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Heronries of Tamil Nadu

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Introduction

Detailed studies on heronries in Tamil Nadu (south-eastern state in India) are very few and much of the available literature on the heronries of the region (Pittie 2005) abounds with accounts on Vedanthangal, a heronry of great antiquity (Shortt 1865, Bates 1931, Krishnan 1960, 1993, 2001, Paulraj 1985, Santharam and Menon 1991, Venkatraman and Muthukrishnan 1993, Santharam 2000, 2004, Spillett 1969, Paulraj and Kondas 1987, Baskaran 1999). The only other century-old heronry, with a recorded history, is Koonthakulam (Rhenius 1907, Webb-Peploe 1945, Wilkinson 1961, Johnson 1971, Kumar 1980, Subramanian 2003). Of recent, information on select heronries, namely, Chitrangudi, Vettangudi, Kanjirankulam, Vettakudi-Karaivatti and a few others is available on the Internet (Anon 2005 a,b,c), in addition to occasional articles on the breeding congregation of large colonial waterbirds in the popular news media (Anon 1975, 1984a,b, MN 1980, Ratnam 1969, Jaishankar 2005, Johnson 2000, Venkataramani, 1990). The only publications that mention a few of the heronries in the state are by Krishnan (1978), and Nagulu and Rao (1983). Besides these, there have been scattered articles and notes on individual heronries (Abraham 1974, Gurusami 1988, 1994, Kumar 1980, Relton and Moses 1997, Guruswami 1999, Johnson 2000, Naganathan 2005, Karnan 2005). But for these, there has been no comprehensive work on the heronries of Tamil Nadu with an aim to understanding their status and discerning patterns in their distribution. The present paper is a step towards filling this gap in the ornithological history of the state and an effort to put the heronry scenario in the state in a proper perspective. The present work is part of a much larger nation-wide effort to understand the status and distribution of heronries in India (Subramanya 1993, 1996, 2003).

Methods

Details on the heronries of the state were collected by circulating a questionnaire to individual birdwatchers. Besides this, information available in published literature (Pittie 2005), popular print media and on the Internet was reviewed. Details of egg collections from Tamil Nadu, housed in the Oology section of The Natural History Museum (NHM) at Tring, England (formerly known as British Museum of Natural History), were also extracted from the Internet. This information was analyzed to discern patterns in the nesting of large colonially waterbirds within the state. Details on some of the major wetlands occurring in the state were obtained from a Survey of India map of the state (scale: 1:1 million), Asian Waterfowl Census reports (van der Ven 1987, Scott and Rose 1989, Perennou et al. 1990, Perennou and Mundkur 1991, 1992) and from Vijayan et al. (2004). Location information on these wetlands was extracted from Survey of India maps. Nomenclature and systematic listing follow Manakadan and Pittie (2001).

Study Area

The present study covers the entire state of Tamil Nadu. Although, the state has been divided into 30 administrative districts, it can also be divided into three broad physiographic regions namely, the western hilly region and the plains along the coast and the north-western high elevation area. Parallel to the coast and gradually rising from it, is the broad strip of plain country in the east. It extends a little beyond the Western Ghats in Kanyakumari district and can further be sub-divided into Coromandel plains, comprising the districts of Kancheepuram, Thiruvallur, Cuddalore and Vellore; the alluvial plains of the Cauvery delta extending over Thanjavur and part of Tiruchirapalli districts and the dry southern plains in Madurai, Dindigul, Ramanathapuram, Sivagangai, Virudhunagar, Tirunelveli and Thoothukudi districts. The arid, desert-like land in the state is confined to a small area in Tirunelveli district. Tamil Nadu has a number of rivers that are relatively small and seasonal. The Cauvery delta presents some extremely distinctive physical features and is intimately associated with the life of all its broader regions. The presence of a large number of man-made wetlands (village irrigation tanks) is a characteristic feature of the lowland plains (<150 m MSL) bordering the sea (Anon 2005a).

Wetland resources of Tamil Nadu

Tamil Nadu is a water-deficient state despite *c*. 950 mm annual precipitation**.** The south-west and north-east monsoons determine the rainfall of Tamil Nadu though some rains occur during winter (January and February) and summer (March to May). The state depends mainly on the north-east monsoon, between October and December, which is often accompanied by a depression in the south Bay of Bengal resulting in heavy rain along the coast. The Western Ghats act as a barrier, denying the state the full benefit of the south-west monsoon. Only the Nilgiris and Kanyakumari districts benefit from both monsoons (Anon 2005a).

The state has a number of seasonal rivers and the surface water resources are almost fully harnessed through 61 major reservoirs and 39,202 big and small tanks (Anon 2005a). The perennial river of the state is the Cauvery**,** which originates in Kodagu in neighbouring Karnataka. The Cauvery and its tributaries irrigate the fertile Coromandel plains and the Thanjavur-Nagapattinam regions, known as the granary of Tamil Nadu. The other rivers in the state are the Palar, Pennar, Vaigai and Tamiraparani**.** The Mettur dam forms a huge reservoir across the Cauvery, and a "Grand Anicut," a vast channel leading from it, has been contructed near Tiruchirapalli for irrigation. The waters of the Cauvery have been so well utilised that its drainage channel, the Coleroon, is always dry (Anon 2005a).

Small water storage reservoirs behind earthen dams, called tanks, dot the expanse of Tamil Nadu. Though these tanks supply many villages with drinking water, their primary purpose is irrigation. As monsoon rains fall erratically during a few months in the year, these irrigation tanks serve to store and regulate the flow of water for agricultural use, associated mainly with the production of paddy (von Oppen and Rao 1980). Paddy is the principal agricultural crop in the state, grown over nearly 2,200,000 Ha (Anon 2005a). Together, the rivers, reservoirs and the tanks provide major feeding grounds for the waterbirds in the state (Hussain and Roy 1993, Vijayan et al. 2004).

Results and discussion

Nesting species

Nineteen of the 26 species of colonially nesting large waterbirds that are known to breed in Indian heronries (Subramanya 1996), namely, Spot-billed Pelican *Pelecanus philippinus* (SBP), Little Cormorant *P. niger* (LC), Indian Shag *P. fuscicollis* (IS), Great

Cormorant *Phalacrocorax carbo* (GC), Darter *Anhinga melanogaster* (D), Little Egret *Egretta garzetta* (LE), Grey Heron *Ardea cinerea* (GH), Purple Heron *A. purpurea* (PrH), Large Egret *Casmerodius albus* (LgE), Median Egret *Mesophoyx intermedia* (ME), Cattle Egret *Bubulcus ibis* (CE), Indian Pond-Heron *Ardeola grayii* (PH), Black-crowned Night-Heron *Nycticorax nycticorax* (NH), Painted Stork *Mycteria leucocephala* (PS), Asian Openbill-Stork *Anastomus oscitans* (OBS), Glossy Ibis *Plegadis falcinellus* (GI), Oriental White Ibis *Threskiornis melanocephalus* (OWI), Black Ibis *Pseudibis papillosa* (BI), and Eurasian Spoonbill *Platalea leucorodia* (ESB), nest in Tamil Nadu (Figure 1; Appendices 1 and 2). Of these, Black-crowned Night-Heron was the commonest nesting species, occurring in about 36 existing sites (Figure 1). It was followed by Little Cormorant, Little Egret, Indian Pond-Heron and Grey Heron, with 31, 30, 29, 26 sites, respectively. Cattle Egret, Painted Stork and Spot-billed Pelican were found in less than 20 active sites each. Nests of Darter, Asian Openbill-Stork and Oriental White Ibis were found in less than 15 sites, while Great Cormorant and Eurasian Spoonbill were found to nest in 10 sites each and the rest of the species were represented in less than 10 sites (Figure 1; Appendix 1). Glossy Ibis was the least common of the nesting species, found in only two sites. Little Egret, Black-crowned Night-Heron and Little Cormorant were also the most common species in erstwhile heronries of Tamil Nadu (Figure 1, Appendix 2).

The Spot-billed Pelican appears to be surviving extremely well in Tamil Nadu with colonies reported from as many as 15 active sites. Six nesting sites of the species have been lost over the last five decades (Abraham 1974, Appendix 2). Kannan and Mankadan (2005) indicate that the Spot-billed Pelican nesting colonies may have originated from Chitrangudi and Kanjirankulam, which is not true, as both these nesting sites appear to have come into existence around the mid-1940s (Abraham 1974). In fact, Koonthakulam is the only traditional colony of the Spot-billed Pelican, which appears to have been in existence from well over a century (Webb-Peploe 1945, MN 1980), indicating that the south Indian states of Andhra Pradesh, Karnataka and Tamil Nadu have been a traditional home of Spot-billed Pelican for centuries (Subramanya 1996, 2001, 2003, Subramanya and Manu, 1996).

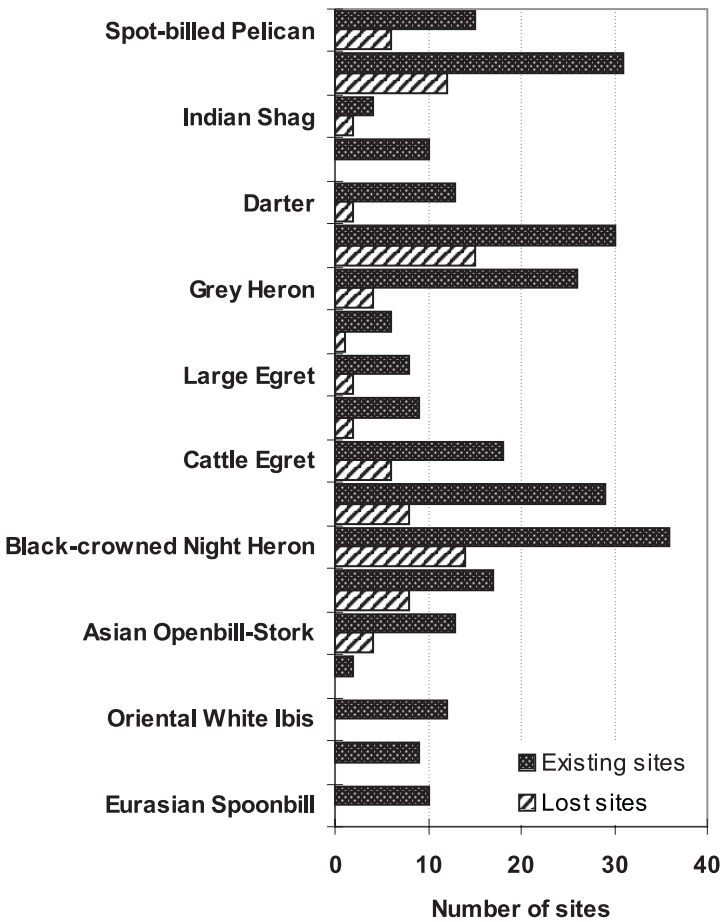

Figure 1. Number of nesting sites of different species in the heronries of Tamil Nadu

It is interesting to note that unlike the situation in the neighbouring state of Kerala (Subramanya 2005), the nesting sites of Great Cormorant are located inland in addition to those nesting in the reservoirs of Nilgiris district (Appendix 1). What remains of the partially submerged tree trunks within these reservoirs, serve as ideal nesting substrates for the species, a situation very peculiar to the Kerala section of the Western Ghats (Subramanya 2005).

Tamil Nadu is the only state where all the three ibis species nest together. Among these, the Oriental White Ibis is the commonest nesting species (Appendix 1). The Glossy Ibis used to be a resident in southern India (Baker and Inglis 1930) and Sri Lanka, where it was breeding well over a century ago (Henry 1971). With no records of its nesting activity thereafter, it was even considered rare in southern India (Ali and Ripley 1987, Perennou and Santharam 1990). Two nests of the species were recorded for the first time in 1993 at Koonthakulam (Sivasubramaniam *in. litt*.). The Glossy Ibis is now known to nest at Vedanthangal as well (Santharam 2000). Thus, Tamil Nadu is one of the few states where Glossy Ibis has been found to nest within Indian limits in the recent times (Subramanya 1996). The Black Ibis, usually known to nest singly or in very small loose colonies (Hume and Oates 1890, Baker 1935, Ali and Ripley 1987), seems to be largely colonial in Tamil Nadu, especially with respect to its habit of nesting along with other waterbirds in the same heronry (Appendix 1) and was recorded nesting in Tamil Nadu for the first time at Koonthakulam in 1960 (Wilkinson 1961).

The nesting colony of Grey Herons, reported near Parambikulam Reservoir in Kerala (Subramanya 2005) due to lack of proper locality details, now appears to be within the Amaravathi reserve forest, located on the shores of Amaravathi Reservoir, close to Puganodai, located some 20 km from Udumalpet, on the road to Munnar. This colony may well be the first recorded instance of the species nesting within the hills of the Western Ghats. Similarly, the egg collection data at NHM indicate that Cattle Egrets and Painted Stork, Asian Openbill-Stork and Oriental White Ibis were once nesting in the Nilgiris (Appendix 2). The Black-crowned Night-Herons, particularly those within Madurai city, are known to

frequently shift their nesting sites based on local disturbances (K. Sathasivam *in litt.*) and thus, the concentration of heronries in and around Madurai may quite possibly pertain to the same population.

Distribution of heronries

Mapping the distribution of heronries shows that not all the districts in Tamil Nadu are represented. Heronries were not reported from Tiruvannamalai, Dharmapuri, Salem, Namakkal, Karur, Pudukottai and Theni districts (Figures 2 and 3). The maximum numbers of heronries have been reported from Thirunelveli, Ramanthapuram and Kancheepuram districts, with 12 sites each, closely followed by Kanyakumari district with nine nesting sites. Six to eight heronries have been reported from each of Madurai, Chennai, and Nilgiris districts. The remaining districts hold less than four sites each. This tally is by no means an indication of paucity or even an absence of heronries in other districts (Figure 2 and 3). There may be a large number of sites yet to be discovered and reported. For example, Pudukottai, a district with the maximum number of village irrigation tanks (Department of Economics and Statistics 2005, Vijayan et al. 2004), may indeed support a large number of heronries.

Although the present inventory of heronries in Tamil Nadu is by no means complete, looking at the three physiographic zones in Figure 5, one can distinguish six distinct clusters of heronries. Starting from the north, these clusters are distributed around Tiruvallur-Chennai-Kancheepuram; along the Cauvery River from Erode through Tiruchirapalli and the entire Cauvery delta spread over the districts of Perambalur-Nagapattinam-Tiruvarur and Thanjavur; Madurai and Sivagangai plains; Ramanthapuram districts; Tirunelveli-Thoothukudi districts and in the extreme south around Nagercoil. The effect of the alluvial plains of the Cauvery delta, favouring paddy cultivation, on the occurrence of heronries, appears to be similar to that of Krishna and Godavari deltas in Andhra Pradesh (Subramanya 2001). When one looks at the distribution of heronries in light of the phyiographic divisions mentioned earlier, very interestingly, nearly eighty per cent of the sites are found in lower plains along the coast (Figure 4 and 5).

