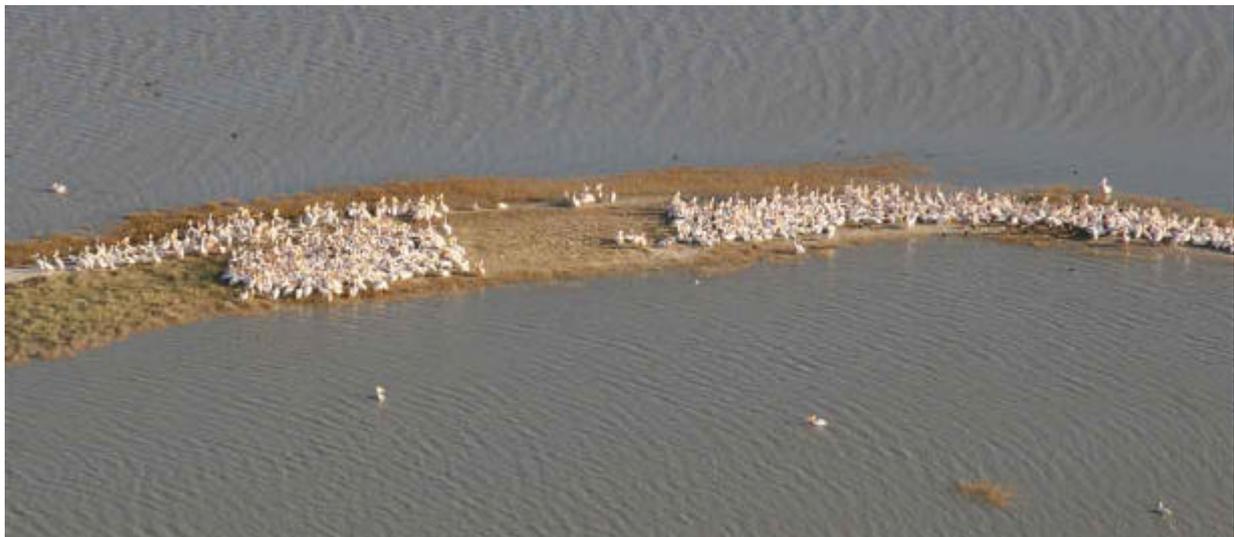


Photo: G McCulloch

Figure 13. Great White Pelican breeding colony on sand spit island, northern Sua Pan.

Lappet-faced Vulture

Lappet-faced Vulture nests were not re-surveyed during 2008 or 2009; therefore there is no current measure of breeding success or population trend.

The only work on this species to take place during the period under review was the ringing and wing-tagging of a limited number of chicks in the nest, with the assistance of N Bousfield. Logistical support for this exercise was provided by Jack's Camp.



Figure 14. Measuring and tagging a Lappet-faced Vulture chick (Photos P Hancock)

One of the fledglings, D002, has been re-sighted twice not far from where it was originally tagged, but this limited, specific information does not shed light on the overall population trends of this species. The exercise will however continue on an annual basis until a suitable sample size has been attained.

Other trigger species

No new data were gathered on any of the other trigger species, and it is assumed that their status remains unchanged.



PART 2 – PRESSURES/THREATS TO THE AREA

Pressures or threats to the area are taken from the 2007 Makgadikgadi Monitoring Report (McCulloch *et al.*, 2007) and updated using the monitoring forms submitted by stakeholders in the area. They are listed in Table 2 below, categorized according to a standard list of threats from BirdLife International, and then ranked according to timing, scope and severity.

Table 2. Threats to the Makgadikgadi IBA 2009

Type of threat	Scores			Details Give specific details
	Timing	Scope	Severity	
1. Agricultural expansion and intensification				
Annual crops – shifting agriculture				
- small-holder farming				
- commercial farming				
Perennial non-timber crops – small holdings				
- commercial				
Wood plantations – small holdings				
- commercial				
Livestock farming and ranching - subsistence				
- small holding				
- commercial				
Aquaculture – subsistence				
2. Residential and commercial development				
Housing and urban areas				
Commercial and industrial areas				
Tourism and recreation areas				
3. Energy production and mining				
Oil drilling				
Mining and quarrying	3	1	1	The soda ash factory in northern Sua Pan potentially has multiple impacts on the area e.g. ground water table reduction and a change in the surface flood water chemistry as a result of the pumping of the bitterns onto the middle pan, causing changes in the plant and crustacean composition and abundance (flamingo food)
Mining and quarrying	3	2	1	Operating copper mine (Mowana Copper Mine) and a proposed copper mine at Matsitama, both in the catchment could result in pollution of water.
4. Transportation and service corridors				
Roads and railroads				
Utility and service lines				
Flight paths	3	2	1	Overhead power lines that supply the soda ash mine with power and others in the general area, e.g. supplying power to some nearby villages, are a major obstacle for low-flying nocturnal movements of waterbirds.
5. Over-exploitation, persecution and control of species				
Direct mortality of 'trigger' species - hunting and trapping	3	0	1	Over-hunting of large birds e.g. bustards and korhaans, not necessarily trigger species. Veterinary cordon fence in the north-eastern

Type of threat	Scores			Details Give specific details
	Timing	Scope	Severity	
				corner of Sua Pan is an obstacle to flamingos
- persecution/control				
Indirect mortality (bycatch) of 'trigger' species - hunting				
Habitat effects – hunting and trapping				
- gathering plants				
- logging				
- fishing and harvesting aquatic resources				
6. Human intrusions and disturbance				
Recreational activities	3	1	1	Disturbance from tourist activities <i>e.g.</i> quad bikes
War, civil unrest and military exercises				
Work and other activities				
7. Natural system modifications				
Fire and fire suppression	3	0	1	Uncontrolled fires burn parts of the Makgadikgadi system every year and destroy raptor nesting trees
Dams and water management/use	0	2	1	A proposed dam on the Mosetse River, which flows into the southern part of Sua Pan, could affect the hydrology of the area, by reducing water discharge onto Sua Pan, via rivers by over 20%.
Other ecosystem modifications	3	2	1	The soda ash factory in northern Sua Pan potentially has multiple impacts on the area <i>e.g.</i> a reduction in the ground water levels on the pan as a result of pumping the deep brine resource and the shallower groundwater resource for water used at the plant, which could potentially cause grass encroachment, a change in the salinity of the flood water on the pan surface and in turn the food composition for flamingos, and a reduction in the flood periods.
8. Invasive and other problematic species and genes				
Invasive alien species	3	0	0	Attempted introduction of an alien crustacean (Branchiopod; <i>Artemia francisciana</i>) into the mines solar ponds.
Problematic native species	3	1	1	Jackals have persistently disturbed Greater Flamingo breeding on some of their breeding islands.
Introduced genetic material				
9. Pollution				
Domestic and urban waste water				
Industrial and military effluents	3	1	1	The soda ash factory in northern Sua Pan potentially has multiple impacts on the area <i>e.g.</i> heavy metal build up in the system and bio-concentration through the food chain to impact the wetland ecology. Also the excess brine

