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# lord howe island

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United Nations Educational, Scientific and Cultural Organization **Lord Howe Island Group** inscribed on the World Heritage List in 1982

## USER GUIDE

Images: View across the LHI Lagoon by Kenny Lees / Shadowshaper. Lord Howe Island Woodhens: Jack Shick

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### Directory





Use the home links throughout the user guide to link back to this directory page. It offers you easy access to each of the guide's six sections.



Use the bookmark icon to navigate back to the start of each section. Internal bookmarks / location outlines embedded in the guide also provide an alternative means of navigation.

#### ABOUT THE GUIDE

ABOUT WORLD HERITAGE

QUARANTINE PROCEDURES

EXPLORING THE ISLAND

THE MARINE PARK

RESTORING LORD HOWE

BIRD MONITORING PROJECT







Photo: Michael Legge-Wilkinson

- ➡ Welcome / disclaimer
- About Lord Howe
- Island Map
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## Welcome

This User Guide provides you with the essential information you need to explore, enjoy and protect Lord Howe Island.

Conserving the world heritage values of the island relies on the combined efforts of island residents, government and visitors alike.

We hope this guide is of use to you and that you enjoy the challenge of protecting this remarkable place for future generations to share and appreciate.



United Nations Educational, Scientific and Cultural Organization



Lord Howe Island Group inscribed on the World Heritage List in 1982









### Disclaimer

The Lord Howe Island Board (LHIB) has endeavoured to compile this digital guide by exercising every care, however, inaccuracies may still occur despite such care which could result in the user being misinformed.

While regretting the occurrence of any inaccuracy, the LHIB cannot accept responsibility for any consequence whatsoever which may result therefrom and no liability for any service or product presented in this digital guide should be presumed or is implied.

The LHIB would welcome advice or any suggestions for improvements in future editions.

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### About Lord Howe

The Lord Howe Island Group (LHIG) is a volcanic remnant located in the Tasman Sea about 770 km north east of Sydney and 570 km east of Port Macquarie.

Lord Howe Island (LHI) is the largest island in the group, with an area of 1,455 ha and is 11km long and 2-3 km wide. Lord Howe Island supports a resident population

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of approximately 350 people and a peak tourist population of up to an additional 400 people.

Up to 16,000 tourists visit the island each year. All of the LHIG and its surrounding waters are World Heritage listed.



Lord Howe Island is part of New South Wales (NSW) and is administered by the Lord Howe Island Board (LHIB) under the *Lord Howe Island Act 1953*. The LHIB is charged with the care, control and management of the island, and its affairs and trade.

The LHIB is responsible for the day to day management and protection of the World Heritage values of the Group, of which about 75% (1300ha) of the island is managed as a Permanent Park Preserve (PPP) (a conservation reserve dedicated under the Lord Howe Island Act).

The PPP was gazetted in January 1982 and only includes land above the high water mark. All reefs, marine areas or the inter tidal zone are managed by the Lord Howe Island Marine Parks Authority. The Permanent Park Preserve consists of the northern and southern mountains of the main island, the Admiralty Islands, Blackburn Island, Mutton Bird Island, Balls Pyramid and its surrounding rocks and islets. The park preserve does not include any part of the settlement area, which encompasses the residential and agricultural lands.

The island's rich biodiversity supports a high level of endemic species that occur nowhere else in the world. Many of the island's flora and fauna species share affinities with species from New Zealand, New Caledonia, Norfolk Island, Australia and other Pacific islands.

There are 241 species of native vascular plants, of which 113 (47%) are endemic and 10 are listed as threatened. There are 34 distinct vegetation communities recognised on the island of which 18 are considered to be of conservation concern and 2 are listed as Critically Endangered Ecological Communities.

Mountain Rose Photo: LHIB

Masked booby and chick Photo: Jack Shick

The island's terrestrial fauna is dominated by birds and invertebrates, with over 182 species of bird recorded from the island and its surrounding waters, of which 20 are resident landbirds and 14 are nesting seabirds.





The invertebrate fauna is characterised by relatively high species richness and high endemism with up to 1600 terrestrial species recorded, including 8 species recognised as threatened.

There are 2 native reptiles (LHI Gecko Christinus guentheri & LHI Skink Oligosoma lichenigerum), 2 introduced reptiles (Grass Skink Lampropholis delicata and Eastern Snake-necked Turtle Chelodina longicollis) and an introduced frog (Bleating Tree Frog Litoria dentata).

There is only 1 mammal (Large Forest Bat *Vespadelus darlingtoni*) that is native to the island.

In 1999, the importance of the island's marine environments was further recognised through the establishment of the Lord Howe Island Marine Park (LHIMP) covering NSW state territorial waters around both the island and the Balls Pyramid Group.

> Lionfish Photo: Geoff Kelly

The Lord Howe Island Marine Park is administered by the NSW Department of Primary Industries.

It contains an extraordinary variety of marine habitats, including tropical, sub-tropical and temperate ecosystems. Lord Howe Island Marine Park is the world's southern-most true coral reef community and is the only fringing reef community in NSW.

The LHIMP contains over 500 species of marine fish of which 15 are endemic, 83 coral species, over 305 species of algae and 65 species of echinoderms.

Various shark and ray species, green and hawksbill turtles, bottlenose dolphins and migrating whales are amongst the diversity of marine life found within the crystal clear waters surrounding Lord Howe Island.

Aerial view of LHI from the north. Photo: Ken Lees





### Facilities

### **Tourist levy**

A tourism levy is included in your airline ticket. The levy helps the Lord Howe Island Board to maintain a beautiful environment and particularly visitor facilities such as walking tracks, picnic areas, BBQs, shelter sheds and toilets.

#### Where to stay

There are 20 properties to choose from. Most are family operated. They vary in size from 2 to 85 beds and offer a variety of services and facilities. Visitor numbers are limited to 400 at any one time. Camping is not permitted. Some disabled facilities are available. Please check with your accommodation provider.

#### **Dining out**

The Island has a number of fine restaurants serving modern Australian cuisine and offering a wide selection of wines, spirits and beers.

#### What to do

Bushwalking, trekking, guided and self-guided walks, fish feeding, swimming, surfing, SCUBA diving, snorkelling, kayaking, birdwatching, reef walks, golf, tennis, bowls, deep sea, rock and shore fishing, picnics, BBQs, bicycling, kite surfing, windsurfing, stand up paddle boarding. Spear fishing is not permitted.



#### **Hire equipment**

Available for hire are golf clubs, tennis racquets, bicycles and helmets, SCUBA and snorkelling gear, paddle skis and spyboards, surfboards, kayaks, stand up paddle boards, beach matts and umbrellas.

photo: Nicola Brookhouse

#### Transport

All accommodation providers meet flights, providing free transport for arriving and departing guests. Walking is a pleasure on the Island as you're never far from shops, restaurants or beaches. There are bicycles and helmets

for hire and a limited number of rental cars.

### Shopping

A variety of stores carry groceries, liquor, fruit, vegetables, pharmaceuticals, clothing, souvenirs and snacks. There is also a small hairdressing salon, limited beauty and masseur facilities, and arts and crafts.



Island prices are generally higher than mainland prices owing to freight costs.

#### Medical

A small hospital and dispensary is situated on Lagoon Road. Consulting and dispensary hours are 9.00am to 12.30pm Monday to Friday. However, the doctor and nursing staff are on 24 hour call in emergencies.

### Moorings

All visiting vessels are advised to contact the LHIB to book a mooring prior to departing for the Island.

After lodging your Mooring Application Form, your vessel will be assigned a suitable mooring based on the vessels draft, length-over-all and tonnage.

An Approval to Attach to a Mooring Apparatus in the LHI Lagoon will be sent to you by email or fax. This approval is to be presented to the Port Operations Manager on arrival to the Island.

The LHIB maintains 16 Public Temporary Moorings in the Lord Howe Island lagoon. There are 2 types of mooring systems on the Island – Mark 1 Danforth Anchors and Mark 2 Danforth Anchors.

Masters of vessels are also advised to contact the Lord Howe Island Port Operations Manager (NSW Police) prior to departure for the Island:

#### Lord Howe Island Port Operations Manager

C/- NSW Police Lord Howe Island

TC Douglass Drive, Lord Howe Island NSW 2898

Phone: +61 2 65632199 Fax: +61 2 65632131

The discharge of ballast from visiting vessels is regulated by Section 1.27 of the *Marine Parks (Zoning Plans) Regulation 1999*; which states that a person must not discharge ballast water, drawn from waters outside a marine park within the marine park.

### History

Lord Howe Island was discovered on 17th February, 1788 by Lieutenant Henry Lidgbird Ball, commander of the First Fleet ship, HMS Supply while en route between Sydney Cove and the penal settlement of Norfolk Island.

Ball named the uninhabited island after British Admiral Richard Howe, and Mount Lidgbird and the sea stack situated to the island's south Balls Pyramid, after himself.

The island was first settled in 1834, when three British whalers, Ashdown, Bishop and Chapman, each accompanied by a Maori wife, and two children arrived from New Zealand on the barque Caroline.

They settled at Hunter Bay, now known as Old Settlement, where they supplied visiting ships with meat, fish and vegetables in exchange for other goods. They continued at Lord Howe until 1841 when Captain Owen Poole, retired naval officer, and Richard Dawson purchased their holdings for 350 pounds.

By the 1870s, whaling was declining and the Islanders turned to the collection and export of Kentia Palm seeds to the European indoor plant market to support the local economy.

Tourists first came to the island around the turn of the 20th century by ship and visitation boomed post World War II with the arrival of the flying boats, which operated out of Rose Bay in Sydney. An airstrip was opened in 1974, enabling twin-engine planes to begin flying to the island.

The Lord Howe Island residents, many of whom are descended from the early settlers, form a unique community with a strong sense of identity and community based on their history and isolation.

The unique Island lifestyle and its safe, quiet, unpolluted and beautiful surroundings are highly valued by the community.



Contacts

#### **General Inquiries**

Lord Howe Island Board Administration Office Bowker Avenue/PO Box 5 Lord Howe Island NSW 2898 **Phone:** +61 2 65632066 (Monday to Friday, 8.30am - 4.30pm) **Fax:** +61 2 65632127 **Email:** administration@lhib.nsw.gov.au

#### **Visitor Information**

Phone: +61 2 65632114 or 1800 240 937 Fax: +61 2 65632466 Email: visitorcentre@lhib.nsw.gov.au

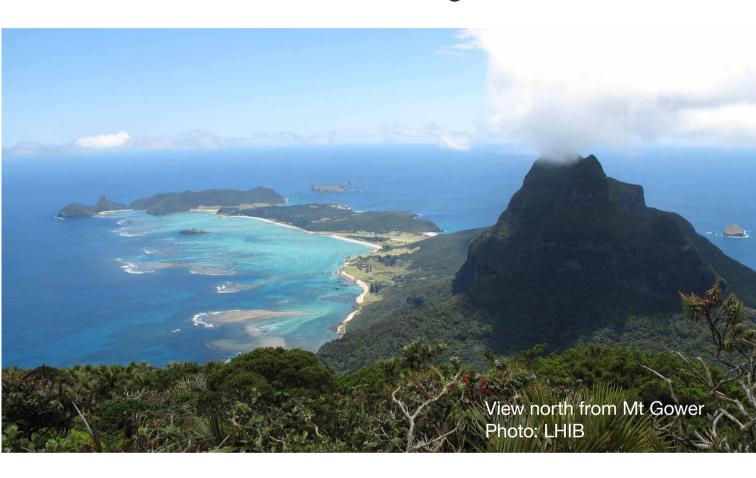
#### **Marine Parks Office**

1 Anderson Rd / PO Box 161 **Phone:** 02 6563 2359 **Fax:** 02 6563 2387 **Email:** lord.howe@mpa.nsw.gov.au





### World Heritage



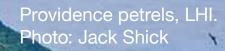
- The Lord Howe Island Group
- Protecting World Heritage

#### Lord Howe Island Group

The Lord Howe Island Group (LHIG) was inscribed on the World Heritage List in 1982, and includes the whole main island, surrounding islets and the surrounding marine area totaling 146,300 ha. The LHIG property was inscribed under two of the criteria for natural values of outstanding universal significance.

**Criterion VII)** containing superlative natural phenomena or areas of exceptional natural beauty and aesthetic importance;

**Criterion X)** containing the most important and significant natural habitats for in-situ conservation of biological diversity, including those containing threatened species of outstanding universal value from the point of view of science or conservation.



#### **Criterion VII) Superlative natural** phenomena

The LHIG is an outstanding example of an oceanic island of volcanic origin containing features, formations and areas of exceptional natural beauty and aesthetic importance.

The World Heritage values include the exceptional diversity of spectacular and scenic landscapes within a small land area.

In addition, its outstanding underwater vistas, including the island's reefs are considered to be among the most beautiful in the world.

> LHI coral reef photo: Geoff Kelly MPA

On Lord Howe Island, the towering volcanic mountains of Mount Gower (875 metres) [right] and Mount Lidgbird (777 metres) provide a spectacular backdrop to the lowlying centre of the island and the clear lagoon and its fringing reef.

> Old settlement looking south. Photo: Michael Legge-Wilkinson

Tall sea cliffs and stacks provide spectacular vistas on the offshore islands, especially the tall narrow Balls Pyramid which rises vertically from the ocean to 551m high.



Balls Pyramid. Photo: Geoff Kelly MPA

#### **Criterion X) Biodiversity Values**

The Lord Howe Island Group (LHIG) supports a unique biota of plants and animals and important and significant natural habitats for in-situ conservation of biological diversity.

Its World Heritage values include its high diversity of vegetation communities. The LHIG has a remarkable diversity of native vascular plants, comprising at least 241 species, including many species of conservation significance, many of which are endemic to the island.





The diversity of birds on the LHIG comprises 182 bird species, including species of conservation significance and many endemic species (including the well known Lord Howe Woodhen *(Gallirallus sylvestris)*, which is one of the few examples of successful in situ recovery of a species from the brink of extinction).

The Lord Howe Island Group comprises one of the major seabird breeding sites in the southwest Pacific, including habitat for four species of conservation significance.

There is a rich diversity and high levels of endemism of terrestrial invertebrates, including spiders, snails and the large and spectacular Lord Howe Island Phasmid *(Dryococelus australis)* which survives on Balls Pyramid.

Roach Island seabird habitat Photo: Geoff Kelly MPA

#### Protecting World Heritage

As a signatory to the World Heritage Convention, Australia has obligations under Article 5, including:

- to protect, conserve and present the World Heritage values of the property
- to integrate the protection of the area into a comprehensive planning program
- to give the property a function in the life of the Australian community
- to conduct scientific and technical research and develop operating methods to counteract threats to World Heritage values

The Old Gulch. Photo: Ken Lees

 to take appropriate scientific, technical, legal, administrative and financial measures necessary for achieving the foregoing objectives.

Convention signatories are also required to submit regular reports to UNESCO on the actions taken in applying the Convention.

Ongoing monitoring and evaluation of management actions and the condition of a World Heritage Property is required to fulfil the reporting requirements.

View over Mt Lidgbird to Mt Gower Photo: Ken Lees





### Quarantine

- Biosecurity
- Myrtle Rust
- Phytophthora

#### REGULATIONS

- Prohibited imports
- Permissible imports
- Quarantine procedures
- Containing pest species

### What is Biosecurity?

Biosecurity is the protection of the economy, environment and community from the negative impacts of pest animals and weeds, diseases and pathogens.