Figure 6 shows the distribution of all major wetlands of Tamil Nadu along with its rivers. When the distribution of these heronries are matched with the occurrence of major wetlands within Tamil Nadu (Figure 6), barring gaps of heronry information from Villupuram-Cuddalore and Tirunelveli-Virudhunagar areas, we see that they largely coincide with the distribution of major tanks, indicating the importance of these village irrigation tanks and the Cauvery delta as major foraging grounds for the species nesting in the heronries of the state.

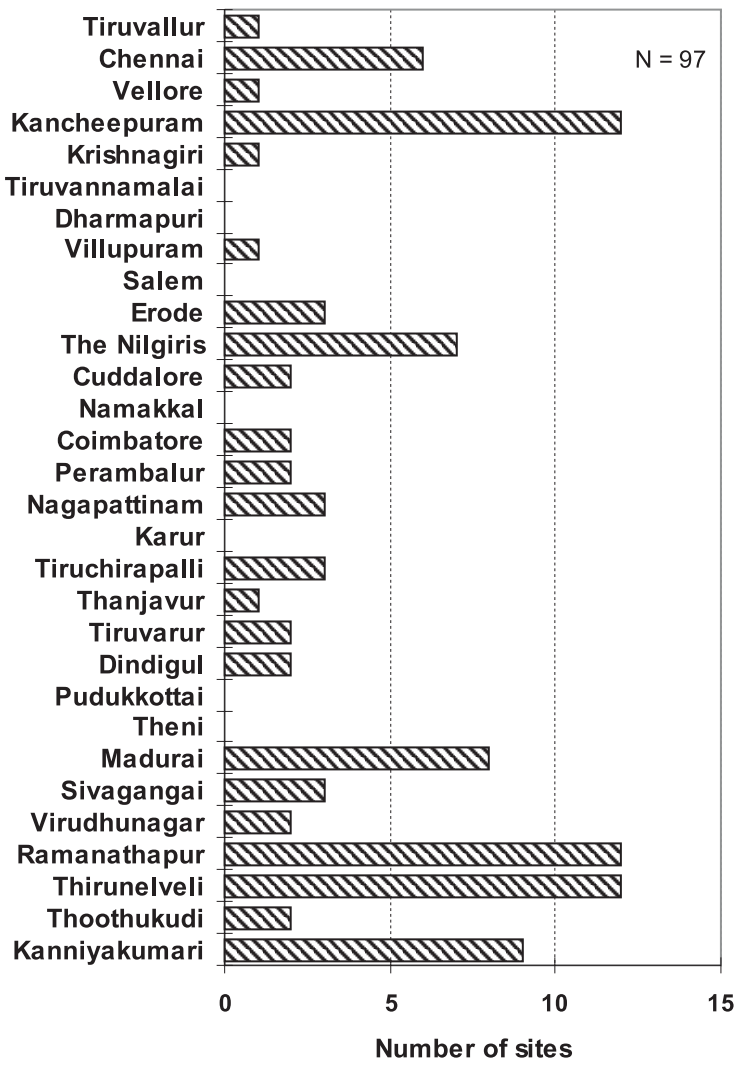

Figure 2. Number of heronries in different districts of Tamil Nadu

Nesting sites

The details of nesting sites that occur in different districts along with the species nesting in them and their status is given in Appendices 1 and 2. Of the 97 sites for which information is available, 39 sites are no longer active. The rest have been active over the last 10 years. The heronries are found in varied habitats, but nearly 35 per cent of the sites areon partially submerged *Acacia nilotica* stands in village irrigation tanks. About 34 per cent of the heronries are found within human habitations while the rest are in varied situations (Table 1).

The attraction of *A. nilotica* is such that, at Koonthakulam, where birds used to nest traditionally on trees growing amidst habitation even before 1903, they have partly shifted over to nest on *A. nilotica* growing in the adjacent village tank since 1989 (Padmanabhan *in litt.*). Prior to 1989, birds used to nest only inside the village. The number of nesting species and also the number of birds visiting Koonthakulam have increased since the main breeding site has shifted to the tank close by. In selected cases where tanks with *Acacia* are found in adjoining, villages, they have been occupied by nesting birds – as seen at Peria Kollankudi-Chinna Kollankudi and Mela Selvanoor-Keela Selvanoor.

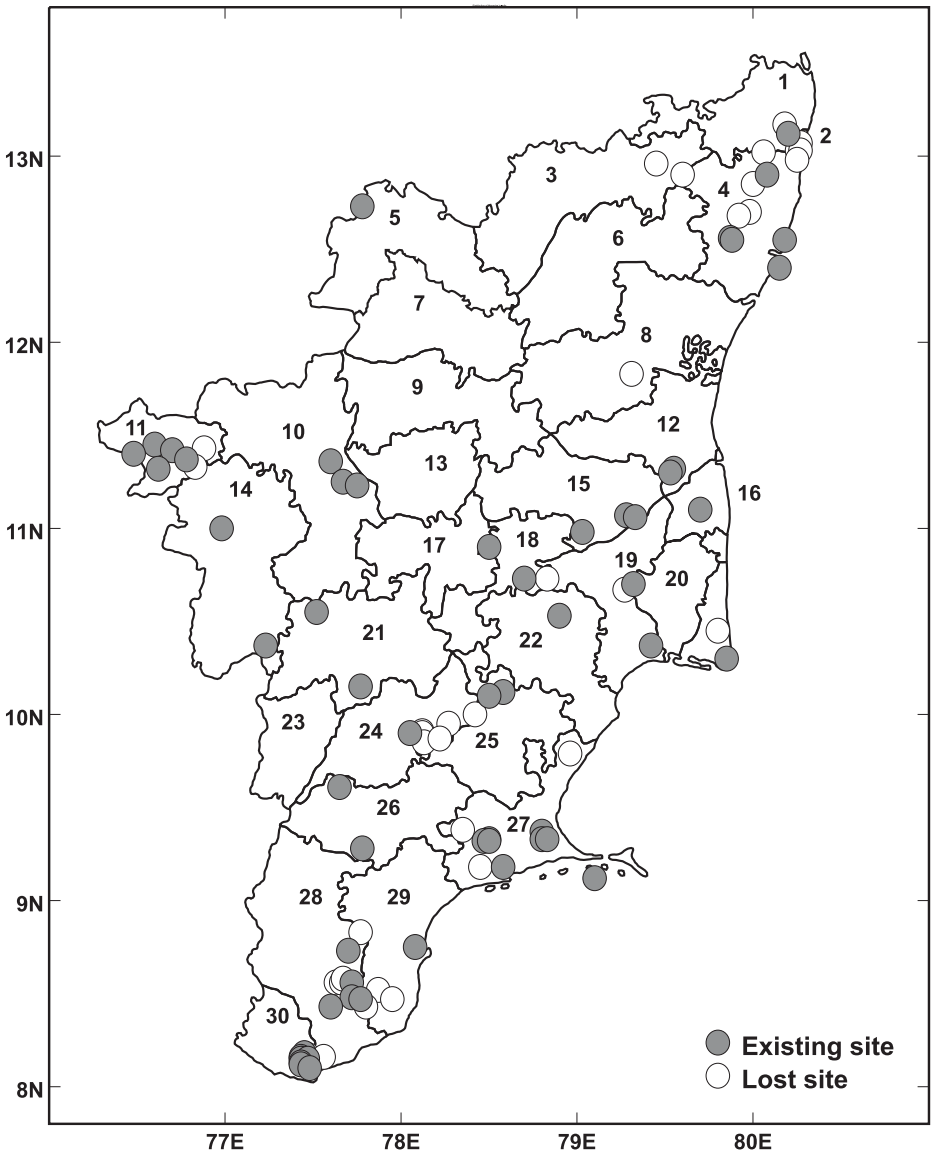

Figure 3. Distribution of heronries in Tamil Nadu

Key to districts: 1-Thiruvallur, 2-Chennai, 3-Vellore, 4-Kancheepuram, 5-Krishnagiri, 6-Thiruvannamalai, 7-Dharmapuri, 8-Villupuram, 9-Salem, 10-Erode, 11-The Nilgiris 12-Cuddalore, 13-Namakkal, 14-Coimbatore, 15-Perambalur, 16-Nagapattinam, 17-Karur, 18-Tiruchirapalli, 19-Thanjavur, 20-Thiruvarur, 21-Dindigul, 22-Pudukottai, 23-Theni, 24-Madurai, 25-Sivagangai, 26-Virudhunagar, 27-Ramanathapuram, 28-Tirunelveli, 29-Thoothukudi, 30-Kanyakumari.

Nesting seasons

Based on the available information, nesting seasonality of birds in heronries occurring in the state is presented in Figures 7 and 8, and Appendices 1 and 2, it is apparent that though there exists a bimodal nesting pattern among the heronries across the state. However, a majority of waterbird species considered, nest during the north-east monsoon season (Figure 8).

The heronries in western Tamil Nadu, being part of the Western Ghats, are influenced by the south-west monsoon as are the heronries of Kerala (Subramanya 2005). Only at Kudikadu and Kachipedunatham, do the birds nest from June to October, deviating from the north-east monsoon based nesting seasons of the surrounding region. At these sites, the birds were not dependent on north-east monsoon, but on the release of water from Mettur Dam for "*kuruvai*" (short duration) cultivation (June-September). The birds arrived at their nesting site and began constructing nests during June and by October, the fledglings were ready to fly. This nesting activity was also known to coincide with the inflow of water to Coleroon river (Ratnam 1969). The birds at Simpson Estate heronry were recorded nesting almost throughout the year, with certain species nesting in both the seasons (Gurusami 1994), making it to be yet another heronry that differed in its nesting periodicity from the main north-east monsoon nesting in other heronries. In Karnataka, Painted Storks nest later than Spot-billed Pelicans (Sanjay 1993), while the reverse appears to be true in Tamil Nadu. For example, at Koonthakulam, Wilkinson (1961) found that while Painted Storks had commenced nesting in January, the Spot-billed Pelicans were yet to arrive and while the pelicans were still incubating in March, the storks already had young ones in their nests.

Size and composition of nesting colonies

Several large heronries occur in Tamil Nadu. A majority of the heronries in the state are multi-species nesting sites, some of which have records of as many as 17 species nesting in them (Figure 9; Appendix 1 &2). Nine heronries have ten or more nesting species and about 18 sites have between 5-9 species nesting in them. About 19 sites are single species colonies. The larger colony size with greater number of nesting species (Table 2) appears to be a function of age of the colony, availability of adequate nesting substrate and the quality of protection that the nesting sites enjoy (Subramanya 1996). On the other hand, the disappearance of certain nesting species over the years or decades is also known to occur as seen at Vedanthangal, where the Cattle Egret is not known to nest in recent years, while earlier studies does indicate its presence as a nesting species (Krishnan 1960, Spillett 1969, Paulraj 1985). As pointed out by Santharam (1987, 1988), such changing patterns with some of these species may largely be linked to their movement patterns within the state.

Over a century ago, Rhenius (1907) found only Spot-billed Pelican and Painted Storks breeding at Koonthakulam. In 1960, Wilkinson (1960) found Black-crowned Night-Heron and Little Egret and the Black Ibis nesting in addition, at the site. Today, especially after the birds have extended their breeding area from the village environs to nest on partially submerged *Acacia* stands in the village tank close by, Koonthakulam now boasts of 15 nesting species. Similarly, the numbers of nesting species have increased over the decades at Vedanthangal (see Santharam and Menon 1991, Santharam 2000) from the time of Shortt (1865), Packard (1903) and Bates (1931).

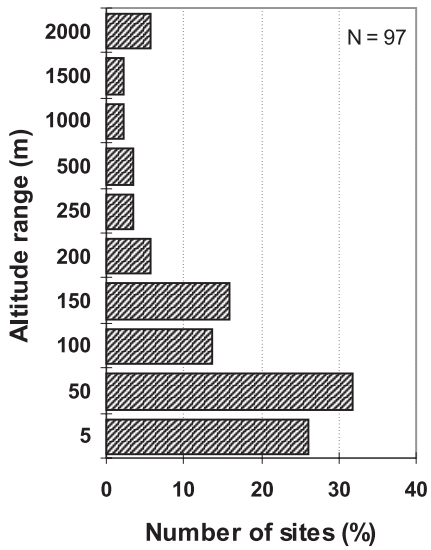

Figure 4. Distribution of heronries in different elevation ranges in Tamil Nadu

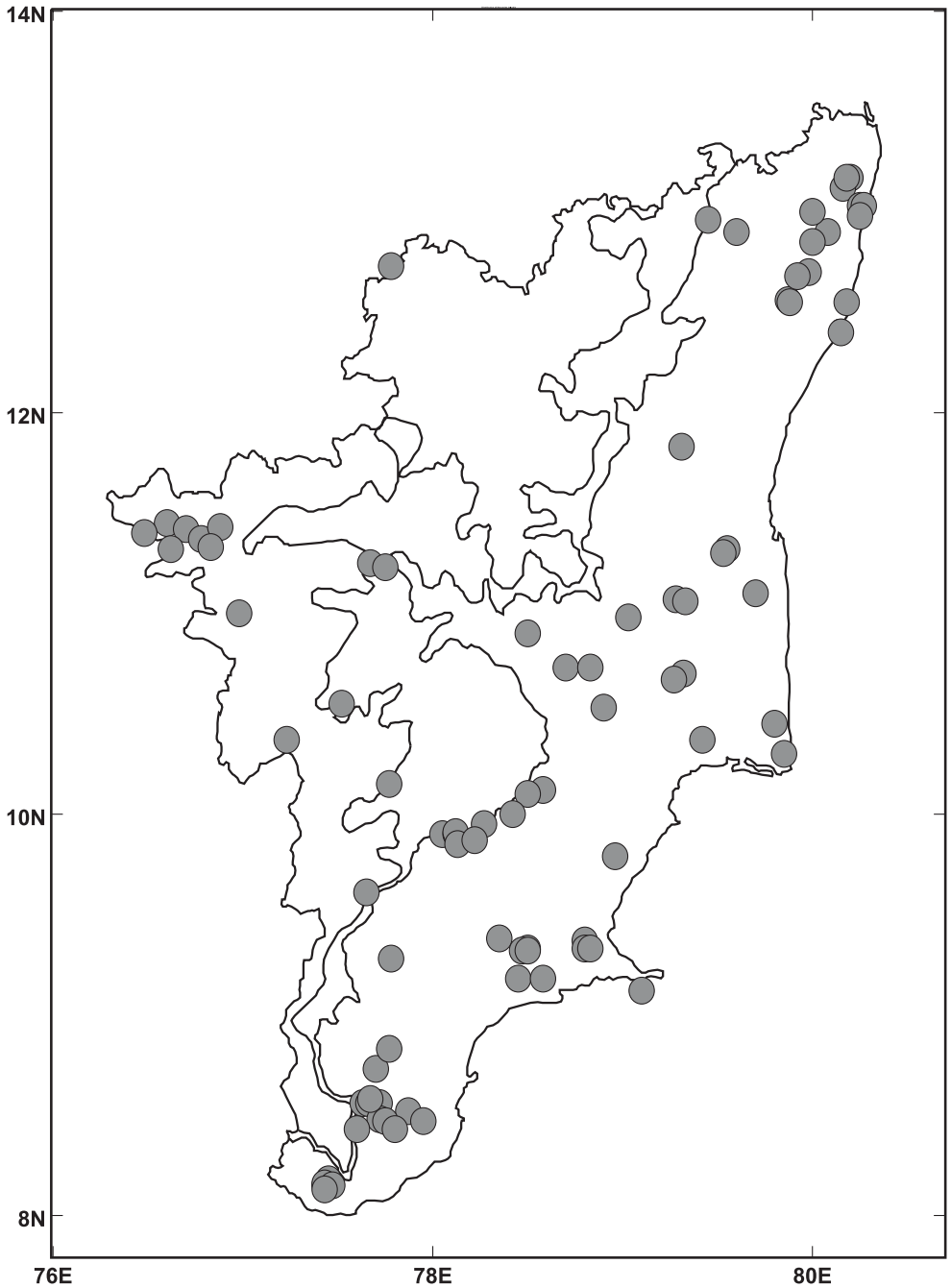

Figure 5. Distribution of heronries in different physiographic zones in Tamil Nadu.
From right to left, elevations of the three zones are 0-150m, 150-300m and 300-2000m, respectively.

