

Indian zoos can contribute towards ornithological research in novel ways

Zoos are an excellent storehouse of information about diverse aspects of animal biology and have contributed in great measure to the studies on anatomy, longevity estimates, behaviour, nutrition, reproductive biology, etc. 'Providing opportunities for scientific studies useful for conservation in general and creation of database for sharing between the agencies involved in *in-situ* and *ex-situ* conservation' are among the stated objectives of the Central Zoo Authority¹. While for the Indian zoos research on captive animals is embedded in their agenda, in practice the situation is slightly different. To illustrate our point, we take up a specific issue of ornithological research by focusing on wild waterbird colonies located within the premises of certain Indian zoos.

The near-threatened painted stork (*Mycteria leucocephala*) is found all across the Indian subcontinent, with a propensity towards nesting in colonies located within urban premises, including zoos and public gardens². In 1960, a wild colony of painted stork established itself in the ponds of the Delhi zoo, and has had a more or less uninterrupted nesting record since then. Being conveniently located, this colony is exceedingly amenable for studies on various aspects of the biology and ecology of the species. Studies covering diverse aspects have already been undertaken (see ref. 2 for details). We embarked upon a programme to study its population genetics using molecular methods (microsatellite DNA analysis)³. Thus, this particular painted stork nesting colony affords the best example of a detailed long-term study on a single population of a wild bird from India⁴.

While the use of molecular genetics approaches for research on conservation biology, bio-geography and systematics is now quite commonplace⁵, the trend has yet to catch up in the context of Indian birds. A crucial aspect in this type of research hinges on the nature of tissue being used for extracting DNA, which forms the basis of subsequent analysis. While extracting blood from live birds is ideal, since blood provides large quantities of DNA, this 'invasive' method is largely discouraged because permits for

capture of birds or drawing blood from captive individuals are difficult to obtain, especially for researchers in universities. One has to therefore resort to passive, 'non-invasive' methods such as extracting DNA from shed body parts (say shed feathers), which are more difficult.

Generally speaking, as long as the field studies being undertaken are observational in nature, there is no problem in the zoos. The problem really starts when requests are made to physically handle live specimens for tissue sampling purposes. So, while we have been fortunate to have received the fullest cooperation from the Delhi Zoo authorities for continuing our ecological studies on painted stork over the years, requests for permission to draw blood from captive specimens have been ignored. This is understandable given that most Indian zoos have several problems to cope with. Some of these are – being burdened with a number of managerial tasks, lack of resources, absence of research staff and facilities, lack of coordination between zoos and research institutions, bureaucratic hurdles, poor budgets, etc. Perhaps, one of the reasons for discouraging invasive sampling could be, real or perceived, fear of censure from various activists groups. We reiterate an oft made point, that the bureaucratic approach practised by officers (of the central services) who are often in charge of protected areas and zoos, as against zoo experts, scientists, veterinarians, appears to be a systemic problem⁶, calling for a drastic change of mind.

One may ask, what is the situation in other countries? Generally speaking, in most parts of the Western world collaborations between researchers and zoos are encouraged. Perhaps, it would be more appropriate to raise the question in the context of our Asian neighbours, and here we have an example which is similar to the situation prevailing at the Delhi Zoo. For instance, at Zoo Negara in Kuala Lumpur, Malaysia, a colony of milky stork (*Mycteria cineria*) and painted stork has been in existence for several years⁷, serving the purpose of both an excellent outdoor exhibit for wetland birds, as in the case of Delhi Zoo, as well as for providing material for

molecular ecology research. The fact that a number of studies on this population have emanated over the years^{8,9} would suggest that, far greater possibilities for tie-ups and collaborations between zoos and researchers exist even in some of our Asian neighbours.

Having taken just one example of a research theme in which cooperation of the zoo authorities is warranted, the issue raised *per se* is not entirely new since in the wider context of wildlife research in protected areas, it has been raised before⁶. The MoES, New Delhi (the central authority which handles issues related to permits in areas within its jurisdiction) should evolve a clear policy in this regard which is sensitive to the needs of researchers and scientists.

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