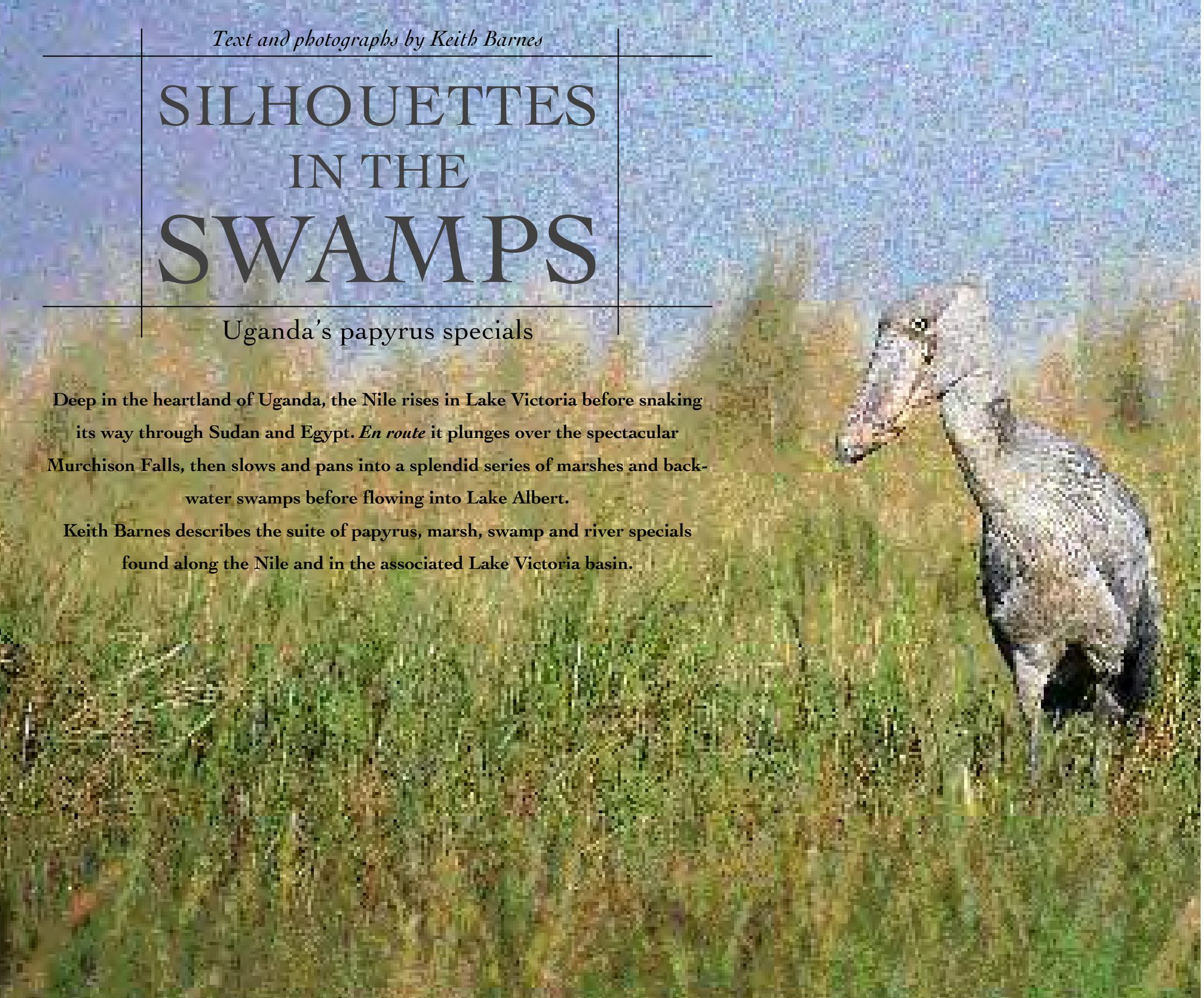
Text and photographs by Keith Barnes

SILHOUETTES IN THE SWAMPS

Uganda's papyrus specials

Deep in the heartland of Uganda, the Nile rises in Lake Victoria before snaking its way through Sudan and Egypt. *En route* it plunges over the spectacular Murchison Falls, then slows and pans into a splendid series of marshes and back-water swamps before flowing into Lake Albert. Keith Barnes describes the suite of papyrus, marsh, swamp and river specials found along the Nile and in the associated Lake Victoria basin.



