



## We have moved!

In May, the Biosphere Foundation moved from its former office at Hastings Hall to new premises at Shop 4, 37-41 Victoria Street, Hastings.

The move provides us with more space, flexibility and the opportunity to build a stronger identity within the community.

Thanks to Mornington Peninsula Shire Council for providing the former office space at Hastings Hall, financial assistance with the cost of moving, and surplus furniture for the new office. Thanks also to Frankston City Council for providing surplus furniture.

## Our new logo

In May, the Biosphere Foundation adopted its own logo (pictured above).

The logo highlights the cities and shires that are part of the Biosphere, together with French Island and Western Port. It is hoped that the logo will help to foster a sense of place and stewardship among the community and encourage integrated regional planning for the sustainable management of the Biosphere.



The Biosphere Foundation's new office at Shop 4, 37-41 Victoria Street, Hastings. The shop window features the foundation's logo, which was adopted in May.

## Bandicoot recovery report published

In May, the Biosphere Foundation published the proceedings of its groundbreaking November 2006 public meeting on the recovery of the southern brown bandicoot.

The meeting, which was the first forum in Victoria on the species, attracted over 50 scientists, government departments and land managers. It set out to share knowledge of southern brown bandicoot conservation within the Biosphere and surrounding areas as a basis for efforts to

achieve a secure population in the region.

The report is available online at [biosphere.org.au/projects/bandicoots](http://biosphere.org.au/projects/bandicoots)



## Climate change update: Implications for Western Port

Climate change has been constantly in the headlines, with recent events including the Victorian Climate Change Summit in April, and the release of the *Garnaut Climate Change Review Draft Report* and the Federal Government's *Carbon Pollution Reduction Scheme Green Paper* in July.

At a local level, we are beginning to get a clearer picture of what climate change will mean for the Biosphere. In July, the Victorian Government updated its regional climate change projections for state catchment regions, including Port Phillip and Western Port (see [www.climatechange.vic.gov.au](http://www.climatechange.vic.gov.au)).

In June, the Western Port Greenhouse Alliance (WPGA) released a major study into the human impacts of climate change in the Western Port region (see pages 4-5).

Also in June, the Biosphere Foundation—in partnership with the Victoria Naturally Alliance, WPGA and Frankston City Council—held a forum on the Victorian Government's *Land and Biodiversity at a Time of Climate Change Green Paper*. The forum focussed on climate change impacts on the already highly stressed flora and fauna of the Mornington Peninsula and Melbourne's south-eastern fringe.

Presentations are available online at [biosphere.org.au/projects/biodiversity](http://biosphere.org.au/projects/biodiversity)

**"There is no doubt in my mind that [climate change] is the greatest problem confronting mankind at this time and that it has reached the level of a state of emergency."**

Governor of Victoria, Professor David de Kretser AC, launching the book *Climate Code Red: The Case for Emergency Action* on 17 July 2008.

[www.climatecodered.net](http://www.climatecodered.net)

# Environmental efforts honoured across the Biosphere

Community action for the environment has been widely recognised throughout the Biosphere recently, with a multitude of awards.

In June, Dr Tim Ealey, retired scientist and director of the Western Port Seagrass Partnership, was awarded an Order of Australia Medal for service to conservation and the environment. Tim is best known locally for his efforts to plant thousands of mangroves along the Lang Lang coastline to stabilise eroding cliffs, restore water quality and allow seagrass to grow again. The Australian honour came a month after the United Nations Association of Australia announced Tim as a finalist in the individual category of its 2008 World Environment Day Awards, in recognition of his outstanding service to the environment.

In May, Keep Australia Beautiful Victoria announced the winners of its 2008 Sustainable Cities Awards. The City of Frankston won the Overall Sustainable Cities Award and the Heritage and Culture Award, while the City of Casey won the Young Leaders Award.

Keep Australia Beautiful Victoria also announced the winners of its 2008 Clean Beach Challenge. The Capel Sound Foreshore Committee of Management won the Overall Clean Beach Challenge Award, as well as the Community Action and Young Leaders awards. The Crib Point Stony Point Foreshore Committee of Management won the Protection of the Environment Award for its work at Woolleys Beach. The Mornington Peninsula Shire won the Volunteer Committees of Management Award.

