

Colour variation in Indian Pond Heron *Ardeola grayii* (Sykes, 1832) in Kannur District, Kerala

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Indian Pond Heron is a small heron in the family Ardeidae distributed throughout Indian Union which during breeding season acquires maroon hair like plumes on back and a long occipital crest (Ali, 2001). Most of the birds have attractive breeding plumes during reproductive stage. The breeding plumes of Ardeids are displayed extensively during courtship (Mock, 1976, 1978), suggesting that they play a role in mate selection. During a heronry survey in Kannur District, Pond Herons with two different colour variations were observed nesting.

Heronry bird population (excluding juveniles) was assessed using nest count by colonies method (Sutherland, 2006) in the nesting areas. The count was carried out for five days from 30th July, 2013 to 4th Aug 2013, during the peak of breeding season (July-August) in the region. The survey area was selected based on the published data on nesting locations in the study region. During the survey, information such as the species of the nesting bird, number of nests of each species, number of nesting trees, species of nesting trees, latitude and longitude of the location using Global Positioning System (GPS) etc. were recorded. The bird species were identified using field guides and binoculars (8x30X, Crown). The population of bird species was estimated directly from the count.

A total of 30 heronries consisting of 1730 nests of nine species of birds belonging to three families (Anhingidae, Phalacrocoracidae and Ardeidae) were observed during the study period. Pond Heron was the highest in abundance (1068 nests), followed by Little Cormorant (385), Night Heron (149), Median Egret (86), Indian Shag (22), Little Egret (13), Darter (4), Grey Heron (2) and Purple Heron (1).



Fig. 1 Showing colour variation in Pond Heron in Stadium Heronry of Kannur District on 2nd Aug 2013. A - Red legged Pond Heron



Fig 2. Greenish legged Pond Heron

During the heronry survey, two colour forms were observed in Pond Heron *i.e.* birds with reddish legs and birds with yellowish-green legs. Among a total of 30 heronry sites recorded in Kannur District, 21 were observed lodging Pond

Hérons with both colour forms. It was noted that reddish coloured legged Pond Herons had bright bluish coloured bills (Fig. 1). The yellowish green coloured legged pond herons had normal green tinted yellow bills (Fig. 2). Most

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Fig 3. Pair of Pond Herons with red leg



Fig 4. Pair of Pond Herons with greenish legs)

(60%) Pond Herons in the study sites were found to have reddish legs during breeding period. This indicated an observable phenotypic difference even within the same species *Ardeola grayii*.

Krebs *et al.*, (2004) observed a distinctive red coloration in the legs, bill, lores and irises prior to pairing in Cattle Egrets. Similarly, it was believed that during breeding season these birds changed their tarsus colour from greenish yellow to reddish-pink

but we observed pair of birds with both colour forms incubating in the same heronry site. This suggests that not all the birds acquire red coloration during breeding season. Pond Heron pairs with both types of leg coloration were observed nesting in Stadium heronry (Fig. 3 & 4). This colour variation was observed during earlier period itself.

Grimmett *et al.*, (1998) mentioned "Legs can be bright yellow or even reddish" and "salmon pink in some

breeding individuals" by Ali and Ripley (2001) of Pond heron. Hancock and Kushlan (1978) described the colour of legs in Pond Heron as "sometimes show a salmon-pink flush early in the season"; "legs turn red before individuals acquire full breeding plumage". Earlier, it was believed that only female pond heron had red coloration in their legs during breeding season. Ali and Ripley (2001) observed rose-coloration in females in the Maldivian sub species and Relton (1966) mentioned red coloured leg in female Pond Heron in India. However, nesting pairs, both with red legs have been reported in Pamburuthi heronry (Kannur district, Kerala) by Shashikumar in 2005 (*per comm.*) suggesting that both male and female birds can acquire red coloration in their legs. The author reported that 15% of all Pond Herons in Pamburuthi Heronry had red legs in 2005 and in four nests both birds had red legs. Red-legged Pond Herons have also been observed in Gujarat, Uttar Pradesh and Kerala (Abdulali and Alexander 1952; Parasharya and Naik 1987; Relton 1996; Wesley, 1993 and Sundar, 2004, 2005).