Type of threat	Scores			Details Give specific details
	Timing	Scope	Severity	
				(waste) from the mine is pumped back out onto the pan, with no predicted and as yet little understood impact on wetland integrity.
Agricultural effluents				
Garbage and solid waste	3	0	0	The soda ash factory in northern Sua Pan potentially has multiple impacts on the area e.g. garbage disposal could result in increase in Pied Crows or Marabou Storks which could impact on breeding flamingos
Air-borne pollutants	3	0	0	Sulphur and carbon dioxide emissions from the burning of coal at the Soda ash mine has potential fall out impacts on wetland integrity
Noise pollution	3	0	0	From the mine's operations
Thermal pollution				
Light pollution	3	0	0	The mine operates 24 hours and the lights at the plant may distract nocturnal movements of migrants.
10. Geological events				
Earthquakes				
11. Climate change and severe weather				
Habitat shifting and alteration	1	3	2	Climate Change has the potential to incur devastating impacts on the pans wetland habitat and reduce the breeding window periods to the detriment of regional populations.
Drought	2	3	0	Drought has the potential to incur devastating impacts on the pans wetland habitat and reduce the breeding window periods to the detriment of regional populations.
Temperature extremes				
Storms and floods	3	0	1	Impacts on the breeding flamingos, sometimes flooding nesting colonies.

The scoring system used for rating Timing, Scope and Severity is shown in Table 3.

Table 3. Scoring system for Timing, Scope and Severity

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

It is clear from the above, that the Soda Ash factory, because of its far-reaching implications on the functioning of the Sua Pan system must be regarded as the highest ranking threat at present.

PART 3 – RESPONSE /CONSERVATION ACTIONS TAKEN FOR THE ENVIRONMENT

1. General comments on action taken at the site, including recent changes or developments

The following very significant conservation actions were initiated/undertaken during 2009:

1.1 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. 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 is expected that it will be formally gazetted during early 2010.

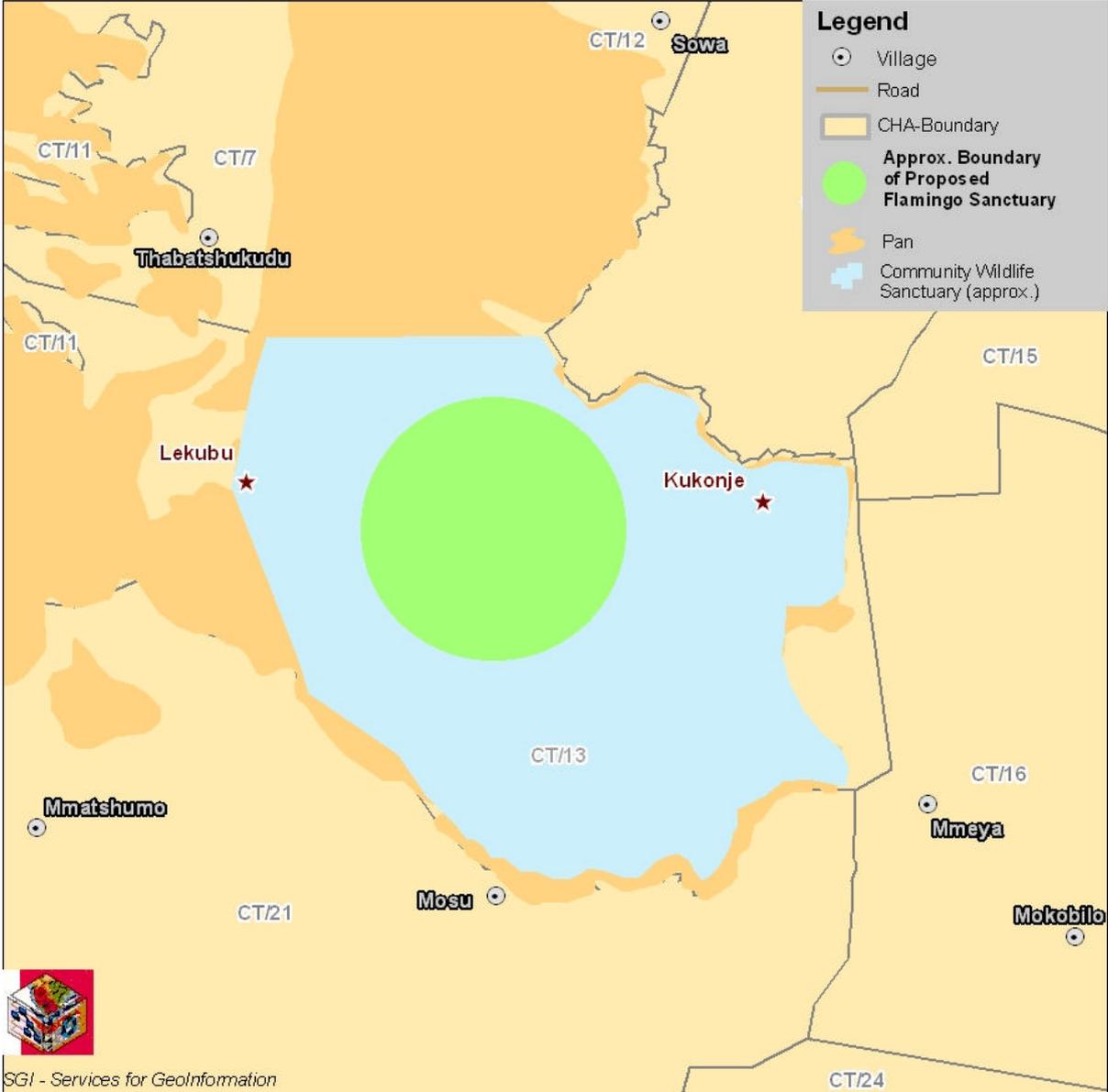


Figure 15. Approximate location of proposed flamingo sanctuary (green circle)

1.2 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 Board 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.