Biosecurity is vital for the health, wellbeing and prosperity of everyone in NSW.

The following strategies are undertaken by the Lord Howe Island Board to manage biosecurity risks including;

- Prevention quarantine activities that prevent the entry of unwanted pests and diseases
- Surveillance and interception inspections and early detection of a pest incursion and
- Response eradication or management/ control of the pest once it arrives.

#### The risk of pest invasions to islands

Islands are particularly fragile and vulnerable to invasion by exotic species due to their natural isolation and having finely adapted ecologies.

Islands make up less than 5% of the earth's land surface, yet they are home to about 20% of all bird, reptile and plant species and almost half of all endangered species.

About 80% of the world's terrestrial species extinctions have occurred on islands, and most of these were directly caused by invasive species. Island extinctions have rapidly accelerated following the advent of global trade, enabling both the deliberate and inadvertent movement of species between different parts of the world.

Preventing the introduction of known or potential pests is critical to the protection of island ecosystems, tourism industry and agriculture.

The LHI Group. Photo: Geoff Kelly

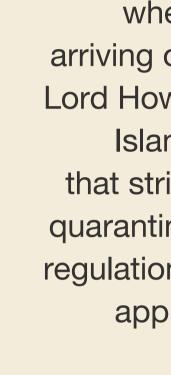
#### How you can help

Lord Howe Island is a special place and you can help to keep it that way.

The following quarantine procedures have been developed to help you protect the island.



Remember when arriving on Lord Howe Island that strict quarantine regulations apply.







#### WITHOUT PRIOR APPROVAL

SECURIT

# UPON ARRIVAL

#### 1. Ask your host

The Lord Howe Island community works to ensure that quarantine regulations on the island are effective in protecting the island from pest incursions that could impact on agriculture, health, biodiversity and trade.

Your accommodation provider will be able to answer many common questions you may have in regard to quarantine regulations on your visit.

If you need more information please contact the LHIB at the administration office.



UPON ARRIVAL

#### 2. Clean your gear

Preferably before leaving home, or else as soon upon arrival, please wash and clean (launder) all clothes, brush footwear and accessories to remove soil/ mud and vacuum bags and pockets to remove seeds and soil.

Items such as boots, bags, hats, sporting equipment and walking poles should be sprayed with 70% methylated spirits and water or Quatsan®1:500 (the product used in boot scrub stations on LHI) to ensure gear is free of Myrtle Rust spore and other plant diseases such as Phytophthora. Any material suspected on being exposed to Myrtle Rust should be treated as per the above methods.

# UPON ARRIVAL

#### 3. Scrub your shoes



Upon arrival and then regularly throughout your visit please clean your shoes and walking poles using the boot scrubbing bays provided prior to setting out on your walk.

> Golfing equipment can be cleaned at the LHI golf course.

This will help protect the island against the risk of infection by Phytophthora, Myrtle Rust and other plant pathogens.

# The risk of Myrtle Rust

# What is Myrtle Rust?

Myrtle Rust (*Puccinia psidii*) is an exotic fungus that infects plants belonging to the Myrtaceae family (e.g. Eucalypts, Lilly Pilly, Mountain Rose, Tea Tree).

#### Lord Howe Island is currently free from Myrtle Rust.

Myrtle Rust is widespread along the eastern coast of Australia and has the potential to significantly impact on Lord Howe Island biodiversity.

Lord Howe Island's endemic Myrtaceae plants, including the mountain rose (*Metrosideros nervulosa*) and scalybark (*Syzygium fullagarii*) are susceptible to Myrtle rust spore and are at risk of infection if it arrives to the island.

Visitors from eastern Australia may carry Myrtle Rust spore on clothing vegetation and accessories (including hats and backpacks). Laundering clothes and spraying accessories with 70% methylated spirit and water or Quatsan®1:500 (the product contained in boot scrub stations on LHI) will kill the spore.

#### It is important we try to keep Lord Howe Island free of Myrtle Rust

## What does Myrtle Rust look like?

Myrtle Rust affects plants growth tips, leaf and flower buds and can cause plant death. Individual Myrtle Rust spores are microscopic but on maturity they develop into a bright yellow spore fruiting stage.

Infected leaves initially exhibit small purplish or brown

grey lesions (sores). Heavily affected plants suffer defoliation, distorted stems which can result in plant death.



Myrtle Rust on Mountain Rose. photo: Louise Morin CSIRO.

#### How is Myrtle Rust spread?

Rusts are highly transportable and can be dispersed by wind, people, on freight and plants and plant products (timber, flowers, mulch). Do not touch plants or collect samples suspected of having Myrtle Rust as this may spread the disease.

#### **Please:**

- Report the record or any suspected outbreak on LHI to the LHIB immediately.
- Take a photo;
- Note the location; and
- Do not touch the plant.

# Phytophthora (Root Rot Fungus)

Phytophthora (pronounced fy-toff-thora) is an exotic root rot fungus found in plant roots, soil and water. The fungus has killed large areas of native forest on the mainland of Australia.

### What does Phytophthora look like?

Phytophthora is microscopic and invisible. Affected plants suffer dieback. It has potential to cause major damage on Lord Howe Island.

Phytophthora dieback at Middle Head, Sydney. Photo: The Royal Botanic Gardens and Domain Trust

## How is Phytophthora spread?

This fungus can be spread through soil and mud attached to footwear, hiking poles, sporting/gardening equipment, plants and vehicle tyres.

Removing soil/mud and treating gear that has been in contact with soil on the mainland will help keep this plant pathogen from infecting Lord Howe Island. Be sure to scrape/brush off soil before disinfecting with 70%

methylated spirits (particularly underneath hiking boots with thick chunks of soil).

#### Always use the boot scrub

**bays** provided at track heads and wash any gear as soon as you arrive they have not already been cleaned.

#### Using the boot scrub bays:

- 1. Read sign
- 2. Scrub boots
- 3. Open dip tray
- 4. Dip shoes, poles etc
- 5. Close lid
- 6. Enjoy your walk.





## **Prohibited imports**

The LHIB prohibit the importation of certain items in accordance with relevant legislation and policies.

## Soil

Soil is prohibited for import onto the Island. Plants grown in soil are therefore prohibited from import also. Composted potting mix is not considered soil.

## Animals

Cats, goats and pigs are prohibited for import onto LHI.

#### **Plants**

Plants, plant material or cut flowers/foliage from plants listed in the Lord Howe Island Plant Importation Policy as 'Prohibited Plants' are prohibited from import to the island.

Undressed timber containing bark or sapwood is prohibited for import onto LHI. Jetty poles containing bark can only be imported by the LHIB if certified being treated for insect pests and plant pathogens.

# Plants prohibited from Importation to LHI include ALL:

**Endemic Genera:** Plants in the same genus as Lord Howe Island endemic plants

**Invasive Plants:** Any declared Noxious Plant within any Australian jurisdiction.

Plants which have escaped gardens on Lord Howe Island and plants which are known to be invasive in similar climatic regimes elsewhere.

**Myrtaceae Family**: Plant material and plants (cut flower and potted plants) belonging to the Myrtaceae family.

Tea Tree mulch is also prohibited.

**Palms, Grasses and Ferns**: All species of palms (Family *Arecaceae*), Grasses (Family *Poaceae*) and Ferns (Class *Pteridiophyta*)

#### **Fresh and Saltwater Marsh Plants**

All species of fresh and saltwater marsh plants (Class *Najadales*)

**Marine Plants**: All marine algae and seagrasses, including aquarium plants and live plant food material for aquaculture.



# The LHIB permit the importation of certain items in accordance with legislation and LHIB adopted policies.

The import of all plants, plant material (including cut flowers/bouquets and mulch), animals and vehicles require written approval from the LHIB prior to importation. You may however import fruit and vegetables and clean packaged seeds of 'approved/ permissible' plants onto the island without prior approval.

Please ensure all food refuse (especially seeds) are disposed of properly via bins around the island and at your accommodation/residence.

# Declare any plants, plant material (including cut flowers and mulch), animals or soil upon arrival.

# How to import plants/plant material to Lord Howe

- Check the lists of prohibited and approved plant species.
- Fill out the Intent to Import Form and list the species/ plant material you wish to import and the plant suppliers details (this form also includes a Myrtle Rust checklist etc).
- Fill out Intent to Import Form for:
  - mulch/stock feed and fodder and
  - cut flowers / boquets.
- Lodge the form at the LHIB office.
- You may be contacted for further information to assist the approval process.
- A letter of approval/refusal will be sent (depending on the species and information provided) however you will also be contacted by phone to inform you of the outcome.
- When the plants arrive on the island contact the LHIB quarantine officer for inspection before release.
- There is no charge for processing an importation request for approved/permissible plants.
- If you wish to import a new plant to the island that isn't listed as permissible a Weed Risk Assessment will be undertaken. This will incur a fee of \$50.

#### **Plants and plant materials**

Only plants and plant materials that have been assessed as 'Permissible Plants' will be approved for importation to LHI.

Plants not listed as permissible must undergo a Weed Risk Assessment (WRA) (before they are imported) to assess the potential risk of a plant becoming a weed on LHI. If the plant is deemed safe it will be approved. If the plant poses a weed risk it will be prohibited.

#### **Permissible Plants**

This includes 'safe and non invasive' plants that have been imported to the Island and have not spread locally, are not recognised as weeds elsewhere (in similar climates to LHI), are not listed as a noxious weed in other areas of Australia or have been assessed and approved through a Weed Risk Assessment.

If the plant intended for import is listed as permissible then one of two outcomes is possible:

• If the plant material is **seed of a permissible plant species** then Board approval is not required.

Seeds are restricted to cleaned and packaged seed of 'permissible' species that are free from pests and diseases. Seeds of prohibited plants are not permitted for import.  If the plant material is anything other than seed and is listed on the permissible list, the applicant is required to submit the Intent to Import Plant form.

This requirement implements measures to prevent the introduction of soil and pathogens, including Myrtle Rust and Phytophthora, Red Imported Fire Ant and other tramp ant species. Restrictions (for plant health and freedom of pests) apply to a number of plants listed as permissible and these are shown following.

#### **Fire ants**

Plants sourced from interstate QLD must be certified Free of Red Fire Ants per ICA 39.

### Fruit trees and vegetables

Avocado trees imported are only to be supplied by nurseries accredited under the Avocadoes Australia (07 33912344) ANVAS scheme as being free from Phytophthora and virus tested for Sunblotch viroid. Appropriate documentation will be required prior to permit assessment.

Banana propagation material can only be supplied from the Macksville - Coffs Harbour District accompanied with a NSW Agriculture Phytosanitary Certificate declaring the material free of Bunchy Top and Banana Weevil Borer.

All citrus trees must be imported from accredited nurseries. Restrictions apply. Citrus (oranges, lemons, limes) cannot be imported from Queensland into NSW.

#### **All other fruit trees**

Any other fruit tree not listed as permissable will require a Weed Risk Assessment (WRA). Phytosanitation Certificates will be required if a plant is approved for import.

# Nursery stock and other plant material must be free of soil.

All approved plant material must only be imported either bare rooted and/or in soil-less potting media.

Potted plants can only be imported in soil-less potting media meets ICA – 29 accreditation; which requires that stock is grown in soil-less media that has been treated with specific fungicides, including the treatment of above ground parts for pests and diseases.

#### **Mushroom kits**

Only commercial sterilised mushroom kits that are free of soil are permissible.

# Potting or seed raising mix and compost

Potting mix and compost products (including mushroom kits) certified free of soil in accordance with Australian Standard ISO 5 ticks do not require approval.

Relevant Australian Standards are: AS 3743 for Potting Mixes and AS 4454 for Composts & soil conditioners.

#### Mulch

The import of mulch and stock feed/fodder requires completion of intent to import mulch or fodder form.

The import of mulch is restricted to:

- Dried sugar cane mulch that is hammer milled, packaged and shrink wrapped.
- Commercially produced composted, pine bark or pine chip that is sterilised, heat treated and packaged.

Mulch must be certified free of Imported Red Fire Ant, animal pest, seeds and green plant material. On import the product must be placed in the sun prior to opening to further desiccate potential pathogens.

The product must be inspected by the importer on opening and presence of insects or other suspected pests reported to the LHIB immediately.

#### \*\* Tea tree mulch is prohibited from import.

#### Stock feed/hay

Stock feed is restricted to lucerne chaff, wheaten chaff and milled oats that is free of soil, weed seed and is contained and packaged. It must be free of insects, pest animal, seeds and green plant material. All stock feeds are to be kept in water tight and rodent proof containers. The product must be inspected by the importer on opening and presence of suspected pests reported to the LHIB.

#### **Cut flowers & bouquets**

Cut flowers and bouquets can only be imported to LHI if they have been approved and meet plant importation requirements.

#### Import approvals

Failure to obtain prior approval for importing plants, animals and vehicles could result in a breach of the LHI Regulations 2004 and incur a fine.

## Dogs

All dogs imported to the Island require prior approval from the LHIB. Only leaseholders, temporary residents of more than two years and people requiring guide dogs are eligible for dog importation.

All imported dogs (including returning dogs) will require a certificate from a qualified vet that they are free from or have been treated for internal and external parasites.

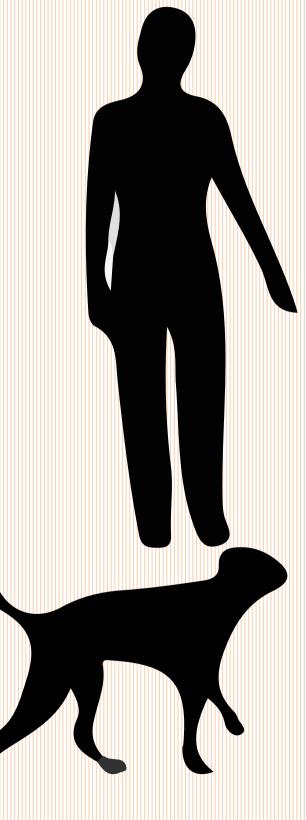
All female dogs must be desexed prior to importation and male dogs must be desexed within 1 year of importation. The owner of a male dog that has not been desexed must pay a bond at the LHIB prior to importation. The bond will be refunded upon receipt of the appropriate certificate from a qualified vet stating the dog has been desexed.

All dogs must also meet the training requirements outlined in the Dog Importation and Management Policy 2013 within 1 year of importation. The owner of a dog that has not been trained must pay a bond at the LHIB

prior to importation

The bond will be refunded upon receipt of the appropriate certificate from a qualified dog trainer or qualified vet stating the dog has been trained.

In the event that a male dog has not been desexed and is not trained prior to importation, one bond will be sufficient for both requirements.





## **Check incoming freight**

When opening freight, closely check for items that present a potential biosecurity risk to the island. Check all incoming freight for stowaway animals such as mammals, frogs, lizards, snakes and insects. Check for items that contain could host pests or diseases such as Phytophthora root fungus (soil), Myrtle Rust (plants, especially Myrtaceae family) and borers within timbers etc.

For incursions of frogs, lizards, snakes, rodents and insects please attempt to contain the animal or maintain eye contact until assistance can be provided. It is also important to contain animals that are or appear dead (see 'Containing pest animals').

If insects are observed the material will be sprayed with a low toxicity residual insecticide (synthetic pyrethroid, Bifenthrin) or commercially available knockdown insecticide.

#### Fruit and vegetables

Root vegetables should be brushed or selected free of soil (they do not need to be washed).