Leg colour varied from bright red to pinkish in majority (<60%) and yellowish green coloured legged pond heron were in minority during the heronry survey 2013 in Kannur district. Similar pattern of coloration was also noted in Night Heron (*Nycticorax nycticorax*). Observable phenotypic characters may have genotypic difference. Maroon hair like plumes on back and long occipital crest during breeding season are used primarily in courtship displays and are absent in the non-breeding season, suggesting that the ornamental plumage found in herons is a sexually selected character. However the evolutionary significance of the red coloured leg is unknown. Genetic studies are required to understand variations in the species which may provide better knowledge of phenotypic characters.

References

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Environmental Events Calendar-Second Quarter of 2014

National Maritime Day-5 April 2014

The theme of the 51st National Maritime Day celebrations would be "Maritime India – exploring avenues for HRD". <http://dgshipping.gov.in>

International Day on Monuments and Sites -18 April 2014

Monuments and sites, including those more complex and diversified forms of heritage places such as living landscapes, are tangible carriers of the memory of a part of the human experience. <http://www.icomos.org/en/what-we-do/focus/18-april-international-day-for-monuments-and-sites>

International Mother Earth Day-22 April 2014

The proclamation of 22 April as International Mother Earth Day is an acknowledgement that the Earth and its ecosystems provide its inhabitants with life and sustenance. It also recognizes a collective responsibility, as called for in the 1992 Rio Declaration, to promote harmony with nature and the Earth to achieve a just balance among the economic, social and environmental needs of present and future generations of humanity. <http://www.un.org/en/events/motherearthday/>

International Composting Awareness Week 5-11 May 2014

International Compost Awareness Week (ICAW), celebrated each year the first full week of May, is the largest and most comprehensive education initiative sponsored by the compost industry. <http://compostingcouncil.org/icaw/> or <http://www.compostweek.com.au/core/>

World Migratory Bird Day 10-11 May 2014

The theme for 2014 will be linked to the topic of tourism and migratory birds, focusing on the global bird – and wildlife watching industry and sustainable tourism as a vehicle to conserve migratory birds and their habitats. <http://www.worldmigratorybirdday.org/>

International Day for Biological Diversity 22 May 2014

The theme **Island Biodiversity** was chosen to coincide with the designation by the United Nations General Assembly of 2014 as the International Year of Small Island Developing States. <http://www.cbd.int/idb/2014/>

World Turtle Day 23 May 2014

World Turtle Day was initiated in 2000 by the American Tortoise Rescue, a turtle and tortoise rescue organization founded in 1990 in Malibu, California. The group brings attention to turtle conservation issues and highlights ways each of us can help protect these gentle but jeopardized animals. http://www.humanesociety.org/animals/turtles_tortoises/tips/celebrate_world_turtle_day.html

World Environment Day 5 June 2014

World Environment Day (WED) is the United Nations' principal vehicle for encouraging worldwide awareness and action for the environment. In support of the UN designation of 2014 as the International Year of Small Island Developing States (SIDS), WED this year will adopt SIDS in the broader context of climate change as its theme. <http://unep.org/wed/>

World Oceans Day 8 June 2014

By its resolution 63/111 of 5 December 2008, the UN General Assembly designated 8 June as World Oceans Day. The official designation of World Oceans Day is an opportunity to raise global awareness of the challenges faced by the international community in connection with the oceans. <http://www.un.org/en/events/oceansday/>

World Day to Combat Desertification 17 June 2014

The World Day to Combat Desertification has been observed since 1995 to promote public awareness relating to international cooperation to combat desertification and the effects of drought. <http://www.unccd.int/en/programmes/Event-and-campaigns/WDCD/Pages/default.aspx>