



Australian Government

Department of the Environment,  
Water, Heritage and the Arts  
Australian Antarctic Division

# FLIGHT PATHS FOR AIRCRAFT OPERATING IN AUSTRALIAN ANTARCTIC TERRITORY

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# 1. User guide

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## 1.1 Purpose

This document has been produced to assist in minimising the potential impacts of aircraft activities on the Antarctic environment. It focuses on the information needs of pilots.

Aircraft operations have the potential to cause disturbance leading to changes in the behaviour, physiology and the breeding success of wildlife. The level of impact will vary according to the intensity, duration and frequency of disturbance, the species involved and the phase in their breeding season. Most species are particularly sensitive to disturbance between late September and early May—the period when Antarctic air operations usually occur. Flying over or landing on or near lakes and vegetation may also result in environmental impacts.

The minimum separation distance for single-engined helicopters and twin-engined fixed wing aircraft from concentrations of wildlife is 750 m vertically and horizontally. N.B. if LANDING in the vicinity of concentrations of wildlife the minimum separation distance is 930 m. The separation distances for twin-engined helicopters is 1500 m from a wildlife concentration. Maps included in these requirements shows the 750 m and 1500 m zones near known wildlife populations.

## 1.2 Structure

- **Flight restrictions**

The 'Flight Restrictions' section defines aircraft related activities that constitute an offence unless an environmental authorisation and/or a permit allowing the activity has been issued, and outlines the process whereby activities may have environmental conditions attached to their conduct.

- **Requirements of pilots**

Section 3 lists general environment protection measures that all pilots working for the Australian Antarctic program are required to observe.

- **Station, Voyage and Field Leader requirements**

Station Leaders, Voyage Leaders and Field Leaders play an important role in briefing pilots on their environmental responsibilities. This role is outlined in Section 4.

- **Wildlife areas—long-range flights**

Section 6 outlines known wildlife concentrations that may be encountered on flights between stations. It identifies any detailed maps covering these areas.

- **Map index and maps**

Grouped according to the closest Australian station, the maps indicate known concentrations of wildlife; designated flight paths; helicopter final approach paths; approved landing and refuelling sites; and Antarctic Specially Protected Areas (ASPAs) and an Antarctic Specially Managed Area (ASMA) (Section 7). The inclusion of wildlife data does not, however, imply that this information is necessarily complete, and locations may vary within or between seasons. Please note that most wildlife concentrations typically occur in ice-free coastal areas, although emperor penguin colonies are typically located on winter sea ice. Maps should be used for orientation rather than navigation purposes.

## 1.3 Update and distribution

This document forms part of an ISO14001-certified Environmental Management System. It will be reviewed and updated as required, including after the completion of each season's aircraft operations. Updates will be issued to holders of controlled distribution (numbered) copies.

## 1.4 Environmental documents/information

Other information relevant to aircraft operations in the Australian Antarctic Territory can be found in the following documents:

AAD Operations Manual: Volume 5 Air Operations Standard Operating Procedure

AAD Field Manual

Helicopter Resources Pty Ltd Pilot Operations Safety Manual

Skytraders Pty Ltd Operations Manual

Antarctic Flight Information Manual

AMSA Ship – Helicopter Transfers Australian Code of Safe Practice

The AAD web page [www.aad.gov.au/environment](http://www.aad.gov.au/environment) also contains additional information in relation to environmental matters.

## 1.5 Compliance issues/Queries

Difficulties in adhering to these environmental protection measures should be reported to and discussed further with the Station, Voyage or Field Leader, and the Aviation Manager, Australian Antarctic Division ([aviation@aad.gov.au](mailto:aviation@aad.gov.au)).

Environmental authorisation queries for aircraft activities should be addressed to [eia@aad.gov.au](mailto:eia@aad.gov.au) and copied to [aviation@aad.gov.au](mailto:aviation@aad.gov.au).

Aircraft related permit queries should be addressed to [permits@aad.gov.au](mailto:permits@aad.gov.au) and copied to [aviation@aad.gov.au](mailto:aviation@aad.gov.au).

