



State of Australia's
Key Biodiversity Areas
2020





Table of contents

Acknowledgements	2
Introduction	2
KBA Background	3
KBA Guardians	4
Easter health-checks	4
Impacts of the Black Summer Bushfires	5
KBAs in Danger and main threats to KBAs in 2020	6-7
Birddata monitoring: a finger on the pulse of Australia's birds in KBAs	8
Conservation Actions	8
Ways to get involved	9
KBA contacts	9
2020 KBA achievements	10

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In particular, we want to thank the KBA Guardians and Guardian Coordinators for over 100 KBAs for their monitoring efforts and the KBA Health-checks they conduct to give us an insight into the state of Australia's KBAs. They have been working hard to raise awareness for KBAs and make sure they are considered in conservation planning and environmental management at many different levels.

In addition to people giving their time to KBA conservation we also enjoy the immense generosity of our financial supporters in making the BirdLife Australia's KBA Program what it is, and we thank them for their enthusiasm and for continuing to stand with us.

We also would like to thank the QLD Government Community Sustainability Grants and the Bird Interest Group Net Twitchathon for providing funds for conservation of KBA species.

BirdLife Australia acknowledges the Traditional Owners of Country throughout Australia, and their continuing connection to land, sea and community. We pay our respects to them and their cultures, and to their Elders past, present and emerging.

Introduction

The Key Biodiversity Area (KBA) program is increasingly recognised and adopted as the global standard for the identification and monitoring of the places that sustain the diversity of life on earth. Australia's KBA estate has grown from 315 sites initially identified (in 2009) as Important Bird and Biodiversity Areas (IBAs) to 333 sites now including KBAs for Crayfish, Frogs, Cycads and Mammals.

The State of Australia's KBAs 2020 report provides a snapshot of threats and conservation actions for the KBA estate; summarizing annual KBA Health-checks for almost one third of the country's most important sites for wildlife and nature. This overview, covering KBAs in every state and territory, is possible thanks to the dedication of volunteers, agency staff and Indigenous rangers who completed annual KBA Health-checks on 'their' KBAs.

The summer bushfire season during the Easter 2019—Easter 2020 reporting period reporting period was devastating for Australia's wildlife and KBAs. Over two million hectares of important wildlife habitat were affected across 69 KBAs in the southern and eastern states and 18 KBAs burnt 15% or more! Unsurprisingly, the 2020 reporting year saw a dramatic increase in the threat of fire reported in KBA Health-checks - both the proportion of KBAs threatened by fire and the mean threat level was higher than ever before. Fire and drought together were the most common threats placing KBAs in danger of losing their biodiversity values. But the fires were not alone in putting our unique wildlife at risk. For KBAs that received Health-checks in 2020, invasive species were considered a threat to more than two-thirds, and climate change related threats were considered a threat to over a half.

On the plus side KBAs continue to attract an incredible amount of community monitoring and conservation work (over 50,600 hrs, and 162 organisations) and are a focus of sometimes extensive government action. Given the challenges for KBAs, their habitats and threatened species we hope that this existing engagement will form the basis for a healthy growth in Australia's effort to look after our much-loved nature hotspots.

Cover photo: Regent Bowerbird by Brian O'Leary. Top photo: Budgerigars by Lisa Nunn. Bottom photos (L-R): Red-capped Plover by Lachlan Hall; Scarlet Honeyeater by Silva Vaughan-Jones, Rainbow Bee-eaters by Gary Meredith, Gang-Gang Cockatoo by Michael Hanvey, Eastern Curlew by Dean Ingwersen, Regent Honeyeater by Dean Ingwersen



KBA Background

The world is in the midst of the sixth mass extinction. In response, a global partnership of 13 leading conservation organisations has focussed on identifying and protecting the planet's most important places for wildlife and nature according to a global scientific standard (IUCN, 2016). For the first time we have a common language to talk about the most important places left for life on Earth, the Key Biodiversity Areas.

