

INTERNATIONAL COUNCIL FOR BIRD PRESERVATION/
INTERNATIONAL WATERFOWL AND WETLANDS RESEARCH BUREAU
**SPECIALIST GROUP ON STORKS, IBISES
AND SPOONBILLS**

NEWSLETTER

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INTRODUCTION

In the spring of 1989, we (Koen Brouwer and Malcolm Coulter) were elected as Co-chairmen of the ICBP/IWRB Specialist Group on Storks, Ibises and Spoonbills to continue the work of Charlie Luthin. We look forward to the challenges and to working with you. The group, of course, is the responsibility of all of us. It will take everyone to meet the large conservation challenges ahead. Each person has his own responsibilities, but by working together we will be much stronger than any of us individually.

Dr. Wennrich initiated the group. He set up a library and began building the network. He established a strong base for Charlie Luthin who succeeded him. Charlie, whom most of us have dealt with for many years continued to organize the group from the Brehm Fund for International Bird Conservation at the Vogelpark, Walsrode, beginning in 1982. He set up a correspondence network that has been the backbone of the organization and established initiatives, primarily in Asia and Latin America. He was tireless in providing encouragement and advice to most of us working with these birds. However, he felt that he had made his contributions to the group and wished to concentrate his efforts on other conservation issues in Latin America. He resigned in 1989. We will miss his leadership, but look forward to his continuing help and encouragement.

Within the group, we (Malcolm and Koen) view our roles as those of facilitation, and providing whatever support is possible. We look forward to working with each and every one of you.

It will be important to continue the communication that Charlie established. We

must continuously update our understanding of the status of storks, ibises and spoonbills throughout the world. Many of the species are endangered, and we must act to save these birds. While some situations are urgent and require immediate action, we must also consider the longer term. For species that we know are under pressure, we need to develop long ranging *Action Plans* which will allow greater planning with good chances of success. We must begin to think about these longer-range plans.

Many storks, ibises and spoonbills are wetland species, others live in drier habitats. Their conservation problems are often related to loss or destruction of habitat which threatens other birds of these same areas. In our efforts to preserve storks, ibises and spoonbills, it will be important to work with others who are trying to preserve the same habitats.

The newsletter will become an important way of communicating within the SIS Group. The first two issues were produced annually. Beginning in 1990, we will produce two issues a year. The newsletter belongs to all members of the group and will be an important way for everyone to communicate. We hope that you use it as a way of communication and will send us information on status of these birds in your area as well as other information, such as upcoming meetings, publications of interest, etc. We look forward to your contributions to the newsletter.

-- Malcolm Coulter
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CALL FOR INFORMATION ON STORKS, IBISES, AND SPOONBILLS OF THE WORLD

Jim Kushlan, James Hancock, and Phil Kahl are preparing a monograph on the storks, ibises, and spoonbills of the world. Their deadline for completion of the manuscript is July 1990. Anyone with unpublished information on any species, or wishing to read and comment on drafts of individual species accounts is asked to communicate with any one of the three authors. Their addresses are as follows:

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CALL FOR INFORMATION ON BLACK-FACED SPOONBILLS

Peter Kennerley is interested in receiving records of sightings of Black-faced Spoonbills, *Platalea minor*, for a paper he is preparing on their status and distribution. Any information you have will be appreciated. Please send it to: Peter Kennerley, Flat 2c Crane Court, 45 Sassoon Road, Pokfulam, Hong Kong.

LONGEVITY AND CAUSES OF DEATH IN CAPTIVE AND WILD STORKS, IBISES AND SPOONBILLS

The Stork, Ibis and Spoonbill Specialist Group (SIS) is collecting data on the causes of death and longevity in storks, ibises and spoonbills, both in the wild and in captivity for a

forthcoming paper on this subject. If you have any records available, please send these to: Drs. Koen Brouwer, National foundation for Research in Zoological Gardens, c/o Amsterdam Zoo, P.O. Box 20164, 1000 HD Amsterdam, The Netherlands.

CAUSES OF DEATH IN EUROPEAN WHITE STORKS, *CICONIA CICONIA*, IN THE NETHERLANDS

Between 1975 and 1988, the Dutch Central Veterinary Institute (Lelystad) investigated causes of death of 13 wild storks and 33 "project" storks that were part of the Dutch reintroduction program (Table 1). Stomach obstructions, the number one source of mortality, were in the form of indigestible balls of material presumably too large to be regurgitated normally. The balls found in stomachs of wild birds included pieces of grass, and in one case rubber. Balls of "project" birds consisted of downy feathers, pieces of glass, plastic, elastic and even a tennis ball. Long, thin, snake-like materials were particularly prevalent. Digestive problems may also have been responsible for the observed heart and liver problems; intake of down has been found sometimes to cause chronic intestinal infections in owls, and it is possible that other organs could be similarly affected. Perforations of the esophagus, resulting in the death of four storks, were made by mole claws. The paucity of past post-mortem reports makes it impossible to determine whether this problem is more important now than in earlier years. It may be that the storks are eating more moles than in previous years. If this is so, it may be due to a decline in the availability of other food types, or due to an increase in the populations of moles, possibly as a result of declining water levels.

