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THE EFFECTS OF FIRE ON A BREEDING COLONY OF AUSTRALIAN PELICANS

North Perron Island (13°10′S, 130°01′E), which is approximately 18 km^2, lies 5 km off the coast and 130 km south-west of Darwin. On its south-western corner is probably the Northern Territory's only pelican breeding colony that is active each year. With 2 000–5 000 adults involved in nesting in each of the last four years that I have aerially surveyed the colony, it is not only of local significance but also of national significance.

In 1992 a fire burnt through the colony. The colony, which was observed on a pre-fire aerial survey to have in excess of 1 000 pairs on eggs, was totally devoid of pelicans on a second aerial survey eight weeks later. The fire had occurred sometime between the surveys. No investigations of the cause of the fire were made but it is assumed that it was deliberately lit.

No fires occurred in 1991 or 1993 and the colony was successful each year.

In late July 1994, accompanied by Quarantine Department Officers, I visited the site following a report of hundreds of dead pelicans in the vicinity of the colony. The report was correct. An estimated 1 000 pelicans were dead and a few were still dying. Most were between about a quarter grown and near full size. No sick or dead adults were found. There was also in excess of 100 nests with burnt eggs, obviously from a late addition to the colony of another group of pelicans.

Again a fire had burnt out most of the island, including in the vicinity of the colony even though some of the colony was on sand with little vegetation. For a number of reasons fires are deliberately lit in the dry season. Consequently, fires are fairly widespread in the Top End of the Northern Territory during this time of the year, and considerable areas on the adjacent mainland would have also been burnt.

Observations indicated that there were two stages in the mortality of the young pelicans. Some, which had died earlier, were now just piles of bones. These were in an area where the fire would have been much hotter due to the vegetation present. They were probably killed by direct heat radiation rather than being burnt as none of the bones was blackened. The remaining approximately two-thirds of the young pelicans were in a less vegetated part of the colony and had died progressively over a longer period. A few were still just alive. All of the eggs within nests with dead eggs were blackened from the fire.

Seven dead and dying birds were collected for blood and cloacal samples. Four of these (one dead and three nearly dead) were taken back to the Government Health Laboratories. Tests failed to show the presence of any diseases such as Newcastle disease or botulism, however, post-mortems showed very high internal parasite loads and external lice infestations. Stomachs were empty of food but heavily laden with parasitic worms. There was also a small amount of burnt grass in some stomachs. The sick pelicans were very anaemic with extremely low red blood cell counts, a possible consequence of the high parasite loads.

There were approximately 2 000–3 000 pelicans in the general area and most had swam too far off shore to see how many young were among them. There were, however, at least 100 young among the birds on the shore and those which had not swam too far out. Consequently, I am unable to say what percentage of the colony died but, assuming that at the most 2 000 pairs of adults bred and that there were at least 1 000 dead young and 100 burnt out nests of eggs, it would appear that the percentage of young that had survived was low.

Problems such as drying up of lakes, lack of food, predation or excessive disturbance are known to cause the failure of pelican colonies. To this can now be added fire. As well as directly killing eggs and flightless young, it is likely that it also caused a great deal of stress to both young and adult birds, particularly the former. In addition, the possible subsequent abandonment by parents with resultant starvation could have caused an explosive increase in parasites, that contributed to their deaths. It is likely that these internal worms were already present in young pelicans, passing into their systems through fish which form part of the parasite's life cycle.

I have no proof of how the fire(s) were lit but it is fairly safe to assume that they did not start from natural causes such as lightning at this time of the year. Regardless of whether they were lit legally (within this Aboriginal land) or illegally, it is imperative that it is not repeated in future years — if the pelicans return!

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