



Lady Elliot Island Eco Resort

GREAT BARRIER REEF

Lady Elliot Island Eco Resort

Carbon Offset Program FREQUENTLY ASKED QUESTIONS



WHERE IS THE \$2 OFFSET GOING?

We, Lady Elliot Island Eco Resort (LEIER), request our guests donate \$2 per person to help reduce the environmental impact of their holiday.

LEIER and Greenfleet have partnered to offset the carbon emissions from the flights to and from the Island by planting native forests at the Barolin Nature Reserve, adjacent to the Mon Repos turtle rookery in Bundaberg.

This site was chosen due to its significant role in the Great Barrier Reef ecosystem and life cycle of turtles. Mon Repos is a key global nesting area for the *vulnerable* Green and *endangered* Loggerhead turtles (the most significant loggerhead turtle nesting population in the South Pacific region). Lady Elliot Island itself only hosts a small number of nesting turtles each year as it is not the ideal nesting beach. Therefore, if we want to see turtles in the future we need to help ensure they reproduce successfully and the Mon Repos rookery is a critical part of this.

The planting of trees in the Reserve adjacent to the Mon Repos Turtle rookery will have the following benefits:

- Capture the carbon emissions from flights to and from Lady Elliot Island;
- Reduce the impact of light pollution which disorientates and disrupts nesting turtles and turtle hatchlings;
- Improve the water quality flowing into the Great Barrier Reef;
- Create habitats for native and migratory species; and
- Reduce soil erosion through the binding action of the trees.

LEIER have partnered with Greenfleet on this project due to Greenfleet's mission to restore native ecosystems in Australia and New Zealand; their work with many companies including Disney and the Finding Dory 'Remember the Reef' campaign, Europcar, Airbnb and SeaLife Australia; and their work on the critical catchment and coastal areas of the Great Barrier reef which is part of the Lady Elliot Island greater ecosystem.

WHY SHOULD I DONATE AFTER ALREADY SPENDING MONEY ON MY HOLIDAY?

The Carbon Offset program is voluntary but we do encourage you to make a donation to reduce the environmental impact of your holiday flight.

LEIER already contributes a high level of funding to their own island environmental program which has included:

Renewable energy:

Renewable energy now powers almost 90% of the Resorts energy requirements. This includes a solar power station, over 400 solar panels and energy efficient lighting which has decreased fuel use from 550L per day to approx. 100L per day.

Island Revegetation Program:

Aims to re-establish native Island vegetation by planting native species and removing weeds which in turn, will create habitats for the nesting birds and turtles. The vegetation will also assist in offsetting the low level of carbon emissions from the Resort.

Solar freshwater production:

A new desalination system has improved fresh water production so water is now only produced during the 'solar window' further reducing fuel use.

Water treatment and reuse:

A new wastewater treatment plant has been installed which improves the treatment of sewage and this treated water is then used to irrigate the Island.

Composting food waste:

A new composting machine (OSCA) breaks down food waste into compost to be used in the plant nursery and gardens.

Education Centre upgrade:

The Education Centre had a significant upgrade to improve the education material offered to guests including an online virtual dive, informative wall graphics and fact sheets on the natural values of the Island.

