Life, death along the food chain

Protecting endangered species pays off, literally

Scientists are warning of an unprecedented number of species facing extinction. DEBORAH SMITH reports.

The tiny frogs had the numbers, but the horses had might on their side. When a rare population explosion of endangered green and gold bell frogs near Nowra coincided with a polocrosse event this month, it could have been a biodiversity disaster.

Locals were already browned off with the protected creatures that have prevented them from clearing their drains and mowing their lawns. “They’ve been very contentious little fellows in the past,” admits Shoalhaven City Mayor Paul Green of the famous frogs.

But the once-in-20-years breeding frenzy near the equestrian common turned out to be a chance to show humans and threatened species could happily co-exist, he said.

Areas where the horses and floats could squash the two-centimetre-long amphibians were cordoned off and information leaflets about the special species present were handed out to polocrosse spectators.

For Alderman Green, it reinforced his view that promoting the flora and fauna “jewels” in the Shoalhaven can have tourism benefits.

Rerouting roads around rare orchids, instead of ploughing through them, for example, could encourage drivers to “pull up for the night” to look, he said.

As arguments go for preserving biodiversity, it was one of the cleanest cut, with hard financial figures to match, Professor Hugh Possingham, of the University of Queensland, said.

The bird-watching industry in North America was worth more than $40 billion a year, and many visitors to Australia were drawn by our birds and other unique creatures, Professor Possingham said.

“They don’t come to see nightclubs. They come to see nature,” he said.

“The less biodiversity we have, the less money we make.”

The country’s flora and fauna was the “infrastructure” of our third-biggest export industry, tourism, yet biodiversity protection attracted nothing like the investment in railways or other industry infrastructure, Professor Possingham said.

A United Nations report released this month, the third edition of the Global Biodiversity Outlook, had a similar investment message for the globe: “For a fraction of the money summoned up instantly by the world’s governments in 2008-09 to avoid economic meltdown, we can avoid a much more serious and fundamental breakdown in the Earth’s life support system.”

Extinction is part of evolution. It was the demise of the dinosaurs that let mammals flourish, and humans emerge.

But, with an estimated 130 species disappearing each day, the world is on the brink of another mass extinction that could rival the one that saw the dinosaurs disappear.

The UN outlook warns that the historical record rate of extinction due to human activity is putting the natural systems necessary for our survival at risk.

Threats such as habitat loss, over-exploitation, pollution, invasive alien species, disease and climate change are on the rise.

Meanwhile, none of the 193 parties, including Australia, to the Convention
on Biological Diversity managed to meet their 2010 targets to slow species extinction rates.

“There is a high risk of dramatic biodiversity loss and accompanying degradation of a broad range of ecosystem services if the Earth’s system is pushed beyond certain thresholds,” the outlook warned.

These “ecosystem services” include the most basic human needs: food, fuel, clean water, materials and medicines.

“Arguably there is not one aspect of our lives that doesn’t require other species,” Professor Possingham said.

“The real question is, how many species do we need?”

Sometimes, the loss of just one can have enormous economic consequences, such as the devastation by disease of honey bees that pollinate crops in North America.

On the other hand, New Zealand now has more alien plant species than native species, yet this invasion has not led to a mass extinction of natives, recent research shows.

With less than two million of the more than 30 million species on the planet identified, little is known about the interconnectedness of life forms.

Working out which extinctions will most threaten society, and the tipping points for species collapse, was “very difficult”, Professor Possingham said.

However, economically it made sense to avoid high-risk events when the cost of stopping biodiversity loss was low.

About 130 species become extinct each day.

This is up to 1000 times greater than the natural extinction rate.

Many creatures are threatened with extinction:

12% of birds

21% of mammals

28% of reptiles

30% of amphibians

35% of invertebrates

37% of freshwater fish

70% of plants
Animals fight for life and death along the food chain

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“Why walk along the edge of a cliff? Why not stand back and enjoy the view?” he said.

With 2010 declared the International Year of Biodiversity by the UN, Professor Possingham and other Australian scientists are mobilising to convince the public of the value of biodiversity.

Many people were not aware of the high extinction rates, according to Dr David Chapple, of Monash University, a co-author of a study predicting global warming could cause the loss of more than 20 per cent of lizard species by 2080.

Lizards provided prey for other creatures and kept insects in check, and their demise could trigger species collapse further up the food chain, Dr Chapple said.

More appealing species tended to capture public attention.

“But even the cutest and cuddliest birds need reptiles to feed on,” Dr Chapple said.

Professor Andy Austin, of the University of Adelaide, said the hundreds of species of tiny, blind creatures he helped discover in outback Australia may not be “koalas or platypuses”.

But microscopic life forms like these were something to be proud of.

In the end, all species loss mattered, Professor Possingham said, because it was effectively irreversible.

“If you destroy most of the diversity of life, it will take 20,000 generations of humanity to recover it.”

By then, no one would care about the global financial crisis, he said.

“But if we lost half our species, they would be quite annoyed.”

Deborah Smith

Science Editor

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