FISHING FOR FISH EAGLES ON LAKE NAIVASHA

By SHIV KAPILA

An African Fish Eagle leaves its perch high up on a lakeside acacia with a couple of effortless flaps of its wings - it's seen a fish close to the water's surface. The eagle glides over slowly for a better look, deciding on the best angle of attack. It flies in a wide circle, delaying its strike as if suspicious that something may be wrong. After a couple of low reconnaissance passes, it ignores nagging doubts; hunger has welled up overnight and in one swift movement and a smear of white, brown and chestnut, it tucks in its wings and dives. On its final approach, the bird throws its feet forwards, talons splayed. With mechanical precision it plucks the fish out of the water. The snares threaded through the side of the fish tighten around the eagle's talons, and the line and anchor they are attached to stop it from flying any further, even though it tries as hard as it can. The eagle gives up the struggle drops gently into the water close to our boat, and floats, silently contemplating its future; he knows it's been caught.

Top: African Fish Eagle hunting fish on Lake Naivasha

Far right: African Fish Eagle in stoop

Botttom: The author with a Fish Eagle just prior to attaching a radio transmitter

My colleague, Munir Virani, pulls the surprisingly large bird on board with no resistance; a vital part of this research project has just begun. We process the eagle by attaching a solar-powered radio transmitter to its back. In addition we take a blood sample for toxicology tests, measure weight and finally attach a metal ring to one of its legs to facilitate long-term survival data. The transmitter allows us to track the eagle by following its unique radio frequency with a radio receiver. All of this is done in rapid time, and then the bird is released into the territory where we caught it - a crucial act to ensure it isn't attacked by other fish eagles on its way back to its mate.

Fish Eagle research has been carried out at Lake Naivasha since 1968, mostly by amateur enthusiasts as well as the University of Cambridge, Leicester University and the Earthwatch Programmeme. The most thorough research was carried out from 1968 to 1980 by the late Leslie Brown; he was responsible for the earliest counts over the lake, and logged over 1,000 hours of Fish Eagle observation. His data remains the largest bank of records for this species on this lake and in Kenya, for that matter. Only recently have radio transmitters become available through support of The Peregrine Fund, a US-based conservation organisation. I managed to join the African Fish Eagle programmeme six months ago, whilst I was searching for a research project for my Masters degree. Since June 2009, we have radio-tagged three eagles at different locations around the lake and we've conducted six population counts with a maximum number of 104 territory-holding adults. This may seem like a very high number for a small lake but this number represents a decline of over 50% of the eagle population here since 1970, when 226 eagles were observed by Leslie Brown.

These eagles are a vitally important species at Naivasha and are worth studying as they are an Umbrella or Indicator species of change - a species where any change in their environment is likely to cause a fluctuation in their numbers, and any change in their population would be indicative of a major change to their environment. By studying them, the health of the lake as a whole can be accurately assessed. Their current low numbers indicate that the lake is in bad shape -teetering on the edge of becoming a fully fledged ecological disaster. Lake Naivasha has become a case-study of how not to manage such an environment.

The recently ended drought has obviously had a profound effect on the lake's state, and its most marked effect was to exacerbate a series of threats to the ecosystem. Even with a long history of invasive species, the changes felt in the last 12 months have been massive and possibly irreparable. The lake's water levels are the lowest since the 1940s when the lake recovered successfully, but without the added pressures of perennial water abstraction to satisfy an exponentially growing population and a thriving horticultural industry. Recent surveys by the Lake Naivasha Riparian Association (L.N.R.A.) have shown that flower farms and small-scale vegetable farms use over 90% of the total water taken out of the lake. During the drought, there was little or no change in the rates or amounts taken from the lake by these farmers.