Traditional heronries

The popular view on the existence of heronries is that they are traditional and age-old breeding grounds for birds. This view does hold true, when one considers sites like Vedanthangal and Koonthakulam, where birds have been nesting from well over a century. Vedanthangal could be one of the oldest heronries existing in the country today. Based on documentary evidence, Bates (1931) was able to trace the existence of Vedanthangal heronry as to 1796-1798. Shortt (1865) visited Vedanthangal in March 1864, Packard (1903) in December 1902 and Bates (1931) between 1928-1930. Although documented evidences on the existence of the heronry are available since 1793, Paulraj (1985) says that its history may well date back to the Ramayana period (*c.* 3000 BC). Rev. Charles Theophilus Edward Rhenius, an European who lived in Tirunelveli between 1814-1838 observed the breeding of Spot-billed Pelican and Painted Storks at Koonthakulam (MN 1980) and first reported its existence in 1903. Webb-Peploe (1945) considered that the pelicanry could well have exited 60-70 years prior to 1945. In addition, sites like Simpson Estate, Chitrangudi, Vettangudi, and Kanjirankulam have existed for several decades. However, not all heronries can boast of such antiquity.

Effect of drought on nesting activity of birds

Tamil Nadu is a drought-prone state and due to vagaries of monsoon and has experienced recurrent droughts over the years (Nathan 1998). Colonially nesting waterbirds abandon breeding activities when there is lack of adequate water in their feeding grounds, a majority of which are irrigation tanks. In years of poor monsoon or a monsoon failure, birds do not attempt breeding. Also, if the water in the tanks goes dry before the nesting is completed, birds are known to abandon their nests (Paulraj, 1985, Santharam 1981a, Perennou and Santharam 1991, S.S. Ramachandra Raja *in litt.*). Between 1974-1979 the entire state of Tamil Nadu experienced a severe drought and nesting did not occur in heronries of the state (Anon 1980).

Loss of heronries

Thirty-nine nesting sites have been lost over the decades in Tamil Nadu (Appendix 2). Very little information is available on the reasons for such loses. Available information indicates that disturbance by people living close to the heronries, removal of nesting subtrates and poaching to be the main reasons for the loss of some of these sites (Appendix 2). Moondraidapu, an important nesting site for Spot-billed Pelicans is an example of a dramatic decline in breeding bird populations. It enjoyed protection from villagers initially (Badshah

undated), but ceased to exist by late 1980 due to poaching and felling of nesting trees. (Rajaram *in litt*.). Although people are initially tolerant towards the nesting birds, the stench that emanates from their defecation and rotting remains of fallen fish from the nests above, produces a repulsive effect on people, resulting in the eviction of nesting birds. This was also the case at Vikaas School Heronry in Madurai (T. Badarinarayanan, *verbally*), where tin cans were tied to branches within the nesting canopy to deter the birds from perching. For this very reason, the repeated attempts by birds to nest on *Acacia* stands were foiled by villagers in the tanks at Devarayaneri, Perianatham, Chamrampakkam, Arapakam, Gangaikondan, Seethaparapanallur, Nenmeni, Kaveripakkam, Thennagaram, Vaigai and Thalainayar (Badshah undated, Appendix 2). The cessation of nesting activity of birds at Simpson Estate a few years back, for reasons not yet known, is quite shocking, especially for a site which was easily the largest heronry in the state.

The felling of *Acacia* stands used by nesting birds has destroyed active heronries. Some of the tanks where the *Acacia* stands have been cut include, Velurkulam (in 2004: Robert B. Grubh, *verbally*), Periakanmoi and Sakkarakottai (partially felled during 1991-1992, leaving intact only the trees on the periphery: S. Vasuki *in litt*). At Sakkarakottai tank, a part of these peripheral trees were cut down again during 2003-2004 (S. Balachandran, *verbally*). Thus, the future of the Sakkarakottai heronry is unsure. Even the loss of heronries at Kamudi, Cheluvanoor and Pillayarkulam (Abraham 1974) may well have been due to human disturbance and the loss of nesting substrates. At Dhamal tank a vast stand of *A. nilotica*, which was a home for a large colony of cormorants and herons, was clear felled during 1969-1970 (S. T. Baskaran, *verbally*). The reasons for the loss of the small colony of Asian Openbill-Storks found by Packard (1903) or that of Miss Cockburn's Cattle Egret Colony and Walhouse's Heronry in The Nilgiris (Appendix 2) is not known.

Effect of social forestry in Tamil Nadu

The forest department in Tamil Nadu should be commended for being instrumental in the creation of a large number of heronries in the state due to the foreshore planting of village tanks with *A. nilotica*. This programme started in the early 1960s, persisted through the 1980s and 1990s (Wilson 1979, 1986, M. Harikrishanan, *in litt.*, V. Naganathan, *verbally*). This was initiated to meet the fuel wood and small timber requirements of villagers (Wilson 1979, 1986). Under this programme, a large number of tanks were planted with *A. nioltica*. Once these Acacia saplings grew up, they formed a dense stand of partially submerged trees after monsoon inundation, and provided safe and ideal conditions for the nesting of colonial waterbirds. Several of these tanks with their excellent growth of *A. nilotica* support some of the large heronries in Tamil Nadu today (Table 1). Also, the most significant effect of this widespread social forestry exercise has caused a shift in the nesting pattern of large colonial waterbirds from nesting within villages to tank-based colonies. For that matter, there were very few village tanks with trees on their foreshores, which could have been used for nesting by waterbirds, prior to the commencement of social forestry programme in Tamil Nadu in early 1960s. The exception was Vedanthangal, with its 200-year history. It had over 500 partially submerged *Barringtonia* sp., trees supporting a heronry (Shortt 1865, Bates 1931, Krishnan 1960, Spillett 1969, Paulraj 1985). In those earlier times, most of the waterbirds, with a few exceptions (Table 1), appeared to have nested on trees inside villages, as seen at Koonthakulam before 1989 (Rhenius 1907, Wilkinson 1961), at Packard's colony in Chingelput (Baker 1935) and at a few others as indicated by Abraham (1974). At the same time, the commencement of heronries in tanks with *A. nilotica* stands indicates that man can indeed help in the creation and establishment of heronries. This Tamil Nadu model of foreshore planting of *A. nilotica* is worth practicing in other parts of India as well.

Importance of roost sites

As observed elsewhere in India (Subramanya 1996), many of the heronries in Tamil Nadu started as roosting sites as the basic requirements of both, the roosting, and nesting sites, of large waterbirds are almost the same. To begin with, most of these heronries start as small nascent breeding colonies with a few nesting birds. Given adequate protection, the colony grows in size, both in terms of species composition and numbers. One of the best examples of this phenomenon was the Simpson Estate heronry in Sembium, where the concerted efforts of a single individual, turned a small roosting colony of Black-crowned Night-Herons in early 1960s, into a huge heronry with over ten nesting species and a colony size of over 20, 000 birds in recent years (see Table 2, Subramanya 1996, see box). Similarly, the heronries at Udayamarthandapuram, Karikkili, Sanniyanallur and Theological College initially started as roosting sites. In certain situations, such sites have turned into safe nesting sites, mainly due to the lack of any serious disturbance and the presence of adequate protection.

Protection by villagers

Many of the heronries in Tamil Nadu are zealously protected by villagers despite the stench emanating from the nesting activities of the birds. Some of these sites include Kanjirankulam (Anon undated, Abraham 1974), Kollugudipatty (Anon 1977), Udayamarthandapuram (Anon 1990), Vettangudi (Anon 1975) and Vedanthangal (Paulraj 1985, Stairmand 1971). At Koonthakulam, any person who harmed the birds, was taken in procession around the village, with the dead bird tied around his neck (Johnson 1971), while poachers were fined with penalties at Kollugudipatty (Anon 1977). Also, when the *Acacia* stand in the tank was scheduled to be cut down at Koonthakulam, the villagers protested and prevented such a move (S. T. Basakaran, *verbally*). Even at Udayamarthandapuram, what started as an effort to curb poaching, led to the entire village passing resolutions to save the birds. An active follow-up action by local people and a village youth association finally led to the site being declared a bird sanctuary (Anon 1990). At Kollugudipatty, in an effort not to disturb nesting activity of birds, since late 1960s the entire village stopped celebrating Deepavali, the Festival of Lights, wherein bursting of noisy crackers is associated with the festivities (Anon 1977). Such initiatives by people can help to reduce human interference with nesting activity of birds. At Vettangudi, villagers are tolerant of nesting birds, and consider their arrival in large numbers as "angels of God", bringing a good harvest and various welfare programmes from the government (Karnan 2005). Similarly, a prolonged stay of birds in the village was considered as an indication of a possible double crop at Koonthakulam (Johnson 1971). These age-old notions that are connected to ground realities can be used to advantage for motivating local people and should be used in the protection

Table 1. Sites used by colonial nesting waterbirds in Tamil Nadu

Type of nesting habitat	Frequency* (%)	Name of the heronries†
Partially submerged trees within a tank	34.69	Dhamal Tank, Vandalur Tank, Karikkili Tank, Vedanthangal, Veeranam, Vadamugam Vellode-Periyakulam Eri, Avalpoondurai Pond, Vettakudi-Karaivetti, K. Sattanur Tank, Vadavur Tank, Kongurkulam, Udayamarthandapuram, Vettangudi Patti, Paraikanmoi, Chitrangudi, Koonthakulam, Pillayarkulam, Mela-Kelaselvanoor, Ramalingam Tank, Koonthakulam, Velurkulam, Theroorkulam, Suchindram, Manakudi, Devarayaneri, Perianatahm, Chembarambakkam, Arapakam, Gangaikondan, Seethaparapanallur, Nenmeni, Kaveripakkam, Thennagaram, Vaigai, Thalainayar
Tree on an island	2.04	Red Hill Tank, Manoli Island
Trees in and around a wetland	5.10	TV Motors, Peria Kollugudipatty, Chinna Kollugudipatty, Kanjirankulam, Eppothum Ventan
Trees close to a wetland	7.14	Kalpakkam, Thiruchinnapuram, Kudikadu, Point Calimere, Thaliyarenthal, Sankarapandiapuram, Karungulam
Trees close to reservoir	2.04	Amaravathi Reservoir, Avalanche Reservoir
Partially submerged tree trunk in a reservoir	3.06	Glenmorgan Headworks, Kamarajasagar Reservoir, Mukurthi Reservoir
Trees amidst habitation	33.67	Simpson Estate, Raja Annamalaipuram, Mylapore, Theological College, Saligramam, Packard's Chinglepat Openbill Colony, Pallipalayam, Coimbatore city, Senniyanalloor, Thatchanendal, Nagamalai, Meenakshi College Campus, Vikaasa School, Samanatham, Lady Doak College, American College, Watrup Big Tank, Sakarakottai Kanmoi, Ramanathapuram Town, Sankar Cement Campus, Poolam, Cheluvanoor, Kamudi, Ariyakulam, Koonthakulam, Thirupudai Marudur Sacred Grove, Pudugramam Osaravila, Nagercoil PWD Office, Nagercoil Nathaniel Street, Nagercoil DFO's House Compound, Nagercoil Municipal Park, Vijayanarayanam Village
Trees close to habitation	1.06	Mannampandal
Trees close to road	2.13	Battalkundu, Moondradaippu,
Trees on river bank/along a stream	3.19	Kachipedunatham, Kadavanodi, Wellington Cantonment
Tree amidst a river	1.02	Suinda Kulam
Trees close to an estuary	1.02	Adayar
Trees on seashore	1.02	Madras Crocodile Bank
Island in the gulf	1.02	Manoli
Aviary in a zoo	1.02	Arignar Anna Zoological Park

*N = 97 sites, † see Appendix 1 & 2 for other details

of nesting sites and to inculcate a respect for the nesting birds. There is a need for such ethos to be spread to areas where such thinking is presently absent.

Conservation of heronries

Total nesting habitat protection with availability of adequate nesting substrate would encourage an increase in the number of species and the total number of nesting birds in a heronry over time. One of the finest examples of this has been the Simpson Estate heronry where a nesting colony of about 60 birds grew over the years into a colony with nearly 20, 000 birds (V. Gurusami, Viwanathan, T. Sudakar Reddy *in litt*.). What has happened at Simpson Estate is an example of how man can help ensure the future survival of heronries. Vedanthangal, which has been in existence for over 200 years (Hume and Oates 1890, Baker 1935, Krishnan 1960, 1993, 2001, Paulraj 1985, Baskaran 1999), has grown in size both with respect to species and bird numbers although it suffered a setback around 35 years ago, due to the loss of the nesting substrate of *Barringtonia* trees, which were drastically reduced from over 500 trees to around 70, the reasons for which are not clear (Stairmand 1971). For that matter, a look at the species composition in heronries that existed in the past (Appendix 2) indicates that species like Glossy Ibis and the Black Ibis have only started nesting in the state after the 1960s. This may largely be due to the opening up of additional nesting sites, when the foreshores of village irrigation tanks were planted with *A. nilotica* under the social forestry programme. Thus, the planting of *A. nilotica* has had a positive effect on the heronry scenario in the state, what with nearly forty per cent of the sites coming into existence in tanks planted with *Acacia* (Table 1).