Winners of the two overall Keep Australia Beautiful Victoria awards will represent the state in the 2008 national awards.

In April, the Corinella Foreshore Reserve Committee of Management won the 2008 Victorian Coastal Award for Coastal Conservation and Management by an Appointed Manager. The award recognised a seven-year effort to revegetate and restore biodiversity to a severely degraded coastal reserve at Corinella.

In March, Rosemary Birney, recently retired secretary of the Somers Foreshore Committee of Management, received a Coastcare Local Hero medal and certificate for her voluntary work on the Somers Eastern Cliffs environmental rehabilitation project.



Top right: "Dr Mangrove" (Dr Tim Ealey OAM) in action!

Mid-right: Minister for Environment and Climate Change Gavin Jennings presents Corinella Foreshore Reserve Committee of Management president Anwyn Martin with a 2008 Victorian Coastal Award.

Bottom-right: Coast Action/Coastcare facilitator Denis Cox presents Rosemary Birney with a Coastcare Local Hero medal.

Left: Diverse vegetation at Woolleys Beach, near Crib Point, which has been undisturbed since European settlement.

## Help wanted in the global search for our biosphere twin

UNESCO promotes the concept of biosphere reserves “twinning” with other biosphere reserves, and the Biosphere Foundation plans to investigate the possibilities for implementing this.

Potential reasons for entering into a twinning relationship with another biosphere reserve might be:

- To strengthen a shared approach to an issue of common concern or interest.
- To facilitate the sharing of information between the partners.
- To promote interest in, or focus on, the biosphere reserve concept in either or both partners.
- To provide an avenue for actively supporting a biosphere reserve in a developing or less privileged part of the world.



Fitzgerald River National Park Biosphere Reserve in Western Australia. Of the other Australian biosphere reserves, only Fitzgerald River has a twinning arrangement—with Kogelberg Biosphere Reserve in South Africa.

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## Biosphere certificate of appreciation: Nominations invited

With the Biosphere Foundation’s fifth anniversary coming up in December 2008, it is time to acknowledge the efforts of those who have made outstanding contributions to the Biosphere.

For this reason, the Biosphere Foundation will begin awarding certificates of appreciation, the first of which will be presented during fifth anniversary celebrations in December. Members and friends are invited to nominate potential recipients.

Nominations will be referred to the executive, which will consider them and make recommendations to the board. (Current members of the executive are not eligible to receive certificates.)

### Selection criteria

There are four selection criteria for the Biosphere certificate of appreciation:

✓ Service to the Biosphere Foundation has been outstanding in terms of quality, generosity or contribution to significant achievement. (This includes service

during the period in which the UNESCO nomination was being developed and the foundation was being established.)

- ✓ Service has been voluntary. (Paid employees of the Biosphere Foundation are not eligible solely for performing their paid duties.)
- ✓ Service can be described in a citation.
- ✓ Service is additional to any service previously recognised through a certificate. (A person might receive more than one certificate, but for different contributions.)

Below are examples of contributions that could be worthy of a certificate (whether singly or in combination):

- Significant contribution to the development of the Mornington Peninsula and Western Port Biosphere Reserve concept and the original nomination to UNESCO.
- Significant contribution to the formulation and inauguration of the Biosphere Foundation—for example,

through participation in the visioning or governance committees.

- Significant contribution to the work of the board as a director or volunteer.
- Significant contribution to the work of a roundtable or committee, such as the research committee.
- Significant contribution to the development or implementation of a Biosphere Foundation project.
- Significant contribution to raising the profile of the Biosphere Foundation or raising awareness of sustainability issues in the context of the Biosphere.

### Nominations

Nominations should be submitted to Cecelia Witton by 30 September 2008. Please include a brief account of the grounds for nomination for use as a citation.

Post: PO Box 261, Hastings Vic 3915  
Fax: 5979 7563  
Email: [cecelia@biosphere.org.au](mailto:cecelia@biosphere.org.au)

# Study examines impacts of climate change in Western Port

On 26 June, the Western Port Greenhouse Alliance (WPGA) released the results of its two-year study into the impacts of climate change on human settlements in the Western Port region—one of the most comprehensive studies of climate change impacts yet undertaken in Australia.

