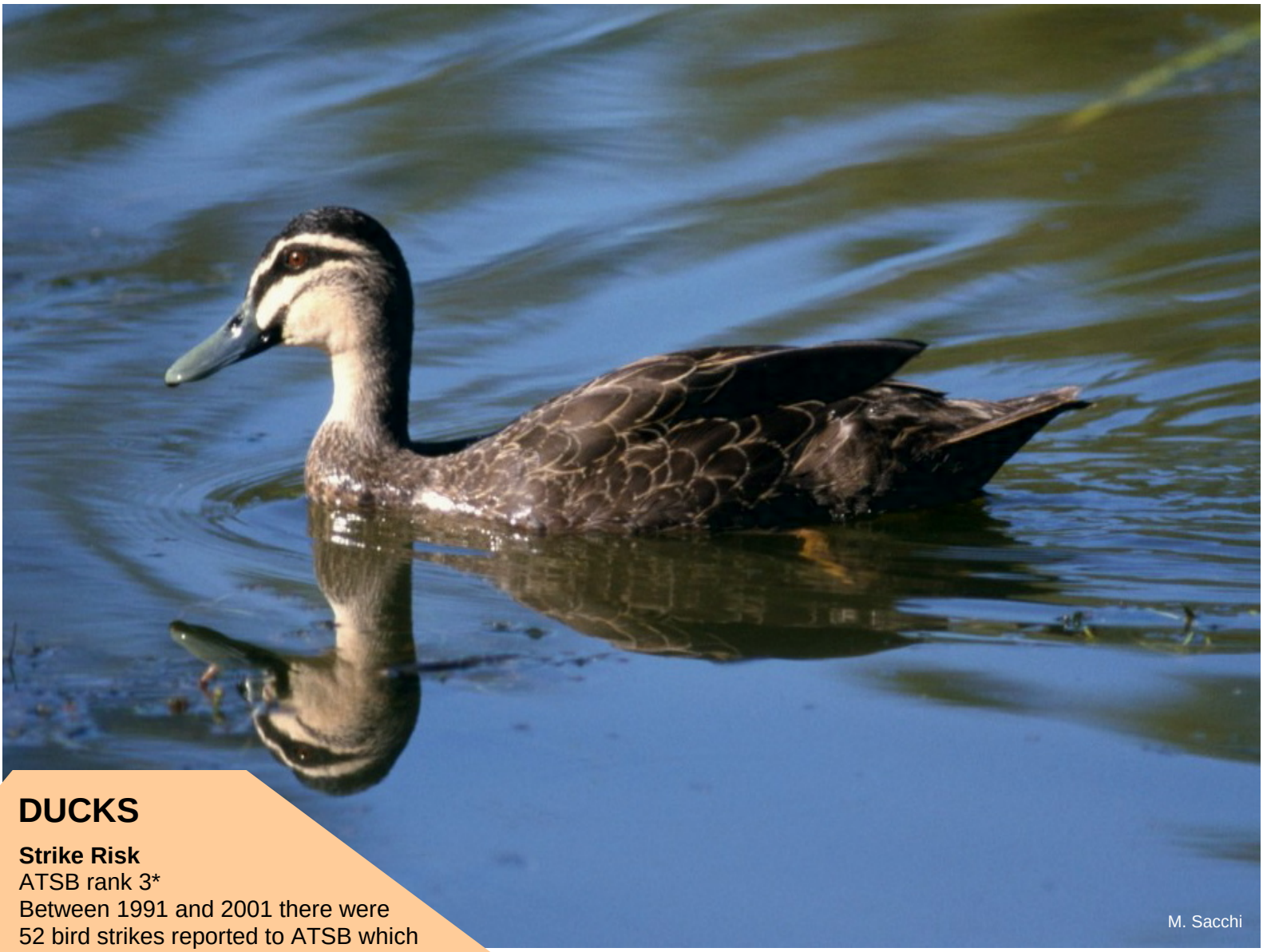
Australian Government
Australian Transport Safety Bureau