Suggested changes to the maps in this document (such as new data on wildlife concentrations) should be referred to [aviation@aad.gov.au](mailto:aviation@aad.gov.au) and copied to the Australian Antarctic Data Centre (AADC) at [aadc@aad.gov.au](mailto:aadc@aad.gov.au).

## 2. Flight restrictions

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### 2.1 Environmental authorisations and permits

2.1.1 Operational and scientific activities, and the flying operations necessary to support them, are assessed for their potential environmental impacts and formally authorised under the *Antarctic Treaty (Environment Protection) Act* [(AT(EP)Act] 1980 (and *Environment Protection and Biodiversity Conservation Act 1999* [EPBC Act] as required). Environmental authorisations may have conditions attached. *Environmental authorisations are not required for the purposes of supplying and maintaining a station.*

2.1.2 The conduct of certain aircraft activities (see below) requires a permit under the *AT(EP)Act*, *EPBC Act* or Antarctic Seals Conservation Regulations. Permits, where issued, are likely to have conditions attached.

### 2.2 Aircraft related restrictions

2.2.1 Unless a permit has been obtained, aircraft may not:

- Be used in a way that disturbs a concentration of birds or seals (a concentration is defined in the *AT(EP) Act* and Regulations as a group of more than 20 animals). In practical terms this means that a single-engine helicopter or twin-engine fixed wing aircraft must operate outside of 2500 ft (about 750 m) horizontally or vertically of a wildlife concentration. N.B. If LANDING in the vicinity of concentrations of wildlife the minimum separation distance is 930 m. If disturbance is observed at these distances, the offending aircraft must retreat and maintain a greater distance. However, it should be noted that observing disturbance to nesting birds may be difficult to detect, except in instances of mass nest abandonment. When in doubt, maintain greater separation distances. A twin-engined helicopter is to ensure that a separation distance of 1500 m is not breached.

*\*Although it will not always be possible to maintain the prescribed separation distances from southern elephant seals and Adélie penguins when approaching some stations, a permit is not required for this activity. Aircraft should be operated to minimise disturbance.*

- Land in an Antarctic Specially Protected Area (ASPAs). The locations of ASPAs are marked on the maps in this document.
- Do anything in an ASPA that is not permitted in the management plan for the protected area. Copies of management plans for ASPAs are available from the Australian Antarctic Division (AAD) or the Antarctic Treaty Secretariat (ATS's) website, and are held onboard AAD chartered vessels and at Casey, Davis and Mawson Stations. **These management plans must be consulted before any flying operations commence.**

*- Not adhering to the above requirements will constitute an offence under the AT(EP) Act. Exceptions to the above are an emergency situation, or when it is reasonably necessary to do so for the purpose of supplying or maintaining a station.*

2.2.2 It is also an offence under Commonwealth law (the *EPBC Act*) to:

- Operate a helicopter at an altitude lower than 3000 feet within a horizontal radius of 1000 m, of a whale (or other cetacean).

- Operate a fixed wing aircraft at an altitude lower than 1000 feet with a horizontal radius of 300 m, of a whale (or other cetacean).
- Approach cetaceans head on, or hover over a cetacean, at any altitude.
- Land the aircraft on water and/or sea ice to observe a cetacean, if the aircraft can land on such surfaces.
- Not move away if cetaceans show signs of disturbance, that is, if they undertake immediate or repeated dives or increase their swimming speed.

<b>Aircraft type</b>	<b>Distance from Wildlife Concentration</b>	<b>Distance from Cetaceans</b>
Twin-engined fixed wing aircraft	750 m (2500 feet) 930 m if landing	300 m (1000 feet)
Single-engined helicopter	750 m (2500 feet) 930 m if landing	1000 m (3300 feet)
Twin-engined helicopter	1500 m (5000 feet)	1000 m

*Disclaimer: PILOT COMPLIANCE WITH THE ENVIRONMENTAL REQUIREMENTS LISTED IN THIS DOCUMENT IS SECONDARY TO SAFE AIRCRAFT OPERATION. AIRCREW ARE ASKED TO ADVISE AAD-AVIATION SECTION OF ANY POTENTIAL CONFLICT AS SOON AS POSSIBLE.*

