



Australian Government
Australian Transport Safety Bureau

ATSB Bird Information Sheet No.5

Ibis

Managing bird strike risk at Australian airports



Ian Montgomery

IBIS

Strike Risk

ATSB rank 2 *

Between 1991 and 2001 there were 39 bird strikes reported to ATSB which involved ibis. Of these:

- 41% resulted in damage to aircraft
- 17.9% had an effect on planned flight
- 17.9% involved more than 1 bird

Ibis are a very serious hazard to aircraft as they are relatively large and form flocks which can over-fly or thermal above airports. It is possible for more than one bird to be struck which can potentially cause the failure of one or more engines.

*Ranking and figures were obtained from The *Hazard Posed to Aircraft by Birds* (ATSB 2002).
<http://www.atsb.gov.au/aviation/research/birdstrike.cfm>

About Ibis

Australian White Ibis

Threskiornis molucca

Other Names

Sacred or White Ibis

Size

Length 65-75cm; wingspan 110-125cm; weight 1.7-2.5kg (males) 1.4-1.9kg (females).

Identification

Adults have a white neck and body, black tip to flight feathers, bare black head and long black downward curved bill. Their feathers often become stained and dirty. When breeding, pinkish red skin is visible on back of head and underwings and they have yellowish breast feathers.

Juveniles have a shorter and straighter bill and the back of the head is feathered.

Distribution

Australian White Ibis are widespread throughout eastern third of Australia and across the coastal and wetland parts of northern Australia. They are also found in south-western corner of Western Australia.

Preferred Habitat

Australian White Ibis are naturally found throughout terrestrial wetlands and sheltered marine habitats (i.e. tidal mudflats and mangroves). Due to their successful adaptability to human habitation, they are also common to public gardens, garbage landfills, lawns, orchards, pastures and airports.

Food

They prefer small aquatic animals, small fish and insects. However their diet is highly variable and adaptable, taking in a range of organic matter from a variety of sources from natural habitats to urban environments such as rubbish tips. They are well adapted to scavenging from people.

Behaviour

Australian White Ibis are sociable birds that feed and roost individually or in large flocks, sometimes containing thousands of birds. They communally roost at night in trees, often with a range of other birds such as spoonbills, egrets and darters. Individuals will continually use the same feeding and roosting areas, but will disperse to other areas if necessary.

Breeding

Breeding usually takes place between June and January but varies between different parts of Australia. Ibis tend to nest in groups, often with the nests of neighbouring breeding pairs touching. 2 to 4 eggs are laid in a nest comprised of sticks and twigs located in the fork of branches or in vines or on the ground where protected from predators and humans.

Straw-necked Ibis

Threskiornis spinicollis

Size

Length 60-70cm; wingspan 100-120cm; weight 1.1-1.5kg

Identification

Adults have yellowish straw-like feathers down front of neck; a featherless black head and long black downward curved bill; black-brown-green-purplish iridescent upperparts and white underparts.

Juveniles have a shorter and straighter bill; head is feathered; neck is feathered white. They lack the iridescent sheen to upperparts.

Distribution

Straw-necked Ibis are widespread apart from arid areas of central and southern Australia and are only present in north of Tasmania.

Preferred Habitat

Straw-necked Ibis prefer grasslands, cultivated land and terrestrial wetlands. They are also found in urban gardens, playing fields, garbage landfills, abattoirs and airports.

Food

They prefer a wide range of small animals including freshwater crayfish, frogs, fish, beetles, and snails.

Behaviour

Straw-necked Ibis are usually found feeding and roosting in large flocks. They communally roost at night in trees. Their roosting and nesting colonies can contain several thousand birds. They tend to migrate seasonally or in response to rainfall.

Breeding

The timing of breeding varies depending on district and rainfall patterns. Nesting occurs at wetlands often on islands or flattened reed beds. 2-5 eggs are laid in a shallow cup sometimes lined with grasses.



T. Tarrant

Managing the Ibis Hazard at Airports

Ibis at Airports

The main attractions for ibis at airports include:

- **Grasslands**
Grassed areas of airports are attractive to ibis, particularly during and after mowing or rainfall. Mowing kills and/or exposes invertebrates and small vertebrates for ibis to feed on. Rainfall forces soil-borne invertebrates to near the surface where ibis can use their specialised bill to seize them. Dry grasslands can also attract ibis, particularly Straw-necked Ibis where grass is sparse and short, there is easy access to the soil for prey items.
- **Food waste**
Ibis are opportunistic scavengers and are able to forage on a variety of human food wastes. These may be available at or adjacent to airports where waste management practices are poor or where people feed birds.
- **Waterways**
Australian White Ibis are attracted to forage along the edges of waterways or within shallow waterbodies.
- **Transit Routes**
Australian White Ibis can fly up to 30kms between foraging and roosting sites in large flocks at low altitude, potentially coinciding with aircraft flight paths.

Active Management

Active bird management involves scaring or removing birds from the airport. There are numerous options available for the task, some of which have limited effect in the long term as birds become used to them. Generally, a combination of techniques provides the best results. For ibis, the following active management options can be considered:

- ✓ Disperse ibis using pyrotechnics (such as cracker shells), portable distress callers, sirens, lights and/or vehicles.
- ✓ Occasional killing (shooting) may be required (under permit from the relevant state or territory authority) to reinforce the impact of equipment used for dispersal. It should not, however, be considered as the primary solution for airports.
- ✓ Using trained animals such as birds of prey and dogs to disperse birds from airports has been highly successful in North America and Europe. This can be a costly operation, requiring specially trained animals and experienced handlers. Permit requirements for such activities vary between states and territories in Australia.
- ✓ Off-airport active management may include removal of eggs and nests at breeding colonies to limit population increase. An integrated management strategy which involves a variety of stakeholders may be required to manage overabundant ibis populations at a regional level.
- ✓ Limiting food supply at landfills and other foraging areas is necessary to reduce regional ibis populations and can be achieved by dispersing ibis using a combination of active management techniques.