Without any of these pressures, the level of Lake Naivasha would be over four metres higher - the same level as after the 1998 El Nino rains which coincided with a rise in Fish Eagle numbers. Catchment problems share equal blame. The deforestation of the Mau escarpment to make way for

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agriculture ensures that the lake's main rivers flow sporadically and are loaded with sediment. Illegally constructed dams and diversions for farms rob more water from their channels. It is safe to say that these water abstraction pressures and the drought have severely affected the lake's biodiversity. All of the lake's Papyrus has been exposed and lies desiccated. Farmers have now burned over 90% of what remained to create more pasture for cattle to graze. The cattle (and buffalo, to a lesser extent) trample and damage any living remnants of fringe vegetation, especially what's left of the Papyrus.

These Papyrus swamps acted as buffer bones in times of high water levels and rainfall. Incoming flows were slowed down in these swamps to such a degree that all the sediment they contained was deposited and harmful chemicals were broken down. This had the effect of purifying the water before it reached the lake itself. The lake was exceptionally clear during times of high levels when Papyrus was at its most abundant. Now the waters are shallow, turbid and opaque, owing to increasing sedimentation. The loss of Papyrus also denies the local waterbird population a safe place to forage, breed and hide from predators.

Species such as the African Water Rail, Black Crake and Allen's Gallinule, all Papyrus specialists, are becoming harder to find; a worrying fact given that Lake Naivasha is considered a stronghold for all these birds. Over the last six months, I have seen the two former species on only one occasion each.The lack of water coming into the lake and the resulting lower levels and surface area have caused another important change. The lake's waters are becoming more concentrated; nutrients and pollutants are being left behind after evaporation and, just as significantly, the pH of the lake is rising. Birds that would be associated with alkaline lakes such as Magadi and Nakuru are being found in increasing numbers at Lake Naivasha. But as its waters recede, the shore is increasingly further away from the treeline, where the eagles fish from. Their food is harder to see and there are fewer hunting opportunities.

The shoreline also contracts causing more tension as territories shrink. Fish Eagles are immensely territorial and will not tolerate another pair on their patch. Seeing a pair of eagles violently defend their shoreline is exhilarating, but they fight to the death. In times like these, fish eagle mortality sky-rockets. From 1970 to 2009, Fish Eagle numbers have followed water levels: in periods of high water levels there is usually a high proportion of juveniles to bolster numbers. During low water levels, hunting conditions are poorer, breeding rates plummet and the only birds left are territorial adults, constant at about 100-106. Conditions barely permit survival, rarely reproduction, as the eagles struggle to feed themselves. With ever more frequent drought and the Fish Eagles response to low water levels, it is hard to be optimistic about their chances of survival.

As reproduction ceases and mortality levels remain the same, their populations become unsustainable - deaths from territorial battles alone account for about 5-10% of their losses. In 10 years it is easy to imagine a lake totally bereft of these charismatic hunters. Future plans involve damming the Malewa and Gilgil rivers to satisfy the growing population of the town of Nakuru, denying Lake Naivasha its two main surface supplies of water. But this is a special place and needs to be protected: its waters and forests support important populations of hippos and are an essential ungulate corridor. Its bird list of over 400 species and role as a refuelling spot for Palaearctic migrants has led to the lake being recognised as an Important Bird Area by Birdlife International. Lake Naivasha was declared a Ramsar site in 1995, and deserves to be treated accordingly.

Given all of the negative anthropogenic effects on the lake, it is fantastic to see that there is still a little left to attract tourists. One can see this at Elsamere, Fishermans Camp and Carnelly's, all of which are full to the rafters on weekends with backpackers, campers and birdwatchers who are eager to see what the lake still has to offer.

Elsamere is a great example of an eco-friendly lodge. It collects rainwater to use instead of lake water, has solar panels to generate power and recycles all its waste. All proceeds generated from the hotel go towards the maintenance of a field study centre which educates schoolchildren in sustainable conservation and environmental protection, as well as hosting research scientists at more than acceptable rates.

Pictures and article:
Shiv Kapila was born and raised in Kenya before pursuing studies in the United Kingdom. He recently completed his Master's degree in Conservation from the University College of London (UK) working on African Fish Eagles at Lake Naivasha, a project supported by The Peregrine Fund

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