Root vegetables that arrive with soil should have the soil brushed into a container and the soil then treated with

70% methylated spirits/water, or Quatsan® (the product used in boot scrub sttaions across the island) and then disposed into general garbage waste. Please notify your supplier to ensure future consignments are free from soil.

Leaf vegetables should be checked for frogs, lizards, snails/slugs, snakes, slugs and other insect pests.

Packaging containers should be free of soil and any sign of insect damage or infestation.

#### Importing household items

All household items and furniture should be free from pests prior to importation. Boxes and furniture should be treated with a low toxicity residual insecticide (e.g. synthetic pyrethroid, Bifenthrin) prior to importation to ensure all insect pests such as ants, spiders, cockroaches and silverfish are killed prior to importation.

Keep a knock down insecticide handy when opening incoming freight that may not have been treated prior to importation.

Crates should be constructed and packed and sealed on one day and as close to freighting to reduce the chance that pests can seek refuge amongst freight. Large crates should be baited with Brodifacoum rodent baits prior to transport. When unpacking freight on LHI please check carefully for any potential pests or their droppings.

Please advise the LHIB immediately if you suspect an incursion of any at risk item.

If a pest species is detected upon arrival it is important to immediately advise the LHIB so that it can be appropriately dealt with, determine the source of the pest and so suppliers can be notified to check for pests prior to packing for future consignments.

# LPG cylinders

LPG cylinders must be free of soil and spider webs outside and under the base. (Brushing is sufficient for soil). Bases of cylinders should be sprayed (inside and out) with a low toxicity residual insecticide (synthetic pyrethroid, Bifenthrin) immediately prior to filling and then stored on a hard surface free of soil or treated immediately prior to dispatch.

## **Quarried products**

Bulk bags of quarried material should be stored on clean hard standing not subject to flooding and be free of insect and soil contamination. Sand and gravel should be free of soil, vegetation and other foreign contaminants. Wherever possible the time between filling bulk bags and transportation to wharf hard standing, should be as short a time as possible.

Where practicable, a VENM certificate (see: http:// www.environment.nsw.gov.au/wr/venm.htm) should be provided for the import of material to the Island unless arising from commercial quarries. Any bulk bags of quarried material that have been subject to flooding prior to loading must not be transported to the island. Immediately advise the LHIB quarantine officer of the presence of any insects, vegetative material or soil contaminants.

#### **Island Trader cargo**

Freight should preferably be carried on new and clean pallets.

Non standard crates and pallets should be constructed of treated pine or hardwood not comprised of sap wood or bark and free of borer and other insect holes. International imports previously cleared by AQIS are acceptable.

Dunnage should be hard wood or treated pine which must be free of sap wood or bark and free of borer and other insect holes.

All cargo should be free of soil contamination, which if necessary, should be brushed or washed from cargo prior to departure to LHI or as soon as possible after arrival. All plants and plant material must have written approval from the LHIB prior to importation. Imported plants must be stored within the quarantine room at the jetty or on a pallet at the hardstand for inspection prior to transportation to destination.

All quarried materials must be inspected prior to loading on the ship and must be stored at the LHI hardstand for inspection prior to transportation to destination.

Used motor vehicles, garden equipment (mowers, mulchers etc) and any other plant equipment must be clean of any foreign contaminants such as soil/mud, vegetation and spider webs. Contaminated equipment should be stored at the hardstand and the LHIB notified immediately.

Used vehicles must have a certificate proving they have been steam cleaned and vacuumed prior to importation to remove any weed seeds, soil pathogens and foreign materials.

All visiting vessels are advised to contact the LHIB to book a mooring prior to departing for the Island.

Visiting vessels need to comply with ballast/bio foul requirements and will not be permitted to attach to a mooring in the lagoon if they have any live plants or pets/ animals.



When you identify a pest animal or pathogen that has accidentally arrived in freight it is important to contain it, maintain visual contact (to ensure its location is known) and if possible capture it or contact the LHIB to assist capture.

Always advise the LHIB of a pest animal or pathogen incursion as soon as possible so they can assist to capture the animal/s and record the incident to determine the route of incursion.

It is important to correctly identify any animal so that appropriate responses can be deployed. Poisonous animals such as spiders and snakes require extra caution. If unsure on the identification of an animal or pathogen that has stowed away assume it is not native to LHI, contain it and advise the LHIB quarantine officer.

Never release an animal or pathogen that arrives in freight in the compost, garbage bin or outside into the garden or bush. If an animal escapes from your dwelling it is important to record details on where it was last observed (such as direction it headed, time, number of individuals etc).

In most instances captured animals will be humanely euthanised and lodged with a museum, unless they are able to be repatriated to their place of origin.



A frog invader bagged on LHI. Photo:LHIB.

#### **Containment methods**

Methods of containment will vary depending on each species.

Insects can be sprayed with a knockdown insecticide and placed in a specimen bottle, or secured live (in a net or jar etc) or killed by squashing.

Snails and slugs should be collected and held in a sealed plastic bag or specimen jar.

Frogs can be caught by hand and held in a sealed plastic bag with a cap full of fresh water and kept out of direct light and kept cool. Wash hands after handling.

Snakes should only be handled by someone with experience in handling them. It is very important to keep them contained and maintain eye contact until an experienced handler has arrived. It is important to not aggravate or scare snakes.

If a snake is observed within a crate or box, seal the opening immediately to contain the animal. Brown Tree Snake. Photo: David Hunter Green Tree Frog Photo: Hank Bower LHIB



Captured snakes can be contained in a tightly knotted pillow slip and kept out of direct light and kept cool. Most lizards can be caught by hand if not considered a hazard. Captured animals should be held in a tightly knotted pillow slip and kept out of direct light and kept cool. Larger lizards like goannas and eastern water dragons should be treated in a similar way to snakes. Mammals such as possums, rabbits, rodents and bats should be immediately contained and reported to the LHIB quarantine officer.

#### **Prohibited for export**

Flora and native fauna are not approved for removal off the island except for palms purchased via a LHIB approved vendor and shells in accordance with LHI Marine Park zoning plan. The following legislative instruments are relevant to quarantine on LHI:

- Lord Howe Island Act 1953
- Lord Howe Island Regulation 2004
- Noxious Weeds Act 1993
- NSW Threatened Species Conservation Act 1995 (TSC Act)
- Plant Diseases Act 1924
- Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act) and
- The Quarantine Act 1908 and
- Marine Parks (Zoning Plans) Regulation 1999
- Animal Diseases and Animal Pests (Emergency Outbreaks) Act 1991

The LHIB has several policies that guide quarantine management on LHI for importing plants, animals and vehicles. These are the:

- Plant Importation Policy
- Avian Importation Policy
- Dog Importation and Management Policy
- Importation of Stock Policy (cattle, sheep, horse and alpaca)
- Keeping of Domestic Goats Policy and
- Vehicle Importation and Use Policy.

These policies are available from the LHIB administration offices or the LHIB web site.





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# Exploring the Island

Track to Little Island. Photo: Michael Legge-Wilkinson

- ➡ Walking trails
- Northern walks
- Central walks
- Southern walks



Walking trails

## **Track Categories**



#### Class 1: All Access Track Hard surface suitable for wheelchair access



Class 2: Graded Track Firm surface, 1:10 gradient, minimal steps



Class 3: Walking Track modified surface, generally 1:10 grade



Class 4: Hiking Track distinct or natural surface, variable grades



**Class 5: Marked Route** track surface may be indistinct in places, may include steep sections



Class 6: Unmarked Route No track surface, may include steep sections

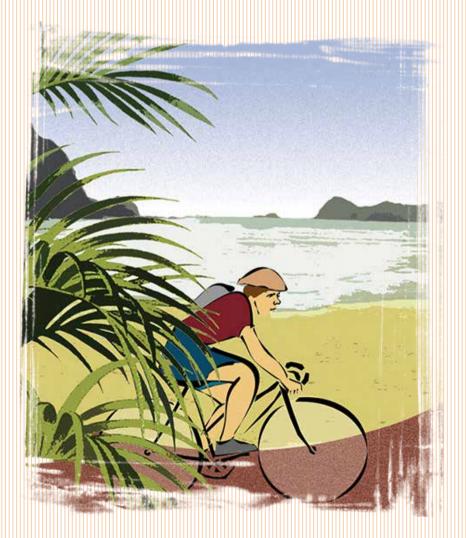


#### Finding your own way

Lord Howe Island has a network of well marked walking tracks classed in accordance with Australian standards (i.e. Class 1– very easy, through to Class 6 – very hard).

Walks on the island range from Class 2 to Class 5 and are distinguished by guide posts at the start, pointing the way and providing distances. These walks are complemented by the relaxed open road network around the centre of the island that makes cycling between trackheads and other beachside destinations such an integral part of the Lord Howe experience.

Enjoying a short ride on your hire bike is a great way to get to the start of the island's walking tracks.



Sturdy footwear is recommended as most tracks are steep, with exposed tree roots and rocks, and can be slippery at times.

Please be sure to clean your shoes and walking poles well before setting out on a walk to stop the spread of weeds and diseases like Phytophthora and Myrtle Rust.

#### Always use boot scrub bays at the start of your walk where provided.

Also be sure to carry some drinking water as you may take longer than you think to complete some walks. Refill stations are located outside the co-op, at the museum and the airport terminal.

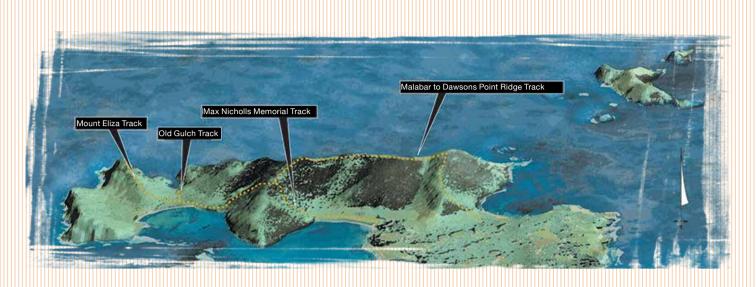
Some of the tracks are used to access a number of fishing locations around



Using the boot scrub bay. Photo: LHIB

the island. Slippery rocks and unpredictable seas make rock fishing extremely hazardous.

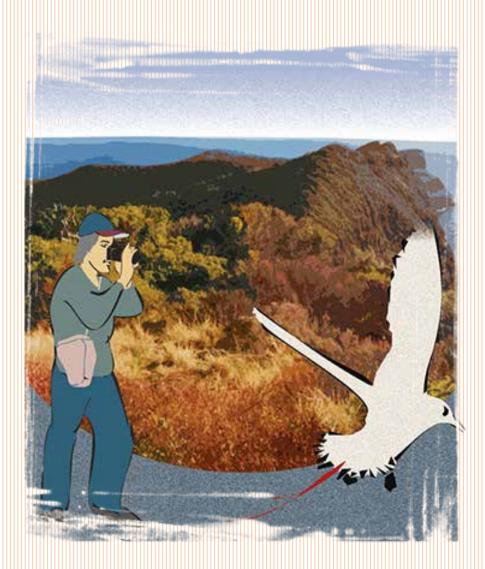
# Northern walks



A walk in the northern hills provides breathtaking views over the lagoon to the southern mountains and the

Admiralty Islands to the north-east. During summer, the clifflines are used by nesting seabirds such as the red-tailed tropicbird.

From Dawsons Ridge the track leads walkers to tranquil North Bay and rugged Old Gulch.







## Max Nicholls Memorial Track to North Bay: (1.5km) Class 3

This walk commences at the picnic area at Old Settlement Beach. The track crosses the rear of the dune and then winds its way up to the top of the ridge. The climb is demanding, though made easier by the steps.

The track then descends steeply to the picnic area at North Bay where there are toilets and barbecue facilities.

Return can be either by the same track, or at the Dawsons Point Ridge junction take the track to Malabar, and continue down to Neds Beach.



## Malabar to Dawsons Point Ridge: (1.5km) Class 4

The Malabar walk commences at Neds Beach, with a climb up an open grassy slope, through a turn style and up to Pooles Lookout where there is a memorial plaque commemorating the Catalina crash victims. From the lookout, the track leads to the 208m high summit of Malabar Hill.

This section of the climb is interspersed with tree roots and rocks, and is of a relatively moderate grade. From Malabar Hill you can gain views of Balls Pyramid by walking 50m to the east or you can head west to follow the cliff edge to Dawsons Point Ridge. During summer there are large numbers of seabirds nesting along the sea cliffs.

Exposed cliff edges exist.

Extra caution should be taken on this section of the walk. Children should be supervised at all times.



#### Walkers on the top of Malabar Hill photo: Ken Lees





### Old Gulch: (0.3km) Class 2

This is a short level walk, mostly along a timber boardwalk, from the picnic area at North Bay to the small rocky cove known as Old Gulch.



### Mt Eliza: (0.6km) Class 4

The Mount Eliza walk starts at the picnic area at North Bay and climbs to the summit of Mount Eliza, 147 m above sea level. The track is very rocky and steep.

From September to March, sooty terns nest along the trail and on the summit. During this period the track is closed to the public, to protect the birds and their young.

The view over Mt Eliza to the LHI lagoon. Old Gulch can be seen on the left of the photo. Photo: Ken Lees

View from Mt Eliza east across the Malabar Range photo: Ken Lees

### Central walks



For many visitors the walks around the central part of the island near the shops and bulk of the lodge accommodation, will be the first tracks they try out on Lord Howe. These mostly cover gentle, undulating terrain and offer access to several striking lookouts and a variety of lowland forest environments.

All of the tracks listed here are relatively short and easily accessed by people of average mobility in the course of a morning or afternoon.

Remember that while track surfaces are often slippery (or in some cases wind around muttonbird burrows) if you take your time you shouldn't have any problems.



#### Stevens Reserve: (1.2km return) Class 2

The Stevens Reserve loop track is a walk that starts opposite the boatsheds on Lagoon Road. The track is relatively flat, narrow in sections

with exposed tree roots. The walk goes through a timber plantation containing the introduced Norfolk Island pine *Araucaria heterophylla*, hoop pine *Araucaria cunninghamii*, bunya pine *Araucaria bidwillii*, and tallowwood *Eucalyptus microcorys*. The walk traverses close to several private vegetable gardens. Please keep to the track.



#### Foreshore Walk: (0.5km) Class 2

This track commences at the boatsheds heading south to the Aquatic Club along the hind dune and continues south along the foreshore past Pinetrees boatshed. It offers an alternative to walking along Lagoon Road. Another option is to take a stroll along Lagoon Beach. We're sure you'll find your own way along this one.

> The Foreshore looking south beyond the jetty to the southern mountains. Photo: Michael Legge-Wilkinson



#### Transit Hill: (1.2km) Class 3

This track starts opposite the LHIB Administration Office and goes part way up Bowker Ave before branching off through the palm forest and leading along the forest edge above the Pinetrees' paddock.

From there it climbs steadily to the summit of Transit Hill. The lookout platform on the summit gives excellent 360° views.

Return can be either by the same track, or continue further for another 0.5km to Blinky Beach. This section of the walk is much steeper and slippery when wet. From Blinky Beach you can walk back along Lagoon Road.