Source: Vogels, (Tijdschrift voor Vogelbescherming) 48 (Nov/Dec, 1988)

Table 1. Causes of death of European White Storks in The Netherlands.

Cause of Death	Number of Birds	
	Wild	Project ¹
Stomach obstructions	5	7
Accidents	5	3
Heart problems	-	6
Eosophagael perforations	2	2
Bacterial infections	-	4
Liver problems	-	3
Swine fever (erysipeloid)	-	3
Stomach perforations	-	1
Unidentified	1	4
TOTAL	13	33

1: Part of the Dutch reintroduction program

LEG-DEFECATION BY WHITE STORKS: ANALYSIS OF A THERMOREGULATORY BEHAVIOR AND ITS IMPORTANCE FOR LOSSES OF RINGED STORKS IN THE AFRICAN WINTERING AREAS

Many storks defecate on their legs during extremely hot weather as a way of cooling. Most researchers ring storks above the intertarsal joint. V. Schulz studied the defecation behavior and the effect on survival of ringed White Storks (*Ciconia ciconia*): Schulz, V.H. 1987. Thermoregulatorisches Beinkoten des Weissstorchs (*Ciconia ciconia*). Analyse des Verhaltens und seiner Bedeutung für Verluste bei beringten Storchen im africanischen Winterquartier. Die Vogelwarte 34:107-117. The results have important implications for ringing. We include here a combination of the English summary of his article and a translation by K. Brouwer of the German summary of the article:

"Defecation on legs is a behavior which has been documented in many species of stork, e.g. African Marabou Storks (*Leptoptilos crumeniferus*), American Wood Stork (*Mycteria americana*) and Abdim's Stork (*Ciconia abdimii*). Various authors have also described this behavior in the White Stork (*Ciconia ciconia*). Defecation on the legs is a thermoregulatory

behavior which does not primarily serve for excretion of uric acid.

"Ringing is a significant cause of death for the White Stork in its African winter quarters: uric acid, excreted for thermoregulation, fills the gap between ring and leg, which may result in serious injury. Fifty percent of all storks which were observed carrying a ring had injuries caused by this process. This was the case with birds ringed above as well as ringed below the intertarsal joint.

"From field observation, the percentage of ringed storks dying annually due to the factors described above is estimated to be at least 5%."

This paper suggests that extreme caution should be used in ringing White Storks, if not most species. Some researchers have that if birds are ringed, they be ringed below the intertarsal joint. Fewer White Storks are ringed below the joint, and there is less evidence that this causes as much of a problem as ringing above the joint. Alternatively, H. Haffner (address: Station Biologique de la tour du Valat, Le Sambuc 13200, Arles, France) has developed a method of using patagial markers for wading birds. These are lightweight, durable, easily recognizable, and allow birds to be marked individually. This would seem to offer a safe alternative to using rings.

We encourage researchers with information on effects of marking birds and alternative ways of marking birds to write to us so that we can make this information available to others.

BLACKNECKED AND GREATER ADJUTANT STORKS IN INDIA

Among nine species of storks that inhabit the Indian subcontinent, six breed in the area. While no species is endemic, the majority of the world's populations of Painted Storks (*Mycteria leucocephala*), and Asian Openbill Storks (*Anastomus oscitans*) are found in this region. Two other species are of grave concern because their populations have declined dramatically in recent years. These are the Blacknecked Stork (*Ephippiorhynchus asiaticus*) and the Greater Adjutant Stork (*Leptoptilos dubius*). It is important to know the status of these two species because of their precarious position. I have censused these species during the last few years and compared my findings with previous

records. I present the preliminary results of my work here; more detailed results will be presented in a subsequent publication.

Blacknecked Stork

X *Status*

One of the largest storks in the world, the Blacknecked Stork has a wide distribution extending from Pakistan through India, southeast Asia to northern Australia. While it is common in Australia and Irian Jaya, it is uncommon elsewhere in its range. In India, it is widespread but not abundant. Although comparative census data is lacking, I think the Indian population has drastically declined, especially along the fringes of its range. For example, in Gujarat state, 30 years ago R. S. Dharmakumarsinhji, one of India's foremost naturalists, found it to be present "in every large lake, river and stream" but during the Asian waterfowl count in January, 1988, only seven were seen. In south India, it has also largely disappeared. Christian Perennou who studied birds in nearly 60 wetland areas for his doctoral dissertation recorded no Blacknecked Storks in Tamil Nadu or Andhra Pradesh. North India appears to be the last stronghold for this species in the country. Keoladeo National Park near Bharatpur in Rajasthan has a stable population of three to four breeding pairs. Dudwa National Park at the Indo-Nepal border also has three to four breeding pairs. During my recent visit to this park in June, 1989, I saw a total of five juveniles with three adult pairs. An additional pair with no juveniles was also seen. A nest was located by Dr. S. P. Sinha of the Wildlife Institute of India, who is working on the rehabilitation of the Indian Rhinoceros (*Rhinoceros unicornis*). Dudwa National Park includes extensive marshlands which provide abundant food for this and other waterbirds. Outside Dudwa and Keoladeo, my colleagues and I have seen Blacknecked Storks in at least 30 wetlands in northern India.

