

WETLAND HABITATS FOR BLACK CROWNED CRANES IN WEST AND CENTRAL AFRICA¹

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INTRODUCTION

In West Africa, Black Crowned Cranes (*Balearica pavonina pavonina*) are concentrated in two main areas, Senegambia and the Chad Basin, with sparse populations elsewhere. According to Urban *et al.* (1986), the overall population in West Africa has declined since the 1970s. The total population in Senegambia is estimated at 2,500 (Morel and Morel 1990). The Chad basin population is approximately 6,000-9,000 (Urban *this proceedings*). The population in the Inner Niger Delta of Mali is perhaps 3,000-5,000 at most. In Burkina Faso, Ivory Coast, Ghana, Benin, Togo, and Niger the total population of cranes is less than a few thousand, and they are nearly extinct in their former range in Nigeria.

ROOSTING AND FEEDING HABITAT

Black Crowned Cranes inhabit various open areas, including marshes, damp fields, and the margins of lakes and rivers. They are rarely associated with open water. Crowned Cranes roost in trees. Feeding grounds may be several kilometers away from roosting sites, although they are sometimes within walking distance (Urban *et al.* 1986). The cranes feed most often on cultivated fields, river sandbars, and riverbanks (Bannerman 1931).

Food is mainly live prey, according to Bouet (1955). Mackworth-Praed and Grant (1970) noted small reptiles and large insects (locusts and grasshoppers) as part of the diet. Cranes also prefer plant material, rice, and water lily seeds (Bouet 1955). The biggest concentrations of cranes this author observed were on dry, plowed, rice fields.

FACTORS EFFECTING BLACK CROWNED CRANE POPULATIONS

Climatic changes in the Sahelian zone

Climatic changes studied at the Lake Mare d'Oursi in Burkina Faso reflect changes in the prevailing conditions in a great part of the West Africa's Sahelian zone. According to Claude *et al.* (1991), the climatic aridity has increased since the early 1970s under a drought characterized by its unusual length, severity, and large geographical coverage. During the past two decades, the Sahel has witnessed a reduction of the total quantity of rain and a decrease in the number of

rainy days. Along with soil defacement, these factors have further increased the severity of aridity in the Sahelian zone.

Human pressure

The continuous increase of the human population in West Africa is leading to what may be an irreversible loss of natural resources. Cultivated areas are expanding, livestock populations are increasing, and pastoral space is becoming saturated (Claude *et al.* 1991). As a result, the open space available for Crowned Cranes is decreasing. Also, trees where cranes usually roost have suffered heavily from drought and human utilization for fuelwood, charcoal, and building material. It has been estimated that for every one hectare of trees planted in the Sahel, 29 hectares are destroyed (Doyen 1988).

Illegal hunting and capture

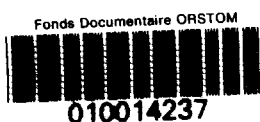
Legal hunting is not a serious threat for Black Crowned Cranes because hunting legislation in most countries forbids crane shooting. A number of countries have insufficient financial resources to control illegal hunters, however. Poachers have been caught carrying live and dead Crowned Cranes (Fry 1974). Live cranes are sometimes kept in captivity for recreational use. In countries involved in war, soldiers hunt freely in the fields and the toll on wildlife including Black Crowned Cranes may be high.

Locust control

Aerial spraying has expanded during the past decades to control locust swarms in agricultural areas and may be having an impact on the Black Crowned Crane population. Cranes occurring in the sprayed areas may be directly poisoned by eating sprayed locusts, and may also suffer from a decreased food supply because locusts were one of the main food sources for Crowned Cranes. However, new observations of Crowned Cranes during a locust storm in northern Senegal in December 1993 revealed that the cranes were apparently feeding on seeds and not on locusts, despite the abundance of available locusts.

Heavily sprayed areas include Mali, Niger, Chad, and Mauritania. In Senegal, only a small area is sprayed. In Burkina Faso and the Cape Verde Islands there have been

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locust swarms, but no extensive spraying has occurred (A. Ndiaye pers. comm.).

Other factors

Senegal

Two dams were recently built on the Senegal River. The Manantali Dam in Mali retains floodwaters and permits the irrigation of a huge area for agricultural development. The coastal Diama Dam prevents saltwater from encroaching upstream. Year round water availability now permits the development of numerous rice schemes, often in marshes and other wetlands that provided good crane habitat. Dikes and embankments of rivers and lakes allow more water to be kept for agricultural or city use, but the increased water levels (such as in the Senegal River and Guiers Lake) result in a loss of habitat for numerous species of birds including Crowned Cranes.

The war with Mauritania has led to the displacement of large human settlements. About sixty thousand people from Mauritania are settling in new cultivable land in northern Senegal. Wetlands are being heavily exploited by most of these refugees to grow irrigated rice.