In 1861 when John Manning Speke first realised that he had found the source of the Nile, he was probably so excited that it is unlikely that he would have noticed the call of the noisy Papyrus Gonoleks duetting in the background. But he certainly would have noticed the reed-like papyrus *Cyperus papyrus* in which they were perched. Papyrus is the most distinctive plant of the Nile system, occurring from its source at Lake Victoria to its delta in the Egyptian Mediterranean. This long-stemmed, fibrous sedge forms a series of swamps and marshes along the Nile and its tributaries. So unique is papyrus that a number of bird species are virtually restricted to it, while others make it their primary home.

The 'papyrus specials' are a subset of the suite of birds that are endemic to the Lake Victoria basin and the northward-stretching valley of the White Nile. This concentration of lakeside endemics is rather surprising, given the recent origins of the Victoria Basin. The world's second largest freshwater lake cuts a striking figure on any African map, but in geological terms it is a mere rain puddle. Only 100 metres deep, perhaps as little as 75 million years old and having last refilled only 15 000 years ago, Victoria is scarcely in the same league as some other ancient and fathomless lakes of Africa's Rift Valley. For the past 10 000 to 12 000 years, however, since the end of the last ice age, the climate of East Africa has become hotter and rainier, and Lake Victoria has spread considerably, merging with the Chad–Niger basin system. Each fluctuation in water levels presents opportunities to speciate and proliferate.

The swamps in the Victoria Basin hold eight species of endemic birds but the most remarkable papyrus special is neither endemic nor restricted to the Lake Victoria Basin. It ranges from the Bangweulu swamps in Zambia to the Sudd in southern Sudan: the outrageous Shoebill *Balaeniceps rex*.

Silent and solitary – this foraging Shoebill will remain motionless before 'collapsing' on to its prey in a single, swift motion.

With a distorted beak resembling a hook-tipped, size 20 Dutch clog, the Shoebill is undoubtedly one of Africa's most remarkable-looking and sought-after birds.

DUNCAN BUTCHART

The Shoebill derives its name from its enormous, bulbous, and oddly-proportioned beak.

The direct translation of its Latin name – King Whale-head – is an apt one indeed. With a distorted beak resembling a hook-tipped, size 20 Dutch clog, the Shoebill is undoubtedly one of Africa's most remarkable-looking and sought-after birds. While most birders are overjoyed to see this intriguing beast, ornithologists still remain confounded by it.

The family to which the Shoebill belongs, Balaenicipitidae, is Africa's only endemic monotypic family and its past is so clouded that it is occasionally placed in its own order. Its sister taxa are uncertain and no close relative is known, either living or fossil. While the Shoebill shares several anatomical features with the storks, the presence of powder-down patches and its habit of flying with its neck retracted suggest closer affinities with herons. However, both skeletal evidence and DNA-DNA hybridisation studies indicate a closer relationship with pelicans. Whether stork, heron or pelican, it certainly is aberrant and the fascination generated by its equivocal past is surpassed only by its bizarre form, specialisations and habits.

As its name suggests, the most fascinating feature of this species is its bulbous and malformed bill. About 19 centimetres long, almost as wide and equally deep, it enables the bird to take mammoth mouthfuls. The sharp-edged mandibles help in the decapitation of prey and the hook-tipped beak assists in holding on to its slippery food, primarily lungfish. Although not restricted to papyrus, the Shoebill frequents floating vegetation consisting of grasses with clumps of *Cladium*, *Typha* and *Cyperus* papyrus. It tends to prefer the more open areas created by hippos and elephants moving through the palustrine vegetation. Furthermore, it particularly favours waters with low oxygen content, as fish have to surface more frequently and are thus more readily available as prey.