Key Biodiversity Areas (KBAs) are:

- Places of global significance for the conservation of birds and other wildlife
- Recognised as a focus for practical conservation action
- Linked to internationally binding agreements and industry standards

KBAs are identified using the strict, scientific Global Standard and must meet certain criteria. A KBA can be declared for a site that is important for one or more biodiversity triggers, known as Trigger species:

- Threatened species or ecosystem
- Geographically restricted species, species assemblage or ecosystem
- Area of high ecological integrity
- Biological processes such as breeding or moulting aggregations, migration bottlenecks, or ecological refugia
- Irreplaceable part of ecological connectivity

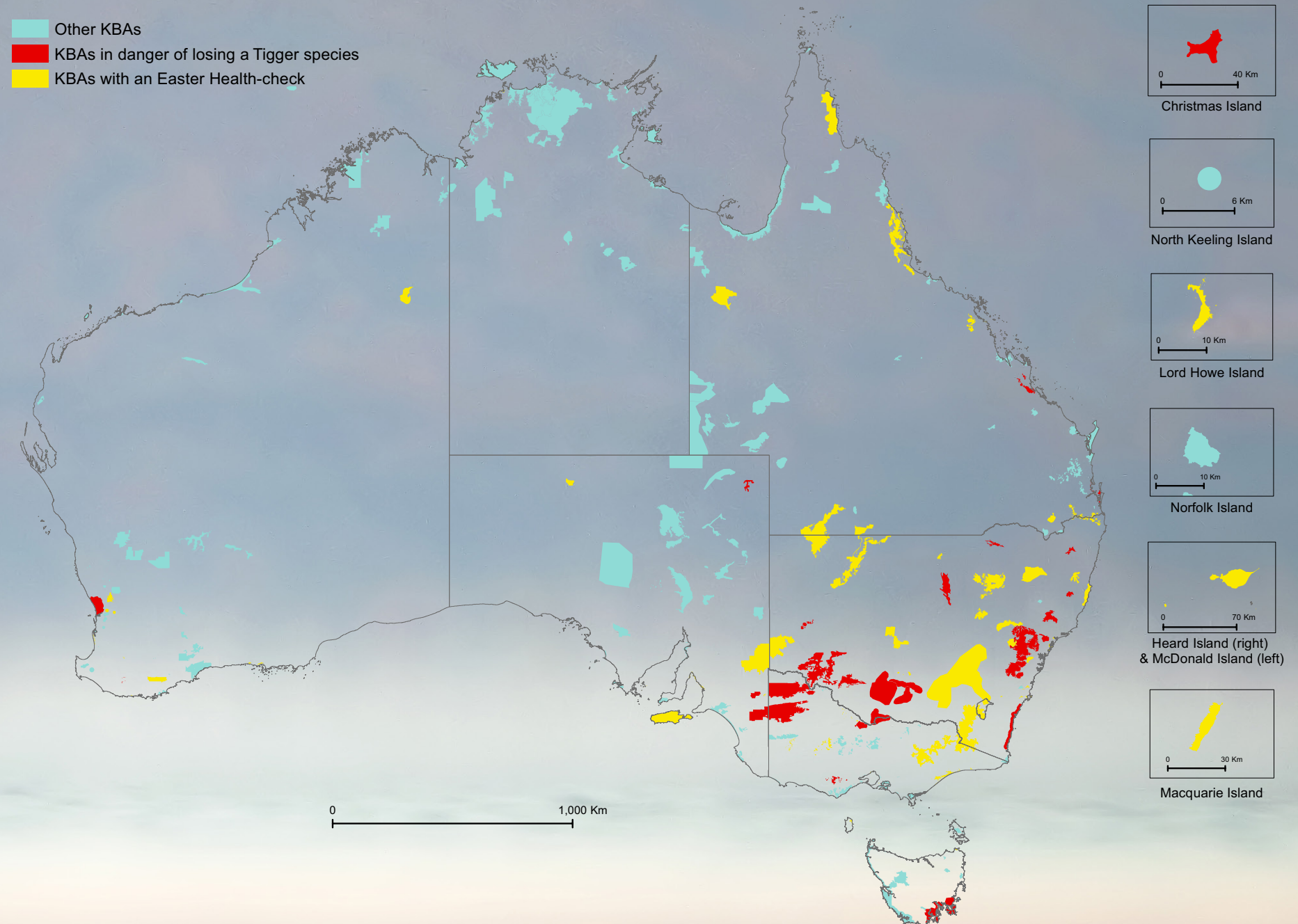
Australia currently has 333 KBAs providing a home for a diverse range of species including many Australian icons; from the Wollemi Pine to the Regent Honeyeater and the Corroboree Frog to the Northern Hairy-nosed Wombat. The map identifies the KBAs and highlights those for which Health-checks were available for this report in blue. KBAs in red are considered KBAs 'In Danger'.