Increasingly, heronries in Tamil Nadu are found within or close to human habitations as well (Table 1). There is a need to educate

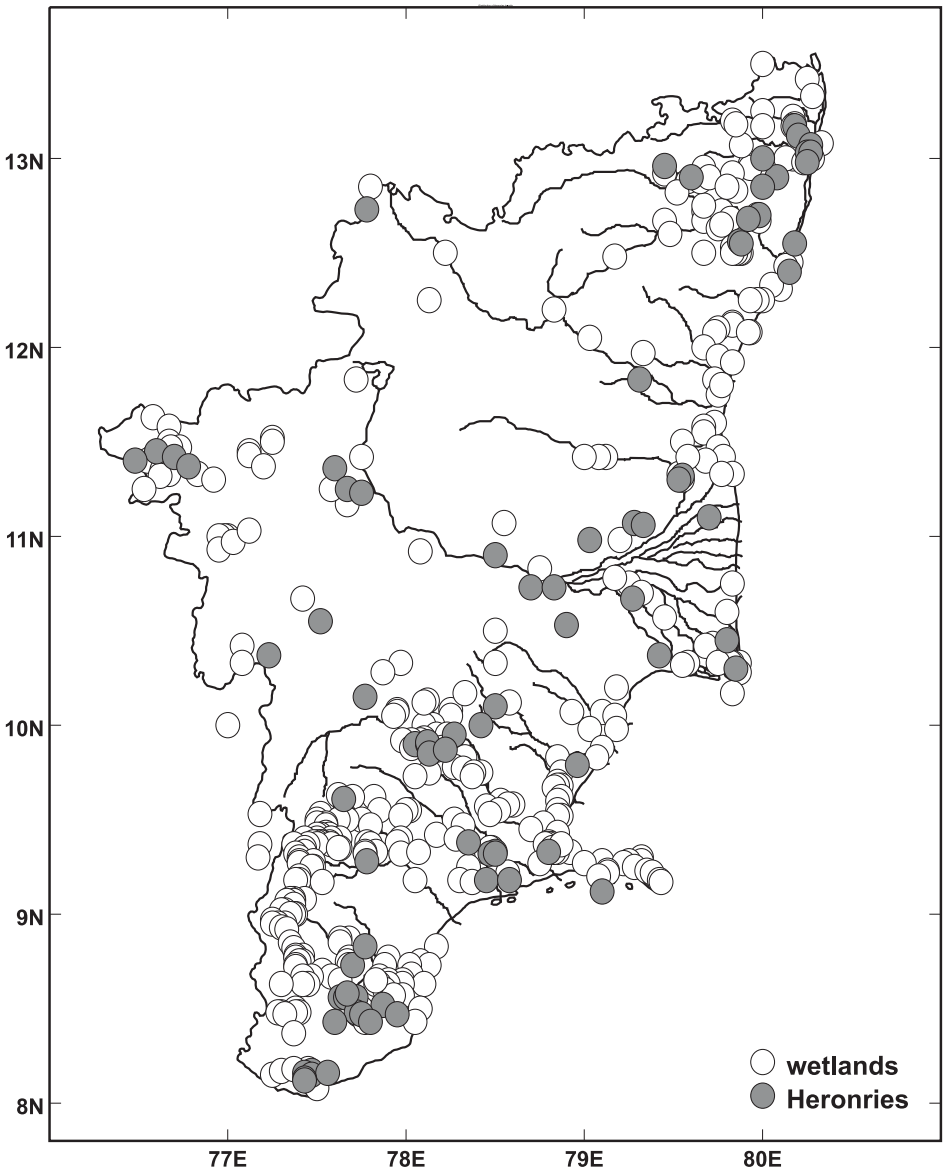

Figure 6. Occurrence of heronries with respect to the distribution of major wetlands and rivers in Tamil Nadu

local people living close to these sites and to involve them in their conservation. Towards this end, the State Forest Department, local communities living with or close to the heronries and concerned NGOs can play a vital role in developing community-based conservation programmes. In Kokkare Bellur, Karnataka (Subramanya and Manu 1996, Manu and Jolly 2000) and Uppalapadu, Andhra Pradesh (Rao 2004), such efforts have been largely successful

Lack of protection and continued disturbance of the nesting activity of birds is catastrophic for any nesting colony, as it has been seen at Moondradaipu. It would be worthwhile if local NGOs or even individual birdwatchers in different districts of Tamil Nadu adopted heronries and worked for their long-term protection. Also, as former roosting sites of these large waterbirds tend to grow into heronries (Subramanya 1996), all roosting sites of colonially nesting large waterbirds should be located and earmarked for protection. Protection against any form of disturbance, including poaching of eggs and birds, felling, or damage to trees utilised for nesting should be provided.

The government of Tamil Nadu has done well in protecting a considerable number of heronries. Of the 25 sanctuaries and national parks that form the protected area network in the state, 11 sanctuaries are heronries, indicating the importance given to these nesting sites. A majority of these sites have received state protection only since 1990 (Chitrangudi, Kanjirankulam, Karaivetti, Koonthankulam, Melaselvanoor-Kilaselvanoor, Udayamarthandpuram, Vaduvoor, Vellode), while Vedanthangal, Karikili and Vettangudi heronries have been protected prior to 1990 (Anon 2005a).

One of the factors associated with the occurrence of heronries in villages is the accumulation of copious quantities of guano beneath nesting trees. At the Kokkare Bellur pelicanry in Karnataka, every year during the nesting season, local villagers regularly spread farmyard refuse, hay, dung and several cart loads of soil or red earth below the nesting trees to collect bird droppings (Manu and Jolly 2000). At the end of the neting season, this partially or completely decomposed guano-enriched manure is removed from below these trees and used for fertilising crops (personal observations). Mostly this is not being practiced in Tamil Nadu today, but in earlier days when birds used to nest within the Koonthakulam village in considerable numbers, harvesting of guano existed and played an important role in the protection of nesting birds (Johnson 1971). Thus, wherever possible, local people living close to the heronries should be encouraged to harvest the guano that collects below the trees. Villagers should be educated about the benefits of guano as a manure, whether it gets collected beneath the trees or falls into the water below in tank-based colonies and gets mixed with the water slated for irrigation (see Paulraj and Kondas 1987, Paulraj 1988). Development of a similar practice in the villages of Tamil Nadu harbouring heronries should encourage farmers to take active part in protecting the nesting sites. A focused campaign, effectively projecting these advantages, may help in conservation of heronries to a much greater effect.

Very recently, a heronry of Little Cormorants, Black-crowned Night-Herons and Painted Storks came into existence at the TVS Motor Company at Hosur, on the border of Tamil Nadu and Karnataka, in a wetland with trees growing in and around it, created as a part of campus planning (Subramanya et al. 2005). The management protects the birds. This site, along with the Simpson Estate heronry, remains as one of the best examples of how the corporate sector can help in creation and protection of heronries.

Future of heronries of Tamil Nadu

The information on heronries of Tamil Nadu presented in this article is by no means comprehensive. Although the present heronry survey has brought to light 97

heronries, including those that once existed, this could well be a small proportion of the real number of heronries found in Tamil Nadu. Elsewhere, intensive searches for heronries have revealed a high concentration of heronries in a single district (Subramanya 1996). The mid-winter waterfowl census estimates of large colonial nesting waterbirds (van der Ven 1987, Perennou 1989, Scott and Rose 1989, Perennou et al. 1990, Santharam 1990, Perennou and Santharam 1991, Perennou and Mundkur 1991, 1992, Rajan et al. 1992, Mundkur and Taylor 1993) show that a considerable wild population of the 19 species considered in this article, occurs in Tamil Nadu. However, the nesting populations of most of these species do not match the population estimates made during these counts. The very occurrence of a large number of village irrigation tanks, some of them very small ones, that abound in the lower plains and the area adjacent to hilly region of Tamil Nadu (Anon 2005a, Vijayan et al. 2004), and the foraging opportunities they offer, makes one realise that there could still be many more heronries that are waiting to be discovered. Considering this, concerted efforts need to be made to develop regional inventories of heronries at district or taluk level and integrate them to project a true picture of the heronry scenario in Tamil Nadu. In this direction, individual birdwatchers, ornithologists, governmental and non-governmental agencies can contribute immensely. In addition, locating roosting and nesting sites of large colonial waterbirds should be included in the common bird programme of every birdwatcher and birdwatching NGOs in the state. In looking for heronries, it is worthwhile to explore the region around reservoirs and in regions where there are increased concentrations of waterbodies. Once an inventory has been developed, efforts should be directed to identify heronries with high density and diversity of nesting birds for long-term conservation.

Although, the availability of *Acacia* stands for nesting birds indicates an encouraging prospect, this good omen may well be short-lived as the future of all the tank-based nesting colonies that do not enjoy state protection is uncertain. The foreshore *Acacia* plantations are eventually slated for felling after 10 years, upon which, a portion of the revenue from such felling would go to the village panchayats (Wilson 1979, 1986; Naganathan *verbally*). Although the stands that are cut down after a growth period of 10 years were to be replanted again (Naganathan *verbally*), such a move has not largely happened. Considering the importance of *Acacia* stands for nesting birds, all the tanks with nesting colonies on their *Acacia* stands should be earmarked for protection on a priority basis. NGOs with an active involvement in local community can work towards identifying priority sites and getting them declared as protected sites and educate the villager for the need to conserve them, especially by way of the manurial benefits they have to offer. Towards this, the Tamil Nadu State Forest Department should actively consider putting an end to fellings of *Acacia* stands used by birds for nesting, and all the existing sites other than those, which have already been declared as bird sanctuaries, should be accorded protection.

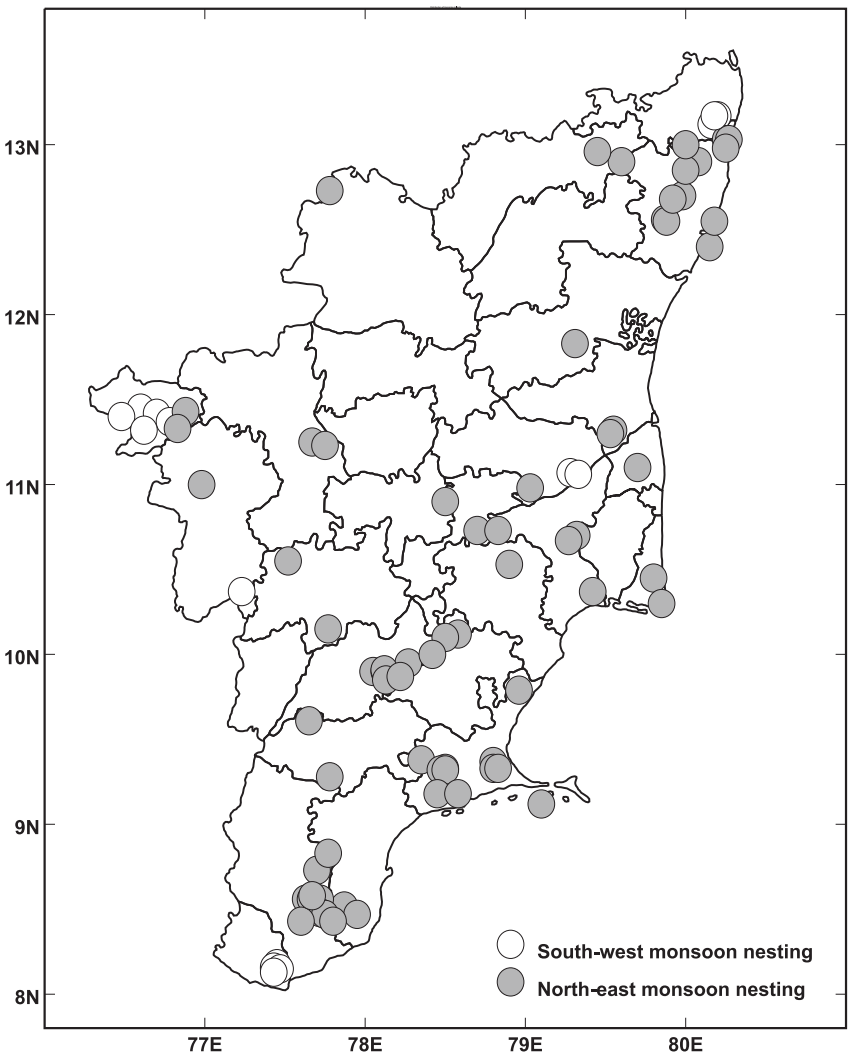

Figure 7. Distribution of nesting seasons in heronries across Tamil Nadu

"The Gurusami Effect"

Tamil Nadu is a state where the State Forest Department has done much for the establishment and protection of heronries. Outside this framework, there has been one individual who has devoted much of his life for conserving a heronry, the welfare of which was very dear to him. V. Gurusami's name is almost a synonym with the Simpson Estate heronry at Sembium in Chennai. What started as a small roosting site of about 60 Black-crowned Night-Herons in early 1960s, grew into one of the largest heronries in South India. Thanks to the concerted efforts of Gurusami, Tamil Nadu was able to boast of being a home for one of the finest heronries in the country. Gurusami worked as the Production Manager of Addison Paints at Simpson Estate, spread over 2.70 acres with well over 100 trees, which provided nesting space for 11 species of large colonially nesting waterbirds, numbering to over 20, 000 by the turn of this centaury. Considering the importance of the site for a growing heronry, he rallied support of his superiors and colleagues and turned it into conservation action. His unending enthusiasm and concern for the nesting colony is noteworthy. In an era where the State Forest Departments and NGOs are working within the framework of their large mandates, Gurusami, who worked silently and relentlessly for the welfare of the nesting site, is one of the shining stars of heronry conservation in India. His unstinted efforts besides being laudable, need to be emulated everywhere in India. Gurusami has spent much of his life to set an example that amply demonstrates what a single individual can do for long-term bird conservation. The unfortunate and sudden cessation of nesting activity of birds at the estate, a few years back, must have been heart rending for him. –S. Subramanya.