Photo: P Hancock

Figure 16. Community workshop being held at the Gaing-O Community Trust office in Mmatshumo.

1.3 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

2. Conservation designation

Ranking

☞ Some of the IBA (10 - 49%) covered by appropriate conservation designation

At present, the Makgadikgadi Pans and Nxai Pan National Parks, covering 7,500 km², are protected under the Wildlife Conservation and National Parks Act of 1992. the Nata Sanctuary (250 km²) is a community wildlife area.

3. Management planning

Ranking

☞ No comprehensive and appropriate management plan exists that aims to maintain or improve the populations of qualifying species ('trigger' species), but the management planning process has begun.

See section 1.3 above – relatively up-to-date and comprehensive management plans exist for the two national parks and the Nata Sanctuary. The Framework Management plan will include these areas in a more comprehensive plan covering the whole Makgadikgadi area.

4. Conservation action

Ranking

☞ Substantive conservation measures are being implemented but these are not comprehensive and are limited by resources and capacity.

See section 1.1 above – the Wildlife Department's initiative to gazette a flamingo sanctuary to protect the breeding grounds for both flamingo species will go a long way towards achieving a higher ranking in terms of conservation action. In addition, once the local communities become involved in avi-tourism enterprises in the remainder of southern Sua Pan, this will raise the profile of flamingos and other trigger species, and contribute to an improved conservation status for the area.

There are however, other important bird habitats within Makgadikgadi that are as yet unprotected, and where no conservation action is taking place.

See Table 4 overleaf for details of conservation action.

Table 4. Conservation actions being undertaken by stakeholders during 2009.

ACTION TYPES	Action being undertaken by:				DETAILS
	CBO	Government	BirdLife partner	Others (specify)	
1. Land/water protection					
Site/area protection	✓	✓			<p>Gaing-O Community Trust provides protection to Lekhubu Island</p> <p>Nata Sanctuary Trust provides protection to the Nata Sanctuary</p> <p>The Dept. of Wildlife and National Parks provides protection to the Makgadikgadi Pans and Nxai Pan National Parks</p>
Resource & habitat protection					
2. Land/water management					
General site/area management		✓			<p>The Department of Wildlife and National Parks manages the two national parks in the area.</p> <p>The Departments of Environmental Affairs, and a team of independent consultants are developing an integrated Management Plan for the Makgadikgadi wetlands, in an ongoing process to designate it a Ramsar site.</p>
Invasive/problematic species control					
Habitat & natural process restoration					
3. Species management					
General species management					
Species recovery					
Species (re)introduction					
4. Education & awareness					
Formal education					
Training			✓		BirdLife Botswana is providing training to communities in the area
Awareness, publicity & communications		✓	✓		The Departments of Environmental Affairs, and Wildlife and National Parks, and BirdLife Botswana, are creating awareness about the importance of the birds of the Makgadikgadi Pans Important Bird Area through the 'Strategic Partnerships' project.
5. Law & policy					
Public legislation					
Policies and regulations					
Private sector standards & codes					
Compliance, enforcement & policing					
6. Livelihood, economic & other incentives					
Linked enterprises & livelihood alternatives (e.g. ecotourism)		✓	✓		The Departments of Environmental Affairs, and Wildlife and National Parks, and BirdLife Botswana, are working with local communities to improve their livelihoods through avi-tourism, under the 'Strategic Partnerships' project.
Substitution (alternative products to reduce					

pressure)					
Market forces (e.g. certification)					
Conservation payments					
Non-monetary values (e.g. spiritual, cultural)					
7. Capacity building					
Institutional & civil society development					
Alliance and partnership development					
Conservation finance					
8. Other (e.g. surveys, monitoring, research, EIAs)					
1. IBA monitoring	✓	✓	✓		Communities and government personnel are partnering with BirdLife Botswana to monitor birds as part of biodiversity in the Makgadikgadi IBA
2					
3					



Figure 17. Public awareness poster produced by the ‘Strategic Partnerships’ project.

REFERENCES

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APPENDIX 1 – MAKGADIKGADI PANS IBA MONITORING FORMS

See overleaf

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

Name and Address.....
 Period of assessment: From.....to..... Date of assessment:
 When was the visit to the IBA and for how long.....
 Do you live in or around the IBA..... When did you visit the area and for how long.....
 Reason for Visit.....

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

1. State of the species and habitat.

Name of IBA	Area covered by your assessment (state how much <i>i.e.</i> 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 whether good, moderate, poor, or very poor)	Quality of habitat (good , moderate, poor, or very poor)	Comments where necessary for quality, quantity and/or species counts
Makgadikgadi Pans		Wattled Crane				
		Cape Vulture				
		Lesser Kestrel				
		Lappet-faced Vulture				
		Pallid Harrier				
		Lesser Flamingo				

		Black-winged Pratincole				
		Chestnut-banded Plover				
		Burchell's Sandgrouse				
		Kurrichane Thrush				
		Kalahari Scrub-Robin				
		Burchell's Starling				
		Great White Pelican				
		Greater Flamingo				
		African Spoonbill				
		Burchell's Starling				
		Bradfield's Hornbill				
		Arnot's Chat				
		Barred Wren-Warbler				

		Stierling's Wren-Warbler				
		Meves's Starling				
		Hartlaub's Babbler				
		White-throated Robin-Chat				
		White-bellied Sunbird				
		Kittlitz's Plover				

2. Information on pressures/threats

Name of IBA	Type of threat	Timing (state whether its past, to happen beyond four years, to happen within four years or is happening now)	Scope (state whether its happening in a small area or involves a few individuals, some of the area or a small population, most of the area or population, or whole population)	Severity (state whether no deterioration, slow deterioration, moderate deterioration or rapid deterioration)	Comments where necessary for Timing, Scope, and/or Severity
Makgadikgadi Pans					

3. Conservation Responses/ Measures

Name of IBA	General comments on actions taken at the site	Conservation designation (state whether the whole IBA is a PA, most of IBA is a PA or little/none of IBA is a PA)	Management planning * see key below this table. (Indicate relevant option only)	Conservation actions ** see key below this table (Indicate relevant option only)	Details and explanation for conservation designation, management planning and/ conservation actions
Makgadikgadi Pans					

*Management planning options.