“The Western Port region is significantly exposed to climate extremes and natural hazards, such as storm surge and coastal inundation, floods, bushfires and extreme temperatures,” the report warns.

“These hazards are projected to increase in frequency and/or severity,” it says, with direct impacts on “land use and management, damages and maintenance costs to public and private property and infrastructure, human health and water availability.”

The study, conducted by economic modellers Marsden Jacob Associates and the CSIRO, was funded jointly by the Victorian and Australian governments.

It combined projections by the United Nations Intergovernmental Panel on Climate Change (IPCC) with Victorian climate models by the CSIRO to predict changes to the region’s rainfall, storm surge, sea level and temperature by 2030 and 2070, and fire weather by 2030 and 2050. The results are summarised in the box on page 5.



Beach erosion on the northern coast of Phillip Island—the result of storm conditions in late June 2008.

It examined the impacts of these predicted changes on people and infrastructure, and considered measures that governments and the community could take to adapt to the impacts.

## Sea-level rise and storm surge

According to the report, a significant portion of coastal areas within the region are vulnerable to the combined effects of sea-level rise, storm surge and erosion, including low-lying sandy beaches, tidal wetlands and erosion-prone cliffs.

It projects that with sea-level rise, a current 1 in 100 year storm surge event could become a 1 in 40 to a 1 in 6 year event by 2030 and a 1 in 20 to an annual event by 2070.

**“Climate change adds to the complexity of land use planning decisions associated with population growth and development, since much of it will occur in areas exposed to coastal inundation, flooding or bushfires.”**

“The land area subject to inundation during a 1 in 100 year storm surge event may increase by 4 to 15% by 2030 and 16 to 63% by 2070,” it says. “Such inundation would impinge upon over 2,000 individuals, over 1,000 dwellings, and approximately \$780 million in improved property value.”

“Public infrastructure is also at risk, including major thoroughfares such as the Nepean and South Gippsland Highways, and boating facilities.”

Without adaptation measures, the report warns, the economic and social consequences of impacts to beaches, foreshore areas and the region’s tourism industry could be substantial.

Areas projected to be at risk of storm-surge inundation are still approximate, due to uncertainties in available digital elevation models, projected sea-level rise, and future coastline changes due to erosion and sediment transport.

Among the most storm-surge-sensitive areas identified in the Bass Coast Shire are Cowes, Rhyll, Cape Woolamai, the Bass River, Grantville, Coronet Bay and possibly areas around Inverloch. In Cardinia Shire, the coastline—but no major settlement—is considered to be at risk. In the City of Casey, Tooradin and Warneet are most at risk. In the City of Frankston, most of the central and northern foreshore of Frankston and Kananook Creek and surrounds are at risk, possibly including the central activity district and Seaford wetlands. In the Mornington Peninsula Shire, Crib Point, Hastings, Shoreham and Stony Point are at risk on Western Port, and Balcombe Creek, Dromana Bay, Safety Beach, Dunns Creek and West Rosebud are at possible risk on Port Phillip Bay.

## Inland flooding

While storm surge and other coastal processes will affect a relatively narrow coastal strip, inland flooding is likely to affect a much larger area.

Increases in extreme rainfall events could increase the frequency and magnitude of flooding across flood-prone areas, the report says. Flood mapping is incomplete, but up to 39,480 people and 580km<sup>2</sup> of land could be affected.

“An estimated 18,000 properties with a total capital improved value of almost \$2 billion are vulnerable to flood events. Approximately 13,000 of the properties are residential, about 40% of which

contain dwellings that are vulnerable to above-floor flooding.”

Flooding also could disrupt much of the region’s transport infrastructure and a range of businesses, industries and public services and utilities, the report says, with indirect economic costs that are significant relative to direct flood damages.