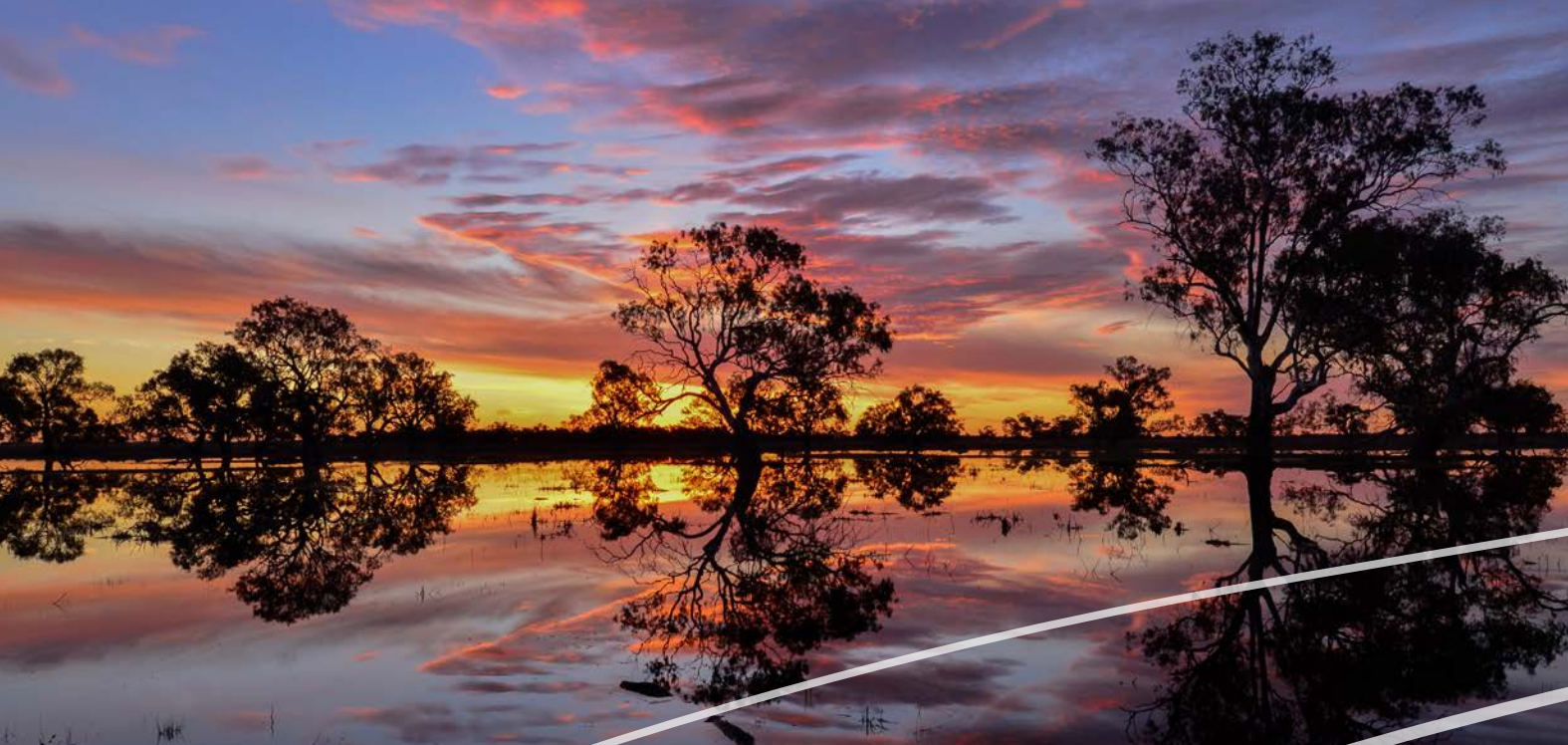


Photo: Pelicans by Nathan Watson



BirdLife Australia's KBA Project Officer Stephanie Todd has been working to update and grow the network of KBAs across the country since 2019. Together with a dedicated team of KBA Guardians and Volunteers, she has helped shed light on how birds and other wildlife in these special places are faring.