View from Transit Hill over Blinky Beach. Photo: Ken Lees



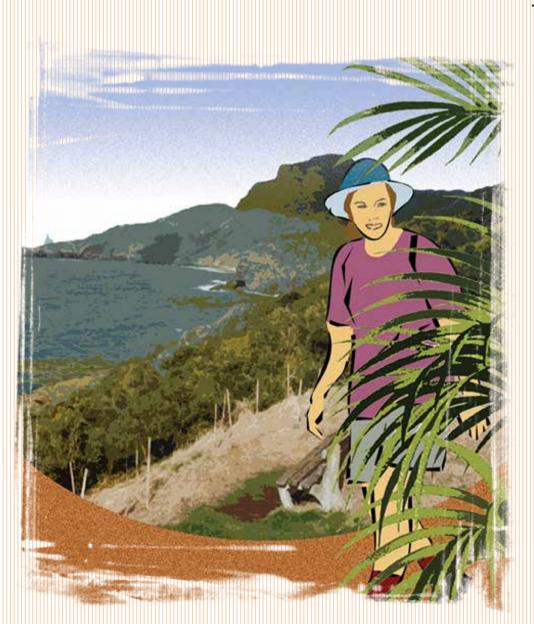
Transit Hill view from Blinky Beach. Photo: Michael Legge-Wilkinson



#### The Clear Place: (1.2km return) Class 2

This is an easy, fairly level walk that starts just before the new powerhouse at the southern end of Anderson Road.

The track follows the fence line above Middle Beach, through the palm forest, and out to The Clear Place where there are views to Balls Pyramid. A short diversion just before The Clear Place takes you down to the Valley of



the Shadows, with views back towards Middle Beach.

This section of track is steep, and is interspersed with tree roots and rocks. Beware of muttonbird holes along this track.

### Southern walks





#### Coastal Track to Boat Harbour via Mutton Bird Point Lookout, and Rocky Run: (3.5km) Class 4

#### **Currently closed due to a landslide.**

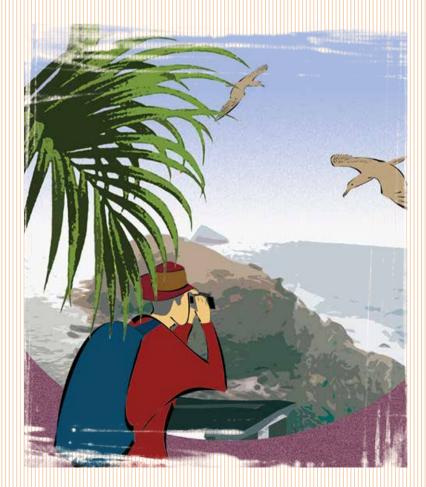
This walk commences on Lagoon Road near the turn-off to the airport. It follows the eastern coastline.

The track is narrow in parts and is interspersed with tree roots, rocks, fallen vegetation and leaf litter.

Approximately 1.4km along the route, a sidetrack descends a short distance to a lookout platform with views across to Mutton Bird Point. Muttonbird Point supports a nesting

colony of masked booby.

The main track leads to Rocky Run Creek.



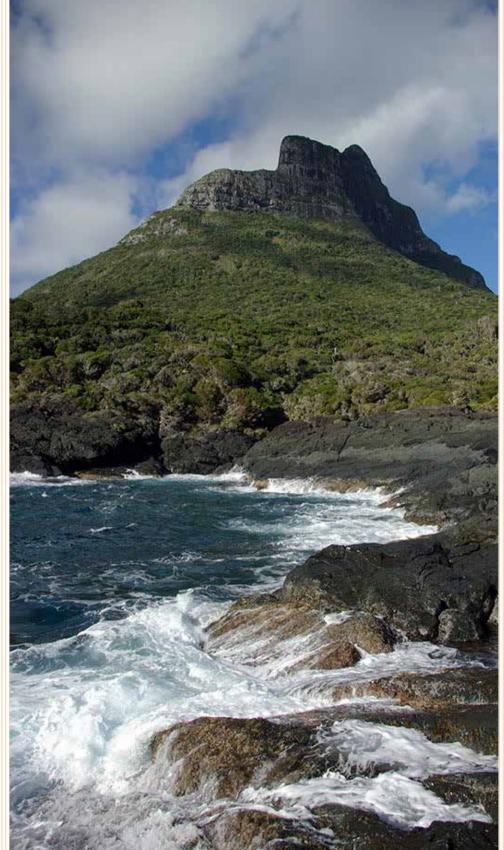
Here you can branch off and follow the creek down to the ocean, or you can continue the walk to Boat Harbour.

From Boat Harbour, you can return along the coastal track or branch off at Rocky Run Creek and continue over

Smoking Tree Ridge to the southern end of Lagoon Road.

Follow Lagoon Road north up the hill past Capella Lodge and the golf course to your original starting point.

Mt Lidgbird from Rocky Run. Photo: M. Legge-Wilkinson





#### Intermediate Hill: (1.2km) Class 3

The track to Intermediate Hill branches off 0.2km from the start of the Coastal Track to Muttonbird Point near the airport turnoff.

It can be used to access the walks to Boat Harbour or the Goat House. It is a steep and demanding climb to the summit of Intermediate Hill, 250 m above sea level.

From here you can backtrack to Lagoon Road, or continue to Smoking Tree Ridge. The descent to Smoking Tree Ridge is very steep and extra care should be taken on this section of the walk.



#### Goat House: (2.1km) Class 4

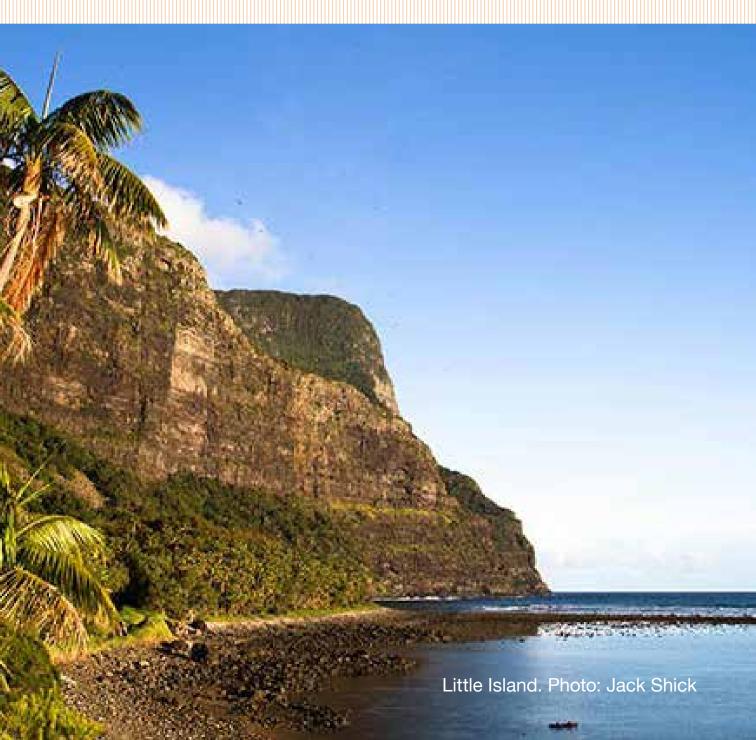
Access is from Lagoon Road, past Capella Lodge. Take a left turn where the track forks. The track leads initially to Smoking Tree Ridge. From this point you can either turn off to Boat Harbour, or you can continue the ascent to the Goat House Cave.

The track up to the Goat House Cave is very steep, and is a demanding climb. The track is narrow and is interspersed with tree roots and rocks and includes some rope sections to improve access.



## Little Island Track: (1.4km) Class 2

The track to Little Island starts at the southern end of Lagoon Road. It is an easy, flat walk along an old service road through Kentia Palm forest to a clearing beneath the towering cliffs of Mt Lidgbird.





#### Mount Gower: (4.5km) Class 5

The Mount Gower walk is recognised as one of the top 20 day walks in Australia and is very hard and demanding, taking about 8 hours to complete.

This walk must only be attempted with a guide licensed by the Lord Howe Island Board. Ask your lodge proprietor for contact details for licensed guides.

In preparation for this walk, ensure you have adequate footwear and clothing.

Your guide can also advise of any extra precautions, particularly relating to weather conditions and fitness.





## the Marine Park



ALLI

- Marine Park context
- Marine Park Map
- About the Marine Park
- Zoning Plan regulations

Above: Deep sea fishing and lagoon fishing LHI. Photos: Justin Gilligan MPA

### Marine Park context



There's a watery highway running south along the Queensland coast before swinging eastwards towards Lord Howe Island.

This East Australian Current carries with it many forms of life. Apart from animals hitching a ride aboard logs and other debris, it contains the larvae of many tropical marine creatures. It also helps warm the waters around the island to above 17°C where they can support one of the world's most southerly coral reefs. Coral provides food and shelter for other organisms, thus helping complex marine communities to develop. This influx of warm water into the milder waters of the Tasman Sea helps to create a unique marine environment, which represents a significant part of the Lord Howe Island Group's World Heritage Listing and led to the creation of the Lord Howe Island Marine Park.

An enormous diversity of fish (around 500 species) and invertebrates (urchins, starfish, crabs, snails, slugs and worms) have been recorded in the region. Many fish are endemic (only occur within the Lord Howe Island region), such as McCullochs anemone fish and some species are protected and threatened species.

## Species that may be taken for recreational purposes

(without permit) from habitat protection zones (NSW

Fisheries Bag and Size limits apply).

Common name	Class or family	Species
Fin-fish (fish with fins and scales)	Class Osteichthyes	All species except those prohibited by the Fisher- ies Management (Gener- al) Regulation 2002
Polychaete Worms	Class Polychaetae	All species
Crabs	Order Brachyura	All species
Lobster, crayfish	Family Palinuridae	All species
Ghost shrimp, marine yabbie, nipper	Family Callianassidae	All species
Snapping shrimp	Family Alpheidae	All species
Slipper lobster, shovel nosed lobster or bug	Family Scyllaridae	All species
Prawns	Family Penaeidae	All species
Squid and octopus	Class Cephalopoda	All species
Turban Shell	Family Turbinadae	All species
Black Snail	Family Neritidae	Nerita atramentosa
Sea urchin	Class Echinoidea	Centrostephanus rodg- ersii Heliocidaris tuberculata
Sharks and rays	Class Chondrichthyes	All species except those prohibited by the Fisher- ies Management (Gener- al) Regulation 2002.

# Bag limits for species that may be taken from habitat protection zones for recreational purposes.

For all other species, prescriptions of the Fisheries Management (General) Regulation 2002 apply.

Common name	Species	Maximum number allowed to be taken per person per day
Double Header	Coris bulbifrons	1
Bluefish	Girella cyanea	5
Spangled Emperor	Lethrinus nebulosus	2
Scorpionfish, red rock cod, bucket head.	Scorpaena cookii Scorpaena cardinalis	2 in total comprised of one species or a combi- nation of both



Bluefish. Photo: Geoff Kelly / MPA

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Double header. Photo: MPA

Scorpion fish: Photo: Geoff Kelly / MPA

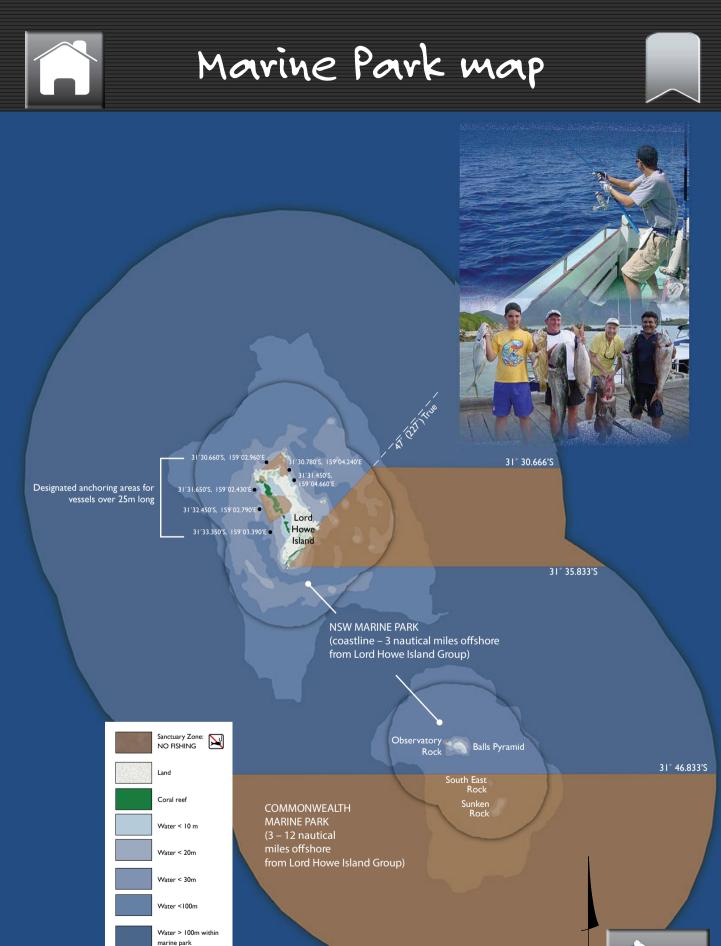
Spangled emperor. Photo: Geoff Kelly / MPA

## The only species that may be taken for sale on LHI.

Common name	Class or family	Species
Finfish (fish with fins and scales)	Class Osteichthyes	All species except those listed in table below, and those prohibited from taking by the Fisheries Management (General) Regulation 2002
Sharks and rays	Class Chondrichthyes	All species except those prohibited by the Fisheries Management (General) Regulation

## Species prohibited from taking for sale.

Common name	Class or family	Species
Double Header	Family Labridae	Coris bulbifrons
Bluefish	Family Girellidae	Girella cyanea



. Water > 100m outside marine park

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SCROLL IN

#### North Bay Sanctuary Zone

This zone covers reef and lagoon north from North Passage. It protects the outer wave washed reef community with its deep coral encrusted spur and groove coral formations, and the sheltered lagoon, dominated by extensive stands of delicate branching corals with their associated diverse fish and invertebrate fauna. It also protects the most extensive bed of seagrass in the Lord Howe Island Lagoon.

#### map detail

#### Neds Beach and Admiralty Islands Sanctuary Zone

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NEDS BEACH & ADMIRALTY ISLANDS SANCTUARY ZONE

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A distinctive type of reef with large foliose and vase shaped hard corals, whip corals, black coral, fan gorgonians, crinoids, colonial ascidians, coralliomorphs, basket stars and hydroids occupies this zone. Despite their ability to withstand strong currents, these organisms are vulnerable to physical damage from anchors and fishing gear.

Valley of

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#### **Observatory Rock** Sanctuary Zone (see previous map)

The submerged flanks of Observatory Rock and surrounding boulder field are characterised by numerous large crevices, caves and overhangs. This habitat supports a very high diversity of species usually found in much deeper water, including the rare Ballina Angelfish delicate branching forms of corals, hydroids and brycoans which are vulnerable to damage from anchors and fishing gear. The sanctuary zone surrounds Observatory Rock out to 50 metres from the high water mark.

#### **Balls Pyramid Sanctuary** Zone (see previous map)

This zone covers all of the Balls Pyramid section of the marine park south of 31° 46.833', and includes South East Rock and Sunken Rock. The zone protects a range of biological communities not recorded from the Lord Howe Island Section, including fish and invertebrates which live on the slopes of the sea-mount that descend to over 2 kilometres deep.



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Lord Howe Island World Heritage Area

EAST COAST AND SHELF



#### East Coast & Shelf Sanctuary Zone

This zone protects a representative sample of cliff and boulder rocky shores and associated submerged rocky reefs that are characteristic of the southern end of Lord Howe Island.