In the northeast of India, the Blacknecked Stork is seen mainly in some protected areas such as the Kaziranga, Orang and Pabitara sanctuaries. Although I have been unable to locate nests in Kaziranga and Orang sanctuaries, I suspect that they breed there because I have seen juveniles with and without adults every time I have visited these areas. Both of these sanctuaries are in the flood plain of the

Brahmaputra River and include extensive marshes which form ideal habitat for the storks.

In the countries neighboring India, the Blacknecked Stork has become very rare. In Sri Lanka, Thilo Hoffmann has suggested that only a relict population of six to seven pairs survive in the Yala National Park complex along the southeast coast. It is listed as one of the rarest birds of Sri Lanka. In Pakistan, it formerly bred in the wetlands of the Indus River drainage but now is extremely rare in this area. Only two were seen during the Asian waterfowl count in 1988. It is also rare in Nepal. In the Chitawan National Park which has extensive marshlands, only one was seen in 1986/87 by Israeli birdwatchers. These storks are regularly seen in small numbers in the Kosi Tappu Wildlife Sanctuary. In Bangladesh, the Blacknecked Stork is extinct, at least as a breeding species, according to Dr. Ali Reza Khan.

Major Threats

Habitat destruction, pesticide poisoning and trapping for Indian zoos are the major factors responsible for the decline of Blacknecked Storks in India. The drainage of wetlands and overfishing in the rivers of India is still largely uncontrolled. The Blacknecked Stork is highly territorial, requiring large, undisturbed wetlands and a big tree nearby for successful nesting. Most of the wetlands in India have been drained for cultivation or overfished, and the trees have been cut down, leaving few good areas for this stork to forage and breed. Moreover, most wetlands are surrounded by areas with intensive agriculture where pesticides are commonly used. Eggshell thinning caused by pesticide poisoning accumulated through the food chain may have contributed to breeding failure. DDT which has been banned in many countries is still extensively and freely used in India. However, there have been no studies of the effects of DDT, other pesticides or herbicides on the birds of India.

Trapping the storks for zoos may have also contributed to the decline. The Blacknecked Stork is a majestic bird and provides a popular exhibit for zoos. Until 1988, it was in Schedule IV of the Indian Wildlife (Protection) Act and trapping the species was practically unrestricted. Some zoos in India exhibited this species in large numbers. For instance, there were 13 in Lucknow and six each in Bombay and Trivandrum zoos. Unfortunately, no attempt was made to breed the captive birds because

they were not considered rare as they were readily available from bird trappers. The storks were sometimes put in small cages. They are highly territorial and when kept in small cages, the frequent fighting prevents the birds from breeding successfully.

Hunting does not appear to be an important threat to the species. Hunters do not generally kill these storks because their flesh has a fishy smell and thought not to be good for food.

Conservation Measures

On the recommendation of this author, the Government of India has included the Blacknecked Stork in Schedule I of the Indian Wildlife (Protection) Act, and its trapping has been banned. The Ministry of the Environment has sent letter to the chief wildlife wardens of all the Indian states to enforce this new restriction. As a result of the recent publicity, some zoos have shown interest in breeding their captive storks.

The largest hurdle for the development of a conservation strategy for the species is a lack of information on its basic ecology, its requirements and the causes of its decline. If the major cause of the decline has been pesticide poisoning, then banning trapping may contribute little to saving the species. The Bombay Natural History Society has submitted a project proposal to the Government of India to study the ecology, behavior and the present distribution of this stork. This study will provide information for a long-term conservation strategy for the species.

Greater Adjutant Stork

Status

There has been a drastic decline in the number of Greater Adjutant Storks in India. Fifty years ago, it was a common bird in the north and northeast of India. Salim Ali and S. Dillon Ripley in their *Handbook of the Birds of India and Pakistan* note that during the last century, vast numbers were seen on the garbage dumps outside Calcutta. Although it was seen in large numbers, few nests were located. It was thought that most of the birds seen in India came from Burma where large nesting colonies were known. Unfortunately, these colonies have been destroyed and very

few individuals have been reported in recent years. However, it has been very difficult to get information on the situation in that country.

The Burmese origin of most of the Greater Adjutant Storks in India is further corroborated by the decline in numbers in India (and possibly in other nearby countries as well) with the destruction of the Burmese colonies. The species has rarely been hunted or trapped because it is a carrion eater and considered unclean.

