

MORE KEY FINDINGS

Mammals and fire

Five types of ground-based mammals are part of our study – Long-nosed Bandicoot, Bush Rat, Swamp Rat, Eastern Chestnut Mouse and Brown Antechinus. Our study shows that the Long-nosed Bandicoot increased throughout all vegetation types in both burnt and unburnt areas, and that the Bush Rat, Swamp Rat and Brown Antechinus declined on burnt sites compared to unburnt sites.

Five types of arboreal marsupials feature in our research – Common Ringtail Possum, Greater Glider, Common Brushtail Possum, Sugar Glider, and Eastern Pygmy Possum. Interestingly, in this instance it seems that possums and gliders are not strongly affected by fire – a greater threat is thought to be predation by large native forest owls, such as the Powerful Owl. Between 2003 and 2006 the Common Ringtail Possum and Greater Glider have declined, but the Common Brushtail Possum has increased. This may be because the Common Brushtail Possum spends considerable time foraging on the ground.

Reptiles and fire

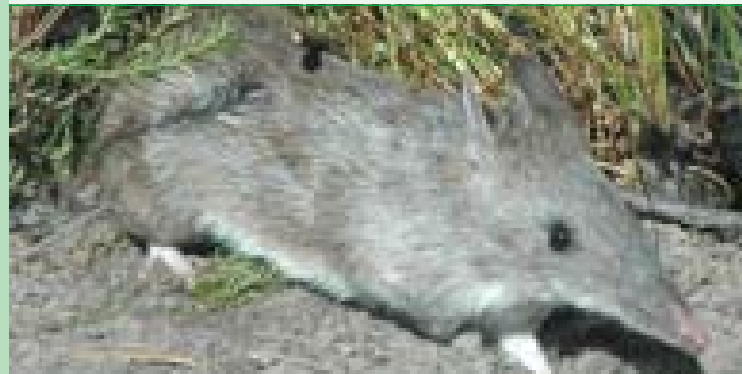
Of all the groups of animals, reptiles are the most resilient to fire. This is because they can shelter under substrates such as rocks. Our findings confirm this – neither the severity nor frequency of fire impacts significantly on the diversity of reptile species found.

FIND OUT MORE...

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Whether as a result of wildfire or prescribed burning, the frequency and severity of fire has a dramatic and complex influence on landscapes and wildlife. Long-term research and monitoring provides essential insights into the interaction between wildlife and fire.



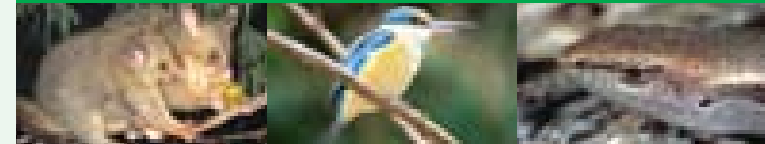
Long-nosed Bandicoot (Photo: Christopher MacGregor)

This research is supported by: Australian Bush Heritage, the Australian Research Council, Booderee National Park, the Department of Defence, and the Department of the Environment, Water, Heritage and the Arts. Special thanks are extended to the Wreck Bay Aboriginal Community.

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Cover insets (L to R): Common Brushtail Possums (GNU Free Documentation Licence), Sacred Kingfisher (Esther Beaton), Garden Skink (Peter Robertson). Main photo by Vicki Fortescue.

JERVIS BAY FIRE RESPONSE STUDY



JERVIS BAY FIRE RESPONSE STUDY

Fire is a defining characteristic of the Australian bush. Whether started by natural processes such as lightning strikes or as a result of human action, fire shapes the landscape and the plants and animals which inhabit it. We know that over millennia Australia's native plants and animals have adapted to survive and even regenerate due to fire, yet there is much to learn about the long-term impacts of fire on wildlife. Since 2002, landscape ecologists from the Fenner School of Environment and Society at The Australian National University have been conducting a long-term study examining the effects of different types of fire on the animals inhabiting a range of vegetation types in Booderee National Park at Jervis Bay. The study provides critical knowledge for use in fire management, vegetation management and biodiversity conservation within national parks and state forests.

The endangered Eastern Bristlebird (Photo: Lindsay Hansch)



WHY JERVIS BAY?

One reason why Jervis Bay was chosen as the location for our study is the rich variety of vegetation types found within its 6500 hectares. Explore the park and you will find forest, woodland, she-oak woodland, dry and wet heathland, dry, wet and low shrubland, rainforest, sedgeland, and more. Our work takes into account these different vegetation types and examines how they respond to different types of fire and how the animals which inhabit them respond.

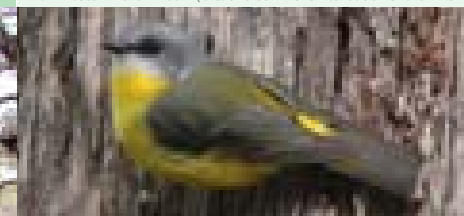
FIELDWORK AT JERVIS BAY

In these different kinds of vegetation, 110 permanent field sites have been established, some of which have been subjected to wildfire, some to prescribed burning and some which have remained unburnt during recent years. Field surveys are regularly conducted during which researchers count birds, reptiles and small mammals at each site. Birds are identified by their calls or by sight. Volunteers from the Canberra Ornithologists Group assist in this work. Reptiles are detected by using 'pitfall' buckets dug into the ground at each site. Mammals are detected using traps baited with peanut butter and oats. Animals are released unharmed as soon as they are caught and identified. Possums and gliders are also surveyed by spotlighting at night.

To date, since 2003, our study has included:

- 130 species of bird
- 15 species of reptile
- 12 species of mammal.

Right: Checking pitfall traps
Below: Eastern Yellow Robin (Creative Commons Attribution ShareAlike 2.5)



KEY FINDINGS

Birds and fire

Most birds survive fire by fleeing to other areas in their territory unaffected by the fire and then gradually returning to the burned areas. After a major wildfire in 2003, the vast majority of birds returned to their original sites within two years, including the endangered Eastern Bristlebird. However, if an area is subjected to multiple fires, this decreases the number of bird species found there by about 9 per cent per fire.

Sometimes it is not the fire itself which poses the greatest risk to wildlife, but increased predation after the fire due to reduced vegetation cover. Because it forages on and dwells near the ground, the Eastern Bristlebird is one of the animals which most benefits from an intensive feral predator baiting program being conducted within the park, reducing numbers of feral cats and foxes.

A study site regenerating two months after the 2003 wildfire