- a) A comprehensive and appropriate management plan exists that aims or improve the populations of qualifying species
- b) A management plan exists but it is out of date or not comprehensive
- c) No management plan exists but management planning process has begun
- d) No management planning has taken place

**Conservation measures options

- a) Conservation measures needed for the site are being comprehensively and effectively implemented
- b) Substantive conservation measures are being implemented but these are not comprehensive and are limited by resource capacity
- c) Some limited conservation initiatives are in place (*e.g.* action by local conservation groups)
- d) Very little or no conservation action is taking place

4. Action Responsibility at sites

Name of IBA	Action type	Action type being taken by				Details on actionstaken by any organisation
		CBO	Government	BirdLife Botswana	Others (specify)	
Makgadikgadi Pans						

Thank you for participating in biodiversity monitoring

APPENDIX 2 – BIRDS OF THE MAKGADIKGADI WETLAND SYSTEM

Those species listed as Vulnerable (VU) and Near Threatened (NT) on the IUCN Red Data list are indicated as such in the threatened column. Botswana ‘A’ (very rare) and ‘B’ (uncommon – rare) rarities are indicated in a separate column. Wetland species and those waterbirds recorded breeding in the Makgadikgadi Wetland System (marked ‘Br’), and vagrant species (seen on less than 10 occasions) are also listed in separate columns.

Species, New names: Roberts 7	Latin name	Threatened (IUCN List)	Botswana A & B rarities	Waterbirds. Spp breeding in MWS (Br)	Vagrants
Common Ostrich	<i>Struthio camelus</i>				
Great Crested Grebe	<i>Podiceps cristatus</i>		B	x	
Black-necked Grebe	<i>Podiceps nigricollis</i>		B	x, Br	
Little Grebe	<i>Tachybaptus ruficollis</i>			x, Br	
Great White Pelican	<i>Pelecanus onocrotalus</i>			x, Br	
Pink-backed Pelican	<i>Pelecanus rufescens</i>			x, Br	
White-breasted Cormorant	<i>Phalacrocorax lucidus</i>			x, Br	
Reed Cormorant	<i>Phalacrocorax africanus</i>			x, Br	
African Darter	<i>Anhinga rufa</i>			x	
Grey Heron	<i>Ardea cinerea</i>			x, Br	
Black-headed Heron	<i>Ardea melanocephala</i>			x	
Goliath Heron	<i>Ardea goliath</i>			x, Br	
Purple Heron	<i>Ardea purpurea</i>			x	
Great Egret	<i>Egretta alba</i>			x	
Little Egret	<i>Egretta garzetta</i>			x	
Yellow-billed Egret	<i>Egretta intermedia</i>		B	x	
Black Heron#	<i>Egretta ardesiaca</i>		B	x	
Slaty Egret	<i>Egretta vinaceigula</i>	VU	B	x	x
Cattle Egret	<i>Bubulcus ibis</i>				
Squacco Heron	<i>Ardeola ralloides</i>			x	
Green-backed Heron	<i>Butorides striatus</i>			x	
Black-crowned Night-Heron	<i>Nycticorax nycticorax</i>			x	
White-backed Night-Heron	<i>Gorsachius leuconotus</i>		B	x	
Little Bittern	<i>Ixobrychus minutus</i>		B	x	
Dwarf Bittern	<i>Ixobrychus sturmii</i>			x	
Hamerkop	<i>Scopus umbretta</i>			x	
White Stork	<i>Ciconia ciconia</i>			x	
Black Stork	<i>Ciconia nigra</i>		B	x	
Abdim's Stork	<i>Ciconia abdimii</i>			x	
Woolly-necked Stork	<i>Ciconia episcopus</i>		B	x	
African Openbill	<i>Anastomus lamelligerus</i>			x	
Saddle-billed Stork	<i>Ephippiorhynchus senegalensis</i>		B	x	
Marabou Stork	<i>Leptoptilos crumeniferus</i>			x	
Yellow-billed Stork	<i>Mycteria ibis</i>			x	
African Sacred Ibis	<i>Threskiornis aethiopicus</i>			x, Br	
Glossy Ibis	<i>Plegadis falcinellus</i>			x, Br	
Hadedda Ibis	<i>Bostrychia hagedash</i>			x	