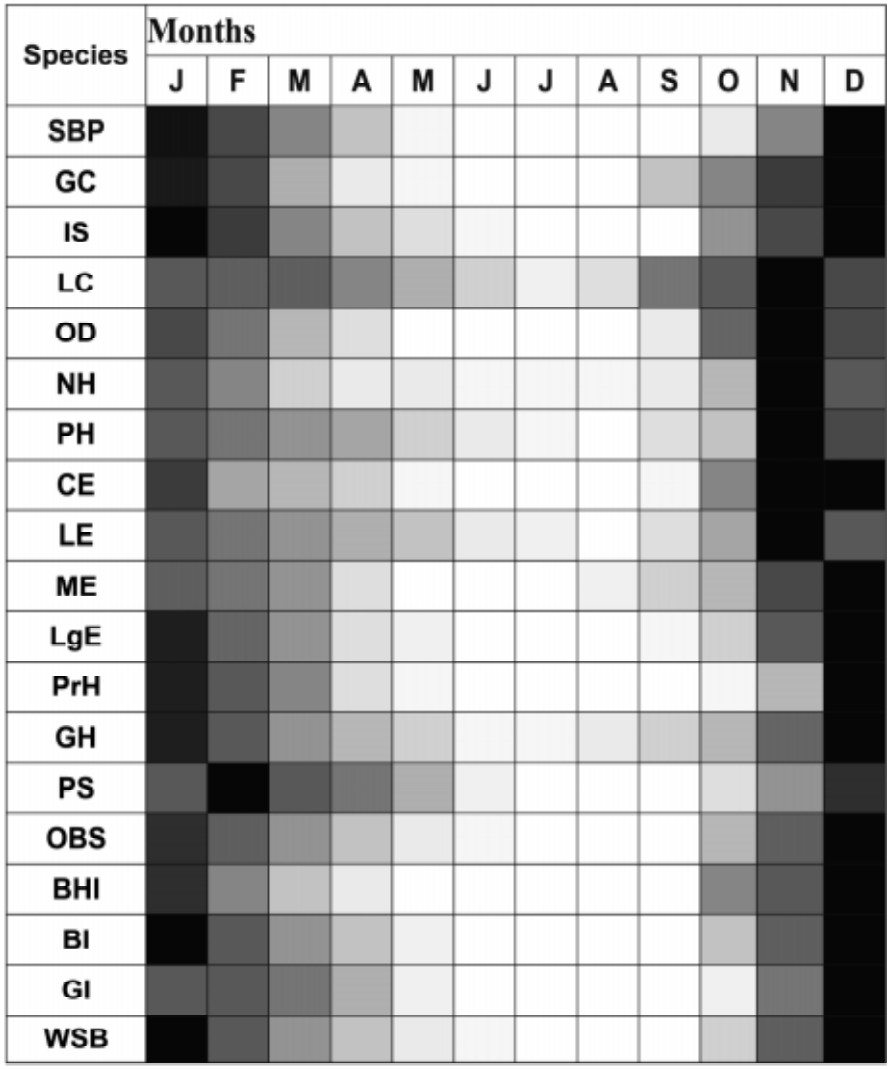

Figure 8. Nesting seasons of different species breeding in the heronries of Tamil Nadu
The darkest area indicates peak nesting activity.

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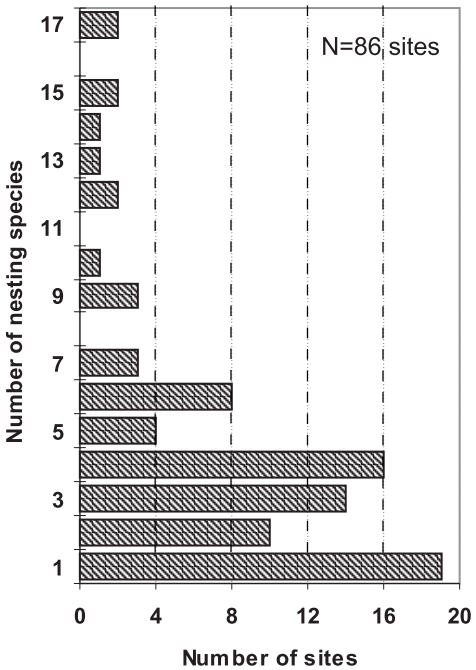

Figure 9. Number of species nesting in the Heronries of Tamil Nadu

Table 2. Top ten heronries of Tamil Nadu

Name of the site†	No. Birds*	Species
Vedanthangal	12,500	SBP, LC, IS, GC, D, LE, GH, GE, ME, CE, PH, NH, PS, OBS, GI, OWI, ESB
Vettangudi Patti Tank	8,000	SBP, LC, D, LE, GH, GE, ME, CE, PH, NH, PS, OBS, OWI,
Peria Kollugudipatty / Chinna Kollugudipatty	7,000	LC, LE, GH, GE, ME, CE, NH, , PS, OBS, OWI, BI, ESB
Koonthakulam	5,000	SBP, LC, IS, GC, D, LE, GE, ME, CE, NH, PS, GI, OWI, BI, ESB
Melaselvanoor-Kelaselvanoor sanctuary	4,000	SBP, LC, D, LE, GH, GE, ME, CE, PH, NH, , PS, OBS, OWI, BI, ESB
Chitrangudi	4,000	SBP, LC, GC, D, LE, GH, PrH, GE, PH, NH, PS, OBS, OWI, BI, ESB
Udayamarthandapuram	3,000	LC, D, GH, ESB
Point Calimere	3,000	NH
Vadamugam Vellode-	2,000+	LC, IS, GC, D, LE, GH, PrH, ME, CE,
Periyakulam Eri		NH, PH, OWI, BI, ESB
Lady Doak College Heronry	2,000+	LC, LE, PH, NH

* Yearly variations are known to occur in bird numbers. † see Appendix 1 for details.

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Appendix 1. Details of existing heronries in Tamil Nadu

District	Name	Nesting Spp.	Season	Source
Kancheepuram	Arignar Anna Zoological Park	SBP,LE,PS	Nov-March	S.V. Raajalingaraja, Paulraj et al. 1990
	Vandalur Tank	LC	July	S.V. Raajalingaraja
	Karikkili	SBP,LC,ME,CE,PH,NH, PS,OBS	Oct-March	Anon 2005 a & c, S. Dutt, A. Rajaram, Krishnan (1978),
	Edayur	SBP+	Oct-March	Kannan and Manakadan 2005
	Vedanthangal	SBP,LC,IS,GC, D,LE,GH,LgEME, CE,PH,NH,PS,OBS,GI,OWI, ESB	Oct-March	S. Dutt, Kevin D. Paulraj, R.K.G. Menon, Shortt 865, Bates 1931, Krishnan 1960, 1993, 2001, Spillett 1969, Siromoney 1984, Santharam 1981b, Paulraj 1985, Paulraj and Kondas 1987, Paulraj and Gunasekaran 1988, Santharam and Menon 1991, Venkatraman and Muthukrishnan 1993, Baskaran 1999, Santharam 2000, 2004, BirdLife International. 2001, Anon 2005 a, c,
	Kalpakkam	LC,D,LE,GH,CE,NH, PS	Oct-Jan	Rajaram A..L.V. Krishnan, M.A.R. Iyengar
Dharmapuri	TV Motors	LC,NH,PS	Feb-June	S. Subramanya, Subramanya et al, 2005
Erode	Pallipalayam	LC IS,D,LE,CE,PH,NH	May-June	S. Mohamad Ali,
	Vadamugam Vellode-	LC,IS,GC,D,LE,GH,PrH,ME,	Nov-Jan	R.Kannan, K.G. Anand Naik, G. Paramasivan,
	Periyakulam Eri	CE,PH,NH, OWI,BI,ESB		R. Hari Subramaniam, Anon 2005a
	Avalpoondurai Pond	LC,GC,LE,CE,PH,NH,BI	Nov	G. Paramasivan
The Nilgiris	Glenmorgan Headworks	GC	Sept	Nair 1996
	Kamarajasagar Reservoir	GC	Sept	Nair 1996.
	Mukurthi Reservoir	GC	Sept-Oct	S. Subramanya
	Wellington Cantonment	PH	May	I.E. Chukerbuti
	Avalanche Reservoir	GC	July	Zarri and Rahmani 2005
Cuddalore	Thiruchinnapuram	LE,GH,LgE,PH,OBS	Nov-March	S. Anand
	Veeranam	LE,GH,NH	Nov-March	S. Anand
Coimbatore	Coimbatore city	NH	Oct	S. Mohamad Ali,
	Amaravathi Reservoir	GH,NH	July-Oct	Isabel Martinez and Andy Elliott
Perambalur	Kudikadu	LC,LE,GH,ME,PH,NH	June-Oct	Ratnam 1969
	Kachipedunatham	LC,LE,GH,ME,PH,NH	June-Oct	Rathnam 1969
Nagapattinam	Mannampandal	LE,CE,PH,NH	Nov-Dec	G.Ramaswamy, C. Sivaperuman and M.Karthikeyan.
	Point Calimere	NH	Oct-Dec.	S. Anand
Tiruchirapalli	Vettakudi-Karaivetti	SBP,LC,D,LE,GH,NH,PS,OBS, OWI,ESB	Nov-March	A.Relton, BirdLife International. 2001,Anon 2005a,b
	K. Sattanur Tank	CE,PH,NH	Nov-March	V.S. Velayudan

District	Name	Nesting Spp.	Season	Source
Thiruvarur	Vadavur Tank	LE,GH,PH	Oct-March	Anon 2005a, c
	Udayamarthandapuram	LC,D,GH,ESB	Aug-Jan	K. Sivasubramanian, Anon 1990, Anon 2005a,c
Dindigul	Kongurkulam	LE,CE,PH,NH	Oct-Jan	S.T.Baskaran
	Battalkundu (Kodaikanal foothills)	PH,NH	Jan-Dec	A.Relton
Madurai	Nagamalai	PH	Oct-Dec.	Ambudass Arvind,
	American College	LC, LE,PH,NH	Nov-Jan	T. Badarinarayanan
Sivagangai	Vettangudi Patti Tank	SBP,LC, D,LE,GH,LgE,ME,CE, PH,NH,OBS,PS,OWI	Oct-April	V. Naganathan, A. Rajaram, G.S.Sanjay and Ragunatha, V, G.T. 1975, Naganathan 2005a,c
	Peria Kollugudipatty/ Periyakollankudi	LC,LE,GH,LgE,ME,NH,CE, PS,OBS,OWI,BI,ESB	Oct-April	A. Vallanattan, G.T. 1975, Anon 1977
	Chinna Kollugudipatty/ Chinnakollankudi	LC,LE,GH,LgE,ME,CE,NH, PS,OBS,OWI,BI,ESB	Oct-April	A. Vallanattan, G.T. 1975, Anon 1977
Virudhunagar	Watrup Big Tank	SBP,LC,OD,NH	Dec-March	S. Balachandran, Kannan and Manakadan 2005
	Sankarapandiapuram	LE,GH,PS,BI	Feb-May	S. Paulraj
Ramanathapuram	Parai Kanmoi	SBP,LC,D,LE,GH,PrH,PH,NH, PS,OBS,OWI	Nov-March	S. Balachandran, S. Vasuki
	Kanjirankulam	SBP,LC,LE,GH,NH,PH, PS,OWI,BI	Oct-March	S.Vasuki, Abraham 1974, BirdLife International. 2001, Anon 2005 a,c
	Sakarakottai Konamai	SBP,LC,LE,GH	Nov-March	S. Vasuki
	Ramanathapuram town	LC,LE,NH,PH	Oct-March	A.Relton
	Chitrangudi	SBP,GC,LC,D,LE,GH,PrH,LgE, PH,NH,PS,OBS,OWI,BI,ESB	Oct-July	P. Balasubramanian, S.S. Ramachandra Raja, Sanjay, G.S. and V. Raghunatha, S.Vasuki, BirdLife International. 2001, Anon 2005a,c
	Thaliyarenthal Tank	GH,LE	Feb-March	Naganathan 2005
	Manoli Island	GH	Jan-March	Naganathan 2005
	Mela-Keelaselvanoor sanctuary	SBP,LC,D, LE,GH,LgE,ME,CE, PH,NH,PS,OBS,BI,OWI,ESB	Oct-April	V. Naganathan, Anon 2005a, Jaishankar 2005, Naganathan 2005
Thoothukudi	Eppothum Ventan	LC,LE,NH,PS,OBS	Oct-March	Robert B. Grubh,
Tirunelveli	Sankar Cement Campus	LC,GH,PH	Nov-Dec	A.Relton
	Poolam	SBP,PS	Jan	Kannan and Manakadan 2005
	Ariyakulam	SBP,PH,NH,PS	Jan-July	G. Padmanabhan, A. Rajaram, Robert B. Grubh, Sanjay, G.S. and V. Raghunatha, Siva Subramanian, C. Susanthakumar, Chandrasekaran 1983, Nagulu and Rao 1983, Anon 1984, BirdLife International. 2001
	Koonthakulam	SBP,GC,IS,LC,D,LE,NH,CE,LgE, ME, PS,GI, OWI,BI, ESB	Nov/Feb-May/ June	Rhenius 1907, Webb-Peploe 1945, Wilkinson 1961, Johnson 1971, Kumar 1980, BirdLife International. 2001, Subramanian 2003, Anon 2005a
	Thirupudai Marudur	LC,NH,PS	March-June	Robert B. Grubh
	Sacred Grove			
Kanyakumari	Pudugramam Osaravila	CE	July-August	C. Susanthakumar
	Nagercoil DFO's House	LC,LE,NH	April-July	Robert B Grubb
	Compound			
	Nagercoil Nathaniel Street	LC,LE,NH	April-July	Robert B Grubb
	Nagercoil PWD Office	PH,NH	April-July	Sureshbabu, N.,
	Nagercoil Municipal Park	PH,NH	April-July	Sureshbabu, N.
	Suinda Kulam	LC,LE,GH,PrH,NH	April-July	Sureshbabu, N.
	Suchindram Tank	LC,LE,GH,PrH,NH,OBS	NK	V.Palani
	Manakudi Tank	LC,LE,NH,GH,PrH,OBS	NK	V.Palani