Note: not all the suggested strategies have been trialed at Australian airports and it may be necessary for each airport to independently trial any particular method before incorporating it into their bird management plan.

Habitat Modification

All bird management strategies should seek to initially make an airport as undesirable as possible to birds through habitat modification. An assessment of the airport should be completed by a person qualified and experienced in identifying bird attractions and recommending site-specific modifications.

Limiting ibis attraction at airports may require:

Reducing the attraction of grasslands

- ✓ Employ a tall grass policy in all non essential areas. Grass maintained at around 30cm makes it difficult for ibis to access invertebrates in the ground and to see approaching predators.
- ✓ Reduce the frequency of mowing or mow at night to limit the availability of invertebrates, such as worms or insects, which may be exposed during mowing.

Note: A tall grass policy should only be adopted if it is carefully planned and monitored. In some instances it may increase rodent populations and attract other bird species such as birds of prey. See "Managing Grasslands" Information Sheet No. 3 – Masked Lapwings.

Limiting food waste

- ✓ Ensure effective waste management procedures are followed by all staff and tenants working on or in the vicinity of an airport.
- ✓ Public education through signs and pamphlets to discourage public feeding of ibis at on or adjacent to the airport.
- ✓ Off airport food sources such as landfills may need to be managed. See "Managing bird populations at waste landfills" Information Sheet No. 1 – Gulls.

Reducing the attraction of waterways (see "Reducing the attraction of water" Information Sheet 2 – Ducks)

- ✓ Depressions which hold water after rain require filling in. In some instances, new drainage channels need to be engineered to allow the fast exit of water from the site.
- ✓ Drainage channels may require wires, netting or the installation of bird balls to restrict access.
- ✓ Drainage channels and creeks should have steep sides (at least 4:1) to make access from the bank difficult and should be deep (greater than 0.5 metres) to prevent upending ducks feeding from the bottom.

Avoiding Transit Routes

It can be extremely difficult to combat the problem of birds transiting across an airport which is between a feeding site and a roosting/nesting area. It usually requires the cooperation of a broad range of stakeholders which could include waste landfill managers, local councils, state/territory government environmental organisations, etc. See "Bird Hazard Management Committees" next page.

Did you know?

- In ancient Egyptian times the Sacred Ibis (a African relative of the Australian White Ibis) were worshipped by Egyptians as they were symbol of an Egyptian god. There are reports of up to 60,000 live ibis being kept in temples and after death they were mummified, wrapped in bandaging and sealed into individual jars.
- Worldwide, 26 species of ibis are distributed over all continents except Antarctica. Three species of ibis are present in Australia, the Australian White, the Straw-necked and the Glossy Ibis.
- Agriculturists welcome both the Australian White and Straw-necked Ibis onto their properties due to a fondness the ibis have for crickets and other insects that are considered a pest to crops.
- Although native to Australia, Australian White Ibis have been introduced into regions their natural distributions would usually not permit. In some circumstances, aided by human infrastructures such as rubbish tips, populations have become very well established and are even considered a pest.

Dispersing Birds With Distress Calls

Pre-recorded distress calls from captured birds which are replayed through speakers can be an effective tool for bird dispersal. Such devices may be static or portable and be triggered by an operator or automatically.

Birds rapidly habituate to static devices. If birds hear distress calls repeatedly coming from the same place, and there is no actual threat other than the noise, they will quickly become accustomed to the calls. The more such devices are operated the less effective they become.

Devices that are triggered automatically will activate whether or not a bird is present and this leads to habituation. In addition, the device may trigger at inappropriate times such as when an aircraft is taking-off or landing, potentially increasing the bird hazard.

In the UK portable systems are used at most major airports. Where they are most successful, they are not overused and applied in conjunction with several other strategies. Initially, birds respond to the devices by coming closer to the source of the distress call to investigate the reason behind the call. After investigation, they tend to leave, and as they retreat the operator fires pyrotechnics behind the flock to provide reinforcement of a real threat. Future activation of the device results in more immediate dispersal of flocks and less investigation by the bird, reducing the need for pyrotechnics.

Some devices include other noises such as recorded gun shot or screeches. Bird species usually respond best to their own or very similar species' calls, but in some instances unrelated bird species respond to other calls. For instance Australian White Ibis calls have been observed responding to Rock Dove distress calls.

Bird Hazard Management Committees

Some Australian airports are involved in, or coordinate, local bird hazard management committees. Bird management issues rarely stop at an airport's boundary fence and for many bird species, such as Australian White Ibis, it may be a regional superabundance of the species which impacts the airport. Such superabundance may also be a problem off-airport as a disease risk, public nuisance, or may threaten populations of other native species. It may be in several of the stakeholders' interest, including the airport operator, to manage the problem at a regional level.

Such committees are appropriate for:

- Alerting stakeholders to their responsibilities in a bird and wildlife management program
- Informing stakeholders of the need for suitable data collection through monitoring of regional populations and accurate strike reporting
- Ensuring a collaborative rather than adversarial approach to wildlife management which, by its nature, requires an integrated approach involving multiple stakeholders

For further information:

ATSB (02) 6274 7452

www.atsb.gov.au

The ATSB investigates air safety occurrences for the sole purpose of enhancing safety. Consequently, ATSB material is confined to matters of safety significance and may be misinterpreted if used for any other purpose.

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