Further offshore, this zone protects a segment of the Lord Howe Island shelf and its range of habitats which vary according to depth, slope and substrate type, including relict reefs, a vestige of lower sea levels, which provide vertical relief for attachment by a diversity of current-dependant filtering organisms.

#### Sylphs Hole

SANCTUARY ZONE

#### Sanctuary Zone

Sanctuary Zone This small zone extends to all areas within 50 metres of a yellow sanctuary-zone-marker-buoy at the centre of Stylohs Hole. It protects the coral and fish community that populates the fringes of this sandy depression in the lagoon floor associated with a fresh water spring in Hunter Bay. This community is dominated by two distinctive species of coral that are used as shelter by a diversity of fish and invertebrates. Both Green and Hawksbill Turtles are commonly seen here.

#### Lord Howe Island Lagoon Sanctuary Zone

This sanctuary zone covers the central section of the barrier reef and lagoon from south of Blackburn Island to Erscotts Passage.

The northern boundary can be found by aligning the southern edge of Blackburn Island with the northern end of the airport rock break-wall. The southern boundary runs from the promontory just north of Lovers Bay through Erscotts Passage.

The zone extends westward to a line between North and South Heads. The shoreline boundary is offset from the mean high water mark by 50 metres to allow for shore-based fishing from the best of the beach

This area supports an amazing concentration of marine biodiversity, and includes species found nowhere else. Two sand filled depressions in the lagoon floor which are flanked by particularly dense and diverse coral communities, known as Comett Hole and Erscotts Hole, are included within the zone.

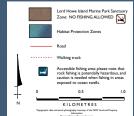
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Using this map

LORD HOWE ISLAND LAGOON SANCTUARY ZONE

This map provides a ready-reference guide to the location of zones in the Lord Howe Island Marine Park. The Marine Parks Regulation 1999 (NSW) and the Lord Howe Island Marine Park (Commonwealth Waters) Management Plan include further detailed provisions and should be consulted for legal interpretation. interpretation

Geographical positions where shown a in degrees and decimal minutes using the datum WGS84 and can be found directly from GPS units. n are



## About the Marine Park

The Lord Howe Island Marine Park (state waters) includes all of the seabed and waters extending to three nautical miles (just over 5.5km) from the territorial sea baselines surrounding Lord Howe Island, Balls Pyramid, South-east Rock and their adjacent rocks and islands.

The marine park extends into creeks to the limit of the tidal influence and to the mean high water (MHW) mark along the shores.

Lord Howe Island Lagoon. Photo: Ken Lees

Between three and twelve nautical miles seaward of the shore, the seabed and waters are contained within a Commonwealth marine park that protects the deeper seamounts and coral communities that exist on the shelf and shelf slope ecosystems.

The entirety of the Lord Howe Island Marine Park is contained within the Lord Howe Island World Heritage Area.

The marine park is managed by the NSW Department of Primary Industries and the Commonwealth Department of Sustainability, Environment, Water, Populations and Communities.

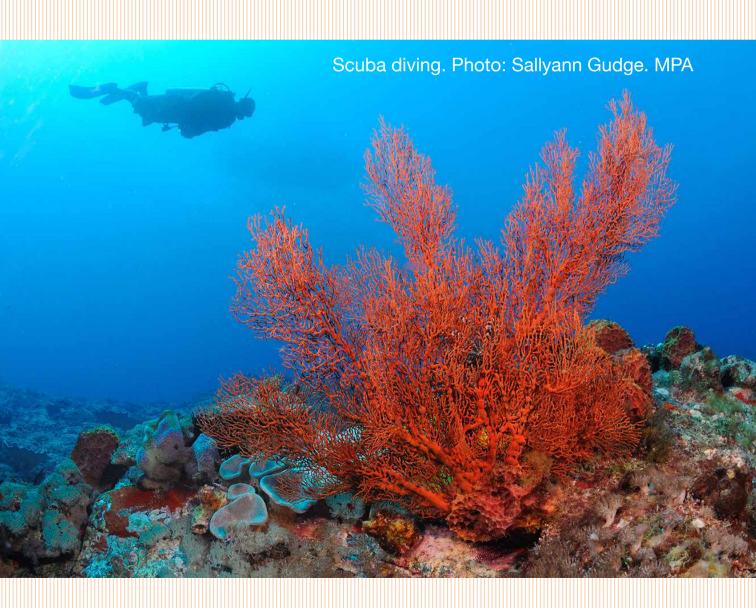


Galapagos Whaler and sea urchins. Photos: Steve Linfield (above)/ Geoff Kelly MPA



A zoning plan is in place to protect the marine biodiversity of the Lord Howe Island area while continuing to provide access to popular activities like recreational fishing, diving, guided tours, boating and surfing.

The multiple use zoning plan provides opportunities for the whole community, visitors and locals alike, to use and enjoy this World Heritage listed area where unique seamount animals and plants including tropical, sub tropical and temperate marine species co-exist.





Strong currents run at times, particularly out of the lagoon through the reef channels, at Blinky Beach and at offshore locations.

Lord Howe Island is surrounded by the open ocean, and the waters are frequented by a variety of sharks. The most common, the Galapagos whaler shark, usually ignores people, but you should not swim where fish are being fed, killed or cleaned.

Sharks are usually absent from the shallow waters of the lagoon during the day, but do frequent the lagoon from dusk to dawn.

Lord Howe Island is home to a great diversity of sea urchins, some of which burrow just beneath the sand in the lagoon floor, and many reef shells have very sharp edges, so wear shoes when wading or reef walking.

## Zoning Plan regulations

All forms of fishing and collecting are prohibited in sanctuary zones. Representative areas of each major type of habitat are protected in sanctuary zones (about 30% of the park), while sustainable fishing is allowed in the remainder.

Both LHI and the adjacent LHI Marine Park are NSW territory. Recreational fishing in both NSW and Commonwealth waters of the park is subject to the NSW Fisheries Management Regulations, including size and bag limits unless specified by the zoning plan. Offal from cleaning of fish that have been caught outside the lagoon must not be discarded within the lagoon. Please refer to the LHIMP Zoning Plan User guide or contact the Marine parks office before heading out.

The ideal way to get the most out of your fishing experience within Lord Howe Island Marine Park is to participate in one of the regular fishing tours offered by local tour operators. Please inquire at the island's Visitor Centre for details of the tours available.

Recreational fishing (but not spearfishing) is allowed in the habitat protection zones (as shown on the marine park map). There are numerous and diverse shore fishing areas accessible around the island (these are also marked on the map).

#### Anchoring

MPA provide moorings in some locations to reduce the need for anchoring.

Anchoring of larger vessels can destroy extensive areas of coral which take many years to recover, and even small vessels can destroy delicate corals and de-stabilise seagrass beds by dragging anchors in some areas.

With some exceptions, all vessels are prohibited from anchoring in sanctuary zones, while vessels over 5 metres long are prohibited from anchoring in the Lagoon, and vessels over 25 metres long may only anchor within one of six designated sites.



#### **Fish feeding**

Attracting fish with small volumes of appropriate food material can be an exciting experience, but the cumulative effects of inappropriate fish feeding can disrupt normal fish populations and impact on ecological processes.

Please feed fish only near the shed, within the designated Neds Beach Special Purpose Zone. There is a purpose built fish feed dispenser located within the Neds Beach shed that provide for using less than 300 grams of approved fish food per person. Licenced tour operators are permitted to undertake fish feeding at Erscotts Hole, North Bay and Neds Beach under special permit arrangements.

#### Snorkelling

Snorkelling offers an easy way to discover some of the marine life of the park. Neds Beach Sanctuary Zone, Sylphs Hole Sanctuary Zone and the lagoon foreshore are popular locations, offering a diversity of marine life accessible from shore. Several tour companies offer guided snorkel tours to coral gardens at the outer lagoon reef.



#### **SCUBA Diving**

Hundreds of different dive sites are available in the park from shallow coral areas in the sheltered lagoon, to deeper reefs, caves and channels offshore from the lagoon, around the Admiralty Islands, and near Balls Pyramid. There are two dive companies that offer accredited dive courses and access to the island's dive sites.





## Restoring Lord Howe

**Species recovery** 

- The woodhen story
- LHI Phasmid story

**Pest species eradications** 

- ➡ African Big-headed Ant
- Rodents
- Weed eradication
- Threatened species

### Lord Howe Island



#### one of Australia's top 25 ecological restoration projects as judged by the Global Restoration Network











Funding for environmental restoration projects undertaken by the LHI Board on Lord Howe Island is provided by the LHIB through the tourist levy, the NSW and Federal Governments with assistance from private sponsorship as provided through the Foundation for National Parks and Wildlife.



ISLAND BOARD



#### Species recovery

In the early 1970s the Australian Museum conducted a major scientific investigation into the islands biodiversity.

This benchmark research established that the island did indeed have a biological heritage of world significance and subsequently led to its inclusion on the World Heritage List in 1982.

It also found that introduced species of plants and animals were major threatening processes that could result in further species extinctions from the island unless something was done to control and – if possible – eradicate them.





## The woodhen story

Research by the Australian Museum in the early 1970s found that the decline of the Lord Howe Island woodhen was directly linked to predation by pigs and cats. Direct predation by pest species forced the birds to the misty summit of Mt Gower and a few other inaccessible pockets where pigs could not gain access.

In the late 1970s, The Foundation for National Parks & Wildlife funded a search for surviving woodhens which found that there were only 33 birds remaining. In May 1980 a captive breeding program commenced. It was funded with \$150,000 from the Foundation for National Parks & Wildlife, which enabled construction of the compound and employed scientists.

Cats and pigs were eradicated from the island in the 1980s. The program resulted in 93 captive bred woodhens being able to be released back to the wild free from the threat of predation. Today woodhens can be seen in many parts of the island and are breeding well.

In November each year, the Lord Howe Island Board environmental staff undertake a survey to monitor the numbers of woodhens at various locations on the Island. The current estimated woodhen population fluctuates from 220 – 300 individuals. The eradication of rodents will increase the availability of invertebrates, which are the main food item for woodhen and is likely to result in a population increase.



LHI ranger banding Woodhen Photo: LHIB

## LHI Phasmid



The Lord Howe Island Phasmid (*Dryococelus australis*) is one of the world's rarest insects. It was common on LHI up until the arrival of rats in late 1918. Thirty years later it was considered extinct.

While extinct from the main island, it managed to survive on the offshore rock stack of Balls Pyramid where a freshly deceased individual was discovered by a rock climbing team in 1964.

A survey group in 2001 managed to locate living specimens and today up to 40 of the insects are estimated to exist on a single small patch of LHI Melaleuca (*Melaleuca howeana*) growing from a freshwater seep.

In 2003, LHIB Staff collected 2 female and 2 male phasmids from Balls Pyramid. The phasmids were taken into captivity on the Australian mainland: one pair went to Melbourne Zoo, the other to Insektus, a private breeder in Sydney.

Several hundred LHI melaleuca food plants were also transferred. The aim was to establish a captive population to ensure its continued survival, should some catastrophe befall the tiny population on Balls Pyramid

The remaining patch of LHI melaleuca requires ongoing monitoring to prevent it being smothered by the exotic coastal morning glory vine (*Ipomoea cairica*). LHIB bush regeneration staff undertake annual weed control to protect the only wild population of LHI Phasmid in the world.

#### About the captive breeding program

After receiving 2 LHI phasmids in 2003, Melbourne Zoo pioneered husbandry techniques enabling them to breed up a large population to secure the species from extinction and repatriate animals to LHI.

Today LHI phasmids are also held in captivity at an enclosure on LHI, where they readily breed. A public display of the nocturnal adults and diurnal nymphs is provided at the LHI Museum. Removing weeds on Balls Pyramid to improve the LHI phasmid habitat

photo: LHIB

## Pest species eradications

Due to their isolation and finite size, islands offer unique opportunities to eradicate pest species once and for all rather than undertaking continued control. Eradication removes the pest forever, whilst control relies on ongoing treatments to limit or regulate pest numbers.

The LHIB have successfully eradicated pigs and cats from the island in the 1980s and are well progressed with several other eradication programs including goats, African Big-headed Ant (*Pheidole megacephala*) (ABhA), an island wide weed eradication project and planning for rodent eradication.

#### Goats

A targetted goat culling program was undertaken in 1999, resulting in the removal of all but 5 female goats from the wild, with a small domestic herd of nannies remaining in the settlement. Today only 3 of the wild goats are thought to remain and the domestic herd is being left to succumb from old age. It is estimated that all remaining goats will be eradicated through natural attrition of old animals within the next ten years.

## **African Big-headed Ant**

#### The African Big-headed Ant (*Pheidole megacephala*) (ABhA) has established across parts of the settlement area of Lord Howe Island.

The ABhA is listed among of the top 100 worst invasive species in the world and is one of six national priority ant species that impact Australia's biodiversity. It is considered a significant threat to the island's environment.

African Big-headed Ant. Photo CSIRO The ABhA is thought to have been accidentally introduced to the Island in about 1993, although was only formally identified in 2003. ABhA was most likely introduced through infested building material transported to the Island from the mainland and then spread through movement of green waste.

In 2011 the LHIB received funding from the Commonwealth Government's Caring for Our Country program to eradicate ABhA from LHI.

Australia's leading ant eradication expert, Dr Ben Hoffmann from the CSIRO, was engaged to provide strategic advice and to train LHIB staff in the eradication methodology.

To achieve eradication the program is being conducted in three phases;

- 1. Pre-treatment surveys
- 2. Treatments and
- 3. Post-treatment monitoring (and targetted treatment where ants are detected).

Surveys to map the distribution of ABhA on LHI have been conducted in all known infestation sites throughout the settlement and all walking tracks in the Permanent Park Preserve and covered an area of approximately 200 Ha. It is estimated that the total infestation area was approximately 20ha. Surveys are done by visual searches in areas likely to have, or are known to harbor ABhAs, such as around buildings, sheds, gardens, paved areas, roadways, beneath rocks, logs, pot plants, loose building materials, along the edges of pastures throughout the golf course and other human infrastructure and other debris.

Once ABhAs are detected using visual surveys, systematic surveys using lured meat attractants (dog food) are conducted to enable accurate mapping of the full extent of the infestation.

All infested areas, including all buildings within known infestation areas and a 20 metre buffer beyond the known infestation boundaries are treated with either Amdro® or Distance ® Plus Ant Bait.

Buildings within mapped infestation areas are treated with Advion Ant Gel®.

All treatment is conducted as per the product labels. Post-treatment surveys are carried out within all infestation areas at least 3 and 4 months after any previous treatment.

Monitoring has demonstrated eradication has been achieved throughout most of the treated areas, thereby allowing these areas to undergo natural restoration.

The eradication program is expected to run for a further 3 years including a minimum of 2 years following the final detection.



Above: ABhA surveys involve a systematic approach that ensures all the potential ABhA infestations are surveyed at a coarse scale as part of the overall program. Photo: LHIB.

### Rodents

The House Mouse *Mus musculus* is thought to have established on LHI in 1860 and the Black Rat *Rattus rattus* in 1918 established following the grounding of the *S.S. Makambo*. Rats soon became established across the whole main island. Within two years of the arrival of rats five species of birds became extinct. These were the:

- LHI Fantail Rhipidura fuliginosa cervina
- LHI Gerygone Gerygone insularis
- Robust White-eye Zosterops strenuous
- LHI Thrush *Turdus poliocephalus vinitinctus and*
- LHI Starling Aplonis fusca hullianus.