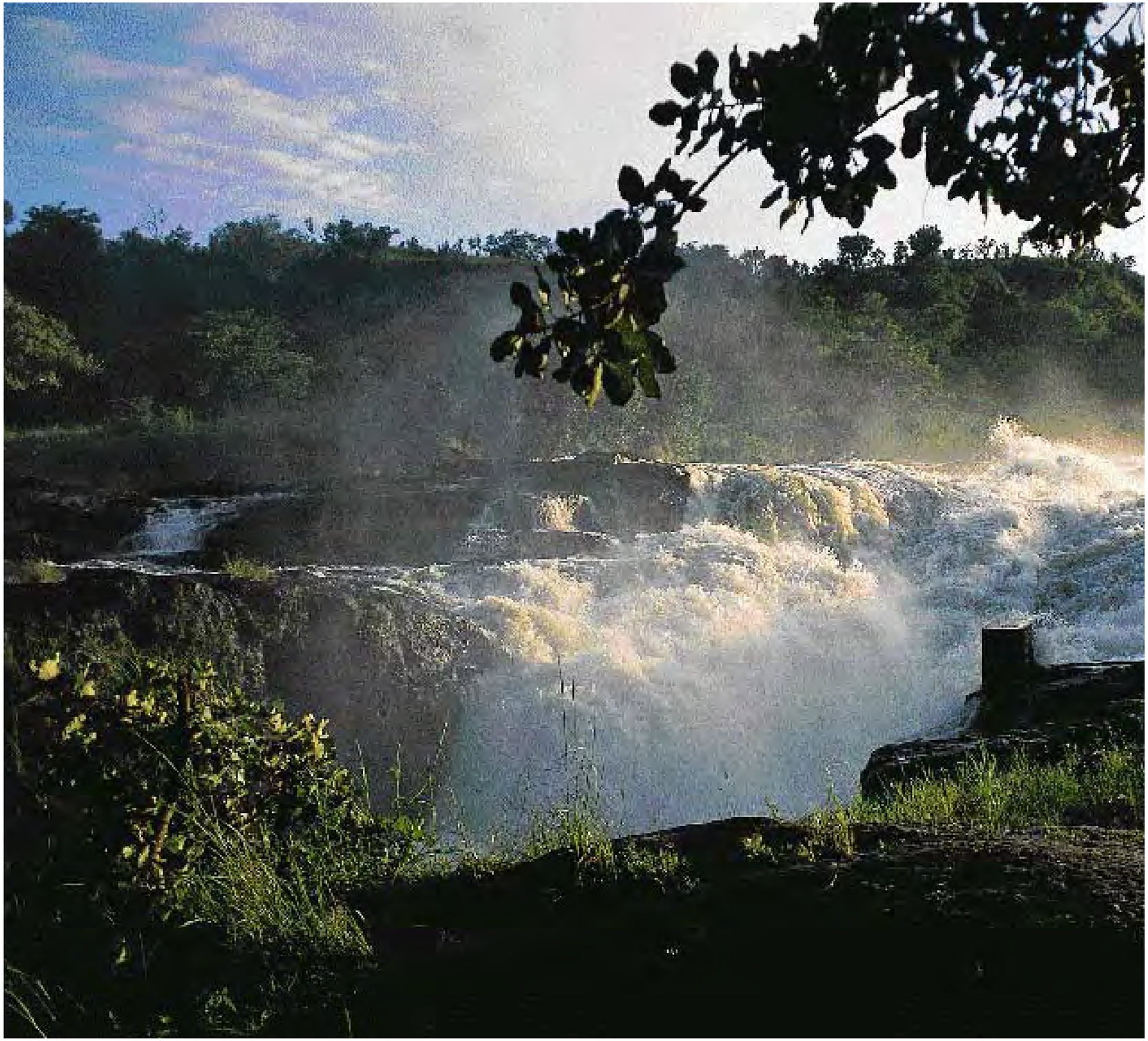
The Shoebill tends to be solitary and even paired birds forage singly on opposite edges of the territory. It feeds mainly by ambush, standing motionless for long periods of time before 'collapsing' on the prey in a manner unique for a large fish-eating bird. The bill is held pointing down vertically, giving the bird the benefit of binocular vision, a particularly important feature for locating prey. The 'collapse' is unexpectedly swift, generally lasting less than a second, and is performed with immense power. The bird flaps forward and plunges its enormous bill down simultaneously. A reinforced beak and skull act as a shock absorber during these violent thrusts. Wings are occasionally held aloft during hunting to assist in balance while the bird walks across unstable matted vegetation. ▷

Studies suggest that the Shoebill's diet consists mainly of lungfish (45 per cent), birchers and tilapia. Its primary prey is almost more outlandish than the bird itself. The lungfish and its close relatives, the birchers, belong to a lineage nearly 350 million years old, and it is hypothesised that during the great droughts of the Devonian they developed lungs to cope with the new environment.