## 3. Requirements of pilots

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### 3.1 At all times pilots are expected to:

- Adhere to any environmental authorisation conditions (refer to Section 1.1).
- Adhere to permit conditions; confirm permit status with Station Leader when necessary.
- Observe the flight and approach paths described in this document which describe an area within which disturbance to known concentrations of wildlife will be minimised. Alternative flight paths may be used if listed distances from wildlife are maintained.
- Avoid overflying wildlife.
- Where the flight paths are such that a choice exists, approach wildlife concentration sites from down-wind to reduce any disturbance from noise, exhaust fumes and dust.
- Land behind features such as ridge lines, huts and snow banks to help obscure aircraft from wildlife concentrations, where appropriate.
- Fly, land or position cargo in a way that will not result in the significant modification of the habitat or population of any native animal, bird, invertebrate or plant.
- Avoid high angles of bank in helicopters, as this significantly increases the amount of noise generated.
- Avoid landing on or next to lakes.
- Consider noise impacts if flying under low cloud when near wildlife concentrations.
- Avoid landing or positioning cargo on areas of moss or lichen.
- Where possible, both on station and in the field refueling should be conducted in previously contaminated areas.. All fuel drain samples should be retained for RTA or use on station, not thrown on the ground.
- Ensure that fuel spill absorbent pads are used on drums when refueling.
- Be aware of the location and the application of fuel spill kits and use them whenever necessary.
- Note and avoid the magnetic quiet zones and radio interference zones in the station areas. All sensitive areas are clearly identified in the AFIM.
- Ensure that cargo is secure so items are not inadvertently lost from external loads.
- Make suggestions on, and adopt, any other practical means of minimizing the potential environmental impacts of aircraft activities.
- Report any incidents. An incident is an occurrence that has had, or could have had, an adverse effect on human safety or the environment. In the first instance those personnel involved in the incident should report the incident to their Station Leader or Field Leader for logging on the AAD incident reporting system. Pilots should be aware that all aircraft tasking is only to be authorized by Station Leaders, Voyage Leaders and Field Leaders.

## **4. Requirements of Station, Voyage and Field Leaders**

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- 4.1 Station Leaders, Voyage Leaders and Field Leaders are responsible for briefing pilots on the environmental authorisation conditions applicable to each day's flying program. Briefings must advise on matters specified in any Preliminary Assessment, environmental authorisations, and permit, and the requirements specified in this document. Station Leaders, Voyage Leaders and Field leaders are not to request or authorise flights that have the potential to result in wildlife disturbance for which a permit is not held.
- 4.2 Station Leaders and Field Leaders are required to know the location and appropriate application of fuel spill kits.
- 4.3 Station Leaders, Voyage Leaders and Field Leaders are required to know the environmental incident reporting procedure. They must also ensure that any personnel involved in an incident, completes the Incident Report Form (on the AAD Intranet site at <http://intranet.aad.gov.au/incident> reporting).

## 5. Wildlife areas—long-range flights

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### 5.1 Known wildlife concentrations between Mawson and Davis

- **Auster**

Auster is an emperor penguin colony with approximately 10,000 pairs. The colony is on the sea ice and occupies an area of approximately 2 ha. The most critical period (breeding, moulting) and the period when most birds are present is April to December (inclusive). Although unlikely, as sea ice disperses, some birds may be present throughout the year.

There is a small colony of Adélie penguins at Macey Island approximately 10 kms south west of Auster.

On approach to Auster it is important to undertake a visual reconnaissance of the area to ascertain the best flight path and landing site - particularly in late winter/ early summer when the emperor penguin colony breaks up and spreads over a wide area. Approaches should be at a minimum altitude of 750 m/2500 feet (1500 m/5000 feet for twin-engined helicopters) and preferably from the north into the prevailing winds.

- **Scullin and Murray Monoliths (ASPA 164)**

Refer to the Scullin and Murray Monoliths map in the Mawson map section.

