Do some bird species receive more aggression than others in a multi-species enclosure?

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Captive breeding is a form of conservation that is performed by many organisations worldwide, from zoos and aquariums, to wetland centres like the Wildlife and Wetland Trust (WWT) in Martin Mere. Captive breeding aims to create a stable and healthy population of the endangered species in question in order to reintroduce the species back into their natural habitat (1). A form of captive breeding is a mixed species enclosure, like that within the aviary at Martin Mere where this project will take place. The species enclosed include: Crowned crane (*Balearica regulorum),* Avocet (*Recurvirostra avosetta),* White-faced whistling duck (*Dendrocygna viduata)* and, Comb duck (*Sarkidiornis melanotos).* Multi-species enclosures are common and often encouraged to provide a more dynamic and enriching environment. They often display species sharing similar ecological or geographical themes (2). Snyder *et al.* (3) rightly stated that those who have captive breeding programmes should operate to prevent disease and have genetic and behavioural management. This project will allow for the aggression behaviour of the species kept within the aviary to be monitored. Overall, the data collected will be used to further manage their enclosure, to provide the best conditions and welfare for the birds involved. This is important as space in such organisations is becoming limited. Therefore, by maintaining the welfare within this enclosure, space can be maintained and there can be an increase in conservation return on space and infrastructure by keeping multiple species in one enclosure and not separate.

References

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The effect of nitisinone on mosquito survival

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Mosquito-borne diseases, such as malaria and dengue, continue to be one of the leading causes of mortality across the tropical regions. Reducing these high mortality rates is focused primarily on vector control, highlighting the importance of developing novel control methods that will effectively reduce the population of mosquitoes, thus reducing the transmission rate of these deadly diseases and the devastating social and economic burdens which follow. My project investigates a novel mosquito control method that has had minimal research to date. I will be investigating the effect of the drug, nitisinone, on the tyrosine degradation pathway and determining whether this affects the survival of mosquitoes. Tyrosine is an essential amino acid but is toxic when present in high concentrations, which is shown in the human genetic diseases, Tyrosinemia type I and Alkaptonuria. Female mosquitoes must take blood meals to ensure their reproductive success and survival. When a blood meal is digested, toxic concentrations of tyrosine are produced in the mosquito, however, they can detoxify the excess tyrosine. We will be investigating the optimal concentration of nitisinone, which is an inhibitor of an enzyme used in the tyrosine degradation pathway; and determining if it causes tyrosine to accumulate to a toxic concentration, thus killing the mosquito. The rise of insecticide resistance makes this investigation imperative as novel control methods must be found to keep the incidence rates of these diseases low, prevent epidemics, and allow time for effective drugs and vaccinations to be developed, which present more long-term solutions.