ATSB Bird Information Sheet No.2

Ducks

Managing bird strike risk at Australian airports



M. Sacchi

DUCKS

Strike Risk
ATSB rank 3*
Between 1991 and 2001 there were 52 bird strikes reported to ATSB which involved ducks. Of these:

- 26.9% resulted in damage to aircraft
- 19.2% had an effect on planned flight
- 40% involved more than 1 bird

As large-medium sized birds which form flocks, ducks are a very serious risk to aircraft. Frequently, more than one bird is struck which can potentially cause the failure of one or more engines. The Pacific Black Duck and Wood Duck are the duck species most frequently struck at Australian airports.

*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 Ducks

Pacific Black Duck

Anas superciliosa

Other Names
Black, Brown, Grey or Wild Duck

Size
Length 55cm; wingspan 90cm; weight 1000-1100g.

Identification
Feathers of adults and juveniles are dark brown with pale edges; a dark green and purple section is sometimes visible on the rear of the wing; has a dark head with two pale stripes above and below the eyes.

Distribution
Black Ducks are widespread throughout most of Australia.

Preferred Habitat
Black Ducks will inhabit almost any water including ponds, dams, creeks, estuaries; preferably with plentiful vegetation. They are commonly observed in public gardens and parks.

Food
Black Ducks dabble or upend to collect water plants and small animals such as insects, molluscs and crustaceans from the water or from the bottom of shallow water bodies. Seeds can be stripped from grasses adjacent to water bodies. They will scavenge for food from people.

Behaviour
Black Ducks will easily be flushed from water and fly to other areas, potentially across aircraft flight paths. They do not exhibit aggressive territorial behaviour, however, males will protect the space around the female and her brood. They are often observed in pairs or small flocks.

Breeding
Usually 10 to 12 eggs are laid between June and December, however they are known to breed outside the typical breeding season. Nests are located in tree hollows, nests of other waterbirds, and less commonly on the ground in dense vegetation.

Australian Wood Duck

Chenonetta jubata

Other Name
Maned Duck

Size
Length 50cm; wingspan 80cm; weight 800g.

Identification
Wood Ducks are easily identifiable by their brown head, pale grey body, mottled throat and chest, and two black stripes extending from the shoulders down the back. The male differs from the female, distinguished by a small black mane down the back of a darker coloured head.

Distribution
Wood Ducks are widespread throughout most of Australia.

Preferred Habitat
Wood Ducks inhabit grasslands, open woodlands, wetlands, coastal inlets, bays, along with many human-made structures such as parks, sporting fields, airports, farm dams and pastures.

Food
Wood Ducks graze for most of their food on land. Their diet is comprised of grass, clover and a variety of other vegetation. They also feed on insects, both on the water's surface and on the ground. They 'upend' like the Black Duck when foraging in water, but this is rare. They sometimes scavenge for food from people.

Behaviour
Often Wood Ducks move around in pairs, maintaining a distance from other individuals by attacking them. This behaviour is more prominent when pairs have young.

Breeding
In southern Australia, breeding usually takes place from September to November, however elsewhere in the continent breeding tends to follow periods of rain. Usually 9 to 11 eggs are laid in nests located in tree hollows.

Managing the Duck Hazard at Airports

Ducks at Airports

Ducks are recognized by their broad bill and webbed feet. Although the Pacific Black Duck and the Australian Wood Duck are the two duck species most frequently recorded in bird strikes at Australian airports (*Source:* ATSB database), other species which could present a problem for airports include: Whistling Ducks, Teals, Shelducks, Mallards and Hardheads.

There are various attractions for ducks at airports:

- Water
  Ducks are attracted to open water on airports such as ponds, lakes, creeks, drainage ditches and depressions which fill with water after rain.
- Food
  Natural food is found both in waterways and on land and is usually the main reason ducks are attracted to airports.
- Off Airport
  Ducks may choose to spend the night on an airport or move to other water bodies or trees to roost. In moving to and from the airport they often fly in groups and at low level, bringing them into the potential conflict zone with aircraft.
  Large duck populations can develop off-airport such as at parks where they are fed by people or sewer works where food is plentiful. This can result in more birds being observed on-airport.