Species, New names: Roberts 7	Latin name	Threatened (IUCN List)	Botswana A & B rarities	Waterbirds. Spp breeding in MWS (Br)	Vagrants
African Spoonbill	<i>Platalea alba</i>			x, Br	
Greater Flamingo	<i>Phoenicopterus ruber</i>			x, Br	
Lesser Flamingo	<i>Phoenicopnaias minor</i>	NT	B	x, Br	
White-faced Duck	<i>Dendrocygna viduata</i>			x	
Fulvous Duck	<i>Dendrocygna bicolor</i>		B	x	
White-backed Duck	<i>Thalassornis leuconotus</i>		B	x	
Egyptian Goose	<i>Alopochen aegyptiacus</i>			x, Br	
South African Shelduck	<i>Tadorna cana</i>			x	x
Cape Teal	<i>Anas capensis</i>			x, Br	
Hottentot Teal	<i>Anas hottentota</i>			x, Br	
Red-billed Teal	<i>Anas erythrorhyncha</i>			x, Br	
Cape Shoveler	<i>Anas smithii</i>			x, Br	
Southern Pochard	<i>Netta erythrophthalma</i>			x	
Comb Duck	<i>Sarkidiornis melanotos</i>			x, Br	
Spur-winged Goose	<i>Plectropterus gambensis</i>			x	
Maccoa Duck	<i>Oxyura maccoa</i>	NT	B	x	x
Secretarybird	<i>Sagittarius serpentarius</i>				
Egyptian Vulture	<i>Neophron percnopterus</i>		A		
Hooded Vulture	<i>Necrosyrtes monachus</i>		B		
Cape Vulture	<i>Gyps coprotheres</i>	VU	B		
White-backed Vulture	<i>Gyps africanus</i>	NT			
Lappet-faced Vulture	<i>Aegypius tracheliotus</i>	VU			
White-headed Vulture	<i>Trigonoceps occipitalis</i>	VU	B		
Black-shouldered Kite	<i>Elanus caeruleus</i>				
Tawny Eagle	<i>Aquila rapax</i>				
Steppe Eagle	<i>Aquila nipalensis</i>		B		
Lesser Spotted Eagle	<i>Aquila pomarina</i>		B		
Wahlberg's Eagle	<i>Aquila wahlbergi</i>				
Booted Eagle	<i>Aquila pennatus</i>		B		
African Hawk-Eagle	<i>Aquila spilogaster (fasciatus)</i>				
Ayres's Hawk-Eagle	<i>Aquila ayresii</i>		B		
Martial Eagle	<i>Polemaetus bellicosus</i>				
Brown Snake-Eagle	<i>Circaetus cinereus</i>				
Black-chested Snake-Eagle	<i>Circaetus pectoralis</i>				
Bateleur	<i>Terathopius ecaudatus</i>				
African Fish-Eagle	<i>Haliaeetus vocifer</i>			x	
Steppe Buzzard	<i>Buteo buteo - Buteo vulpinus</i>				
Augur Buzzard	<i>Buteo augur</i>				
Ovambo Sparrowhawk	<i>Accipiter ovampensis</i>				
Little Sparrowhawk	<i>Accipiter minullus</i>				
Black Sparrowhawk	<i>Accipiter melanoleucus</i>		B		
Shikra	<i>Accipiter badius</i>				
Gabar Goshawk	<i>Melierax gabar</i>				
Southern Pale Chanting Goshawk	<i>Melierax canorus</i>				
Dark Chanting Goshawk	<i>Melierax metabates</i>				
Western Marsh-Harrier	<i>Circus aeruginosus</i>		B		

Species, New names: Roberts 7	Latin name	Threatened (IUCN List)	Botswana A & B rarities	Waterbirds. Spp breeding in MWS (Br)	Vagrants
African Marsh-Harrier	<i>Circus ranivorus</i>		B	x	
Montagu's Harrier	<i>Circus pygargus</i>		B		
Pallid Harrier	<i>Circus macrourus</i>	NT	B		
African Harrier-Hawk	<i>Polyboroides typus</i>				
Osprey	<i>Pandion haliaetus</i>		B	x	
Peregrine Falcon	<i>Falco peregrinus</i>		B		
Lanner Falcon	<i>Falco biarmicus</i>				
Eurasian Hobby	<i>Falco subbuteo</i>		B		x
Red-footed Falcon	<i>Falco vespertinus</i>	NT	B		
Amur Falcon	<i>Falco amurensis</i>		B		x
Rock Kestrel	<i>Falco [tinnunculus] rupicolis</i>				
Greater Kestrel	<i>Falco rupicoloides</i>				
Lesser Kestrel	<i>Falco naumanni</i>	VU	B		
Dickinson's Kestrel	<i>Falco dickinsoni</i>				x
Crested Francolin	<i>Peliperdix sephaena</i>				
Red-billed Spurfowl	<i>Pternistes adspersus</i>				
Swainson's Spurfowl	<i>Pternistes swainsonii</i>				
Harlequin Quail	<i>Coturnix delegorguei</i>				
Helmeted Guineafowl	<i>Numdia meleagris</i>				
Small Buttonquail	<i>Turnix sylvatica</i>				
Wattled Crane	<i>Bugeranus carunculatus</i>	VU	B	x	
Blue Crane	<i>Anthropoides paradiseus</i>	VU	A		
Grey Crowned Crane	<i>Balearica regulorum</i>		B		
African Rail	<i>Rallus caerulescens</i>		B	x	
African Crake	<i>Crecopsis egregia</i>		B	x	
Black Crake	<i>Amaurornis flavirostris</i>			x	
Spotted Crake	<i>Prozana prozana</i>		B	x	x
Baillon's Crake	<i>Prozana pusilla</i>		A	x	x
Allen's Gallinule	<i>Porphyrio alleni</i>		B	x	x
Common Moorhen	<i>Gallinula chloropus</i>			x, Br	
Lesser Moorhen	<i>Gallinula angulata</i>			x	x
Red-knobbed Coot	<i>Fulica cristata</i>			x, Br	
Kori Bustard	<i>Ardeotis kori</i>				
Denham's Bustard	<i>Neotis denhami</i>	NT	B		x
Red-crested Korhaan	<i>Eupodotis ruficrista</i>				
African Jacana	<i>Actophilornis africanus</i>			x	
Lesser Jacana	<i>Microparra capensis</i>			x	
Greater Painted-snipe	<i>Rostratula benghalensis</i>			x	
Common Ringed Plover	<i>Charadrius hiaticula</i>			x	
White-fronted Plover	<i>Charadrius marginatus</i>		B	x	
Chestnut-banded Plover	<i>Charadrius pallidus</i>	NT	B	x, Br	
Kittlitz's Plover	<i>Charadrius pecuarius</i>			x, Br	
Three-banded Plover	<i>Charadrius tricollaris</i>			x	
Caspian Plover	<i>Charadrius asiaticus</i>			x	
Grey (Black-bellied) Plover	<i>Pluvialis squatarola</i>		B	x	x
Crowned Lapwing#	<i>Vanellus coronatus</i>			x, Br	