Present Record

According to the *Handbook*, the Greater Adjutant Stork is found in Kutch, North Gujarat, Rajasthan, the Gangetic Plains, the northeast and sporadically in central India. Information that I have collected from various sources and during my own surveys suggested that it has become rare throughout its range. There have been no recent records from Gujarat, Madhya Pradesh, Andhra Pradesh, Orissa and Uttar Pradesh. Greater Adjutant Storks are regularly seen in small numbers in the Keoladeo National Park in Rajasthan but the numbers are decreasing each year. In the south, near Madras, William Harvey of the British Council saw eight storks in 1980. This is the southernmost record for the species and represents a range extension. In Bihar, I saw seven in April, 1988, from the main road. Hundreds were formerly seen in areas of West Bengal, but my colleagues Goutam Narayan and Lima Rosalind saw no Greater Adjutant Storks during a roadside survey around towns and villages in June 1989. We saw more Greater Adjutant Storks in Assam. In May, 1989, we saw 57 in the middle Tezpur town, and a few more were seen earlier around a fish market in Tezpur town. Between 29 April and 9 May, 1989, we counted 80 storks in 10 locations in five districts of Assam. During this roadside count, we saw five carcasses and every carcass had a few Greater Adjutant Storks along with vultures and kites. The local inhabitants said that the species may still be seen around slaughter houses and garbage dumps in many towns of the Assam Valley.

Major Threats

In areas of Assam that we surveyed, hunting does not seem to be a threat to the Greater Adjutant Stork. It is tolerated by the people because it feeds on carrion. It does not seem to be as sensitive to human disturbance as the

Blacknecked Stork. We saw Greater Adjutant Storks between buildings and perched on houses. The species may be seen frequently in agricultural fields and dry areas, and does not seem to depend on wetlands. Despite this mutual tolerance between humans and Greater Adjutants, it has survived less well than the Blacknecked Stork. I suspect four major causes for the decline in numbers.

1. Destruction of the breeding colonies in Burma. The vast breeding colonies reported in Burma during the last century have been destroyed. No similarly large colonies have ever been reported in India, so many of the Indian birds probably came from Burma. Once the Burmese colonies disappeared, the birds declined in India and other countries and the Indian population now consists primarily of birds that breed locally.

2. Pesticide poisoning. As already mentioned, use of pesticides is largely unrestricted in India. The Greater Adjutant Stork spends a great deal of time in agricultural fields and many birds have probably accumulated large loads of pesticides. They may face egg-shell thinning and other detrimental factors associated with pesticides.

3. Increase in the population of vultures. Studies of my colleagues Dr. Robert Grubh, Goutam Narayan and Satheesan of the Bombay Natural History Society have shown an increase in populations of White-backed (*Gyps bengalensis*) and Long-billed Vultures (*Gyps indicus*). As these two species are dominant at carcasses, they may not allow the Greater Adjutants to feed. For instance, a cow carcass which we observed being flayed was pounced upon by nearly 100 vultures and the remains were eaten in a short time. The Greater Adjutants got nothing but the bones. On the other hand, we saw an Adjutant eating freely on a dog carcass with 15 vultures. Admittedly two observations are not a sufficient base from which to draw conclusions. Additional observations will be needed.

4. Lack of nesting sites. The Greater Adjutant Stork nests in large, old trees. Many of these trees have disappeared from a large part of the stork's range. Additional observation will be needed to show whether this is an important factor contributing to the decline of the species.

Conservation Measures

The Government of India is considering whether to include the Greater Adjutant Stork on Schedule I of the Indian Wildlife (Protection) Act to provide complete protection. Among zoos that I have contacted it is not a popular exhibit species perhaps because of its extreme ugliness. Very few are presently held in Indian zoos. Hence, trapping for zoos is not a major threat. In order to prepare a long-term conservation plan, it will be necessary to understand more thoroughly the present distribution and habitat requirements. The Bombay Natural History Society has submitted a proposal to the Government of India for a long-term field study of Greater Adjutant Storks in India.

-- Asad R. Rahmani, Bombay Natural History Society, India

ADJUTANT STORKS AT RISK IN ASSAM, INDIA

Among the ten species of storks found in Southeast Asia, seven are found in Assam, India. Among the storks found in Assam, the Adjutant storks, particularly the Greater Adjutant (*Leptoptilos dubius*), have been of special concern because their populations have decreased in all of Southeast Asia. These species were formerly widespread in India, Sri Lanka, Nepal, Pakistan, Bangladesh and Vietnam. However, due to changes in their feeding and breeding habitats, these storks have decreased in number in their former range. Because of the uncertainty of their status, I conducted a survey of adjutant storks in Assam from 1987 through 1989. Prior to this survey, no attempt had been made to determine the status of these birds in this area.

Brahmaputra Valley

The Brahmaputra Valley comprises 14 administrative districts out of 19 in Assam, and has an area of 56,274 km² (25°41' to 27°55'N and 89°41' to 96°02'E). The valley consists of four distinct zones: Bhabar, Tarai, Highland and Floodplain. The Floodplain area is probably the most important to the storks. The Brahmaputra River has changed course over the millennia and in the process has created over 1390 wetlands in the area. In all of Assam, there are 272 forest reserves, one national park, eight sanctuaries and many unprotected forests which provide nesting and feeding habitats for birds.

