

Australia/Oceania

At a Glance

Population: 31 million

Percent of World's Population: 0.5%

Land Area: 7,687,000 sq km

Percent of Earth's Land: 5.3%

Key Environmental Issues

Land degradation

Habitat loss

Greenhouse gas emissions and climate change

Degradation of coastal and marine environment

Sites for Australia/Oceania

Cape York Bauxite Mining, Australia

Wyperfeld National Park, Australia





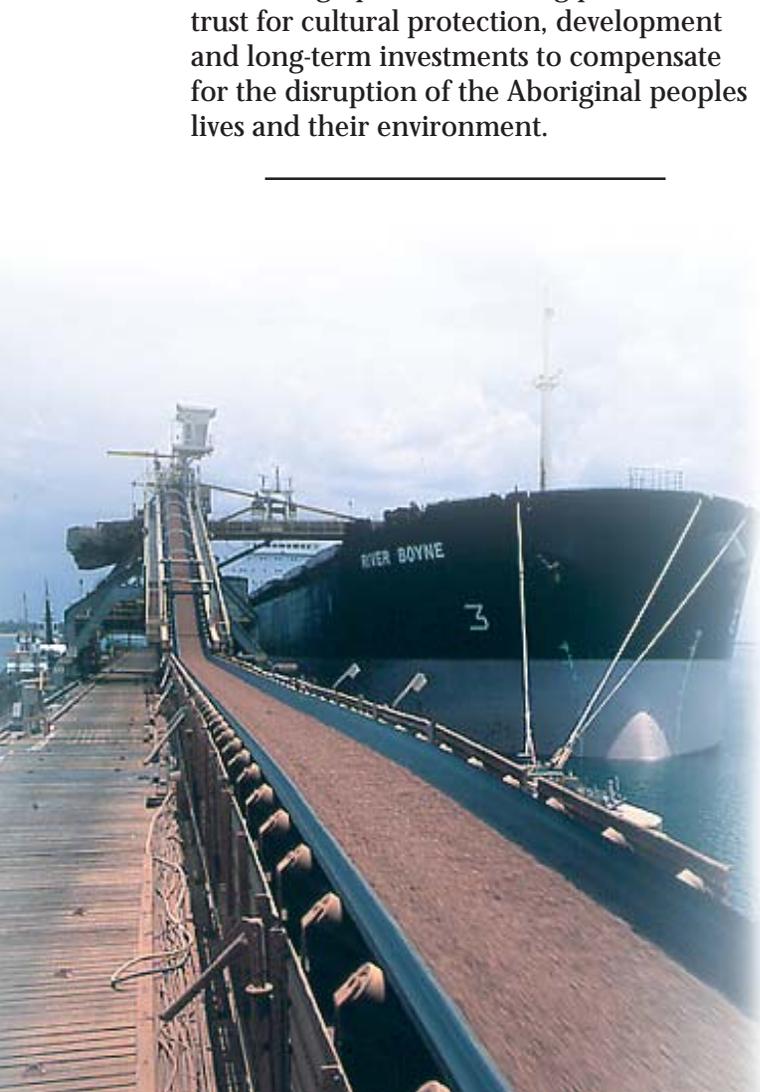
Cape York Bauxite Mining, Australia

Land Degradation Due to Mining

Some of the world's largest open-cut bauxite mines are in operation in Cape York, Australia. Mining began at Weipa in 1963 and the operations currently produce 8.5 mt of ore annually. The total lease covers an area of approximately 2,590 sq. km. of which 68 sq. km. have been mined. Approximately 4 sq. km. of the mined land is revegetated each year, and over 50 sq. km. of land has been revegetated to date.

Under current mining practices, vegetation is cleared and the topsoil is removed and either stockpiled for later use or immediately replaced on previous mined areas. After topsoil removal, the bauxite is removed, resulting in a lowering of the entire landscape to a depth equivalent to the thickness of the orebody, often several meters. If the topsoil can be returned to a mined-out area after only a short time, it still contains most of the original soil fungi, bacteria and micro fauna. In addition, the seeds from the original community are more likely to be viable. On slopes, rigorous soil conservation measures are implemented, and the area is then normally planted with suitable native species so that it gradually reverts to bushland.

Some of the wealth generated through the mining operation is being placed in a trust for cultural protection, development and long-term investments to compensate for the disruption of the Aboriginal peoples lives and their environment.





1973 (left)

This 1973 satellite image shows an area that was largely native bushland with little or no interference outside of the initial mining operations. The native bushland of the Weipa region is adapted to a frequent fire regime. Fire scars can be seen throughout the images at various stages of regrowth.

2001 (right)

This image shows the disturbed land as a result of the extended mining operations, with areas of revegetation visible in the disturbed areas in the 1973 image. The mining activities at Weipa may be pushing the natural underground water level down into a saline level. Certainly the local drainage patterns will be impacted.

Unavoidably, the physical structure of the soil has been destroyed and in a semiarid environment will take generations to recover. Deeply rooted woody plants will be among the most seriously affected by changes in the deep soil structure and chemistry.





Wyperfeld National Park, Australia

Bush Fires in Australia

Wyperfeld National Park contains 3,237.49 sq. km. of fascinating mallee lands. Located in Victoria, 450 km. northwest of Melbourne, Wyperfeld lies in the flood plain of the Murray River. The park has water only when the river overflows. The park itself is native shrubland, what is often referred to as the Australian “bush.” Over 450 species of plants, 200 species of birds, and a variety of mammals and reptiles make the park their home. There are 2 lakes prominent in the southeast quadrant of the satellite images. They appear in blue. These lakes are Lake Albacutya to the north and Lake Hindmarsh to the south. This site features burn scars in the mallee forest area of Victoria. Fires have been used to maintain the Australian bush for thousands of years, but some modern practices are not sustainable as they are currently being implemented. Fires occur in the park and surrounding area almost every year, leaving huge fire scars.

Fire management in the bush is increasingly studied in Australia as they try to manage traditional lands and balance their need for large-scale agriculture to feed themselves and their livestock. The mallee, with its resistance to fire, its excellent regenerative abilities, and its unique leaf oil properties offers the best opportunity for bushfire control. The following satellite images show the fire scars and regeneration activity in Wyperfeld National Park.



1973 (left)

In the 1973 Landsat image the park area and environments are mostly a darker green with some areas of slightly lighter green, which are remnants of old burn areas that have mostly recovered their vegetation. Grazing land, in the southwest quadrant of the images, appears light green or gray; cropland to the southeast is a gray and brown rectangular patterned area.



1985 (upper right)

In the image from 1985, the park and the surrounding bush are a deep green with mottled patches of gray where the ground is bare after a burn. Two dense cloud masses are evident in white along the western edge of the image. Grazing land in the southwest quadrant of the images appears light green or gray; cropland to the southeast is a gray and brown rectangular patterned area. These areas are often threatened by the bushfires, but frequently escape the full force of the fires. As the mallee scrub thins out near the managed lands and with the largest source of fuel for the fires unavailable, they tend to die out.



2000 (lower right)

In the image from 2000, it is evident that the scars from 1985 show a tremendous amount of re-growth. The areas that were gray in the 1985 image are now a light green, showing the bush vegetation has regenerated itself to a large degree. However, several new burn patches are evident in gray. A large recent burn is evident to the northwest of Lake Hindmarsh. The lakes also show significant change during the 25 year period documented by the images.