By 2003 eleven species of large flightless invertebrate were found to be extinct due to rodent predation.



Rats impact on a wide range of species, including invertebrates such as the LHI phasmid, *LHI Placostylus Placostylus bivaricosus*, and LHI wood eating roach *Panesthis lata*.

Other affected species include 2 species of endemic reptile (LHI gecko, LHI skink); seabirds such as the white-bellied storm petrel *Fregata grallaria*, plants such as the kentia palm *Howea fosteriana*, curly palm *Howea belmoriana*, little mountain palm *Lepidorrhachis mooreana*, and big mountain palm *Hedyscepe canterburyana*. Rodents also destroy seeds, plant shoots, fungi and leaves and bark of palatable species.

The LHIB are undertaking meticulous planning, research and community consultation to plan the eradication of rodents from LHI.

This project is arguably one of the most significant management actions that can be undertaken for biodiversity and threatened species conservation in Australia.

To achieve rodent eradication requires rodenticide baits to be made available to every rodent territory in a single operation using a range of baiting techniques.

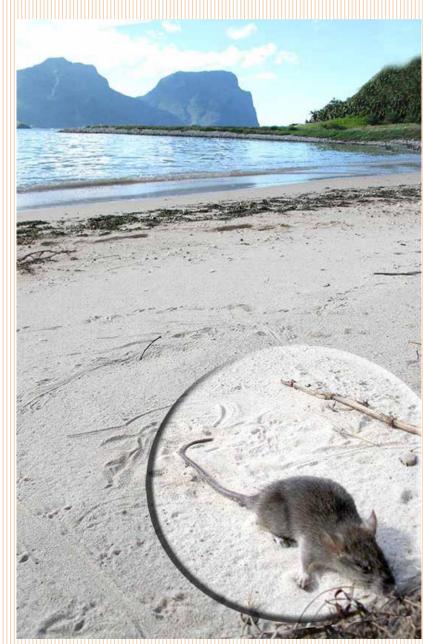
#### **Rodent control**

Various rodent control measures have been applied on LHI since their arrival including bounties on tails, dogging, trapping and the introduction of masked owls.

From 1986 to 2011 the LHIB baited rodents with a warfarin based rodenticide to reduce rat numbers in the settlement and kentia palm seed areas and to provide conservation benefits in biodiversity hotspots.

Over 1400 bait stations are serviced 5 times per year over 28 priority locations across the island, covering 140ha, which equates to about 10% of the island.

Since 2011 the stations have been baited with Coumatetralyl rodenticide, as mice were resistant to warfarin and it was no longer commercially available at the quantities required on LHI due to widespread resistance of all mainland rodents.



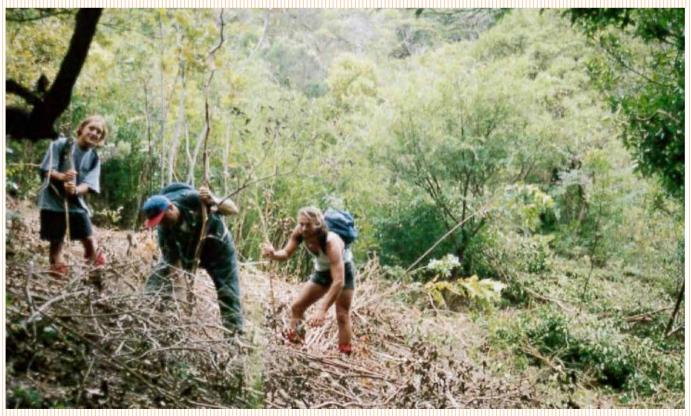
Rat control LHI. Photo LHIB



Lord Howe Island (LHI) is considered one of the most intact subtropical island ecosystems in the southern hemisphere. As with any human settlement, non native plants have been brought to the island and many have spread into surrounding bushland.

Over 600 introduced plants have been recorded on LHI, mostly from the settlement and disturbed areas. Over 270 of these plants are defined as invasive weeds.

Since the 1980s, the local community has targetted invasive weeds like climbing and ground asparagus, bridal creeper, bitou bush, madeira vine and cherry guava.



Removing cherry guava from a garden in the early 1990s. Photo LHIB

Weed mapping undertaken in 2002 confirmed that weeds were very widespread and the integrity of the islands natural ecosystems and associated World Heritage values were at risk.

Immediate action across the entire island was needed.

Since 2004 the Lord Howe Island Board has been implementing an island wide Weed Eradication Program which



Cherry guava infestation near Stevens Reserve. It can form dense thickets it open areas and under native forest. Photo LHIB.

aims to remove the threat of high risk invasive weeds forever.



Aerial support is an integral part of weed control operations on LHI. Photo: Jack Shick

Over 25 weeds are targetted. They are species as Weeds of National Significance or are known invasive weeds from other islands in the Pacific including the mainland.

The target weeds have characteristics of being able to invade bushland, form monocultures, displace native species, hybridise with endemic plants and ultimately degrade the integrity of the island's ecosystems. Some of the weeds also impact agriculture or human health.

As new and emerging weeds are found they are removed and recorded.

## Weed eradication methodology

The island is divided into 414 weed management blocks across 9 landscape units. The blocks are marked on the ground by blue tape and uniquely coded. The aim is to search the blocks every two years and remove all target weeds.

The repeat treatment of the weed blocks every 2 years is important to the program's success. However, this is required to remove all matures to prevent the spread of seed and stop juvenile plants maturing.

Several weed species such as – climbing asparagus, bridal creeper, glory lily and madeira vine – require yearly/seasonal treatment.

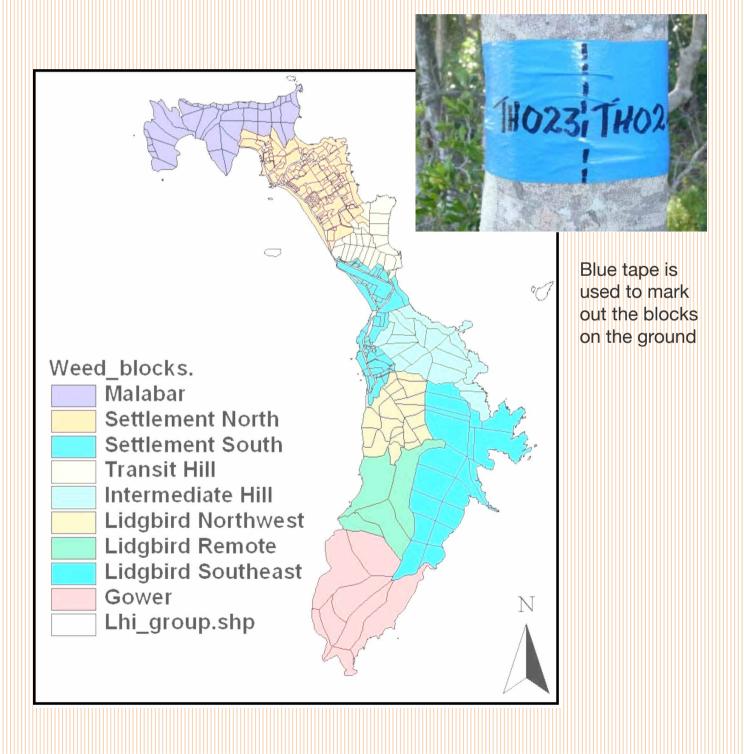


#### Weeding on LHI is an all terrain job, including remote areas



Weeding in remote areas is aided by rope access specialists and helicopter winching as all terrain must be searched and treated for weeds.

The program relies on rigorous data collection. Numbers of weeds removed and labour inputs for each block are recorded in a database. This information is used to forecast costs, management timeframes and monitor progress.



The program relies on the search and control effort undertaken by teams on the ground.



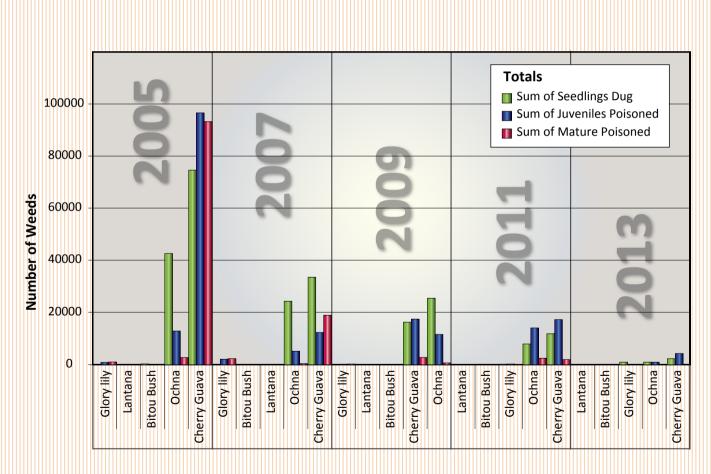
Ground Asparagus forming a dense monoculture on the eastern flanks of Transit Hill; and the area after strategic spray treatment.

## Weed reduction progress since 2004

Since 2004 up to \$5.2 million has been invested from the Federal and State Governments.

Weeds are on a downward trend with a significant reduction in weed densities island-wide. Over 120,000 hours of weeding labour has removed a count of over 2,000,000 individual weeds.

Weeding labour has been provided by the local community, the Lord Howe Island Board weed team, contractors and volunteers including Friends of LHI.

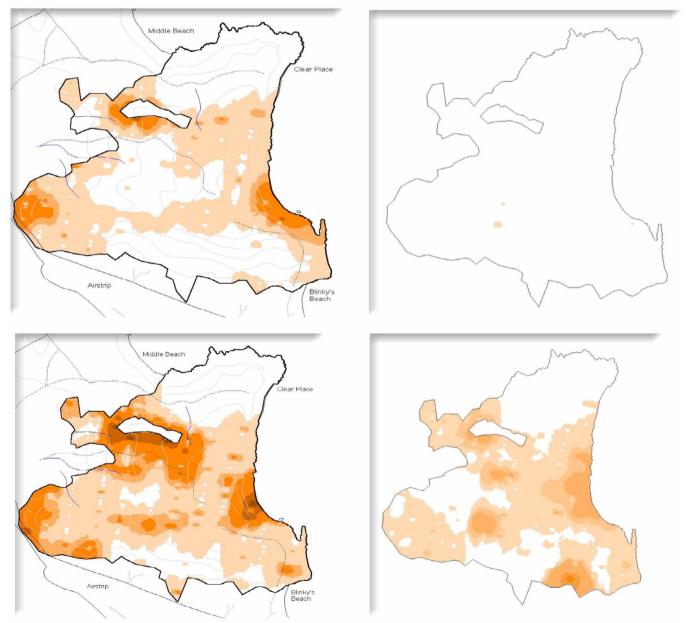


Graphic: Dee Rogers / Coffs Design

#### **Targets**

The program is predicated to run for 30 years and it is currently nearing year 10. The program forecasts a repeat of the investment received to date to achieve a zero density of the target weeds across the island by 2034.

Ground Asparagus density mapping from 2002 to 2013 (matures)



Ground Asparagus density mapping at Transit Hill, 2002 to 2013 (juvenile plants). Weed density mapping will be repeated for Intermediate Hill, Lidgbird North and the Northern Hills.

Key investment has been received from the NSW Government Environmental Trust, the Federal Government Caring For Our Country Program, Northern Rivers Catchment Management Authority (now Local Land Services) and the Lord Howe Island Board.

Ongoing investment and commitment is required to see this program achieve its goal of eradicating the priority weeds. If you are interested in donating or participating in this important island conservation program please contact the LHIB.



Heliwinch to remove guava on Mt Gower in 2012

## Summary of LHI weed control OUTPUTS since 2004



## **Bridal Creeper**

#### 5087 tonnes of corm/ root mass removed.

Bridal Creeper is native to
South Africa. It is a Weed
of National Significance in
Australia. It forms an extensive
dense root mass, which gives
this plant advantage over
native species during dry spells.
Corms are collected and brought back to the
depot for weighing and destruction.
On LHI it is prevalent in the Northern Hills.





#### **Bitou Bush**

#### 3185 plants removed

Bitou Bush is native to South Africa. It is a Weed of National Significance in Australia. If left untreated it can form dense monocultures. On LHI it favours coastal cliff lines and slopes.



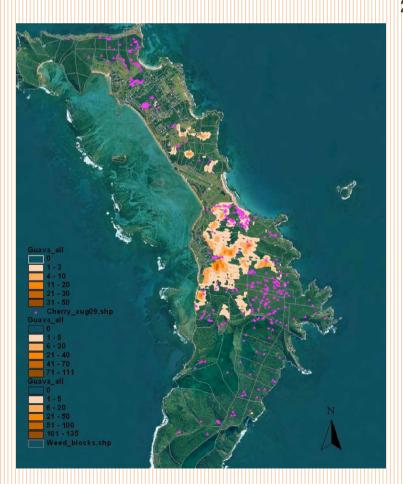


## **Cherry Guava**

#### 671,240 plants removed

Cherry Guava is native to Brazil. Chainsaws were once used to remove dense thickets on LHI. Helicopter winch has been used to gain access to plants located at 550m elevation on Mt Gower.

Cherry Guava is well known for its high Vitamin C content; the Pink Guava Psidium gaujava also provides a high level of Vitamin C as with chillies, capsicum, kale, parsely and pawpaw. All of these plants can be grown on LHI.



This image below shows the weed distribution and density mapping of Cherry Guava from

2002. The dark orange areas indicate dense infestations from 50 to 100 plants per 12m2.

The pink dots are GPS ~Global Positioning System (GPS) locations of individual or clumps of guava.

The main areas of weed infestation on island (about 80%) have received the systematic grid search and removal of target weeds including Cherry Guava; with repeated visits.

This mapping is currently being updated to document changes in weed populations and to report on the outcomes of sustained control effort over the last 10 years.



## Sweet Pittosporum

#### 82,068 plants removed

Sweet Pittosporum is native to mainland Australia. It can form dense thickets on LHI. It is prevalent in the Transit Hill locality.



#### Ochna

463,976 plants removed

Ochna is native to South Africa. Continued weeding effort has significantly



depleted dense infestations on the northern flanks of Mt Lidgbird and Intermediate Hill. Two plants were removed at 400m elevation on the northern flanks of Mt Gower.



#### Lantana

#### 330 plants removed

Lantana is native to South America. It is a Weed of National Significance in Australia. It is a major threat to the forests on the NSW east coast. It is very limited on LHI. If you spot this weed notify the LHIB ASAP.



Above: This mature plant was removed from the Round Face, Mt Lidgbird at 400m elevation.

#### **Ground Asparagus**

#### 8420kg of corm removed

Ground Asparagus is native to South Africa. It is a Weed of National Significance in Australia. Over 20 hectares of dense infestation has been treated by careful foliar spraying. Mature infestations of this weed are no longer common on LHI however it is critical that the spread of this weed in remote areas is prevented.

Below: Spraying thigh high Ground Asparagus east side Transit Hill





#### **Box Thorn**

436 plants removed since 2004

Box Thorn is native to South Africa. It is a Weed of National Significance in Australia. It is mainly restricted to the cliffs on



Middle Beach and the Northern Hills on LHI.



## **Glory Lily**

#### 13,261 plants removed

Glory Lily is native to tropical Africa and Asia. It is on the National Weeds Alert List. All parts of the plant are toxic. This weed has an extensive tuber and can form dense monocultures often in association with Bitou Bush. It is limited in extent on LHI being found on the lower slopes of Mt of Mt Lidgbird and in the Settlement. It is spread by birds.