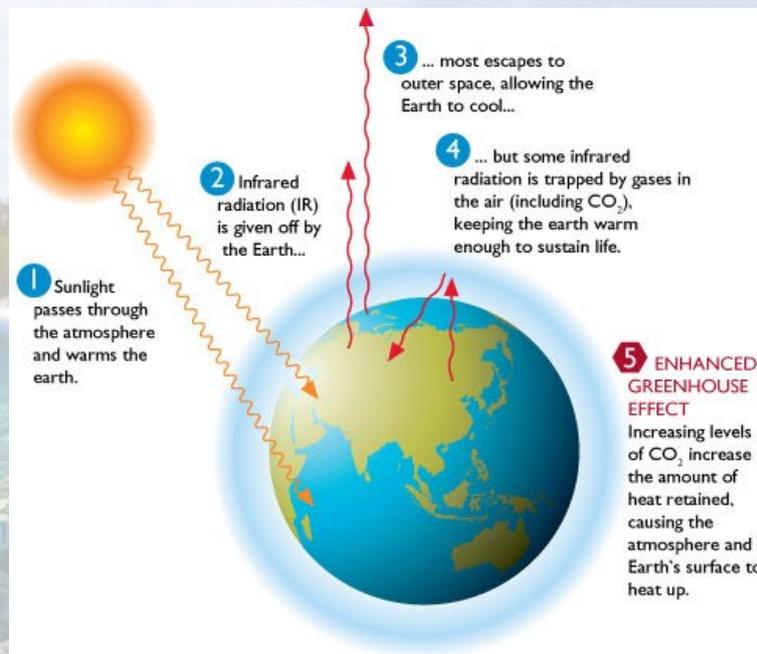
LEIER receive no government funding and are required to pay the Great Barrier Reef Marine Park Authority (GBRMPA) a substantial yearly fee to lease the Resort in addition to \$6.50 per visitor/per day (max 3 days) for the Environmental Management Charge (EMC) which goes to the GBRMPA, NOT LEI or LEIER .

The money from guests ONLY goes to purchase the carbon offsets for the flight - there are no administrative costs. All figures and information regarding donations and how this is spent are kept and can be provided to donors when required. Updates regarding these figures will be provided in the LEIER electronic newsletters.

WHAT IS CLIMATE CHANGE, GREENHOUSE GASES AND CARBON?

Greenhouse gases (GHG) are emitted when fossil-fuels are consumed - for example when you drive a car, fly in a plane, use electricity, or generate waste. There are different types of greenhouse gases which are produced but carbon dioxide (CO₂) or 'carbon' is the most common.

Carbon is a naturally found element on the earth exchanged between the atmosphere, land and oceans as part of the carbon cycle. The problem is that for several thousand years, until around 200 years ago, this 'carbon cycle' was in balance and steady. Since the 19th century, human-induced CO₂ emissions from fossil fuel use and deforestation have disturbed the balance, adding CO₂ to the atmosphere faster than it can be removed (or 'sequestered') by plants and the ocean causing an enhanced greenhouse effect.



Above: The impact of increasing carbon emissions

(Source: <http://www.dpi.nsw.gov.au/content/research/topics/climate-change/causes>)

That's why the amount of carbon dioxide in the atmosphere is increasing from 280 parts per million (ppm) before 1800, to 401 ppm in 2016 (Source NOAA). Modelling studies indicate that rising greenhouse gases have made a clear contribution to the recently observed warming across Australia.

During the next few decades and beyond, climate change is expected to cause more extreme heatwaves, further decreases in the extent and thickness of sea ice, further melting of mountain glaciers and ice sheets, shifts in rainfall (increases in most tropical and high-latitude regions and decreases in many subtropical and mid-latitude regions), further ocean warming and further rises in sea levels.

IS CLIMATE CHANGE REAL?

Since the 19th century, human-induced CO₂ emissions from fossil fuel use and deforestation have disturbed the balance of the earth's natural 'carbon cycle', adding CO₂ to the atmosphere faster than it can be removed (or 'sequestered') by plants and the ocean causing an 'enhanced' greenhouse effect. Ninety-seven percent of climate scientists agree that climate-warming trends over the past century are very likely due to human activities, and most of the leading scientific organizations worldwide have issued public statements endorsing this position.

The amount of carbon dioxide in the atmosphere has increased from 280 parts per million (ppm) before 1800, to 401 ppm in 2016, which is contributing to global climate change (Source NOAA). Modelling studies indicate that rising greenhouse gases have made a clear contribution to the recent observed warming across Australia.

The *Great Barrier Reef Outlook Report 2009* published by the Great Barrier Reef Marine Park Authority identified climate change as one of the greatest threats to the long-term health of the Great Barrier Reef affecting the Reef in a number of ways, including:

- Rising sea temperature;
- Ocean acidification;
- Increased frequency of severe weather events; and
- Rising sea levels.