KBA Health Checks

Volunteer KBA Guardians supported by BirdLife Australia have assessed over 100 KBAs in 2020 (almost 1/3 of all Australian KBAs) using a formal process known as the KBA Easter Health-check. In the Health-check the Guardian scores a KBA's environmental health in three categories: threats (Pressure), condition (State) and conservation actions (Response). To this end they apply a simple but powerful internationally standardised protocol. It is repeatable, widely applicable and detailed without being prohibitively complex. Critically, Health-checks provide an early warning system and identify conservation opportunities, helping to prevent the decline of KBAs.



KBA Guardians

Volunteer KBA Guardians are the basis of the success of KBA conservation and they are as diverse as the places they care for. There is no one skill set or background that defines a KBA Guardian. However, KBA Guardians do share a love for nature, an ability to see how their skills (whatever they are) can help wildlife and a readiness to use these powers for good. KBA Guardians can be individuals or teams or even local conservation groups such as BirdLife Australia branches. The diversity of backgrounds and skills makes for a strong and inspiring national support network.



Photos clockwise from top: Macquarie Marshes KBA by Chris Grounds, Comb-crested Jacana by Michael Hanvey, Mullinger Swamp, SA, by Paula McManus, Jervis Bay KBA by Chris Grounds



Impacts of the Black Summer Bushfires

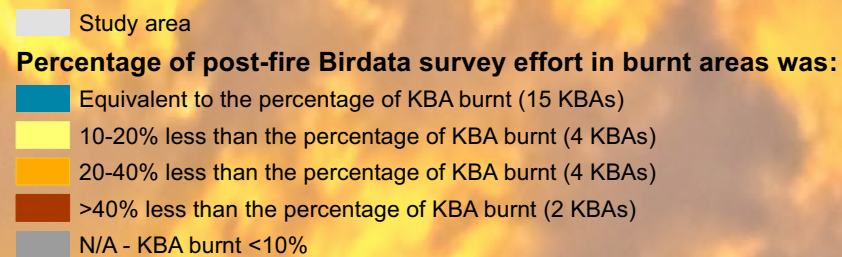
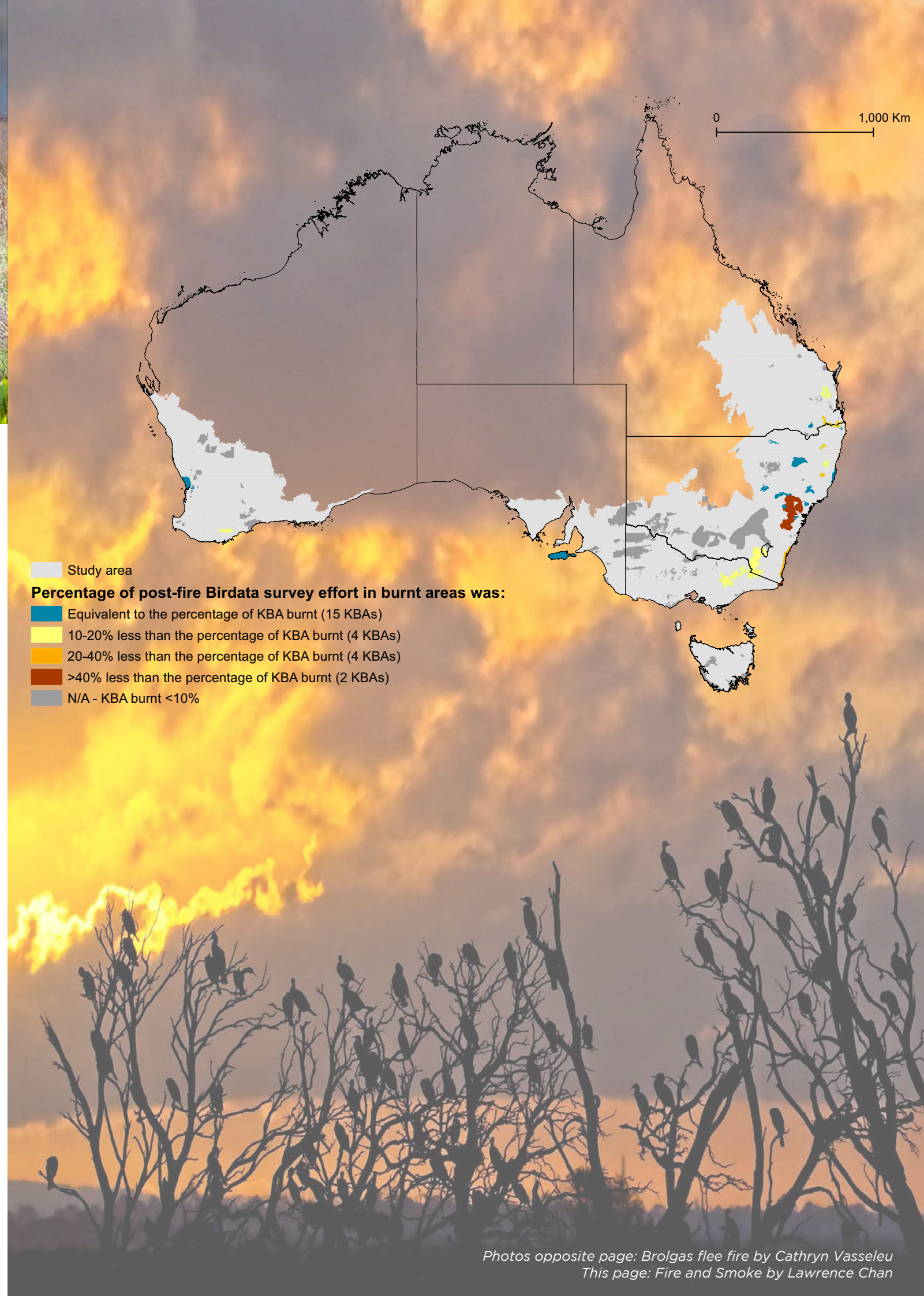
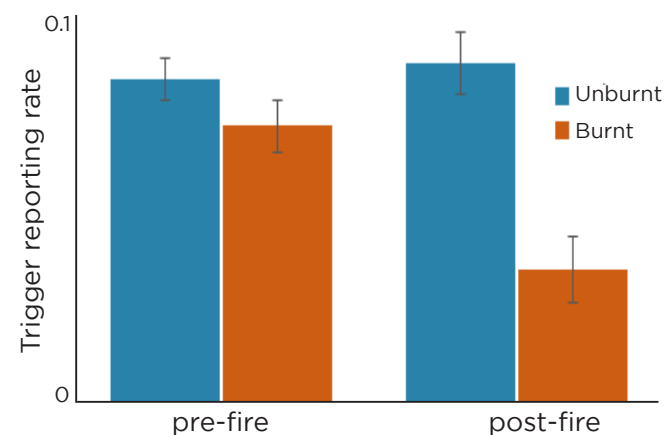