Greater Adjutant Stork

Status

The survey revealed that this species has declined from areas where it was once abundant. I did not observe birds in wetlands where they had been seen. The numbers are very low in game sanctuaries. Only nine were seen in Orang (24 March, 1989), and two in Kaziranga (28 April, 1989). I saw Greater Adjutant Storks in Kamrup, Darrang, Sanitpur, Nowgang, Sibsagar, Jorhat and Dibrugarh Districts in the Brahmaputra Valley. A small population was also reported from Borpeta District. The maximum number observed on a single day was 56 in Tezpur (Sanitpur District) and 83 in Guwahati (Kamrup District).

The numbers of birds were higher in the winter (peak: March/April) than in the summer. I estimated that there were about 300 birds in Assam. These are largely scavengers and were seen in garbage centers, burial grounds and on animal carcasses in the main and satellite towns of the valley. The birds are found primarily in these urban areas.

I recorded birds in full breeding plumage and juveniles in April which suggested successful nesting. Although nests of the Greater Adjutant Stork have not yet been located, they probably breed in Assam. However, nesting and roosting trees, such as *Anthacephalus indicus*, *Ficus bengalensis*, *Ficus religiosa* and *Bombax ceiba*, are scattered and scarce, and many have been cut down.

Conservation Measures

Most important, the city and town garbage centers which are the preferred foraging areas of Greater Adjutants must be maintained. The roosting and nesting sites, the large trees near urban centers, must also be protected. They should be considered *mini-reserves*. It is important that local ethnic and religious groups do not kill these birds. The Hindu religious norms do not allow killing of Greater Adjutant Storks. These beliefs will be important in protecting the species.

Lesser Adjutant Stork

Status

The Lesser Adjutant Stork (*L. javanicus*) has been widely distributed in wetlands and floodplains as well as the agricultural fields of the Brahmaputra Valley. These storks were found traditionally in substantial numbers throughout the valley, particularly in the Kamrup, Borpeta, Darrang, Nalbari and Dibrugarh Districts. The stronghold has been Majuli, the largest river island with an area of 925 km², located in the Jorhat District.

A maximum of six to seven birds were seen at any one time. I estimated that there were about 400 birds in Assam during the survey. I found nests in sanctuaries and the national park as well as in areas outside these protected areas. Additional nests were observed in villages. As many as 40 nests were counted in Orang, 11 in Manas, 20 in Kaziranga and 11 in Lowkhowa Wildlife Sanctuary. Fifty-three nests were located outside the reserve forests in four districts: Borpeta, Sibsagar, Kamrup and Dibrugarh.

The floodplain, supporting large numbers of tall trees with thick water-logged undergrowth is extremely attractive for Lesser Adjutant nesting. The trees most preferred include *Ficus sp.*, *Anthacephalus indicus*, *Bombax ceiba*, *Dillenia indica* and *Amora wallichii* in both protected and non-protected areas. However, these trees and the low-lying forests are quickly disappearing due to indiscriminate cutting and expansion of human residential areas. The wetlands and swampy areas are simultaneously diminishing as they are increasingly drained and used for agriculture, becoming dry through embankments along rivers, or lost through eutrophication. Many permanent wetlands have been converted to temporary wetlands.

Conservation Measures

The low-lying forest areas and the tall trees used as nesting sites must be maintained. Feeding areas near the nesting trees are essential. This is the first priority. Pesticide contamination is another strong concern. The application of pesticides in agricultural fields must be controlled. Hunting must also be controlled. At least one ethnic group kills Lesser Adjutants for meat and medicinal purposes (bill and skull).

Conclusions

Both species of Adjutant Storks are still found in the Brahmaputra Valley in substantial numbers. The habitat still appears to be suitable for breeding and feeding. The religious norms, particularly those of the Vishnavite Hindus, have given overall protection to these birds. Many nesting sites, at least of the Lesser Adjutant, were located outside protected areas. It must be concluded that Brahmaputra Valley, and indeed Assam State, still maintains reasonable populations of these species. The area is suitable for developing and implementing conservation programs for these storks.

Acknowledgments

We are grateful to DSTE Government of Assam and the CSIR Government of India, New Delhi, for financial support during this survey.

-- Prasanta Saikia and P.C. Bhattacharjee,
Gauhati University, Assam, India

STATUS OF STORKS IN THE SOUTH SUMATRA PROVINCE, INDONESIA

Indonesia supports five species of storks. The South Sumatra Province holds the core population of four of the five Indonesian storks. Their survival is threatened by destruction of forests, tidal swamp land reclamation and development, and isolation of their forest and swampy habitats.

Milky Stork

Aerial surveys carried out in South Sumatra Province in 1988 revealed the importance of this region for Milky Stork (*Mycteria cinerea*). Three mixed nesting colonies were located with Great Egret. In total, some 1,000 occupied stork nests were counted. The total South Sumatran population is estimated to reach 4,000. Its main habitats are the tidal forest fringe and adjacent swamp forests. The species' future in this region remains uncertain due to plans to convert tidal forest into large-scale brackish water fish farms, forest logging operations and conversion of swamps for government sponsored transmigration projects. In addition human persecution is thought to be one of the main population limiting factors. A minimum of 100 Milky Storks are likely taken each year. Although the

majority will be marketed as food items, it is not inconceivable that live trade to Western bird-parks is still taking place. A monthly stork census carried out along the South Sumatra coast from August 1988 through August 1989, suggests that the species makes seasonal movements during the non-breeding season.