An estimated 50,000 pairs of Adélie penguins occupy the shoreline and lower slopes from October to March (inclusive). All higher slopes are occupied by nesting petrels (Antarctic petrels, southern fulmars, Cape petrels, snow petrels and Wilson's storm-petrels) from October to April (inclusive). The population of Antarctic petrels, at approximately 150,000 pairs, is the second largest colony of this species known in the Antarctic. South polar skuas also breed at Scullin Monolith. Flying within the amphitheatre or near its rim would constitute disturbance and is therefore not permitted.

- **Béchervaise and Welch Islands, Mawson Harbour and surrounds**

In excess of 22,000 pairs of Adélie penguins breed annually on the rocky islands within 10 km radius of Mawson station. The colony on Béchervaise Island, consists of 1800 pairs, located on the north-eastern tip of the island. These sub-colonies range in size from one breeding pair to approximately 250 pairs.

Approximately 16,000 pairs breed on Welch Island, distributed among multiple sub-colonies on the north-western corner of the island. Approaches to Welch Island should not be made at low altitude.

- **Cape Darnley**

There is an emperor penguin colony on the sea ice close to Cape Darnley (approximately 5,000 pairs).

- **Larsemann Hills (AMSA 6)**

Refer to the detailed map in the Davis map section.

Snow petrels and Wilson's storm-petrels nest throughout the Larsemann Hills. There are concentrations of snow petrels on Base Ridge, approximately 350 m east of Law Base, and on rocky outcrops beside the Dalk Glacier. Landings at Law-Racovita Base do not require an environmental authorisation or permit. As elsewhere, helicopter landings should be restricted to the existing landing sites— Law-Racovita Base, Zhong Shan and Progress 2 on Broknes Peninsula. In particular, the petrel nesting sites marked on the map should not be overflown from November to March (inclusive).

- **Amanda Bay (ASPA 169)**

There is an emperor penguin colony at Amanda Bay (approximately 7,000 pairs). Entry is by permit only. No overflights are permitted (see management plan).

- **Rauer Group**

Refer the detailed maps in the Davis map section. The Rauer Group is a highly sensitive area containing a large concentration of seabirds (estimated at 105,000 pairs). Note that a management plan for the islands may be drafted in the near future.

## 5.2 Known concentrations between Davis and Casey

- **Haswell Island (ASPA 127)**

Haswell Island is approximately 3 km to the north of Mirny station (Russian Federation) and supports nesting populations of Adélie penguins, Cape petrels, snow petrels, Antarctic petrels, Wilson's storm-petrels, Antarctic fulmars and south polar skuas. Emperor penguins breed on the sea ice approximately 1.3 km to the north-east of the island. Entry is by permit only. No overflights are permitted (see management plan).

- **Edgeworth David / Bunger Hills**

Low numbers of birds are believed to breed in the area between November and February. During this time flight paths should be over the sea ice rather than over the land.

- **Snyder Rocks and Davis Islands**

There are no known nesting sites at Snyder Rocks. However, snow petrels, Adélie penguins, Wilson's storm-petrels, south polar skuas, Cape petrels and Antarctic fulmars nest on the Davis Islands, 28 km north-east of Snyder Rocks. Adélie penguins are known to nest on rocky island and headlands southeast of Snyder Rocks at the southern extreme of Vincennes Bay.

- **Petersen Bank**

There is an emperor penguin colony at Petersen Bank (approximately 2,000 pairs present from April-December).

- **Ardery and Odbert Islands (ASPA 103)**

[Ardery](#) and [Odbert Islands](#) are home to large breeding populations of snow petrels, Cape petrels, Antarctic petrels, southern fulmars, Wilson's storm-petrels and south polar skuas. Odbert Island also supports large populations of Adélie penguins (approximately 10,000 breeding pairs).