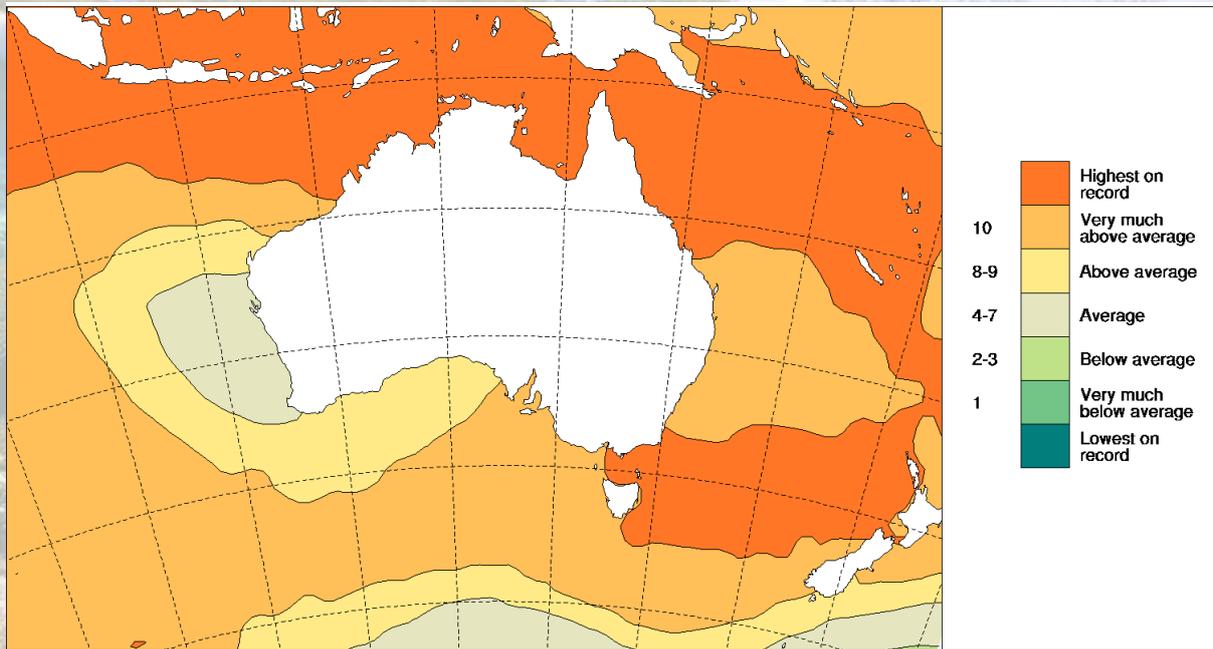
Rising sea temperatures are causing and increasing the frequency of mass coral bleaching events which have occurred in 1998, 2010, 2016 and 2017 on the Great Barrier Reef and across the world. These bleaching events caused large scale coral bleaching in which large parts of the reef died and became overgrown with algae. This has implications for 25% of all marine species that rely on the reef ecosystem for food and shelter.

Warming sea temperatures are also contributing to increasing storms and cyclones which decreases water quality, damages coral and can cause coastal aquatic vegetation like mangroves to die off.

The oceans absorb much of the increasing carbon in the atmosphere but this has resulted in chemical changes which have increased the acidity of surface ocean waters by 30% since the industrial revolution. The carbon binds with free carbonate in the ocean which would otherwise be available to marine animals for making calcium carbonate shells and skeletons. So the more dissolved carbon dioxide in the ocean, the less free carbonate ions available for making calcium carbonate decreasing the capacity of corals to build skeletons and to create habitat for the Reef's marine life.



Above: Dead coral following the 2016 bleaching event at Lizard Island. This mass coral bleaching on the Great Barrier Reef was triggered by record-breaking sea surface temperatures
Image Credit: *The Ocean Agency / XL Catlin Seaview Survey.*



Above: An image showing sea surface temperatures in February and April 2016. Highest on record refers to highest sea surface temperature value since 1900. Source: Australian Bureau of Meteorology.