Species, New names: Roberts 7	Latin name	Threatened (IUCN List)	Botswana A & B rarities	Waterbirds. Spp breeding in MWS (Br)	Vagrants
Blacksmith Lapwing#	<i>Vanellus armatus</i>			x, Br	
Long-toed Lapwing	<i>Vanellus crassirostris</i>			x	x
Ruddy Turnstone	<i>Arenaria interpres</i>		B	x	x
Terek Sandpiper	<i>Xenus cinereus</i>		A	x	x
Common Sandpiper	<i>Actitis hypoleucos</i>			x, Br	
Wood Sandpiper	<i>Tringa glareola</i>			x	
Common Redshank	<i>Tringa totanus</i>		A		
Marsh Sandpiper	<i>Tringa stagnatilis</i>			x	
Common Greenshank	<i>Tringa nebularia</i>			x, Br	
Curlew Sandpiper	<i>Calidris ferruginea</i>			x	
Little Stint	<i>Calidris minuta</i>			x	
Long-toed Stint	<i>Calidris subminuta</i>				
Sanderling	<i>Calidris alba</i>		B	x	
Ruff	<i>Philomachus pugnax</i>			x	
African Snipe	<i>Gallinago nigripennis</i>			x	
Black-tailed Godwit	<i>Limosa limosa</i>	NT	B	x	
Bar-tailed Godwit	<i>Limosa lapponica</i>		A		
Eurasian Curlew	<i>Numenius arquata</i>	NT	B	x	
Common Whimbrel	<i>Numenius phaopus</i>		B	x	
Red Phalarope	<i>Phalaropus fulicarius</i>		A		x
Pied Avocet	<i>Recurvirostra avosetta</i>			x, Br	
Black-winged Stilt	<i>Himantopus himantopus</i>			x, Br	
Spotted Thick-knee	<i>Burhinus capensis</i>				
Water Thick-knee#	<i>Burhinus vermiculatus</i>			x	
Temminck's Courser	<i>Cursorius temminckii</i>				
Double-banded Courser	<i>Rhinoptilus africanus</i>				
Bronze-winged Courser	<i>Rhinoptilus chalcopterus</i>				
Collared Pratincole	<i>Glareola pratincola</i>			x	
Black-winged Pratincole	<i>Glareola nordmanni</i>	NT	B	x	
Lesser Black-backed Gull	<i>Larus fuscus</i>		A		
Grey-headed Gull	<i>Larus cirrocephalus</i>			x, Br	
Caspian Tern	<i>Sterna caspia</i>		B	x, Br	
Whiskered Tern	<i>Chlidonias hybrida</i>			x, Br	
White-winged Tern	<i>Chlidonias leucopterus</i>			x	
Namaqua Sandgrouse	<i>Pterocles namaqua</i>				
Burchell's Sandgrouse	<i>Pterocles burchelli</i>				
Yellow-throated Sandgrouse	<i>Pterocles gutturalis</i>				
Double-banded Sandgrouse	<i>Pterocles bicinctus</i>				
Rock Dove	<i>Columba livia</i>				
Speckled Pigeon	<i>Columba guinea</i>				
Red-eyed Dove	<i>Streptopelia semitorquata</i>				
African Mourning Dove	<i>Streptopelia decipiens</i>				
Cape Turtle-Dove	<i>Streptopelia capicola</i>				
Laughing Dove	<i>Streptopelia senegalensis</i>				
Namaqua Dove	<i>Oena capensis</i>				
Emerald-spotted Wood-Dove	<i>Turtur chalcospilos</i>				

Species, New names: Roberts 7	Latin name	Threatened (IUCN List)	Botswana A & B rarities	Waterbirds. Spp breeding in MWS (Br)	Vagrants
Meyer's Parrot	<i>Poicephalus meyeri</i>				
Grey Go-away-Bbrd	<i>Corythaixoides concolor</i>				
Common Cuckoo	<i>Cuculus canorus</i>		B		
African Cuckoo	<i>Cuculus gularis</i>				
Red-chested Cuckoo	<i>Cuculus solitarius</i>				
Black Cuckoo	<i>Cuculus clamosus</i>				
Great Spotted Cuckoo	<i>Clamator glandarius</i>				
Levaillant's Cuckoo	<i>Clamator levaillantii</i>				
Jacobin Cuckoo	<i>Clamator jacobinus</i>				
Klaas's Cuckoo	<i>Chrysococcyx klaas</i>				
Diderick Cuckoo	<i>Chrysococcyx caprius</i>				
Coppery-tailed Coucal	<i>Centropus cupreicaudus</i>				X
Senegal Coucal	<i>Centropus senegalensis</i>				
Barn Owl	<i>Tyto alba</i>				
African Wood-Owl	<i>Strix woodfordii</i>				
Marsh Owl	<i>Asio capensis</i>				
African Scops-Owl	<i>Otus senegalensis</i>				
Southern White-faced Scops-Owl	<i>Ptilopus granti</i>				
Pearl-spotted Owlet	<i>Glaucidium perlatum</i>				
Spotted Eagle-Owl	<i>Bubo africanus</i>				
Verreaux's Eagle-Owl	<i>Bubo lacteus</i>				
Fiery-necked Nightjar	<i>Camprimulgus pectoralis</i>				
Rufous-cheeked Nightjar	<i>Camprimulgus rufigena</i>				
Freckled Nightjar	<i>Camprimulgus tristigma</i>				
Square-tailed Nightjar	<i>Camprimulgus fossii</i>				
Common Swift	<i>Apus apus</i>				
African Black Swift	<i>Apus barbatus</i>		B		
White-rumped Swift	<i>Apus caffer</i>				
Little Swift	<i>Apus affinis</i>				
African Palm-Swift	<i>Cypsiurus parvus</i>				
Speckled Mousebird	<i>Colius striatus</i>				
Red-faced Mousebird	<i>Urocolius indicus</i>				
Pied Kingfisher	<i>Ceryle rudis</i>			X	
Giant Kingfisher	<i>Megaceryle maximus</i>		B	X	
Woodland Kingfisher	<i>Halcyon senegalensis</i>				
Brown-hooded Kingfisher	<i>Halcyon albiventris</i>				
Grey-headed Kingfisher	<i>Halcyon leucocephala</i>		B		
Striped Kingfisher	<i>Halcyon chelicuti</i>				
European Bee-eater	<i>Merops apiaster</i>				
Blue-cheeked Bee-eater	<i>Merops persicus</i>				
Southern Carmine Bee-eater	<i>Merops nubicoides</i>				
Little Bee-eater	<i>Merops pusillus</i>				
Swallow-tailed Bee-eater	<i>Merops hirundineus</i>				
European Roller	<i>Coracias garrulus</i>	NT			
Lilac-breasted Roller	<i>Coracias caudatus</i>				
Purple Roller	<i>Coracias naevia</i>				