*Abbreviations as per text, NK= Not known

Appendix 2. Details of erstwhile heronries of Tamil Nadu

District	Name of the heronry†	Nesting species*	Season	Last seen	Reasons for loss	Source
Thiruvallur	Red Hill Tank	NH	Aug-Dec	early 1960	NK	Dewar 1905
Chennai	Simpson Estate	IS, LC, D, NH,	June-Sept; PH, CE, LE, ME, LgE	2002 Oct-March	NK	V. Gurusami, Shivarama-murthy, K.Viwanathan, T.Sudakar Reddy
	Theological College	LC, IS, LE, PH, NH	Oct-March	1998	NK	V. Santharam, Anon 1998, Gurusami 1998, Menon 2002, Oppili 1998
	Saligramam	NH	July/August.	1982	NK	V. Santharam
	Adayar	LE, CE, PH, NH	Oct-March	pre-1978	NK	Krishnan 1978
	Raja Annamalaipuram	LE, CE, PH, NH	Oct-March	pre-1978	NK	Krishnan 1978
	Mylapore	LE, CE, PH, NH	Oct-March	pre-1978	NK	Krishnan 1978
Vellore	Kaveripakkam	NK	Oct-March	pre-1970	Disturbance by people	Badshah undated
Kancheepuram	Chamrampakkam	NK	Oct-March	pre-1970	Disturbance by people	Badshah undated
	Packard's Openbill Colony	OBS	NK	pre-1935	NK	Baker 1935
	Madras Crocodile Bank	LE, LgE, ME, CE, PH, NH ,	Oct-March	pre-1993	NK	R. J. Ranjit Daniels
	Dhamal Tank	LC, LE, GH, NH, OBS	Oct-March	1969-70	Felling of Acacia trees	Krishnan 1978, S.T.Baskaran, A. Rajaram
	Perianatham	NK	Oct-March	pre-1970	Disturbance by people	Badshah undated
	Arapakam	NK	Oct-March	pre-1970	Disturbance by people	Badshah undated
Villupuram	Thennagramam	NK	Oct-March	pre-1970	Disturbance by people	Badshah undated
Nilgiris	Miss Cockburn's Colony	CE	NK	1864	NK	BNHM Egg collection
	Walhouse's Colony	PS, OBS,OWI	NK	pre-1861	NK	BNHM Egg collection
Nagapattinam	Senniyanalloor	LC, LE, PH, OBS	Oct-Dec.	pre-1986	NK	Anon 1986
Tiruchirapalli	Devarayaneri	NK	Oct-March	pre-1970	Disturbance by people	K.Sankaran, Badshah undated
Thanjavur	Thalainayar	NK	Oct-March	pre-1970	Disturbance by people	Badshah undated
Madurai	Thatchanendal	GH	Oct-March	early 1990s	NK	T.Badarinarayanan
	Vikaasa School	LC, LE, NH,	Nov-Jan	mid 1990s	Birds evicted	Kumaran Sathasivam; T. Badarinarayan
	Meenakshi College campus	NH	Nov-Jan	mid 1990s	Disturbance by people	Kumaran Sathasivam; T. Badarinarayan
	Vaigai	NK	Oct-March	pre-1970	Disturbance by people	Badshah undated
	Samanatham	LE, GH	Oct-April	1967	NK	Perumal (1967):
	Lady Doak' College	NH	Oct-April	2004-2005	Birds evicted	S.T. Bhaskaran, T. Badarinarayanan
Ramanathapuram	Cheluvanoor	SBP, PS	Oct-April	pre-1950s	Disturbance by people	Abraham 1974
	Nenmeni	NK	Oct-March	pre-1970	Disturbance by people	Badshah undated
	Kamudi	SBP, PS	Oct-March	pre 1950s	Disturbance by people	Abraham 1974
	Pillayarkulam	SBP, PS	Oct-March		Disturbance by people	Abraham 1974
	Gangaikondan	NK	Oct-March	pre 1970	Disturbance by people	Badshah undated
	Seethaparapanallur	NK	Oct-March	pre 1970	Disturbance by people	Badshah undated
	Ramalingam Tank	SBP, LC, LE, PS	Jan-March	pre 1961	NK	Ganguli 1964
	Moondradaippu Tirunelveli	SBP, LC, LE, PS	Jan-March-June	1988	Poaching and felling of trees	A. Rajaram, RJ. Ranjit Daniels, Ganguli 1964, MN 1980, Anon 1984, Bird Life International. 2001
	Velurkulam	LC, NH, PS	March-June?	2002	Felling of Acacia trees	Robert B Grubh
	Karungulam	D, LE, CE, NH	NK	pre 1978	NK	Krihnanan 1978
	Vijayanarayanam Village	SBP, LC, PS	March-June	pre 1980		MN 1980
Thoothukudi	Kadavanodi	LC	Jan-April	1972	Poaching of nestlings	Daniel (1980)
Kanyakumari	Theroorkulam	LC, LE, GH, PrH, NH, OBS	NK	1993	Felling of Acacia trees	V.Palani

Does Sykes's Crested Lark *Galerida deva* occur in Kerala?

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In this note, I take you through a set of references and analyses that conclude that the Sykes's Crested Lark *Galerida deva* does not have a distribution in Kerala.

Historical information on the distribution

1. In *Birds of Kerala* (1969), Salim Ali refers to the display song of this species while describing Malabar Lark *G. malabarica*. However, he did not come across the bird nor collected any specimens from Kerala. He also does not mention anyone to have come across this species (sighting or specimen) in Kerala.
2. In *Keralathile Pakshikal* (1986 in Malayalam), Induchoodan (aka, Neelakantan) dedicates a whole text to this species along with Malabar Lark *Galerida malabarica*. He mentions that the major difference between Sykes's Crested Lark and Malabar Lark is the flight song, which the former has, and the latter does not[1]. (So comically described as similar to the difference between "Namboodiri" & "Namboodiripadu". Namboodiri and Namboodiripadu are two closely related sects of Hindu Brahmins in Kerala and "padu" in Malayalam means "to sing"). Neelakantan found this lark to be common in Palakkad district in central Kerala, and extensively describes its song flight. This is by far the most definite reference of its presence in Kerala.

Recent information on the distribution

1. Grimmett et al (1999) and Kazmierczak (2000) do not give Kerala as a distribution range for this species.
2. The only recent published reports of this bird are by Praveen et al. (1994, 1997) from Walayar reservoir (Palakkad district). Both these reports are misidentifications! The birds we referred to were Oriental Skylarks *Alauda gulgula*. These records have been corrupting literature for sometime and it is time that I corrected them. Oriental Skylark is very common in most of the dry reservoir beds in Palakkad district and can be heard singing high up in the sky.

The song flight of the Sykes's Crested Lark

Though I have been quite familiar with the song flight of Oriental Skylark for a long time, it was quite recently that I was able to study the song flight of Sykes's Crested Lark near Bangalore. Some of the birds (probably males) took to the wing on occasions and let pour a much richer warbling (compared to an Oriental Skylark) without any traces of dry "*riti-riti-riti*" but with a good mimicry of calls of many other birds. The species mimicked are listed below:

1. Large Pied Wagtail *Motacilla maderaspatensis.*
2. Indian Robin *Saxicoloides fulicata.*
3. Magpie Robin *Copsychus saularis.*
4. Pied Bushchat *Saxicola caprata.*
5. Redwattled Lapwing *Vanellus indicus* – partial.
6. Little Ringed Plover *Charadrius dubius* – partial.
7. Small Pratincole *Glareola lactea.*
8. Brown Shrike *Lanius cristatus.*
9. Common Myna *Acridotheres tristis.*
10. Brahminy Kite *Haliastur indus* at a much subdued pitch.
11. Indian Grey Hornbill *Ocyceros birostris* again much subdued.

[1] Malabar Lark does sing but always from the ground or from a perch.

The main differences in the song flight of Sykes's Crested Lark and Oriental Skylark are given below.

No.	*Galerida deva*	*Alauda gulgula*
1.	The song delivered by flying in circles or in a zigzag flight at a height of about 20m from the ground. Ali & Ripley (1986) describe the flight as "…soaring, hovering, wandering..." I never saw the bird hovering more during all my observations.	The song delivered by hovering at a single location and gaining height vertically until the bird reaches 30-40m above the ground. Ali & Ripley (1986) describe, "…suspended in the heavens or less stationary at this pitch, hovering on vibrating wings…"
2.	All the song flights that I could time rarely exceeded 90 seconds and never went above 120 seconds.	The song can go on for quite a few minutes, though I have not precisely timed any. Ali & Ripley (1986) mention, "may last for over ten minutes without an instant's pause".
3.	The ascent of the bird from its perch is at a tangent to the ground.	The ascent (after the initial take off) is vertical, on rapidly quivering wings with legs dangling.
4.	The reach of the call is not more than 50–100m. One has to strain ones ears to pick the call if the bird is singing further away.	The call can easily reach over 150–200m.
5.	Ali & Ripley (1986) mention that this bird has a better vocabulary in mimicry. This probably has attributed its song to be more deliberate with disjoint phrases.	The song is much more freely delivered, continuous and the "*riti-riti-riti*" notes fill in whenever the bird is not mimicking.
6.	On some occasions, the birds were seen singing from a perch (a stone). The song notes were similar (with mimicry) and duration mostly lasted 60-90 seconds.	I have never come across a Skylark singing from a perch except for a short burst of "*riti-riti-riti*" that lasts no more than 10 seconds; as if the bird is ascertaining itself that it has not forgotten the phrases!

Analysis

The crux of the hypothesis is that Neelakantan (1986) was referring to the Oriental Skylark while he wrote the elaborate text for the Sykes's Crested Lark. The key to the puzzle is the flight song that he describes in the book. Portions of his text describing the lark as, "…a gandharva singing from the heavens…" when translated embraces this meaning.

"…. A continuous melody with an assortment of songs and tunes interweaved with multitudes of other harmonies superimposed with the jingling of the anklets lasting for at least **four to five minutes** [author's emphasis]…"

"…Fluttering its wings, the bird performs this orchestra from the sky by **hovering** [author's emphasis] with short vertical ascends and descends …"

Neelakantan saw his lark sing high up in the air and explicitly mentions that it was "suspended" while singing. Nowhere in the text does he give an impression of a "wandering" or "flying in circles" kind of flight for the bird. The "spec in the sky" phenomenon, the "vertical ascent" and the time extent of the song flight indicate an Oriental Skylark rather than a Sykes's Crested Lark. Moreover, he has missed describing the Oriental Skylark, a possibly more common species (as it is now), in the book that indicates a misidentification. In light of these arguments, it is more likely that Neelakantan's bird must have been an Oriental Skylark.

Though I have discussed this with many birders from Kerala, all of them consider it a "tough thought" to vouch against a publication made by the undisputed doyen of Kerala ornithology whom all of us consider "the authority"; particularly in screening dubious records.

Does the distribution of Sykes's Crested Lark extend up to Kerala?

This is a difficult question to answer but I can give circumstantial evidence that it does not. Ali & Ripley (1986), Grimmett et al (1999) and Kazmierczak (2000) give southern Karnataka (Bangalore and Mysore area being the tip) as the southern-most limits of this bird. We do not have any published reports from Tamil Nadu. Namassivayan (verbally, i.2005), Sanju Varghese (verbally, i.2005), and I have covered many dry areas in Palakkad district (1987 till date) and have not come across this bird. Walayar and other reservoirs do have a similar habitat (open grassy meadows with some exposed rocks) to that around Bangalore, where I have recorded it. There is a possibility that it could occur in some of the drier parts of north Kerala (a fast disappearing habitat!). However, C. Sasikumar confirmed (verbally, iv.2005) that he has not seen this bird anywhere in north Kerala.

Hence, we may conclude that Kerala does not fall in the distribution range of this species. I would appreciate any comments on this note or information on sightings of Sykes's Crested Lark from Kerala, Tamil Nadu or the border regions of Karnataka (Nagarhole, Bandipur, Mangalore, etc.).

Observation details

I collected the details of the song flight of Sykes's Crested Lark during two summer visits to T. G. Halli, a reservoir near Bangalore. The birds sang on the wing five times between 11:30hrs and 13:00hrs on 9.iv.2005 and seven times between 09:30hrs and 12:00hrs on 17.iv.2005. The details of Skylark's song are from my observations of the bird over the past 12 years from many areas in Kerala and from a few places in Karnataka and Andhra Pradesh.

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A record of a Sooty Tern *Sterna fuscata* from the Valparai plateau, south India

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The Valparai plateau is in the Anamalai hills of the southern Western Ghats, south India, with tropical evergreen forests fragmented by several tea plantations. On 17.vi.2004 some children brought a Sooty Tern *Sterna fuscata* to us, which had reportedly fallen to the ground behind their school. When the bird did not move for some time and crows (*Corvus* sp.) started gathering around it, they picked it up and brought it to our research station. It seemed completely exhausted and could not move when put on the ground. We collected morphometric information (given below) using a wing rule and digital vernier callipers. The bird died a few minutes after we received it. There were no evident external wounds on the bird.

The Sooty Tern is described to be a pelagic tern seldom coming to land, and is reported to breed in the Maldives and the Vengurla rocks off the western coast of the peninsula (Ali & Ripley 1983). There have been a few reports of vagrants ("storm blown?") from Bihar, Assam and Tamil Nadu. The non-breeding range of the species is insufficiently known (Ali & Ripley 1983). We believe that the individual could have been storm-blown as there was heavy rainfall and strong winds on that day. This is presumably the first record of this species from this area, even though under unnatural circumstances.

This individual did not have the characteristic white frontal band till the eye as reported for adult birds in Ali and Ripley (1983) and Kazmierczak (2000). Instead, this individual had a dark head with buff white speckles on the forehead. It also did not have the clear buff white spotting on the back and the wings as reported for juveniles in Ali and Ripley (1983) and as illustrated in

Grimmet et al. (1999) and Kazmierczak (2000). Marginal white spots were visible on the back only upon close inspection. It had grey colouration from the neck to the end of the thorax while the region from the belly to the vent was white (see backcover). The bill, wing and tail shape were typical of *Sterna* spp., terns. The moult seemed new, and morphometric information matched with measurements in Ali and Ripley (1983). We presume that this individual was a sub-adult bird, based on these characters. The dead bird was handed over to the Salim Ali Centre for Ornithology and Natural History, Coimbatore, south India, where they skinned and stuffed the bird. After the dissection, we were informed that the bird was a female and that it's stomach was empty, it had very little fat content, and no visible skeletal (or wing) damage. The post mortem report indicates that the bird possibly died of fatigue.

Morphometric readings:

Body length (tip of bill to tail tip)	-	355.0 mm
Wing length (primary)	-	287.0 mm
Bill length (from base of skull)	-	042.7 mm
Tarsus length	-	022.6 mm
Tail length	-	145.0 mm
Base of tail to fork	-	080.0 mm

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More on the distribution of the White-winged Tern *Chlidonias leucopterus*

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The article on 'Distribution of White-winged Tern *Chlidonias leucopterus* in India and a new record from Andhra Pradesh' provides a useful summary for the species. I would like to add some extra information and clarify a few points.

The detailed list of records from each state does not include Bihar, Himachal Pradesh or West Bengal, and only mentions the Andaman Islands, Assam and Tripura incidentally; in addition, Raipur is stated to be in Madhya Pradesh, whereas it is now part of the split-off state of Chhatisgarh (see e.g. Chandra and Singh 2004).

Bihar: Dalgleish (1902) noted that in the Darbhanga district he 'shot a bird which I identified as this species, but unfortunately lost the skin'; he gave no date for this record.