Despite its specialised fish diet, the Shoebill is an opportunist and water snakes, monitor lizards, young waterbirds, small mammals and even crocodiles have unwittingly found themselves on the wrong end of a 'collapse'. In a normal strike a substantial amount of plant matter is taken into the beak; moving the mandibles from side to side ejects this. Prey is normally swallowed head first, occasionally after being decapitated.

Mostly silent, the Shoebill's vocalisations are restricted to whining or mewing noises made at the nest, combined with vigorous bill-clapping during courting. Bill-clapping is also used to repulse competing conspecifics from breeding sites. If the trespasser perseveres, the site owner may employ the rather drastic technique of leaping into the air and coming clattering down on the intruder's back.

The nest is normally placed on a platform of floating vegetation or on a true island deep within a swamp system, safe from disturbance and normally in areas that do not dry out at the onset of the dry season. Eggs hatch asynchronously and fledging occurs after 95–105 days. There is strong intersibling rivalry and it is very rare for more than one chick to be raised successfully in a year. During hot spells the parent birds carry water to the chicks in their enormous bucket-beaks and the young are either doused for a cooling or permitted to drink water from their parents.



The splendid Murchison Falls are formed when the White Nile is forced through a 20-metre-wide chasm. Downstream the river pans into a spectacular series of swamps and marshes.

EXPOSED ROCKS NEAR THE MAGNIFICENT MURCHISON FALLS ATTRACT ENORMOUS NUMBERS OF ROCK PRATINCOLES, WHICH CAN CONGREGATE IN FLOCKS EXCEEDING A THOUSAND BIRDS

The Swamp Flycatcher patrols the waterways, flitting out to catch insects before returning to its reed perch.

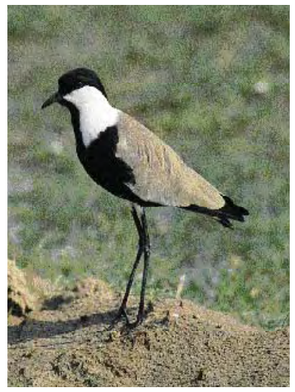
The papyrus holds birds not only aberrant in shape and form, but specials that are inexplicably rare, such as the enigmatic Papyrus Canary and Papyrus Yellow Warbler. In fact, no one has yet even been able to provide convincing evidence of the latter species' call. Perhaps the most remarkable thing about the yellow warbler is its absence in extensive and apparently perfectly suitable swathes of habitat. Throughout its strange global distribution it is always patchy and highly fragmented; while it favours dense monospecific papyrus swamps, it occasionally occurs in other types of swamps, but only in the wettest and highest places, where it appears to be more abundant. One suggestion to explain its rarity is that it competes with the African Reed Warbler and it seems to be more abundant where the latter species is absent. Seldom observed, this bird spends much of its time hopping about low down between papyrus stems, searching for tiny insects. Morphological adaptations to its life in the papyrus include having huge, strong toes and claws and a hind claw four to five times the standard length of a yellow warbler hind claw. Both the warbler and the canary have close relatives in habitat adjacent to the swamp systems they inhabit, suggesting that their evolution has been recent.

The major difference between the Papyrus Canary and the African Citril, its closest relative, is that the canary has a shorter, stubbier and more decurved bill. Although it breeds exclusively in papyrus, the Papyrus Canary frequently forages outside papyrus in sorghum and maize fields adjacent to swamps, where it is found alongside the citril, further astonishing scientists as to its apparently rare status.

The other papyrus-restricted birds are the stunning and highly vocal but furtive Papyrus Gonolek. This bush shrike's characteristic mellow, double '*yong-yong*' whistles typify the papyrus environment. One of the easiest *Bradypterus* warblers to identify, the White-winged Warbler, with its heavily streaked throat, white carpal patch and white-tipped wing coverts, cuts a dapper figure in the papyrus beds where it competes with a plethora of rush, reed and marsh warblers. Other birds that have their global distribution centred on the Lake Victoria basin include Carruthers's Cisticola, Red-chested Sunbird and Northern Brown-throated Weaver.