Flood-sensitive areas identified in the Bass Coast Shire include the Bass River flood plain. In Cardinia Shire, the Koo Wee Rup Swamp is at risk. Much of the eastern and southern parts of the City of Casey are at risk, including significant pockets around Hallam, Narre Warren, Berwick (such as the Hallam Main Drain) and Cranbourne. In the City of Frankston, most of the central and northern coastal hinterland, the central activity district, and Seaford wetlands and surrounds are at risk. In the Mornington Peninsula Shire, sensitive areas include Crib Point, Hastings, Shoreham and Stony Point.

### Heat, drought and fire

Extreme rainfall aside, the report projects that average rainfall will decline and drought frequency and intensity will increase. Meanwhile, average temperatures and the frequency and severity of hot days will increase.

Warmer and drier average conditions will increase the frequency with which the region experiences “very high” and “extreme” fire weather conditions in coming decades, the report says. Up to 73,620 people, mostly adjacent to bushland, and 468km<sup>2</sup> of land could be affected.

“Approximately 35,000, predominantly residential properties, with a capital improved value of almost \$8 billion are vulnerable to bushfire events, as are a number of critical transport routes, electrical utilities, industries and public services.”

Extreme temperatures also threaten to increase heat-related illness and mortality, particularly among the elderly, and disrupt transport infrastructure in the region.

Diminishing rainfall is likely to reduce

streamflow, driving up water prices and damaging the ecological, amenity and recreational values of the region.

### Major planning challenges

The report warns that climate change in the region presents major challenges for future land use planning and decision-making.

Much of the land designated for growth in the Casey-Cardinia corridor is exposed to either flooding or bushfires, it notes.

“Climate change also adds to the complexity of land use planning decisions associated with population growth and development along the region’s coastline and in rural and semi-rural (Green Wedge) areas, since much of it will occur in areas exposed to coastal inundation, flooding or bushfires.”

### Next steps

The WPGA study is a preliminary step in a long-term process of adaptation to climate change in the region, according to its authors. Further information is required at a location-specific level.

The Victorian Department of Sustainability and Environment is currently conducting a project called “Future Coasts” to provide more comprehensive coastal vulnerability assessments by the end of 2009. This will be supported by high resolution digital elevation modelling and coastal process modelling.

### Further information

Further information on climate change is available online:

Western Port Greenhouse Alliance  
[www.wpga.org.au](http://www.wpga.org.au)

Victorian Climate Change Program  
[www.climatechange.vic.gov.au](http://www.climatechange.vic.gov.au)

Australian Greenhouse Office  
[www.greenhouse.gov.au](http://www.greenhouse.gov.au)

CSIRO Climate Adaptation Flagship  
[www.csiro.au/science/org/ClimateAdaptationFlagship.html](http://www.csiro.au/science/org/ClimateAdaptationFlagship.html)

## Climate projections for Western Port:

- Average temperatures are expected to increase by up to 1.1°C by 2030 and 3.5°C by 2070.
- Average annual rainfall is expected to decline by up to 8% by 2030 and 23% by 2070.
- The frequency and severity of drought will increase.
- Sea-level rise projections are uncertain. However, the IPCC has projected a rise of up to 17cm by 2030 and up to 49cm by 2070, with the potential for additional rises due to accelerated melting of glacial ice.
- Climate extremes, such as extreme rain events, storm surges, high winds and high temperatures, are projected to become more frequent and severe.
- The frequency of extreme rain events may increase by up to 25% by 2030 and up to 70% by 2070.
- With sea-level rise, a current 1 in 100 year storm surge event is projected to become a 1 in 40 to a 1 in 6 year event by 2030 and a 1 in 20 year to an annual event by 2070.
- The annual average number of days with temperatures over 35°C will increase by up to three by 2030 and up to seven by 2070.
- The annual average number of days of very high to extreme forest fire risk is projected to increase by up to two by 2030 and up to seven by 2050.
- The annual average number of days of very high to extreme grass fire risk is projected to increase by up to 15 by 2030 and up to 30 by 2050.

# Mass balance study to make cleaner production possible

In collaboration with CSIRO, the Biosphere Foundation is proposing to conduct a “mass balance” study in order to enable energy, water and recyclables to be used more sustainably within the region. This is believed to be the first regional-scale mass balance study in the world.