Himachal Pradesh: Perennou and Mundkur (1991) listed a count of five made during the annual Asian Waterfowl Census.

West Bengal: Majumdar et al. (1992) referred to two collected on 20.vi.1965 and one collected on 2.v.1966 in North 24-Parganas district. Chowdhury (1984) recorded it in the Calcutta area and Anon. (1995) reported it from the Sunderbans. Carol Inskipp and I saw one on 27.iii.1980 near Calcutta.

Andaman Islands: Hume (1879) referred to a specimen procured on 16.iv.1879 at Aberdeen by F. A. de Roepstorff, and added that 'Later in the season a flock of this same species was seen at Haddo but none were procured.'

Assam: Inglis (1896-1902), referring to Hylakandy district in Cachar noted that 'I find I have identified a Tern as this species, but will re-examine the skin to see whether it is correct or not.' Baker (1929) reported that 'Hole, Primrose and I all obtained specimens in Cachar.' van der Ven (1988) noted that three were seen at Dipor Bheel, Gauhati during the Asian Waterfowl Census. Datta (1995) noted that it was a common migrant to Dhubri district, and Choudhury (2000) listed it as an uncommon winter visitor to Assam.

[Tripura: Hume (1870) referred to a 'beautiful specimen in full plumage' collected in 'Tipperah'; this was clarified by Hume (1879) as from the Meghna river, Comilla, which places it in present day Sylhet, Bangladesh.]

Chhatisgarh: Pittie et al. (2005) suggested that 'Ali and Ripley (2001) erred in dating D'Abreu's record from 1935'; however Ali and Ripley's statement 'Once taken in Madhya Pradesh (Raipur, D'Abreu, 1935, JBNHS 38: 112)' is clearly just a citation of the reference, not providing a date for the occurrence.

Extra references for other states

Andhra Pradesh: Perennou et al. (1990) listed 10 counted during the AWC in 1990; Perennou and Mundkur (1991) listed 22 counted in 1991.

Delhi: Carol and I saw one on 19 April 1980.

Gujarat: Perennou *et al.* (1990) listed two counted in 1990; Perennou and Mundkur (1991) listed 25 counted in 1991.

Jammu and Kashmir: Anon. (1982) and Williams and Delany (1985) referred to one seen in Ladakh during the period August-November 1981.

Karnataka: Perennou et al. (1990) listed 31 counted in 1990; Perennou and Mundkur (1991) listed two counted in 1991.

Kerala: Perennou and Mundkur (1991) listed 75 counted in 1991.

Orissa: Perennou and Mundkur (1991) listed 5,230 counted in 1991. Dev (1992) described a summer-plumaged bird seen at Chilika Lake but no date was given.

Rajasthan: Perennou and Mundkur (1991) listed seven counted in 1991.

Tamil Nadu: Scott and Rose (1989) listed one counted in 1989; Perennou and Mundkur (1991) listed 32 counted in 1991; Mundkur and Taylor (1993) listed one counted in 1993.

In addition, Lopez and Mundkur (1997) provided annual figures for India – 1994: 21, 1995: 10, 1996: 232, and a composite map for

the species shows that these records were from three sites in Orissa, one site in Rajasthan, and one site in Tamil Nadu; Li and Mundkur (2004) provided similar figures for subsequent years – 1997: 0, 1998: 0, 1999: 2, 2000: 0, 2001: 20.

Some of the records collected during the Asian Waterfowl Census counts have been questioned (e.g. Rahmani 1992) but this is published information and should not be ignored. The counts take place in winter when this species is more difficult to distinguish from the widespread Whiskered Tern *Chlidonias hybridus* and the rarely reported Black Tern *C. niger*. It is thus quite possible that some of the counts of White-winged Tern involve other species but note that, with experience, it is relatively easy to identify this species in non-breeding plumages, even at some distance.

The birds of South Asia. The Ripley guide was reviewed in the same issue of *Indian Birds* (pp. 92-94). Aasheesh Pittie suggested that 'The maps in the *Ripley guide* are based largely on verified specimens, which fact might reduce the range of species when compared with those in other books, but one could say they are more defensible in their accuracy.' However, the *Ripley guide* maps the White-winged Tern as occurring over a large swathe of north-west India from Kashmir south to Gujarat, including all of Haryana (where there are no records), and extensively inland in northern Orissa. Compare this with the maps in Grimmett *et al*. (1998) and Kazmierczak and van Perlo (2000) where the actual records are mapped far more conservatively.

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Tim Inskipp is the co-author of several books on the birds of South Asia including *An annotated checklist of the birds of the Oriental Region* (1996; Oriental Bird Club) and *Birds of the Indian subcontinent* (1998; Christopher Helm).

Predation of fledgling Painted Stork *Mycteria leucocephala* by a Spotted Eagle *Aquila* spp. in Sultanpur National Park, Haryana

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In India, wintering raptors are known to supplement their diet with nestling storks (Naoroji 1990). This phenomenon, as reported from the Keoladeo National Park, appears to be a common reason for stork mortality (Naoroji 1990) but is not reported from other heronries in the country in spite of widespread occurrence of raptors (Urfi 1993, 2002). Methods of predation of stork nestlings have not been actually observed and are not known (Naoroji 1990). Here I report on the predation of a stork nestling from Sultanpur National Park, Haryana with a description of the method of predation.

Spotted eagles *Aquila* spp., are common wintering birds at the Sultanpur National Park. Heronries with at least two species of storks (Ciconiidae), many herons (Ardeidae), cormorants (Phalacrocoracidae) and darters (Anhingidae) are a predominant feature of the Park in years with regular

rainfall. On 3.xii.2004, in the early hours of the morning, one spotted eagle was seen to dive onto a nearly-fledged Painted Stork, which was on a nest with two other young birds. The nest was on a clump of *Prosopis* sp., amongst other nests of Painted Storks and herons. The parent storks were not at the nest. The eagle aimed for the middle part of the neck of the young stork, caught it, attempted to fly off with the prey, and when it could not, tumbled off the nest into the vegetation. The actual killing and eating of the young stork was not observable.

Single spotted eagles are not able to displace adult Painted Storks from nests (Naoroji 1990), and the absence of adults at the predated nest must have attracted the eagle's attention. Adult Painted Storks were seen on several occasions to give open-winged threat displays to over-flying raptors that included harriers and eagles (Accipitridae), and lunge displays to raptors that flew too close overhead. These behavioural displays are apparently commonly used by this species to prevent predation of nests by raptors (Naoroji 1990). The absence of nest-predation records by raptors at other heronries is puzzling considering the large population of wintering raptors in India, and this form of mortality to stork young is likely to be much more widespread than literature would have us believe. The impact of such mortality on the breeding success of the globally near-threatened Painted Stork is an important aspect to be studied.

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K. S. Gopi Sundar has worked with waterbirds for several years in India. He presently coordinates the activities of the International Crane Foundation in India and develops programmes for the Indian Cranes and Wetlands Working Group which includes a national coordinated road count of large waterbirds.

A note on the breeding of the White-bellied Shortwing *Brachypteryx major* from the Western Ghats, south India

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The White-bellied Shortwing *Brachypteryx major* is one of the endemic birds of the Western Ghats, India (Ali and Ripley 1983) and is a globally Threatened species (BirdLife International 2001). The classification and nomenclature used in this manuscript follows Monroe and Sibley (1997). During a status survey of this species, conducted in the Kerala and Tamil Nadu sections of the Western Ghats, from January to May 2001, I made a few observations on its breeding behaviour in montane evergreen or *Shola* (as they are locally known) forests.

Mating: Three instances of mating were observed. *Brachypteryx major major* was observed mating, at Avalanche in the Nilgiris on 18.iv.2001. The other two instances were of *Brachypteryx major albiventris* mating, at Eravikulam National Park on 2.ii.2001 and 27.iii.2001. On all instances, mating was on the ground, and lasted a few seconds.

Nest Building: Two nests (hereafter referred to as nest-1 and nest-2) of *B. m. major* were found at Longwood Shola, Nilgiris. Nest-1 was detected when it was being built, while nest-2 was discovered with eggs. At the time nest-1 was detected, its framework seemed to be complete (with twigs and roots) and a bird was lining and shaping the inner parts of the nest with moss. Observations were made for eight hours (from a hide), over three days (19-21.iv.2001), during this stage, after which nests were checked every morning. Two individuals were seen active near the nest. Only one individual, presumably the female, was observed building the nest. The other individual, perhaps the male, was observed bringing food ('nuptial gift'?) to the other (female?) only once during the observation period. Considerable time (>4days) seemed to be spent on creating the right shape and lining the nest with moss, after the framework was completed. Every time more moss was brought, it shaped the inside by pressing its belly to the inside of the nest and moving itself, occasionally moving parts of the moss here and there with its beak. Mating could not be recorded for this individual.

Nest: The shape, structure and location of the nests were on lines with the description by Ali and Ripley (1983) except that nest-1 was 1.8m above the ground in a crack on a tree trunk. Nest-2 was almost at ground level, placed between the buttresses of a tree. Nest-2 was situated along a path and was not concealed in any way.

Eggs: Both nests were checked daily. Two eggs each were observed in both nests. The eggs were slightly oval with brownish tinged cap on the broad side, generally in accordance with Ali & Ripley (1983). In nest-1 the second egg was laid a day after the first egg, which seems to be the case with most passerines (Birkhead & Moller 1992). An unknown predator preyed upon nest-2, both eggs were missing with no trace of shell fragments, the entire nest was loosened from the original position and was lying on the ground when inspected two weeks later. Enthusiastic naturalists living near-by mentioned that they have observed crows from the town of Kothagiri prey upon many eggs. Though it is possible that the predation could be from the large number of crows in the region, any other small carnivore could have also preyed upon this nest.

Incubation: Incubation period at nest-1 was 16 or 17 days. Although this information is from only one nest, it is important, as there is no previous record of the incubation period for any *Brachypteryx* spp. However, data needs to be collected from more nests.

The identification of predators and their effect on the nesting success of this threatened bird needs to be looked into.

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Sighting of Bar-headed Goose *Anser indicus* at Kanha National Park (India)

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On 27.xii.2004 while moving within Kanha National Park, I found a lone Bar-headed Goose *Anser indicus* at a shallow pond near Indri camp. Phagun Singh Marava, the forest guide who accompanied me, did not recognise the bird and informed me that he had never seen this species in the park. He had a copy of D'Cunha's checklist (1998) in which it was not listed. Neither was this species reported from the park by Newton et al. (1986). The lone bird was swimming in the pond with four Greylag Geese *Anser anser* and there were not many other birds around. A juvenile Changeable Hawk-Eagle *Spizaetus cirrhatus* was also present on a dry snag.

Ali & Ripley (1987) suggest that this species is rare in Gujarat and Deccan, but leapfrogs as far south as Mysore in small numbers. The distribution map given in Kazmierczak (2000) suggests that there are only three records of this species from central, eastern and southern Madhya Pradesh. Tyabji (1994) saw this species once on 18.i.1987 in Bandhavgarh National Park. The two other records are probably from Pachmarhi and Pench. I surveyed ponds and lakes near Chhindwara town (southern M. P.) in the same week and found no signs of Bar-headed Geese in that area.

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Recoveries from the *Newsletter for Birdwatchers* (1963) – 9

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Regional Secretaries were appointed on 23.xii.1962 at the second AGM of the *Newsletter for Birdwatchers*, and this ensured it a wider publicity, and enabled the editor to draw in birdwatchers from the whole country. The persons appointed were Salim Ali, Bombay; B. Biswas, Calcutta; Mrs. Usha Ganguli, Delhi; Prof. K. K. Neelakantan, Trichur (Kerala); Dr R. M. Naik, Baroda; Mrs. Jamal Ara, Ranchi (Bihar); E. D. Avari, Darjeeling; K. S. Lavkumar, Saurashtra.

Several resident Englishmen at that time were very enthusiastic about the *Newsletter*. One of the keenest was S. K. Reeves. He reported the rare case of the arrival of a Houbara *Chlamydotis undulata* in Suffolk, England. This bird, which breeds in Afghanistan and Baluchistan, is a winter visitor to north-west India and is the unfortunate target of sheikhs from the Middle East, who bring their falcons here to hunt it. The Houbara, in consequence, is the cause of some unfriendly exchanges between our government and the rulers of Middle Eastern sheikhdoms. Though not unlike the Great Indian Bustard *Ardeotis nigriceps*, this bird seldom occurs "south and east of a line from Delhi to Baroda", and its sighting by Reeves in England was an important event.

K. S. Lavkumar made a wise suggestion about protecting our greatly endangered Great Indian Bustards. "The best method to safeguard the Great Indian Bustard is to include it on the list of the 'farmers' friends'…to make them aware of the value of the bird as a destroyer of locusts and other such pests. Our effort in this way to enlist positively their help in protecting the bustard would go further than all the legislation banning its shooting".

The calls of birds are often a leading clue in determining a species. Mrs. Jamal Ara had a useful note in the January 1963 issue, describing the calls of 12 species of cuckoos in Bihar, ranging from the soft "*cook-koo*" of the migrant Common Cuckoo *Cuculus canorus* to the boisterous "*coop-coop-coop*" of the Greater Coucal *Centropus sinensis*. Having noticed a Common Cuckoo displaying before its mate in July near Ranchi, she says, "Undoubtedly it breeds there". If true, this would be a significant discovery.

Peter Jackson's contributions have always been of unusual interest, and I quote from his visit to Ladakh, "I reached Leh on December 15th. It was a bright sunny morning with a sprinkling of snow on the ground…Magpies *Pica pica bactriana* (=Black-billed Magpie *P. pica*) scavenging around the town were the most noticeable birds…I went by jeep for about 140 miles south-east along the Indus. Some 30 miles from Leh the valley narrows to a gorge about 50 miles long…(and) the gorge finally opens out into a broad desert plain…The most common bird was the Shore Lark *Eremophila alpestris elwesi* (=Horned Lark) an attractive little lark with black horns, cheek patches and breast band. With them were Short-toed Larks *Calandrella acutirostris cinerea* (=Hume's Short-toed Lark)".

S. V. Neelakanta kept a careful watch on a pair of Black Kites *Milvus migrans*, which first built their nest on a banyan tree. Because of harassment by crows, the nesting was never successful. Then they moved to the framework of a water tank and built the nest 40 feet above ground. "The eggs were laid early in the cool weather, and the two nestlings are already (6th February) larger than house crows, and can be seen exercising their wings". Neelakanta observed later that a pair of House Sparrows *Passer domesticus* had become sub-tenants of the kites. "The sparrows are nesting under and partly within the kite's nest."