WHAT IS CARBON OFFSETTING?

Flying, like many other forms of transport, impacts the environment because the fuel used by the aircraft releases carbon dioxide (CO₂) and other emissions into the atmosphere.

Offsetting is one way to capture, or sequester, this excess carbon in the atmosphere. This is done in a variety of ways including reforestation or tree planting to compensate for the emissions created by a company's own activities.

Offsetting is only part of an approach to addressing the issue of climate change which should also include reducing greenhouse gas emissions as much as possible through energy efficiency measures and replacing traditional sources of fuel with renewable sources like solar and wind power.

Lady Elliot Island Eco Resort (LEIER) and Greenfleet have partnered to offset the carbon emissions of the flights to and from the Island by planting native forests which capture carbon dioxide from the environment as they grow.

LEIER also has an extensive renewable energy and energy efficiency program in place, as well an Island revegetation program, to reduce and offset the carbon emissions from the Resort and conserve the Islands natural values.



Above: Lady Elliot Island Eco Resort is working with Greenfleet to offset the carbon emissions of the flights to and from the Island (Image credit: Greenfleet)

HOW IS CARBON AND OFFSET CALCULATED?

Your carbon emissions for the flight to/from Lady Elliot Island are calculated using the average fuel consumption per person per flight and applying the National Greenhouse Accounts (NGA) Factors as per the methodology outlined in the Department of Climate Change and Energy Efficiency's publication *National Greenhouse Accounts (NGA) Factors* and national emissions estimation methodologies. This methodology is also consistent with international reporting frameworks.

The equivalent amount of carbon offsets are then purchased for each guest that makes a donation. Greenfleet then uses this money to invest in revegetation projects which plants a diversity of native species on cleared or degraded land. As it grows, the forest planted by Greenfleet thanks to the carbon offset donations will capture the equivalent amount of carbon emitted in the atmosphere. The revegetation sites are protected under a legal agreement to ensure that the carbon is protected.

To calculate the amount of carbon that trees can capture, Greenfleet currently uses the 'Full Carbon Accounting Model' (FullCAM) issued by the Australian Department of the Environment and works with the CSIRO on monitoring forests on an ongoing basis. The planting sites are monitored by Greenfleet until the forests are established, to ensure the forests are maintained and are on track to achieve projected carbon commitments.

In case of a catastrophic event such as a fire, Greenfleet will take action to accelerate the recovery of the carbon and aim to recover any shortfall in carbon within 10 years. Forests are planted across many different locations as an intentional measure to reduce the risk of relatively localised events significantly affecting Greenfleet's overall carbon stocks.

Funds contributed by LEIER guests goes to a reforestation project at the Barolin Nature Reserve, adjacent to the Mon Repos turtle rookery in Bundaberg.

WHO IS GREENFLEET?

Greenfleet is a not-for-profit organisation based in Melbourne, Australia that has been operating for 20 years. Since 1997, Greenfleet have planted more than 8.9 million native trees across 475 biodiverse forests in Australia and New Zealand to offset carbon emissions on behalf of thousands of leading brands, businesses, councils, universities, NGOs and individuals.

Greenfleet's native forests take carbon from the atmosphere to restore and protect our climate, but they also do much more. Greenfleet plants a variety of native trees in permanent forests that help to reduce salinity and soil erosion, provide essential habitat for native wildlife, and provide much needed resilience in our precious landscape. This is a point of difference from other offset companies.

LEIER were impressed with the Greenfleet mission to restore ecosystems (not just single-species forests) in Australia and New Zealand; their work with many companies including Disney and the Finding Dory 'Remember the Reef' campaign, Europcar, Airbnb and SeaLife Australia; and their work on the critical catchment and coastal areas of the Great Barrier reef which is part of the Lady Elliot Island greater ecosystem.

Greenfleet is registered as a charity with the Australian Charities and Not-for-profits Commission (ACNC) and eligible tax-deductible donations to Greenfleet have Deductible Gift Recipient (DGR) status with the Australian Tax Office.