Lesser Adjutant Stork

The Lesser Adjutant (*Leptoptilos javanicus*) holds viable populations in a number of provinces in Sumatra, Java and Kalimantan. Its main stronghold is South Sumatra Province, where small- to medium-sized groups are regularly sighted on the mudflats along the coast, and at inland swamps behind the mangrove fringe. Breeding sites have not yet been located. A dramatic drop in numbers was observed comparing October 1984 data when 1560 adjutants were present with 619 seen in November 1988 on a 100 km stretch of coastal mudflats. It may be reasonable to assume that the same threats facing Milky Storks face the adjutants as well.

Storm's Stork

Indonesia holds the core of the remaining world population of this extremely rare stork species. The Storm's Stork (*Ciconia stormii*) occurs widely but in low densities in the eastern lowlands of Sumatra, the Mentawai islands off the west coast of Sumatra and in Kalimantan. It is found in undisturbed fresh water forests near the mangrove fringe. In April 1989, a Storm's Stork pair was observed building a nest in a *Rhizophora* tree. This finding constitutes the first record in an undisturbed environment. In July, 1989, the two nestlings fledged. The distribution area overlaps in south Sumatra with the Woollynecked Stork, which seems to be more numerous and better adapted to the disturbed habitats. The remaining Storm's Stork population in the province may well number less than 200 and is threatened by swamp forest conversion and forest logging activities.

Woollynecked Stork

The Woollynecked Stork (*Ciconia episcopus*) occurs widely in the southern province of Sumatra. Both subspecies are recorded as presumably non-breeding visitors. The Woollynecked Stork is recorded from fresh water and peat swamp forest, open swamps,

rice field areas and grasslands. In other provinces it has also been recorded in hilly or mountainous areas. No population estimate has been made.

Conservation Prospects

The long term conservation prospects for the South Sumatran storks will depend upon the maintenance of forest blocks which are large enough to support viable breeding populations. At present only one swampy preserve has been designated, the Padang Sugihan Reserve. However, this area was subject of large-scale drainage which has seriously altered the habitat, prior to its reserve status designation. A recent study conducted by the Indonesian Directorate General of Forest Protection and Nature Conservation, PHPA, the Asian Wetland Bureau, and the Environmental Study Centre of Sriwijaya University at Palembang, proposed a coastal area of 387,500 ha as the Sungai-Sembilang Wildlife Reserve. The area under consideration is known to hold populations of all four stork species and in addition at least 35 globally threatened wildlife species.

Wim J.M. Verheugt, Advisor to the Environmental Study Centre at the Sriwijaya University, Palembang, Indonesia under a UNDP/IBRD project

MILKY STORKS IN MALAYSIA

A wild flock of up to 100 Milky Storks (*Mycteria cinerea*) resides at Kuala Gula, northern Malaysia. Unfortunately, these birds have not bred for many years. Malaysia's Wildlife Department is presently planning a research program to determine why these birds are not breeding. Food availability does not seem to pose a problem, but lack of suitable nesting sites and/or human disturbance may be important.

Simultaneously, Zoo Negara (Kuala Lumpur) has initiated a captive breeding program for Milky Storks. In the long term, it is hoped that captive-bred birds can be introduced into the Kuala Selangor Nature Park mangrove area north of Kuala Lumpur. Although the zoo's colony is still new, successful breeding was achieved in 1989. Zoo Negara is in touch with

other institutions in order to develop cooperative breeding exchanges to broaden the genetic basis of the population.

Sources: Tunku Mohd. Nazim Yaacob (Zoo Negara); Dr. Siti Hawa Yatim (Malaysia Wildlife Department) Duncan Parish (AWB)

DWARF OLIVE IBIS FOUND ON SAO TOME

The Dwarf Olive Ibis (*Bostrychia bocagei*), endemic to Sao Tome, has not been seen in the wild since 1928 when it was last collected. It was thought to be extinct [for further details see Collar & Stuart [1985. *Threatened birds of Africa and related islands*. ICBP), who listed the species as "Indeterminate"]. In 1988, John Burlingson and I, on a visit to the southwestern forest of Sao Tome on a ICBP/IUCN avifaunal survey, met a local hunter, Tirador Luis, who clearly knew the species well, though he said it was very rare and he personally had only ever seen four or five in his life, the last in about March 1988. However, he later sent us a message to say he had seen two more ibises the day after we had left him (July 24). He said the species was confined to undisturbed virgin forest and that he had only seen them inland at higher altitude. This is the first recent evidence that the species still survives.

The remaining primary forest covers about 240 km². The species is inconspicuous, probably also at low density, and because it seems to survive only in undisturbed forest is vulnerable to habitat change. The main cause for its rarity as long ago as last century is almost certainly due to extensive clearance of forest for cocoa plantations (also coconut and oilpalm) and hunting. The fact that it survives today implies that it has withstood the population bottleneck successfully and the population may well be healthy, albeit probably small. The immediate threats are likely to be any habitat alteration or destruction, and hunting (the birds are good to eat and Saotomeans would certainly kill them if given the chance).