Species, New names: Roberts 7	Latin name	Threatened (IUCN List)	Botswana A & B rarities	Waterbirds. Spp breeding in MWS (Br)	Vagrants
African Hoopoe	<i>Upupa africana</i>				
Green Wood-Hoopoe	<i>Phoeniculus purpureus</i>				
Common Scimitarbill	<i>Rhompomastus cyanomelas</i>				
African Grey Hornbill	<i>Tockus nasutus</i>				
Red-billed Hornbill	<i>Tockus erythorhynchus</i>				
Southern Yellow-billed Hornbill	<i>Tockus leucomelas</i>				
Bradfield's Hornbill	<i>Tockus bradfieldi</i>				
Southern Ground-Hornbill	<i>Bucorvus leadbeateri</i>				
Black-collared Barbet	<i>Lybius torquatus</i>				
Acacia Pied Barbet	<i>Tricholaema leucomelas</i>				
Crested Barbet	<i>Trachyphonus viallantii</i>				
Greater Honeyguide	<i>Indicator indicator</i>				
Lesser Honeyguide	<i>Indicator minor</i>				
Bennett's Woodpecker	<i>Campethera bennettii</i>				
Golden-tailed Woodpecker	<i>Campethera abingoni</i>				
Cardinal Woodpecker	<i>Dendropicus fuscescens</i>				
Bearded Woodpecker	<i>Dendropicus namaquus</i>				
Monotonous Lark	<i>Mirafrapa passerina</i>				
Rufous-naped Lark	<i>Mirafrapa africana</i>				
Flappet Lark	<i>Mirafrapa rufocinnamomea</i>				
Fawn-coloured Lark	<i>Mirafrapa africanoides</i>				
Sabota Lark	<i>Calendulauda sabota</i>				
Short-clawed Lark	<i>Certhilauda chuana</i>				
Dusky Lark	<i>Pinarocorys nigricans</i>				
Spike-heeled Lark	<i>Chersomanes albofasciata</i>				
Red-capped Lark	<i>Calandrella cinerea</i>				
Pink-billed Lark	<i>Spizocorys conirostris</i>				
Chestnut backed Sparrowlark	<i>Eremopterix leucotis</i>				
Grey-backed Sparrowlark#	<i>Eremopterix verticalis</i>				
Barn Swallow	<i>Hirundo rustica</i>				
White-throated Swallow	<i>Hirundo albigularis</i>				
Pearl-breasted Swallow	<i>Hirundo dimidiata</i>		B		
Red-breasted Swallow	<i>Hirundo semirufa</i>				
Greater Striped Swallow	<i>Hirundo cucullata</i>				
Lesser Striped Swallow	<i>Hirundo abyssinica</i>				
Common House-Martin	<i>Delichon urbicum</i>				
Sand Martin	<i>Riparia riparia</i>				
Banded Martin	<i>Riparia cincta</i>				
Black Cuckooshrike	<i>Campephaga flava</i>				
White-breasted Cuckooshrike	<i>Coracina pectoralis</i>				
Fork-tailed Drongo	<i>Discurus adsimilis</i>				
Eurasian Golden Oriole	<i>Oriolus oriolus</i>				
African Golden Oriole	<i>Oriolus auratus</i>				
Black-headed Oriole	<i>Oriolus larvatus</i>				
Cape Crow	<i>Corvus capensis</i>				
Pied Crow	<i>Corvus alba</i>				

Species, New names: Roberts 7	Latin name	Threatened (IUCN List)	Botswana A & B rarities	Waterbirds. Spp breeding in MWS (Br)	Vagrants
Ashy Tit	<i>Parus cinerascens</i>				
Southern Black Tit	<i>Parus niger</i>				
Cape Penduline-Tit	<i>Anthoscopus minutus</i>				
Arrow-marked Babbler	<i>Turdoides jardineii</i>				
Southern Pied Babbler	<i>Turdoides bicolor</i>				
African Red-eyed Bulbul	<i>Pycnontus nigricans</i>				
Dark-capped Bulbul	<i>Pycnontus tricolor</i>				
Terrestrial Brownbul	<i>Phyllastrephus terrestris</i>				
Yellow-bellied Greenbul	<i>Chlorocichla flaviventris</i>				
Groundscraper Thrush	<i>Psophocichla litsitsirupa</i>				
Northern Wheatear	<i>Oenanthe oenanthe</i>				X
Capped Wheatear	<i>Oenanthe pileata</i>				
Familiar Chat	<i>Cercomela familiaris</i>				
Arnott's Chat	<i>Myrmecocichia arnotti</i>				
Ant-eating Chat	<i>Myrmecocichla formicivora</i>				
African Stonechat	<i>Saxicola torquatus</i>				
White-browed Scrub-Robin	<i>Cercotrichas leucophrys</i>				
Kalahari Scrub-Robin#	<i>Cercotrichas paena</i>				
Garden Warbler	<i>Sylvia borin</i>		B		
Common Whitethroat	<i>Sylvia communis</i>				
Chestnut-vented Tit-Babbler	<i>Parisoma subcaeruleum</i>				
Icterine Warbler	<i>Hippolais icterina</i>				
Great Reed-Warbler	<i>Acrocephalus arundinaceus</i>				
African Reed-Warbler	<i>Acrocephalus baeticatus</i>				
Marsh Warbler	<i>Acrocephalus palustris</i>				
Sedge Warbler	<i>Acrocephalus schoenobaenus</i>				
Lesser Swamp-Warbler	<i>Acrocephalus gracilirostris</i>				
Greater Swamp-Warbler	<i>Acrocephalus rufescens</i>				
Willow Warbler	<i>Phylloscopus trochilus</i>				
Bar-throated Apalis	<i>Apalis thoracica</i>				
Long-billed Crombec	<i>Sylvietta rufescens</i>				
Yellow-bellied Eremomela	<i>Eremomela icteropygialis</i>				
Green-capped Eremomela	<i>Eremomela scotops</i>				
Burnt-necked Eremomela	<i>Eremomela usticollis</i>				
Barred Wren-Warbler	<i>Calamonastes fasciolatus</i>				
Zitting Cisticola	<i>Cisticola juncidis</i>				
Desert Cisticola	<i>Cisticola aridulus</i>				
Tinkling Cisticola	<i>Cisticola rufilatus</i>				
Rattling Cisticola	<i>Cisticola chiniana</i>				
Tawny-flanked Prinia	<i>Prinia subflava</i>				
Black-chested Prinia	<i>Prinia flavicans</i>				
Spotted Flycatcher	<i>Muscicapa striata</i>				
Ashy Flycatcher	<i>Muscicapa caerulescens</i>				
Southern Black Flycatcher	<i>Melaenornis pammelaina</i>				
Marico Flycatcher	<i>Bradornis mariquensis</i>				
Pale Flycatcher	<i>Bradornis pallidus</i>				