The Nile is also home to birds of more general distribution; exposed rocks near the magnificent Murchison Falls attract enormous numbers of Rock Pratincoles, which can congregate in flocks exceeding a thousand birds. Three species of pratincole are river specialists; Rock and Grey in Africa and Small Pratincole in India, Burma and Thailand. These gregarious birds co-operate in the defence of nests and young against predation and also indulge in fantastic displays of injury-feigning in which the striking black and white rump and tail patterns are flashed at the intruder. Other complex behaviour patterns during breeding involve display flights with wings held high above the back and greeting displays during which the collar is flared out, sometimes for as long as 20 seconds, to show the maximum amount of chestnut. Rock Pratincoles restrict periods of co-operative aerial hawking of insects to early morning and dusk, spending most of the hot part of the day roosting and

The grasslands alongside the Nile are a favourite haunt of the Red-winged Pratincole.



Spur-winged Plover, riverside resident on the Nile.

PHILIPPE DEJACE

The startling coloration of the Papyrus Gonolek is seemingly at odds with its furtive and stealthy behaviour.

The river-associated Rock Pratincole breeds above Murchison Falls.

preening on open rocks. These birds have been recorded hawking around street lights at night.

Another typical Nile species with Asian affinities is the Spur-winged Plover which has a sister species in the River Lapwing of South-East Asia. Their relationship hints at ancient links when the Nile and the Malaysian Peninsula formed part of the same biogeographic realm. Highly territorial, these plovers and their close relatives show a remarkable sense of cognition and are able to discriminate between different types of predation or threat. A study has shown that lapwings' calls discriminate between pigs and cows (the former is a potential predator, the latter just a clumsy oaf that tramples eggs). Not surprisingly, the lapwings classify vehicles with cows and other hoofed vertebrates. Some lapwings ignore fish-eating raptors and vultures, but respond to Tawny Eagles, which pose a real threat.

Although some portions of Africa's papyrus swamp system fall in conservation areas such as Uganda's magnificent Murchison Falls National Park, outside the parks network papyrus swamps are being drained and farmed under a policy of 'reclamation' of unproductive land. Various threats resulted in BirdLife International classifying the Papyrus Yellow Warbler as 'globally threatened with extinction' and the Shoebill and Papyrus Gonolek as 'globally near-threatened'.

Downstream of Murchison, the Jonglai Canal project plans to re-route the White Nile, which will eventually sap some 50 per cent of the water that runs into the immense and pristine Sudd Swamps and result in significant habitat loss, particularly in the stronghold of the Shoebill. The increasing encroachment of people and cattle on smaller swamps (and eventually larger portions) must obviously result in habitat loss. Disturbance to sensitive birds such as the Shoebill may result in depressed breeding success and, with only approximately 11 000 Shoebills remaining, this may have a dramatic impact on their populations.

In Rwanda, schemes to cut papyrus for fuel remain potential threats if they continue unregulated. Furthermore, the ravages of civil war and repeated genocide in that country have not benefited the long-term conservation of the Akagera Swamp system (see *Africa – Environment & Wildlife* 1(2): 45–53), and Zambia's Bangweulu system comes further under siege every year. Perhaps the most extensive and unexplored swamp system remaining in Africa today lies in western Tanzania where virtually no ornithologists, other than the most intrepid, manage to visit. The lowlands east of Lake Tanganyika are extensive and undoubtedly support some magnificent swampland, a fact which has led Neil and Liz Baker, Tanzania's resident ornithologists, to speculate that nearly 2 000 Shoebills (20 per cent of the estimated global population) occur there.

Hopefully future exploration of these hidden treasures can be accomplished and proactive policies implemented to benefit the ecosystems, and people who live in them, before they are drained and burned for the sake of a season's crop. □

Names of bird species mentioned in the text, in the order in which they occur:

Papyrus Gonolek *Laniarius mufumbiri*
Papyrus Canary *Serinus koliensis*
Papyrus Yellow Warbler *Chloropeta g. gracilirostris*
African Reed Warbler *Acrocephalus baeticatus*
African Citril *Serinus citrinelloides*
White-winged Warbler *Bradypterus carpalis*
Carruthers's Cisticola *Cisticola carruthersi*
Red-chested Sunbird *Nectarinia erythrocerca*
Northern Brown-throated Weaver *Ploceus castanops*
Rock Pratincole *Glareola n. nuchalis*
Grey Pratincole *Glareola cinerea*
Small Pratincole *Glareola lactea*
Spur-winged Plover *Vanellus spinosus*
River Lapwing *Vanellus duvaucelii*
Tawny Eagle *Aquila rapax*
Swamp Flycatcher *Muscicapa aquatica*
Red-winged Pratincole *Glareola pratincola*