The *Newsletter* became a little more 'dressy' when S. V. Neelakanta made a sketch for the cover of the July 1963 issue consisting "of Whitebacked Munias (*Lonchura striata*) perching on a Casuarina tree (*Casurina equisetifolia*). The birds started building a globular nest on Sunday the 12th, and finished the same on the 14th May. By kneeling on the top of my car, I was able to put my finger on the lateral entrance of the nest on the 16th, and found no eggs." In the August 1963 issue Mr. Neelakanta's article on how birds fly, illustrated with eight sketches, is well worth reading if only to understand that the general belief that "birds fly by pushing the air downwards and backwards with their wings" is far from the truth. Things are not always, what they seem.

The April 1963 issue carried a fine article by Jasper Newsome, a nephew of Col. R. Meinertzhagen (formerly renowned for his researches, some of which have now been proved to be scandalously fabricated). Writing about birds around Bombay, Jasper said "For a birdwatcher coming from England to step off a boat at Bombay is twice as exciting as it must be for an ordinary visitor…one entered…a new world full of wonderful new birds…A morning at the National Park was a great success. We saw an Osprey, some blackwinged stilts, a greenshank, some common sandpipers, endless little cormorants, which were new to me and several species of egret and heron".

In March, Jasper went by train to Delhi. "From the comforts of the air conditioned express I looked out at a cross section of Indian countryside. I saw almost 50 species of birds from the train, including many new to me, such as the Whitenecked Stork, Adjutant, Sarus Crane, White Ibis, Peafowl and others…(An) interesting thing about the birds of northern India in winter was that many of them I know in Europe in the summer were there for the winter, and behaving differently. For example the pipits were hard to identify because they did not call; similarly the Leaf Warblers, Lesser Whitethroats, and Moustached Warblers only became obvious when I sat down by bushes and waited for them to emerge or put up mist-nets and caught them…In May I go to Kashmir and then to Afghanistan. If the Editor chases me vigorously enough, I may produce a final article to conclude this wonderful visit to India and her birds." Alas, in Nepal Jasper succumbed to drugs, and that was the end of this splendid young man.

Joseph George wrote a fascinating piece on his observations of four species of young cuckoos. "Young cuckoos of four different species were seen in New Forest, Dehra Dun every summer. They were the Koel, the common Hawk-Cuckoo, the Pied Crested Cuckoo and the Indian Cuckoo. Crows were the fosterers of the first, and Jungle Babblers for the second and third. The calls of the fledgling cuckoos, as they followed their foster parents, were a poor imitation of the calls of the latter. The calls were also similar to, but distinguishable from the calls of the legitimate young of the fosterers themselves.

"The Black Drongo was the only bird seen fostering the Indian Cuckoo for several years. In 1960 and again in 1961 one young bird was seen fostered by Golden Orioles while two or three others were, as usual, fostered by Black Drongos. The call of the Drongo-reared Indian Cuckoo was, as was to be expected, more or less the same as the call of young Drongos. But contrary to what might have been expected, the Oriole-reared Indian Cuckoos also called the same call as Drongo-reared Indian Cuckoos. The only noticeable difference was that the 'Oriole Indian Cuckoos' sounded more musical than 'Drongo Indian Cuckoos'. Their calls were not similar to the calls of either adult or young Orioles."

Sometimes the *Newsletter* became scientific beyond its usual style, attempting to identify for example the seven subspecies of the Wryneck *Jynx torquilla*. Involved in this debate were Usha Ganguly, Julian Donahue and S. K. Reeves. The Wryneck, though allegedly a widely spread species, is often missed being sighted because it is "deceptively sparrow like particularly in flight". I would have missed seeing it in our garden in Dodda-Gubbi (Bangalore) were it not for Salim Ali's usual accurate description: "Has a comical way of stretching neck and bill upwards and twisting its head slowly from side to side…" How like the Indian Grey Hornbill *Ocyceros birostris* – though in all other respects so different.

Not many police officers these days are involved in birding, but Pratap Singh, A. S. P. Khargaon, W. Niniar (Madhya Pradesh) got interested through the *Newsletter*, and wrote a useful note on the Great Indian Bustard. "In July 1955, in my short round of 15 miles from my home (Kota, Rajasthan) I came across 17 birds. They were mostly seen in pairs. The hitherto bleak and forbidding landscape had become alive with the rains, and these birds were feeding on sprouting shoots or making short runs and catching grasshoppers and crickets". Other notes by him on the bustard are also helpful in understanding the status of the bustard 50 years ago.

Bird names or their mis-names keep arousing the ire of birders. Joseph George wrote, "Recently I assisted General (Sir Harold) Williams in the production of a revised check-list of the 'Birds of Delhi and District'…We ran up against a number of problems in naming some of the birds logically…The word 'Indian' is sometimes used before the names of birds. At other times, it is not used. In this connection, it is well to remember that the Tree Pipit and the Indian Tree Pipit are two different species (Ripley call the latter Hodgson's Pipit). Let us be certain where we want to use 'Indian' and where not…The use of the word 'common' bothers some people when used for a bird that is not common, as for instance the Common Cuckoo in Delhi…"

Responding to George's note, Salim Ali wrote, "Mr. Joseph George has touched upon a point of which the unsatisfactoriness – inconsistency, and even absurdity has long been felt…Most of the incongruities, of course, stem from the fact that English names for our birds were 'manufactured' or bodily transported from Britishers familiar with their own birds when up against species in their own country". Unfortunately the new names based on 'more' scientific discoveries relating to Families, Genera and Species has mad nomenclature even more confusing.

Descriptions of stretches of country of ecological value are invaluable for future planners and Prof. K. K. Neelakantan, writing of his home village, Kavasseri, in the Palghat Gap (Kerala) laments the passing of this avian paradise. "Now one does not see even one-tenth of the number of birds one used to some ten years ago…The very small number of unusual birds (the Red Spurfowl, the Greenbilled Malkoha, the Whitethroated Ground-thrush, to mention a few examples, are clinging on to the minute patches of scrub and woods that remain…rubber plantations attract few birds and unfortunately, it is rubber and tapioca that is replacing our scrub forest."

In another note, Prof. Neelakantan refers to an uncommon experience of "rare birds…Knocking at our doors." In the heart of crowded Ernakulam in April 1963, a Drongo Cuckoo *Surniculus lugubris* and a Black-naped Oriole *Oriolus chinensis* arrived in his garden. "It is interesting to note that both these birds had been attracted to the place by the occurrence of a particularly suitable kind of food: The Drongo Cuckoo had undoubtedly come in search of the large caterpillars; the Oriole had come for the ripe fruit of a large mulberry bush growing 15 yards away from the mango tree."

Salim Ali often commented on the behaviour of birds – which suggested (if not confirmed) that they were just enjoying life. Here he refers to the cat-and-mouse antics of a cormorant.

"A note in my diary made at Keoladeo Ghana, Bharatpur, 3 years ago reminds me of this interesting incident. A large Cormorant (*Phalacrocorax carbo*), obviously sated, dived and brought up a catfish about 6 inches long in its bill. It swam with the quarry to the shore some 30 feet away, dropped it struggling on the bank, obviously enjoying the spectacle. Presently it picked up the fish again and swam out with it some distance, released it in the water, dived after it, caught it again and carried it back to the shore. The bird repeated these maneuvers deliberately several times before jerking the fish into position and swallowing it head foremost which it seemed in no hurry to do. This is manifestly the same play as a cat makes with a mouse it has caught and clearly for the fun of it."

The constraint of space makes it necessary to refer even more briefly than I have done above to the material in the issues October-December 1963. Based on information supplied by Zonal Directors of Lighthouses in Bombay, Calcutta and Madras, Salim Ali wrote about the migratory movements of Openbill Storks. Usha Ganguli presented a detailed note on the nesting of Redvented Bulbuls *Pycnonotus cafer*. Julian Donahue continued his crake watching in Delhi. K. S. Lavkumar was enthusiastic, as always, about "the best place to watch birds….the home garden."; queries about S. V. Neelakanta's article on how birds fly. The Editor's roundup of birdwatching during 1963 ended with the cheering quotation from the Hazaribagh National park, about, "A Bird in the Bush worth two in the hand."

Padmashri Zafar Futehally is the founder-editor of *Newsletter for Birdwatchers* and edited it for 40 years. He is the recipient of several national and international awards in the field of wildlife conservation including Order of the Golden Ark (1981) and the Salim Ali International Award for Nature Conservation (1997). He is editor emeritus of *Indian Birds*.

Editorial

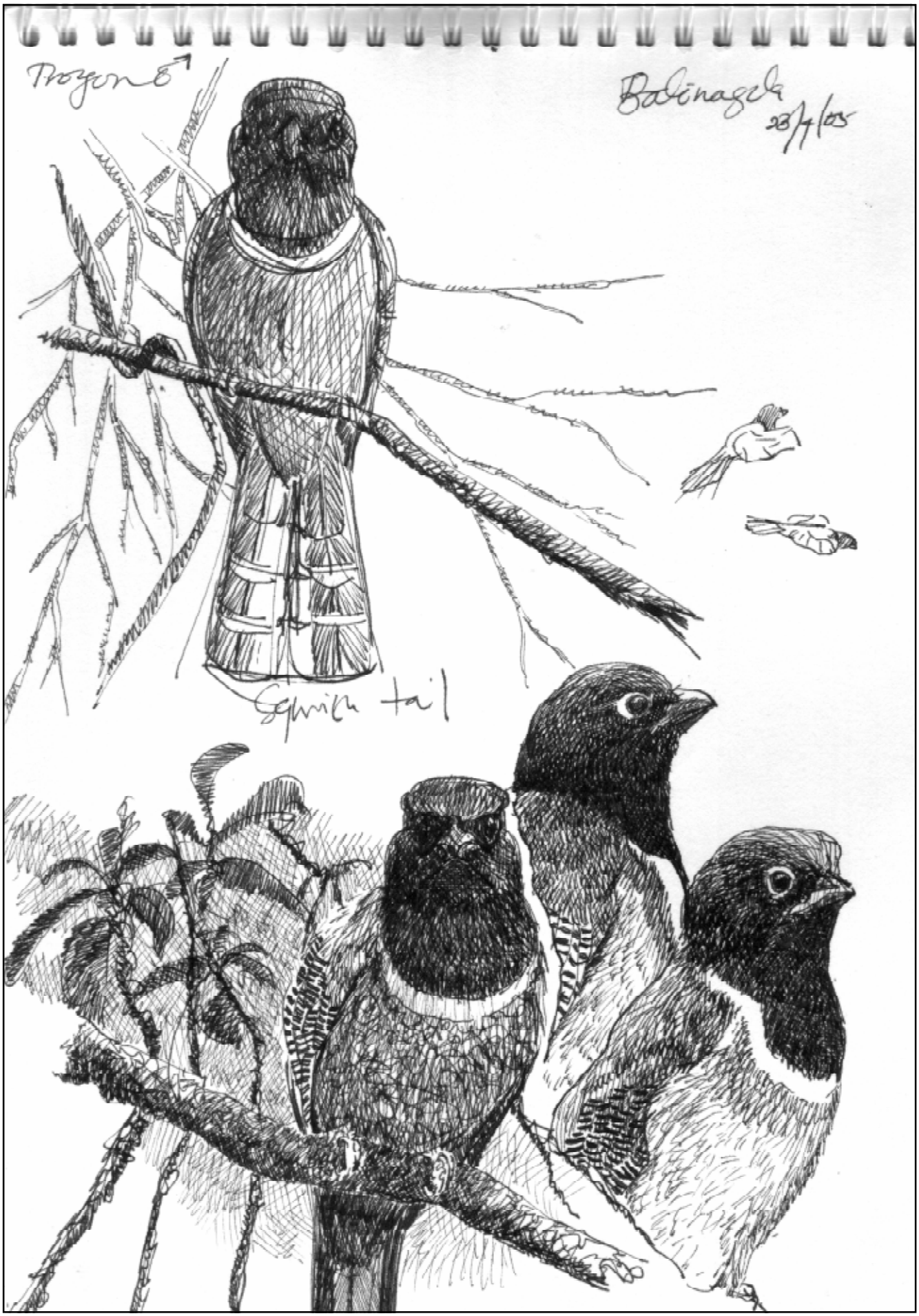
On a dark moonless night in 1996 a few friends and I stood near Reddipalli village (Cuddapah district, Andhra Pradesh, India), in a dry scrub area, mesmerized by a torch-beam that illuminated a Jerdon's Courser *Rhinoptilus bitorquatus*. This Glareolid survivor of antediluvian continental fragmentation, this Sinbad of the adrift continental Indian plate floating inexorably across the Sea of Tethys, this frail witness to cataclysmic geological upheavals, survives by a toe-hold in a corner of Andhra Pradesh, furtively dodging everything that an uncaring human world throws at it. The instinct to survive, honed over aeons of evolutionary fine-tuning, has helped this Gondwanan relic cling precariously to its fast disappearing world. The irrigation canal that threatened it when it was re-discovered in 1986 looms once again over its dry scrub habitat. Twenty years ago, it was saved by N. T. Rama Rao, a chief minister of Andhra Pradesh, whose pride in the Telugu people was judiciously exploited by Pushp Kumar, a legendary officer of the Andhra Pradesh Forest Department. He asked the chief minister how a hero of the Telugus could tolerate the extinction of the only truly *Telugu* bird in the world? When this riddle was explained to him, Rama Rao, to his credit, gave instructions to re-align the canal. Will Jerdon's double-necklaced (*bitorquatus*) courser be able to breast this fresh storm? A BNHS and WWF-India representation to the Chief Secretary and Secretary Irrigation Department was reassured that the Irrigation Department had no intention of harming the Critically Endangered endemic and that the canal would be re-aligned before work recommenced. If this is not done, here is a worthy case for judicial intervention.

With this last issue of *Indian Birds* for 2005 is enclosed an index to the *Newsletter for Ornithologists*, which was published in 2004. It can be bound in with the set for ease of use. We hope to enclose a similar index to *Indian Birds* (2005) with the January-February 2006 issue.

Several people have helped tremendously in putting the 2005 issues of *Indian Birds* together and we would like to place on record our gratitude. Szabolcs Kókay, Sachin Jaltaré, Otto Pfister, Sumit K. Sen and Clement Francis M. for artwork and photographs that adorned our covers. Messers Pitti Laminations Limited and G. B. K. Charitable Trust for financial support. All our anonymous referees for their patience and diligent perusal of manuscripts and typescripts. S. K. Anwar Hussain for computer work and P. Rambabu for all the office work (printing and postage). We would also like to thank our contributors for their trust and support and our subscribers for theirs.

Wishing all of you a very happy and fulfilling 2006!

- Aasheesh Pittie


Drongo ♂
Badinagala
28/4/05
Sqwirl tail

Sooty Tera *Sterna fuscata* Photo: V. V. Robin