At the Djoudj National Park, where Black Crowned Cranes breed, there is now a need for water management. Water is available in sufficient quantity because of the downstream dams on the Senegal River, but changes in water quality have been recorded recently. Ponds are becoming over-grown with vegetation, including *Pistia stratioides*, *Typha*, *Phragmites*, *Cyperus articulatus*, and algae.

Mauritania

The creation of the Diawling National Park in Mauritania should provide good wetland conservation for the benefit of Black Crowned Cranes. Although the main resting areas for Crowned Cranes are located on the Senegal side of the river, some cranes cross the river regularly to feed in Mauritania. The war with Senegal has prevented the investigation of the area. There are still Crowned Cranes in the neighboring Keur Macene (once a hunting center), but the army occupation there may have led to the slaughter of some birds (Stuart *et al.* 1990). Mauritania's wetlands are at risk from drought and increasing human use, including irrigation.

Mali

The severe drought in the Sahelian zone has caused the desiccation of Mali's northern lakes and forced the human population to concentrate in the remaining wetlands, further south. Those lakes that are still flooded annually are usually cultivated with subsistence millet. The Inner Niger Delta would best be managed through a carefully designed multi-

use program, with key reserves at a few well chosen localities, such as Lake Debo, Lake Horo, and Lake Seri, where Ramsar Sites have been established (Stuart *et al.* 1990).

Burkina Faso

The only large lake in Burkina Faso, the Mare d'Oursi, is now intensively cultivated and the human population has increased significantly. There are proposals (Stuart *et al.*, 1990) for new ornithological reserves at Beli and Mare d'Oursi. The effects of irrigation projects on wildlife should be monitored, particularly in the north.

Niger

According to Stuart *et al.* (1990), Niger is one of several Sahelian countries that has suffered a very severe degradation of its natural resources as a consequence of droughts and overgrazing by livestock. "W" National Park, however, remains one of the key areas for conservation of savanna in West Africa along with other important wildlife habitat further north along the Niger River. Important wetlands exist in the southeast around Lake Chad, but these are not currently the subject of any conservation initiatives. There are numerous seasonal wetlands or "mares" with ponded water, which are often wooded, across the Sahel zone. These are extremely important for wildlife, particularly birds, and need to be evaluated.

Nigeria

Nigeria has many important wetland sites, particularly in the north, including Lake Chad, the Hadejia-Nguru Wetlands, and others. Current issues which need addressing include the sustainable use of wetland resources by local people and the ecological implications of large irrigation schemes in northern Nigeria (Stuart *et al.* 1990).

Cameroon

Water management schemes in northern Cameroon have disrupted natural flooding regimes, resulting in a reduction of species diversity and loss of floodplain habitats. In Waza National Park, an important area for Black Crowned Cranes, a decrease in some wildlife populations has resulted from reduced flooding in the floodplain after the construction of a dam on the Logone River (Stuart *et al.* 1990).

Chad

The Sahelian drought has forced cattle herds to relocate further south where there is still water and pasture to feed on. This has led to a large increase in the cattle population in areas that provided good habitat for Crowned Cranes. Stuart *et al.* (1990) note that several wetland areas in the country

are at risk from the pressures of intensive irrigated agriculture and the increasing use of pasture and fisheries resources. Also, Chad's critical sites have become seriously compromised as a result of disturbances to the protected area network during the civil war.

Central Africa Republic

Floodplains in northern Central African Republic need assessment and implementation of appropriate conservation measures, including anti-poaching efforts in the wet season (Stuart *et al.* 1990).

Ghana

Black Crowned Cranes appear to be declining very rapidly in Ghana (J. Mason *pers. comm.*). Individuals are now only occasionally sited on the Accra plains. Very few appear to remain in the wild, and there is no information about their numbers, distribution, or status in the country.

CONCLUSION AND PROSPECTS

The return of more normal climatic conditions to the Sahel will not be enough to resolve the regional problems faced by Black Crowned Cranes. Many factors have seriously reduced the carrying capacity of the environment for humans and wildlife. The increased concentration of Black Crowned Cranes in certain areas is more likely due to an overall reduction in habitat and decrease in the abundance and availability of food in West Africa, and not a real population increase. In the Djoudj National Park in Senegal, for example, one can see more cranes today than ten or twenty years ago, but this may well be the effect of habitat loss elsewhere in Senegambia and Mauritania.

There is great need for a common strategy to coordinate research on Black Crowned Cranes and their habitats, to census the entire population, and to disseminate the results to colleagues in the different countries involved. Black Crowned Crane conservation efforts must be coordinated with agriculture, fishing, and hunting programs.

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