- **Frazier Islands (ASPA 160)**

The Frazier Islands hold the largest known breeding population of southern giant petrels in continental Antarctica (approximately 270 pairs in 2005). Breeding pairs are found on all three of the Frazier Islands (Nelly, Dewart and Charlton Islands), with the largest population on Dewart Island. The breeding season usually commences between late October and mid-November and extends through to April, when the chicks fledge. Snow petrels, Adélie penguins, Wilson's storm-petrels, south polar skuas, Cape petrels, Antarctic petrels and southern fulmars also breed on the Frazier Islands, with approximately 1,000 pairs of Adélie penguins nesting on Nelly Island. Seabirds on all three islands are highly sensitive during the summer months.

- **Clark Peninsula (ASPAs 136)**

[Adélie penguins](#) are abundant on the Clark Peninsula, with at least 7,500 breeding pairs counted at Whitney Point (2002/03) and 4,600 breeding pairs at Blakeney Point (1990/91). Wilson's storm-petrels, snow petrels and south polar skuas also breed within the area.

## 5.3 Known concentrations west of Mawson

- **Taylor (ASPAs 101)**  
**Refer to the detailed map in the Mawson map section.**

Taylor is an emperor penguin colony with approximately 3,000 pairs. It is one of few such colonies, and is the larger of the two known emperor colonies located wholly on land. The penguins are particularly sensitive to disturbance when they are incubating eggs, from mid-May to mid-July; and from mid-July when feeding chicks to mid-December, when the chicks fledge. However, since penguins are known to be present at the colony during every month except February (when no recorded expeditions to the colony have been made) flight restrictions apply year-round.

Helicopters are to approach the area from the east over the sea ice to avoid crossing the path of penguins moving between the colony and the sea. Assuming there is no wildlife on the sea ice, the approach should be made at a low altitude and landings made outside the area (when sea ice conditions permit). If sea ice conditions are not suitable, helicopters may land in the area, to the north-east, where a headland to the south obscures the colony from view. Overflight of the colony is prohibited.

- **Rookery Islands (ASPAs 102)**

The Rookery Islands support the largest Adélie penguin population on the MacRobertson Coast. Cape petrels, south polar skuas, snow petrels and Wilson's storm-petrels also breed there. Giganteus Island is one of three southern giant petrel nesting sites in East Antarctica; only two pairs were breeding there in 1999 and one pair in 2001/02.

- **Gibbney Island**

Adélie penguins occupy the entire island. Landing is prohibited.

- **Low Tongue**

Adélie penguins occupy most of the rocky sites. The only suitable potential landing site is the tip of Low Tongue Prominence.

- **Ufs Island**

There is an Adélie penguin colony on the northern end of Ufs Island. Snow petrels also nest in the area and non-breeding skuas are often present. Approaches should be from the south-south-east.

- **Kidson Island**

No landing should occur on Kidson Island, which is only 0.8 km long. The island is used for nesting by Adélie penguins, Antarctic fulmars and Cape petrels. Skuas and Wilson's storm-petrels have also been reported present.

## 6. Map index

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The maps are based on a Universal Transverse Meracator (UTM) projection which is conformal and preserves shape for small objects, such as depicted in the maps of individual islands. True direction is not maintained on the maps and they should only be used for orientation rather than navigation purposes.

### **Helicopter Operations Map Series at:**

[http://data.aad.gov.au/aadc/mapcat/maps\\_on\\_lineage.cfm?map\\_lineage\\_id=5](http://data.aad.gov.au/aadc/mapcat/maps_on_lineage.cfm?map_lineage_id=5)

### **Air Transport Map Series at:**

[http://data.aad.gov.au/aadc/mapcat/maps\\_on\\_lineage.cfm?map\\_lineage\\_id=6](http://data.aad.gov.au/aadc/mapcat/maps_on_lineage.cfm?map_lineage_id=6)

## 6.1 Other areas

### **Cape Denison (ASMA 103 and ASPA 162)**

All aircraft operations to Mawson's Huts at Cape Denison, Commonwealth Bay require an environmental authorisation. A helicopter landing site is located within the ASMA. Travel inside the ASPA (the area directly around the huts) is limited to foot traffic only.

Note that – McKellar Islands (offshore from Cape Denison) have numerous Adelie penguin colonies.