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 ducks, the following active management options can be considered:

- ✓ Disperse ducks 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.

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.

A net used to exclude birds at Parafield Airport, South Australia

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.

Reducing duck attraction to airports may require:

Removing the attraction of water (see table next page)

- ✓ 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. On hard surfaces such as aprons where filling is impossible, it may be necessary to use mobile pumps to clear the area of freestanding shallow water.
- ✓ Drainage channels may require wires, netting or the installation of floating plastic 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.
- ✓ Islands in the middle of waterbodies should be removed to eliminate “safe” areas for ducks to retreat.
- ✓ Free-flowing waterways cleared of vegetation are preferred as this will limit the supply of plants and insects for food. However, waterways covered by vegetation reduce the useable surface area for ducks. Accordingly, if vegetation is to be removed it must be done frequently to be of benefit.

Limiting Food Supply

- ✓ Ensure grasses are not permitted to seed by mowing at appropriate times.
- ✓ Public education through signs and pamphlets to discourage public feeding of ducks at or adjacent to the airport. If any member of the airport community is feeding ducks they must be instructed to stop immediately.
- ✓ Employ a long grass policy in all non essential areas. Grass maintained at around 30cm makes it difficult for ducks (particularly Wood Ducks) to collect fresh shoots and to see approaching predators. Care must be taken not to allow seeding of the grass which may attract other species including Black Ducks.

Note: A long 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.

Manage nearby attractions

- ✓ Planning in the vicinity of airport must consider bird attractive land use. Wildlife reserves, lake developments and sewer works can allow large duck populations to develop and should not be permitted near an airport without a proper assessment of the risk.
- ✓ Existing land uses near an airport which attract ducks should be managed in an appropriate way. For instance, sewage ponds could be netted.

Reducing the Attraction of Water

Many bird species including ducks are attracted to airports because of the creeks or drains which run through them. Such watercourses provide food, drink, shelter and sometimes nesting sites. The attraction of these watercourses can be greatly reduced by any number of ways:

Method	Detail	Advantages	Disadvantages
Realignment of the watercourse	Diverting watercourses away from critical areas such as runway undershoot areas can reduce bird strike risk	Removes the attraction of water from critical areas	Very costly
Underground piping	By piping water underground, exposed water is unavailable to birds	Removes open water for birds	Can be costly. Requires careful consideration of flood mitigation requirements
Metal, nylon or monofilament wire	Placing a 2 to 6m wire grid over watercourses can limit bird access	Inexpensive	Trials in the UK and at Gold Coast Airport have not been successful for duck species
Netting	19 to 50mm netting placed over watercourses (or ponds) restrict bird entry	Prevents bird entry to water. Excellent option for standing water such as lakes or detention ponds	Requires regular maintenance, particularly if placed in flood prone areas. Small birds can become entangled in the netting
Flagging tape	Tape placed next to watercourse flutters in the breeze to distract birds	Inexpensive	Birds quickly habituate (become used to) to the tape
Humming wire	Wire positioned over watercourse which “hums” in the breeze to disturb birds	Inexpensive	Birds can habituate to it
Floating plastic balls	Balls adjust to changing water levels preventing birds from landing. Balls need to be kept in a net to stop them floating away	Eliminates attraction for larger birds.	May require a net to contain the balls which could as easily be used as the primary means of preventing bird entry. Water quality could be affected by lack of light penetration
Drain shape and water depth	Steep sided (4:1) watercourses make bird access to the bottom more difficult, particularly where water depth is greater than 500mm	Effective means of reducing, but not eliminating bird attraction	Banks can slump unless concrete or rock inverts are installed which can be costly

Steep-sided drains, Sunshine Coast Airport

Steep-sided drains, Kuala Lumpur International

Netting over ponds, Sydney International

For further information: ATSB (02) 6274 7452 www.atsb.gov.au

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