The Saotomean Government seems likely to agree to recommendations by ICBP and IUCN, and by a French agricultural consultancy, that the remaining virgin forest, most of which is over very broken terrain and difficult of access and which cannot be exploited economically for forestry, should be left untouched as an

'ecological reserve' for watershed protection and species conservation. It is hoped that legislation will soon be passed to protect the area totally. The area is currently the focus of ICBP/IUCN conservation initiatives in Sao Tome & Principe.

-- Peter Jones, University of Edinburgh, UK

WALDRAPP IBIS

The Northern Bald Ibis or Waldrapp Ibis (*Geronticus eremita*) is one of the world's most endangered species. There is little information on the historical breeding distribution of the species. Before 1000 AD they were recorded breeding in Egypt, Algeria, Syria, Morocco, Turkey and perhaps in Iraq. The species also bred in other parts of Europe. The populations were probably never very large. Because the young were thought to be delicious, many chicks were taken for food. However, only the clergy and nobility were allowed to eat the meat, supporting the suggestion that they were not common. The reasons for the decline are obscure. The taking of the young may have contributed to the decrease as well as climatic factors. The species had disappeared from Europe by the seventeenth century; it is uncertain when it disappeared from other parts of its range.

The remaining birds breed in three colonies in Morocco. About 1000 birds bred in the colony in southeastern Turkey in 1950, but the numbers have declined considerably during the last 40 years. Only four birds returned to the colony in 1988. In 1989, a single bird returned to the colony. In Morocco, there are three active colonies along the Atlantic coast, but none of the former inland colony locations are occupied. In May, 1989, I counted only 43 breeding pairs in the coastal colonies.

About 750 Waldrapp Ibises are presently held in zoological gardens (Hirsh pers. comm. 1989). All of these birds originally came from Morocco. The Alpenzoo Innsbruck-Tyrol has bred this species regularly since 1963, and has produced about 150 young. Since 1978, long-term behavioral studies including development of an ethogram, food preference, and habitat choice, have been conducted at Innsbruck-Tyrol, as well as field studies in Morocco.

In 1989, I had the opportunity to visit the colonies in Morocco in order to make

observations at the nest, and to conduct observations on the development of flight in the young, as well as choice of habitat and nesting material preference. Gerhard Malin, also from the Alpenzoo, will be there for at least three months to collect additional information. Our observations may be useful in determining needed protective measures and in designing reintroduction programs.

The decline of the species in Morocco has probably been due to a number of factors. While natural factors such as climate (especially drought and wind), as well as intra- and interspecific interactions have certainly played a role, they are not the main causes of the rapid decline of this species. Human disturbance and habitat destruction have probably had the most serious influence on the decrease of the Waldrapp. Protection of the three remaining colonies in Morocco will be the most important initial conservation step. In addition, the habitat must also be protected.

The extensive traditional agriculture as it is practiced in the ibis' breeding range does not seem to have caused serious disturbance to the birds. In fact, the extensive raising of sheep and cattle may even have had a positive influence, increasing the abundance of insects which form the majority of the ibis' diet. The birds seem accustomed to flocks of sheep in their feeding areas. However, motor vehicles can cause severe disturbance. More importantly, the Waldrapp Ibis is threatened by agrarian reforms, increasing density of the human population, motorization, pollution, and increasing tourism. Finally, heavy use of pesticides probably also takes a large toll.

For the conservation of the remaining Moroccan colonies, the establishment of the proposed National Park at Massa seems to offer most, and perhaps the only hope. The director of the proposed park inspects the breeding area weekly, but he has no legal status. The four guards have no vehicle and are unable to visit the colonies because they live too far away. I feel that the colony should be protected and disturbance eliminated at the site.

Reintroduction Programs.

Because the wild populations of Waldrapp Ibises have severely declined and there are

about 750 birds presently held in captivity, a reintroduction program should be seriously considered. The wild population could be increased, and abandoned nesting areas could be repopulated.

Before considering the various methods of reintroduction (e.g. erection of a new colony site or release of young birds) a number of questions should be addressed. Are suitable nesting sites available? What kind of human disturbances are involved or can be expected? Are chemicals used in local agricultural activities? Additionally, the structure of juvenile groups, the species' flight range, etc. should be studied.

All of the ibises presently held in captivity are of Moroccan origin or Moroccan ancestry. It would be very reasonable, therefore, to reintroduce birds into Morocco. This would avoid any problems associated with mixing possibly genetically distinct populations which might be encountered if birds were reintroduced into the Turkish population. It is hoped that the people of Morocco would be proud of their remaining Waldrapp Ibises and would strongly support the protection of the birds.

Breeding ibises seem to be very sensitive to disturbance at the colony. Therefore, I feel that reintroductions should not be carried out during the breeding season at the colony because this might cause too much disturbance. The most promising effort might include carefully introducing captive-raised young into flocks of wild subadults. Captive-raised young are very adaptive and seem to have a high learning capacity. Introductions at this time would avoid disturbance to breeding birds.