The study would allow us to understand fully the usage of energy, water and recyclables within the Biosphere—how much is used, what it is used for, how much is wasted and why. The study will also allow us to understand the inter-relationships among these three very important aspects of everyday life.

This knowledge will enable the Biosphere Foundation to develop strategies to significantly improve greenhouse emissions, tackle our water crisis, and reduce waste production across the region.

CSIRO Sustainable Communities has prepared a detailed brief on how the study would be conducted. This brief is currently being reviewed widely by members of the Biosphere community.

It is then proposed to commission CSIRO to undertake the study, working in close collaboration with local and state governments, other local authorities and interested parties.



Images of the Earth and Moon taken by Galileo in 1992. Courtesy of NASA.

## Did you know it is the International Year of Planet Earth?

The unprecedented ability of humans to drive global changes and the need to live sustainably is a pressing topic, particularly with predictions that the world’s population will grow by at least another 40% by 2050.

Our knowledge of the Earth has increased dramatically since the first satellite was launched half a century ago, yet the United Nations (UN) believes that much of this knowledge remains untapped by policy-makers and decision-makers.

With this in mind, the UN General Assembly proclaimed 2008 as the

International Year of Planet Earth (IYPE).

IYPE is a joint initiative by UNESCO and the International Union of Geological Sciences. It aims to foster outreach and research activities to raise international awareness of the vast, but often under-used, potential of earth sciences for improving our quality of life and safeguarding the planet.

It is hoped that these activities will persuade people and governments worldwide to better use earth science to make sustainable choices regarding planning and resource use.

IYPE also aims to promote the development of a new generation of earth scientists to equip us for the future.

The IYPE research program covers 10 broad themes: health, climate, groundwater, ocean, soils, deep Earth, megacities, hazards, resources and life.

Scientists are invited to submit expressions of interest regarding specific research questions within each theme.

Further information is online at [www.yearofplanetearth.org](http://www.yearofplanetearth.org)

# Spirit of the Bunyip will attract green dollars to Western Port

Shane Scanlon

A recent survey reported that up to 75% of Australian businesses are aware of and concerned about their impacts on the environment—and many of these would be prepared to invest in environmental projects to reduce their net “footprint”.

More companies are wanting to demonstrate corporate social responsibility as an element of their marketing profiles in many industry sectors.

However, only around 25% of businesses reported that they know how or where to direct their “green dollar” investments. A majority do not know how to find and assess the projects that will make it easiest for them to report on value for money contributed.

The Spirit of the Bunyip program in central Western Port—in the Bunyip River and Cardinia Creek catchments—is filling this information gap. It aims to attract new sources of private investment in the large-scale biolinks project underway across these catchments.

The Biosphere Foundation is one of the program’s supporting partners.

According to program coordinator Shane Scanlon, the Spirit of the Bunyip is building a clear identity that signifies the collaborative efforts of government, business and community already working together in the area.

This strong base made contributing to revegetation on private land in the area

an attractive option for investors, Shane said.

“Spirit of the Bunyip is building on a decade of community-based work by the Cardinia Environment Coalition and agency partners, such as Melbourne Water, the Department of Sustainability and Environment and Parks Victoria,” Shane said.

“And it is ready to undertake more on-ground work now as it has a bank of landholders on its books with ready-to-sign land management agreements for revegetation projects.”

Shane said Spirit of the Bunyip ticked all the boxes to make it easier for investors to be confident that they were backing winning projects.

“Spirit of the Bunyip provides expertise in environmental project implementation. Its quality assurance is drawn from the science-based planning and 10 years of experience in the Cardinia Environment Coalition.”

“It’s not just planting trees; it’s recreating habitats for wildlife under threat, including the southern brown bandicoot, powerful owl and growling grass frog.”



Liz Armstrong from Labertouche has the spirit! She is just one of the hundreds of local landholders helping create habitat links across the landscape. Liz says the sound of the frogs at night is deafening since she fenced and revegetated the stretch of creek on her property.

“It is also in a high-profile location on the fringe of the metropolitan area, so offers excellent opportunities for investors to promote their green credentials and showcase projects that are helping improve the environment.”