If you spot this weed notify the LHIB ASAP.



Threatened species

#### Threatened Flora, Fauna & Critically Endangered Ecological Communities of LHI

Common Name	Scientific Name	TSC Act 1995	EPBC Act 1999	Fish. Man. Act 1994
FLORA				
Knicker Nut	Caesalpinia bundoc	E		
LHI Morning Glory	Calystegia affinis	E	CE	
LHI Broom	Carmichaelia exsul	E		
	Chamaesyce psammogeton	E		
	Coprosma inopinata	E		
A Wheat Grass	Elymus multiflorus var. kingianus	CE	CE	
	Geniostoma huttonii	Е		
Little Mountain Palm	Lepidorrhachis mooreana	CE		
Rock Shield Fern	Polystichum moorei	E		
	Xylosma parvifolium	Е		
ENDANGERED ECOLOG	ICAL COMMUNITY			
Lagunaria Swamp Forest Lagunaria Swamp Forest on on Lord Howe Island Lord Howe Island				
Gnarled Mossy Cloud Gnarled Mossy Cloud Fores Forest on LHI on LHI		CE		
REPTILES				
LHI Southern Gecko	Christinus guentheri	V	V	
LHI Skink	Oligosoma lichenigerum (previously Cyclodina lichenigera & Pseudomioa lichenigerum)	V	V	
Green Turtle	Chelonia mydas	V	V	
Loggerhead Turtle	Caretta caretta	E	E	
Hawksbill Turtle	Eretmochelys imbricata		V	

Common Name	Scientific Name	TSC Act 1995	EPBC Act 1999	Fish. Man. Act 1994
INVERTEBRATES				
LHI Earthworm	Pericryptodrilus nanus	E		
LHI Phasmid	Drycocelus australis	E	CE	
LHI Wood-eating Cock- roach	Panesthis lata	E		
LHI Placostylus	Placostylus bivaricosus	E	CE	
Master's Charopid Land Snail	Mystivagor masteri		CE	
Whitelegge's Land Snail	Pseudocharopa whiteleggei		CE	
Mount Lidgbird Charopid Snail	Pseudocharopa lidgbirdii		CE	
A Snail	ail Gudeoconcha sophiae mag- nifica			
LAND BIRDS				
Sanderling				
Black-tailed Godwit	ck-tailed Godwit Limosa limosa			
Great Knot	Calidris tenuirostris	V		
Greater Sand Plover	Charadrius leschenaultii			
Lesser Sand Plover				
Terek Sandpiper	Xenus cinerus	V		
Lord Howe Currawong	Strepera graculina crissalis	V		
LHI Golden Whistler	Pachycephala pectoralis con- tempta	V	V	
LHI Silvereye	Zosterops lateralis tephrop- leura	V		
Lord Howe Woodhen	Gallirallus sylvestris	E	V	
Australasian Bittern	Botaurus poiciloptilus	V	E	
Painted Snipe (Australian subspecies)	Rostratula benghalensis aus- tralis	E	V	
SEA BIRDS				
Flesh-footed Shearwater	Ardenna carneipes	V	М	
Grey Ternlet	Procelsterna cerulea			
Kermadec Petrel	Pterodroma neglecta	V	V	
Gould's Petrel	Pterodroma luecoptera leu- coptera	V	E	

Common Name	Scientific Name	TSC Act 1995	EPBC Act 1999	Fish. Man. Act 1994
SEA BIRDS (cont'd)				
Little Shearwater	Puffinus assimilis	V		
Masked Booby	Sula dactylatra	V	М	
Providence Petrel	Pterodroma solandri	V		
Red-tailed tropicbird	Phaethon rubricauda	V		
Sooty Tern	Onychoprion fuscata	V		
White-bellied Storm Petrel	Fregatta grallaria	V	V	
Black-winged Petrel	Pterodroma nigripennis			
White Tern	Gygis alba			
Southern Giant Petrel	Macronectes giganteus		E,M	
Northern Giant Petrel	Macronectes halli		V,M	
Wandering Albatross	Diomedea exulans	E	V	
Northern Royal Albatross	Diomedia epomophora san- fordi		E	
Black-browed Albatross	Thalassarche melanophris	V	V,M	
Buller's Albatross	Thalassarche bulleri		V,M	
Shy Albatross	Thalassarche cauta cauta	V	V,M	
Indian Yellow-nosed Al- batross	Thalassarche chlororhynchos		Μ	
Chatham Albatross	Thalassarche eremita		E,M	
MARINE MAMMALS				
Antarctic Minke Whale	Balaenoptera bonaerensis		М	
Bryde's Whale	Balaenoptera edeni		М	
Blue Whale	Balaenoptera musculus		E,M	
Pygmy Right Whale	Caperea marginata		М	
Southern Right Whale	Eubalaena australis		E,M	
Dusky Dolphin	Lagenorhynchus obscurus		М	
Porbeagle, Mackerel Shark	Lamna nasus		М	
Humpback Whale	Megaptera novaeangliae		V,M	
Killer Whale, Orca	Orcinus orca M		М	
Sperm Whale	Physeter macrocephalus V		М	
New Zealand Fur Seal	Arctocephalus forsteri V			
Australian Fur Seal	Arctocephalus pusillus doriferus	V		

Common Name	Scientific Name	TSC Act 1995	EPBC Act 1999	Fish. Man. Act 1994	
FISH					
Whale Shark	Rhincodon typhus		V		
Great White Shark	Carchrodon carcharias		V		
Ballina Angelfish	Chaetodontoplus ballinae			Р	
Black Cod	Epinephelas daemelii		V	V	
Syngnathethiformes				Р	

E = endangered; CE = Critically Endangered; V = Vulnerable; M = Migratory species; P = Protected

# List of Key Threatening processes that may have application to LHI

- Alteration to the natural flow regimes of rivers and streams and their floodplains and wetlands
- Anthropogenic Climate Change
- Bushrock removal
- Clearing of native vegetation
- Competition and habitat degradation by Feral Goats, Capra hircus
- Competition from feral honey bees, Apis mellifera L.
- Entanglement in or ingestion of anthropogenic debris in marine and estuarine environments
- Infection of native plants by Phytophthora cinnamomi
- Introduction and establishment of Exotic Rust Fungi of the order Pucciniales pathogenic on plants of the family Myrtaceae
- Introduction of the Large Earth Bumblebee *Bombus terrestris* (L.)
- Invasion and establishment of exotic vines and scramblers
- Invasion and establishment of Scotch Broom (Cytisus scoparius)
- Invasion and establishment of the Cane Toad (*Bufo marinus*)
- Invasion, establishment and spread of Lantana (Lantana camara L. sens. lat)





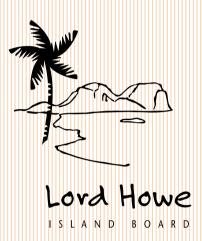


#### Bird monitoring project

Bird monitoring sites







Please help us monitor bird populations on Lord Howe Island.

With many birdwatchers and naturalists visiting the island, we would like to harness your skills to create a long term bird monitoring program for the island.

The island is a World Heritage Area and also recognised as an Important Bird Area.

BirdLife Australia have teamed up with the Lord Howe Island Board and the Lord Howe Island Museum to set up a number of bird monitoring sites at well visited locations around the island.

A combination of survey techniques have been adopted ranging from 20 minute searches to monitor the bushbirds and more general area searches for the waders and waterbirds. The data collected will flow into the BirdLife Australia Atlas and regular analyses undertaken to determine the health of the bird populations on the island.

Basic birdwatching skills are required for conducting most surveys, however identification of the waders does require a greater degree of expertise. A selection of excellent bird guides are available from the Museum or island shops.

Once a site has been found:

- record all birds seen and heard within your survey area, including those seen flying over.
- count all individuals seen and heard. If a large number of birds are present, try to count or estimate the number present, as best you can.
- Please submit a survey even if no birds were recorded.

Data can be collected in the field on a form available from the museum or in your notebook. Please then pass the form onto the LHI museum or enter the data into the BirdLife Australia Atlas website: www.birdata.com

In addition to doing as many of these surveys as possible, please complete a survey form for your whole visit on Lord Howe Island.

You may have recorded additional species away from these sites and these observations will provide an important record of birds status on the island.

#### **Seabirds**

Red-tailed Tropicbird Wedge-tailed Shearwater Flesh-footed Shearwater Providence Petrel Black-winged Petrel Masked Booby Common Noddy Black Noddy White Tern Grey Ternlet Sooty Tern

## Waterbirds

Northern Mallard Pacific Black Duck Black Duck-Mallard hybrid Cattle Egret White-faced Heron Purple Swamphen Pacific Golden Plover Double-banded Plover Masked Lapwing Bar-tailed Godwit Whimbrel Grey-tailed Tattler Wandering Tattler Ruddy Turnstone

#### Landbirds

Emerald Dove Rock Dove/Feral Pigeon Nankeen Kestrel Buff-banded Rail Lord Howe Woodhen Shining Bronze-Cuckoo Sacred Kingfisher Golden Whistler Pied Currawong Magpie-lark Silvereye Welcome Swallow Common Blackbird Song Thrush Common Starling

#### Lord Howe Island Bird Monitoring Project – survey form

OBSERVER NAMES	SURVE (site n	EY SITE ame)				
EMAIL	٦F	DATE		START TIME	FINISH TIME	
PHONE No.		Time spent surv	rveying			

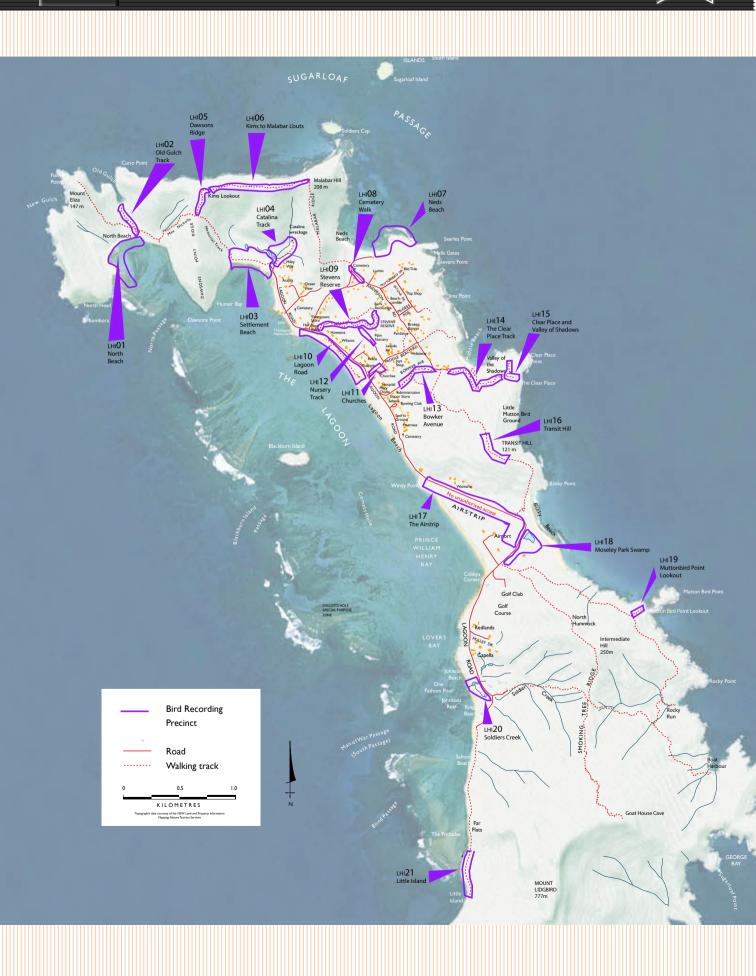
	Status	Count		Status	Count
Waterbirds	P / B*	No. of birds	Landbirds	P / B*	No. of birds
Northern Mallard			Emerald Dove		
Pacific Black Duck			Rock Dove/Feral Pigeon		
Black Duck-Mallard hybrid			Nankeen Kestrel		
Cattle Egret			Buff-banded Rail		
White-faced Heron			Lord Howe Woodhen		
Purple Swamphen			Shining Bronze-Cuckoo		
Pacific Golden Plover			Sacred Kingfisher		
Double-banded Plover			Golden Whistler		
Masked Lapwing			Pied Currawong		
Bar-tailed Godwit			Magpie-lark		
Whimbrel			Silvereye		
Grey-tailed Tattler			Welcome Swallow		
Wandering Tattler			Common Blackbird		
Ruddy Turnstone			Song Thrush		
			Common Starling		
Seabirds					
Red-tailed Tropicbird			Additional Species		
Wedge-tailed Shearwater					
Flesh-footed Shearwater					
Providence Petrel					
Black-winged Petrel					
Masked Booby					
Common Noddy					
Black Noddy			Comments		
White Tern					
Grey Ternlet					
Sooty Tern					

\* In the Status field, enter P if the species was recorded in the survey, or B if the species was found breeding (a breeding record includes: Nest found, Adult carrying food, Adult carrying nesting material, Dependent young). In the Count field, enter the number of birds you counted/estimated during your survey.

Data can be collected in the field on this form or in your notebook. Please then pass the form onto the LHI museum, or enter the data onto the BirdLife Australia Atlas website: **www.birdata.com** 

Please drop into the LHI Museum to obtain a copy of this survey form.

# Bird monitoring sites



### Site LHI01 North Beach

**Site Description:** One of the best sites for waders on the island. The survey area includes the sandy beach and intertidal zone of North Beach, including the rocky reef at the west end. Access is via the Max Nichols Track over Dawsons Ridge or at low tide around Dawsons Point (check tide times before departing). The site can also be accessed via tourist boat.

**Survey Method:** Count all birds in bay from the eastern end of North Beach around to rocky reef.

**Survey Time:** An Area Search which may take up to one hour. Can be surveyed at any time of day, however low tide is best as the waders should be feeding on sea grass & the mudflats.

Notes: In summer Sooty Terns & Common Noddys nest and roost along top of beach – please ignore them, as the edge of the survey area is hard to standardise.



# Site LHI02 Old Gulch Track

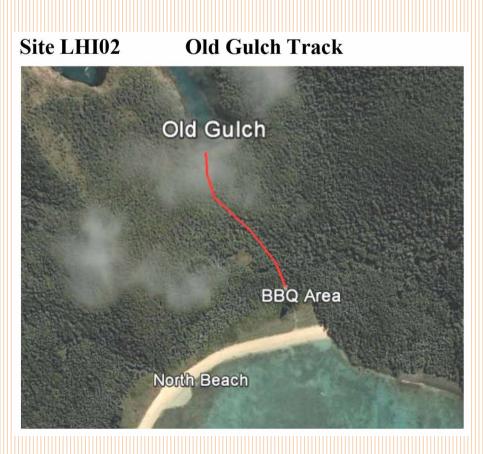
**Site Description:** A pleasant walk between North Beach and the Old Gulch. Access is via the Max Nichols Track over Dawsons Ridge or at low tide around Dawsons Point (check tide times before departing).

The site can also be accessed via tourist boat. The track to the BBQ area can be found at the east side of North Beach.

**Survey Method**: Walking slowly, count all birds see and heard between the BBQ Area and the beach along the Old Gulch Track (see map).

This is a 20 minute survey and the walk only takes about 10 minutes, so this survey includes your return walk. On your return walk, include additional species recorded and

higher counts of species seen on your outward walk.