Wild populations are presently at critically low levels. The last active colonies *must* be protected. If these colonies ceased to exist, any introduced birds might have a very low chance of survival.

--Mag. Karin Pegoraro, Alpenzoo Innsbruck-Tyrol, Austria

FIRST ORIENTAL CRESTED IBIS RAISED IN CAPTIVITY

The first Oriental Crested Ibis *Nipponia nippon*, raised in captivity hatched on July 10,

1989, at the breeding center of the Beijing Zoo. After the four-year old female had destroyed her first egg of the year, it was decided to artificially incubate the second egg, laid two days later. This egg was fertile and hatched after 30 days. The chick weighed 50 g at hatching. It was hand-reared. Although eggs were laid last year, these were infertile.

The breeding center at the Beijing Zoo was designed and constructed with the support of the Brehm Fund of the Vogelpark Walsrode (FRG) in 1986 to contribute to the conservation of this rare species.

In 1989, in the wild, six breeding pairs laid seven eggs in Shaanxi Province. All eggs hatched. The total known world population is 49 birds (nine in captivity in China and Japan). The Oriental Crested Ibis is one of the rarest avian species in the world.

Sources: Flying Free 7(1/2) 1989, Xinghua New Agency

BLACK-FACED SPOONBILLS IN THE REPUBLIC OF KOREA

The Republic of Korea has traditionally been on the migratory route of the Black-faced Spoonbill (*Plataea minor*). As the world population of the species has declined, the numbers recorded in this country have diminished and in recent years very few have been reported. During the last few years, three have wintered regularly in an area of fish ponds and salt pans at Songsanp'o on Cheju Island (information from Won Pyong Oh and Park Jin Young). In 1987, Won Pyong Oh recorded four on the Nakdong Estuary. This area was formerly an important migratory stopover area and possibly a wintering area as well, but has not been visited regularly since the construction of the barrage.

In June, 1988, a single individual was observed on S. Kanghwa Island, Kyonggi Province, and during the following winter, up to six individuals were recorded at Songsanp'o.

During the fall of 1989, a maximum of 46 individuals, including immatures as well as adults, were recorded on S. Kanghwa Island by M. Eldridge, C. Poole, K. Swennen, Won Pyong Oh and Park Jin Young. This recent increase in numbers of these birds in the Republic of Korea is extremely exciting.

Sources: Asian Wetland Bureau and observers

STATUS AND CONSERVATION OF WHITE STORKS

In October, 1985, a workshop organized by Charlie Luthin (SIS) and hosted and supported by the Brehm Fund was held at the Vogelpark, Walsrode, West Germany, on the status and conservation needs of the European White Stork (*Ciconia ciconia*). The proceedings of the workshop, edited by G. Rheinwald, J. Ogden, and H. Schulz, have recently been published. They cover the distribution, abundance, population changes, nesting sites and breeding biology of the species. They are comprehensive in their coverage, and are highly recommended. The proceedings may be obtained for 54 DM from Helmut Sternberg, Im Schapenkamp 11, 3300 Braunschweig (FGR).

CONSERVATION AND CAPTIVE MANAGEMENT OF STORKS

A workshop on the *Conservation and Captive Management of Storks* was held at St. Catherine's Island, Georgia, U.S.A., in October, 1986. The meeting dealt primarily with captive management. Following the meetings, a questionnaire was distributed to determine the status of storks in captivity. The proceedings of the symposium have recently been published and are available at no cost from: Malcolm Coulter, SREL, Drawer E, Aiken, South Carolina 29802, U.S.A.

BIBLIOGRAPHY OF STORKS, IBISES AND SPOONBILLS

We have been working on a comprehensive bibliography of Storks, Ibises and Spoonbills over the last three years. This has been a cooperative effort involving the collections of Malcolm Coulter, Phil Kahl, Jim Kushlan, the Brehm Funds collection built up by Charlie Luthin as well as the recently published Scarlet Ibis bibliography. The effort has involved a great many people. We hope to have this available during the early part of the new year (1990). Copies will be sent to all participants in the Stork, Ibis, Spoonbill group.

The bibliography is maintained on a computer and will be continually updated. Even

after the bibliography is produced in 1990, we will still make corrections and provide updates. I am in the process of negotiating with the manufacturer of the software that we use for substantial discounts to all SIS participants. Because we have developed a comprehensive set of key words for the bibliography, specialized bibliographies can be prepared easily. I will keep you informed on the progress of the negotiations.

I would appreciate receiving copies of any articles that you write so they can be included in the bibliography and for the SIS files.

-- Malcolm Coulter

NORTH AFRICA, THE MIDDLE EAST AND SOUTHWEST ASIA

A directory of environmental organizations and institutions for North Africa, the Middle East and Southwest Asia was published by the Holy Land Conservation Fund in 1987. This may be obtained from the HLCF, 969 Park Avenue, New York, New York 10028, U.S.A.

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