The long-term aim of Spirit of the Bunyip is to create 100 kilometres of biolinks in twenty years—from the head of the Bunyip River and Cardinia Creek to the Western Port coast—while becoming less reliant on government grants for the bulk of its revenue.

For further information on Spirit of the Bunyip, contact Shane Scanlon (ph. 8781 7946) or visit [www.ppwcm.vic.gov.au](http://www.ppwcm.vic.gov.au)

## Global search for our biosphere twin

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The Biosphere Foundation has identified several possible criteria for identifying a twinning partner, and a number of biosphere reserves across the global network could meet these criteria.

For example, another biosphere reserve elsewhere in the East Asian-Australasian Flyway might host individual shorebirds that also spend part of their annual

cycles in Western Port, providing a direct physical link.

The Biosphere Foundation will establish a small working group to investigate possible twinning partners and provide recommendations. Jack Krohn will convene the working group, and volunteers are welcome. If you can assist, please contact Jack (email [jack.krohn@dse.vic.gov.au](mailto:jack.krohn@dse.vic.gov.au), ph. 0412 034 519).

## Research survey

Thanks to those who filled in our survey on Biosphere Foundation research priorities.

The survey is now closed. A summary of the results will be available in due course.

In the meantime, you can find details of current research directions online at [biosphere.org.au/research](http://biosphere.org.au/research)

# Postcard from Fitzgerald River National Park Biosphere Reserve

Jack Krohn

As Douglas Adams might have said, “Western Australia is big. Really big.” Among the things WA does on a very generous scale are its two biosphere reserves, both designated in the late 1970s. Prince Regent River Biosphere Reserve in the Kimberley embraces over 630,000 hectares, while down on the south coast Fitzgerald River National Park Biosphere Reserve covers about 330,000 hectares—roughly double the size of the Grampians National Park in Victoria.

I was privileged to visit Fitzgerald River in May. As well as its biosphere reserve status, Fitzgerald River National Park is of interest because of its management in conjunction with very extensive swathes of public land in its hinterland—including other nature reserves, uncommitted Crown land and corridor linkages, especially along watercourses. This landscape ecology approach is similar in principle, if not scale, to Victorian initiatives such as “Habitat 141” and “Spirit of the Bunyip”.

With help from John Watson of the WA Department of Environment and Conservation (DEC) in Albany, I made contact with chief ranger Mark Moore and other DEC people working in or near the park. Over little more than a couple of days, I was able to meet several people engaged in biosphere programs and see some of the achievements, challenges and potential of the area. Complex vegetation communities support some 1,800 plant species, including about 80 that are



Fitzgerald River National Park Biosphere Reserve, Western Australia



Although the designated biosphere reserve is restricted to the national park, biosphere signage on the highways welcomes travellers well outside park boundaries, reflecting the capacity for flexibility in the biosphere concept and the integration between the park and its neighbourhood.

endemic to the park and its immediate surroundings.

On my last day in the south, I visited the Fitzgerald Biosphere Group (FBG) office in Jerramungup. With Charlotte Powis, Jessica van der Waag and Natasha Moore, I learned about the non-public-land side of the Fitzgerald biosphere vision, involving integrated catchment management programs and engagement with the farming sector. Concerns about communication issues and limited and uncertain funding will strike chords with many of our Mornington Peninsula and Western Port Biosphere faithful. The FBG workers would particularly welcome closer and ongoing contact with people pursuing similar visions in other Australian biosphere reserves.

On the flight home, I looked through the information that John Watson and Natasha Moore had given me. The conclusions that I drew were:

- The biodiversity of the south-west of WA, and especially the Fitzzy, is mind-boggling.
- Connectivity of habitat is vital. Even big islands of habitat will suffer

biodiversity losses over time, and conservation programs based solely on conservation reserves or public land will be less effective than programs at landscape scale embracing private land.

- We biospheres need to stick together.
- There is a clearer niche than ever for biosphere reserves in the current atmosphere of rising concern about climate change and sustainability.
- I need to allow a lot more than two days for my next visit to the Fitzzy.

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You can support the Foundation by becoming a member or making a tax-deductible donation.

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