# Site LHI03 Settlement Beach

**Site Description:** A good site for waders and waterbirds. The survey area includes the sandy beach and intertidal zone, the mouth of the stream and paddocks behind the beach.

**Survey Method:** Count all birds along the beach and in the adjoining paddock up to the fence along the stream. Do not include birds recorded beyond the fence at the back of the paddock (see map). This site is best surveyed from the walking track at the top of the beach.

**Survey Time:** Any time of day, tide not crucial, as many waders roost in the paddocks.

The survey time may take between 30 to 45 minutes to cover the whole area.

**Notes:** The stream and streamside vegetation are not part of this survey.



# Site LHI04 Catalina Track

**Site Description:** A good site for roosting waders and waterbirds, as well as bush birds along the fencelines. Follow the Catalina Track, which starts at the end of Lagoon Road, up to the Catalina Crash Site.

**Survey Method:** Follow the Catalina Track to the crash site. From the track, scan across the paddocks counting all birds seen or heard within the site boundary (see map).

The larger birds should be able to be identified at the boundaries of the survey area, but the smaller birds may be hard to discern. Just record what you can safely identify.

**Survey Time:** Any time of day. The survey time is not crucial, though may take around 30 to 45 minutes to

cover the whole area.

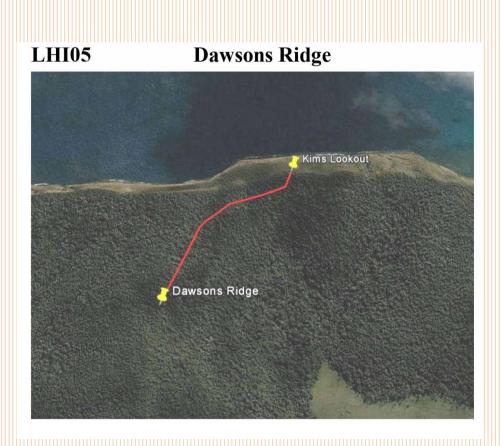
**Notes:** Cattle are often in the paddocks. While they are usually placid, please be wary of them.



# LHI05 Dawsons Ridge

**Site Description:** A relatively flat stretch of track along the ridge through forest. This site takes in the birds seen and heard along the stretch of Malabar Track between Kims Lookout and the seat at the track intersection on Dawsons Ridge.

**Survey Method:** Walking slowly, count all birds seen and heard between the bench at Dawsons Ridge and Kims Lookout (see map). The survey can be done in either direction.



# **LHI06 Kims to Malabar Lookouts**

**Site Description:** This site covers the area between Kims Lookout and Malabar Hill. This is the best area on the island for watching the Red-tailed Tropicbirds, which breed on the cliffs in summer. The survey can be done in either direction. A few bushbirds may also be encountered on this survey.

**Survey Method:** Count all birds see and heard between Kims Lookout and Malabar Hill (see map). Count or estimate the number of Tropicbirds. If there are a lot of birds present, it may be best to count/estimate from a couple of vantage points, being very careful not to get too close to the edge of the cliff. The survey can be done in either direction.

**Survey Time:** This can be done at any time of day and may take an hour or more. In summer the tropic birds are most active from midday.

Notes: Warning: PLEASE DO NOT GET TOO CLOSE TO THE EDGE OF THE CLIFF. Stay at least 2 metres back from the edge at all times.



### LHI07 Neds Beach

**Site Description:** This site covers the reef and rocky headland at the southern end of Neds Beach. At low tide it is possible to walk across the reef around the headland. This is a very good site for waders and kingfishers on the reef, while on the headland Blackwinged Petrels and Sooty Terns can be seen in summer.

**Survey Method:** Count all birds on the rocky reef at the southern end of the beach, including those on or flying over the headland (see map). In summer Sooty Terns nest and roost along top of beach – please only count those you can seen from the reef.

Survey Time: Any time of day, but not at high tide.

**Warning:** Be very careful walking over the reef, as the rocks are very sharp and may be slippery. Also, be wary of an incoming tide.



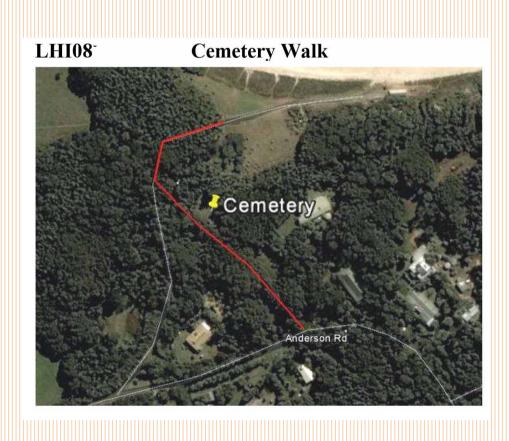
# LHI08 Cemetery Walk

**Site Description:** A pleasant walk along Cemetery Road, past the cemeteries, to the top of Neds Beach.

**Survey Method:** Walking slowly, count all birds seen and heard along Cemetery Road from the junction of Anderson Road to where the forest ends on Ned's Beach Road on the descent to Neds Beach (see map).

This is a 20 minute survey and the walk only takes about 10 minutes, so this survey includes your return walk.

On your return walk, include additional species recorded and higher counts of species seen on the outward walk.



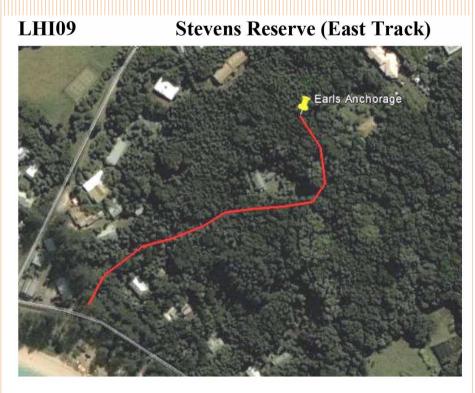
# LHI09 Stevens Reserve (East Track)

**Site Description:** This site takes in the eastern track of the Stevens Reserve Trail, through native forest. It can be walked in either direction between Lagoon Road and the sign to Earls Anchorage.

**Survey Method:** Walking slowly, count all birds seen and heard between the sign to Earls Anchorage and the start of the Stevens Reserve Trail off Lagoon Road (see map). The track takes you past a nursery, please do not enter, but view the area from the entrance. The walk can be done in either direction.

**Survey Time:** A 20 minute survey which can be done at any time of day.

**Notes:** The Stevens Reserve Trail is a loop walk, so to avoid double counting, only the eastern track is included in this survey.



### LHI10 Lagoon Road

**Site Description:** This site is mainly to survey the White Terns, taking in the beach side of Lagoon Road through the Norfolk Island pines, between Thompsons Memorial Park and opposite the museum on Middle Beach Road.

**Survey Method:** Walk slowly through the Norfolk Island Pines on the beach side of Lagoon Road between Thompsons Memorial Park and opposite the museum on Middle Beach Road (see map).

This is a good area for White Terns nesting in the trees. Count all birds within the area, including flying birds. It is helpful if at least two people conduct this survey, walking a few metres apart, as this will assist spotting the birds sitting on the trees. Black Noddy's may be colonising this area, so look out for them.

Small numbers of bushbirds may also be found, please include them in this survey.

**Survey Time:** Any time of day.



# LHI11 Churches

**Site Description:** This site takes in the front grounds of the Anglican and Catholic Churches, as well as the lower part of Middle Beach Rd (off Lagoon Rd), past the LHI Museum.

**Survey Area:** Walk up Middle Beach Rd, past the Museum, then onto the grassy area in front of the church buildings (please keep to the front of the churches), counting all birds see and heard. (see map).



# LHI12 Nursery Track

**Site Description:** This site follows a public track past the Palm Nursery and meets the Stevens Reserve Trail, passing through native forest. Start (or finish the survey, depending which way you walk) at the nursery gate, beside the Research Hut. The track takes you past the Palm Nursery, please do not enter this facility.

**Survey Area:** Walk slowly along the track, counting all birds seen and heard (see map).

This survey can be walked in either direction.

**Survey Time:** This walk takes approximately 20 minute and can be done at any time of day.

**Notes:** Be careful of vehicles accessing the Palm Nursery and if you see nursery staff, please say hello and inform them that you are undertaking a bird survey.



# **LHI13 Bowker Avenue**

**Site Description:** This site follows the track along Bowker Ave, between the Lord Howe Island Board depot and Anderson Rd. It can be walked in either direction.

**Survey Method:** Walking slowly, count all birds seen and heard along Bowker Ave (see map). The walk can be done in either direction.



# LHI14 Clear Place Track

**Site Description:** One of the nicest walks on the island. This site follows the track from the top of Middle Beach to the turnoff to The Clear Place. (see map).

**Survey Area:** Walk slowly along the track counting all birds seen and heard.



# LHI15 The Clear Place & VoS

**Site Description:** This site follows the track between The Clear Place and the Valley of the Shadows (see map). The viewing area at The Clear Place offers good views of the islands east coast and is a good place to watch Masked Booby and Black-winged Petrel in summer.

**Survey Method:** Walk slowly along the track counting all birds seen and heard. When you reach the viewing area, record all birds seen and heard for 10 minutes. At different times of year seabirds can be seen from the viewing area. Count or estimate the numbers seen within the survey time.

**Survey Time:** A 20 minute survey which can be done at any time of day. This comprises of a ten minute walk and ten minutes of observation from the viewing area.



# LHI16 Transit Hill

**Site Description:** Transit Hill has an excellent viewing platform at the top of the hill. Transit Hill Track can be accessed either from the north from Bowker Avenue or from Blinky Beach to the south.

**Survey Area:** This site is around the Transit Hill lookout. It includes the track 100 metres either side of the lookout. (see map). Walk slowly along the track counting all birds seen and heard. At the viewing area, record all birds seen and heard for 10 minutes.

**Survey Time:** A 20 minute survey which can be done at any time of day. This comprises of ten minutes walking and 10 minute observation from the lookout.



# LHI17 The Airstrip

**Site Description:** The open grassland around the airstrip is a good area for waders and open country birds.

**Survey Method:** Count all birds on the airstrip from Lagoon Road. Include birds seen on the fence and along the roadside (airstrip side only). This site includes the paddock beside the airport building, viewed from the road (see map).

**Survey Time:** Any time of day. This survey should take between 30 to 40 minutes to view the whole area.

**Notes:** Under no circumstances cross the fence onto the airstrip or surrounding grassy areas. Large fines apply.

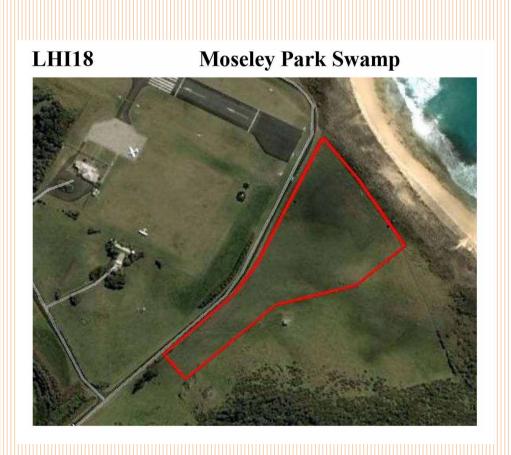


# LHI18 Moseley Park Swamp

**Site Description:** An excellent area for waders and ducks when the swamp contains water. The wetland sometimes extends along the roadside fenceline which is part of the survey area, along with the paddocks on the slope behind the swamp (see map).

**Survey Method:** Count all birds on the wetland from Lagoon Road. Include birds seen on the roadside, fence and the surrounding paddock. Please observe this site from the road and do not cross the fence.

**Survey Time:** Any time of day. The survey time is not crucial, though it is worth spending between 30 to 40 minutes as birds tend to drop in and out.



# LHI 19 Muttonbird Point Lookout

**Site Description:** This site follows the track from the Rocky Run turnoff to the open viewing area at Muttonbird Point Lookout (see map). The viewing area offers good views of the Masked Boobys on Muttonbird Point.

**Survey Method:** Walk slowly along the track counting all birds seen and heard. When you reach the viewing area, record all birds seen and heard for 15 minutes.

**Survey Time:** A 20 minute survey which can be done at any time of day. This comprises of a five minute walk and 15 minute observation from the viewing area.



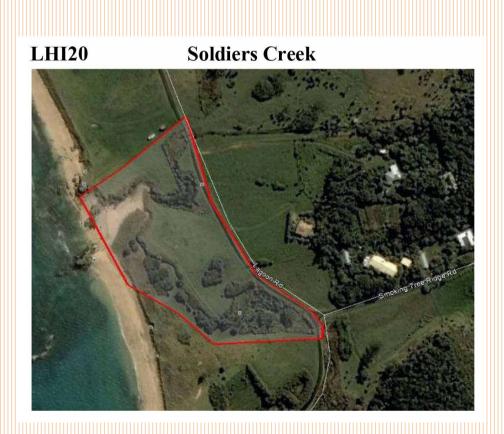
# LHI20 Soldiers Creek

**Site Description:** Soldiers Creek is to the south of Capella Lodge and is where two creeks meet. The site can be viewed from Lagoon Rd and there is a public access track through to the beach beside the northern creek.

**Survey Method:** Count all birds seen and heard within the survey area for 20 minutes.

**Survey Time:** A 20 minute survey which can be done at any time of day.

**Notes:** It is easy for birds to hide along the creek, so take time to scan along the creek from the best vantage points.



# LHI21 Little Island

**Site Description:** This site is at the southern most end of the Little Island Track. The recording area starts on entering the forest in the final stretch of the walk and ends at the clearing overlooking Little Island (the start of the Mt Gower walk), a stretch of about 200 metres (see map).

**Survey Method:** Count all birds seen and heard on the walk. This is a 20 minute survey and the walk only takes about 10 minutes, so this survey includes your return walk. On your return walk, include additional species

recorded and higher counts of species seen on the outward walk.





### **Mount Gower Walk**

These three sites are on the Mount Gower walk, which can only be done on an official guided walk (contact Jack Shick or Dean Hiscox). The three sites have been chosen because they are locations where the guides regularly stop.

#### LHI22 Erskine Valley

Where the track crosses the stream in the Erskine Valley is a good place to stop and refill drink bottles. Record all birds seen and heard calling for about 20 minutes

#### LHI23 The Saddle

Climbing the Saddle you come to a viewpoint where you usually stop for refreshments.

Record all birds seen and heard calling for about 20 minutes.

#### LHI24 Mt Gower Lookout

The lunch stop, offering stunning views over the island. Record all birds seen and heard calling for about 20 minutes. If the Providence Petrels are flying around, please give a rough estimate of numbers.

# **Pelagic surveys**

#### LHI25 Balls Pyramid Pelagic

Boat trips to view Balls Pyramid and the seabirds provide an excellent opportunity to view seabirds at close quarters.

Over the years an amazing array of seabirds have been observed. Please record all species you see around the Pyramid and if possible, provide an estimate of the number of individuals of each species.

A separate recording sheet is available, which lists all of the likely seabirds.

Tour operators offer a number of fishing trips to various pelagic destinations around the island. Please record the seabirds you see on these trips and submit a survey form. If possible, calculate the approximate coordinates of the fishing location. The boat skipper may be able to assist with that.





United Nations Educational, Scientific and Cultural Organization **Lord Howe Island Group** inscribed on the World Heritage List in 1982

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# USER GUIDE