Species, New names: Roberts 7	Latin name	Threatened (IUCN List)	Botswana A & B rarities	Waterbirds. Spp breeding in MWS (Br)	Vagrants
Chat Flycatcher	<i>Bradornis infuscatus</i>				
Fiscal Flycatcher	<i>Sigelus silens</i>				
Chin-spot Batis	<i>Batis molitor</i>				
Pririt Batis	<i>Batis pririt</i>				
African Paradise-Flycatcher	<i>Terpsiphone viridis</i>				
African Pied Wagtail	<i>Motacilla aguimp</i>			X	
Cape Wagtail	<i>Motacilla capensis</i>			X	
African Pipit	<i>Anthus cinnamomeus</i>				
Plain-backed Pipit	<i>Anthus leucophrys</i>				
Buffy Pipit	<i>Anthus vaalensis</i>				
Lesser Grey Shrike	<i>Lanius minor</i>				
Common Fiscal	<i>Lanius collaris</i>				
Red-backed Shrike	<i>Lanius collurio</i>				
Magpie Shrike	<i>Corvinella melanoleucus</i>				
Tropical Boubou	<i>Laniarius aethiopicus</i>				
Crimson-breasted Shrike	<i>Laniarius atrococcineus</i>				
Black-backed Puffback	<i>Dryoscopus cubla</i>				
Brubru	<i>Nilaus afer</i>				
Brown-crowned Tchagra	<i>Tchagra australis</i>				
Black-crowned Tchagra	<i>Tchagra senegala</i>				
Orange-breasted Bush-Shrike	<i>Telophorus sulfureopectus</i>				
Grey-headed Bush-Shrike	<i>Malaconotus blanchoti</i>				
White-crested Helmet-Shrike	<i>Prionops plumatus</i>				
Retz's Helmet-Shrike	<i>Prionops retzii</i>				
Wattled Starling	<i>Creatophora cinerea</i>				
Violet-backed Starling	<i>Cinnyricinclus leucogaster</i>				
Burchell's Starling	<i>Lamprotornis australis</i>				
Meves's Starling	<i>Lamprotornis mevesii</i>				
Cape Glossy Starling	<i>Lamprotornis nitens</i>				
Greater Blue-eared Starling	<i>Lamprotornis chalybaeus</i>				
Yellow-billed Oxpecker	<i>Buphagus africanus</i>				
Red-billed Oxpecker	<i>Buphagus erythrorhynchus</i>				
Marico Sunbird	<i>Cinnyris mariquensis</i>				
White-bellied Sunbird	<i>Cinnyris talatala</i>				
Cape White-eye	<i>Zosterops capensis</i>				
Red-billed Buffalo-Weaver	<i>Bubalornis niger</i>				
White-browed Sparrow-Weaver	<i>Plocepasser mahali</i>				
House Sparrow	<i>Passer domesticus</i>				
Great Sparrow	<i>Passer motitensis</i>				
Cape Sparrow	<i>Passer melanurus</i>				
Southern Grey-headed Sparrow	<i>Passer diffusus</i>				
Scaly-feathered Finch	<i>Sporopipes squamifrons</i>				
Southern Masked-Weaver	<i>Ploceus velatus</i>				
Lesser Masked-Weaver	<i>Ploceus intermedius</i>				
Red-headed Weaver	<i>Anaplectes rubriceps</i>				
Red-billed Quelea	<i>Quelea quelea</i>				

Species, New names: Roberts 7	Latin name	Threatened (IUCN List)	Botswana A & B rarities	Waterbirds. Spp breeding in MWS (Br)	Vagrants
Southern Red Bishop	<i>Euplectes orix</i>				
Yellow Bishop	<i>Euplectes capensis</i>				
Fan-tailed Widowbird	<i>Euplectes axillaris</i>				
Green-winged Pytilia	<i>Pytilia melba</i>				
Jameson's Firefinch	<i>Lagonosticta rhodopareia</i>				
Red-billed Firefinch	<i>Lagonosticta senegala</i>				
Blue Waxbill	<i>Uraeginthus angolensis</i>				
Violet-eared Waxbill	<i>Granatina granatina</i>				
Common Waxbill	<i>Estrilda astrild</i>				
Black-faced Waxbill	<i>Estrilda erythronotos</i>				
African Quailfinch	<i>Ortygospiza atricollis</i>				
Cut-throat Finch	<i>Amadina fasciata</i>				
Red-headed Finch	<i>Amadina erythrocephala</i>				
Pin-tailed Whydah	<i>Vidua macroura</i>				
Shaft-tailed Whydah	<i>Vidua regia</i>				
Long-tailed Paradise-Whydah	<i>Vidua paradisaea</i>				
Purple Indigobird	<i>Vidua purpurascens</i>				
Black-throated Canary	<i>Serinus atrogularis</i>				
Yellow Canary	<i>Serinus flaviventris</i>				
Golden-breasted Bunting	<i>Emberiza flaviventris</i>				
Cinnamon-breasted Bunting	<i>Emberiza tahapisi</i>				
Yellow-billed Kite	<i>Milvus parasitus</i>				
Northern Black Korhaan	<i>Eupodotis afroaoides</i>				
Burchell's Coucal	<i>Centropus burchelli</i>				
Grey-backed Camaroptera#	<i>Camaroptera brevicaudata</i>				
Eastern Clapper Lark	<i>Mirafrasi fasciolata</i>				



List of Bird species of national concern, 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
Secretary bird			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