Thanks to the long term, consistent efforts of Guardians completing KBA Health-checks and Birddata volunteers contributing many hours of bird monitoring, we have threat and Trigger species data leading up to and after the major bushfires of Summer 2019/2020. This allows retrospective analysis of Trigger species' responses.

Where there's smoke, there's fire: Birddata surveys confirm declines of Trigger species in burnt KBAs

The common assumption is that animal populations decline in response to fire as a consequence of direct mortality or habitat loss. Ecology is full of surprises, though, and some taxa proved incredibly resilient e.g. frogs² and crayfish persisted better than expected post-fire, at least in the short-term. Similarly, impacts on highly mobile species such as birds may be mitigated by displacement to unburnt habitat refuges. We therefore decided to investigate fire impacts on Trigger bird species in KBAs. We examined changes in Birddata reporting rates before and after fire, and also compared reporting rates at unburnt 'control' sites against burnt 'impact' sites. Before-After Control-Impact (BACI) comparisons are designed to be able to distinguish true impacts from ecological variation across time and space³.

KBA bird survey data for the period 1/4/2015–1/4/2021 were downloaded from Birddata. Survey locations were intersected with burn severity mapping 4 to determine whether each survey location was burnt in the 2019/20 bushfires. We assigned surveys as occurring 'before' or 'after' the fires based on the dates of nearby NASA hotspots. Only surveys in southern and eastern Australian bioregions, and only sightings of waterbird and terrestrial bird Triggers were included in this analysis. Trigger species reporting rates were then calculated as the number of sightings divided by the number of surveys. A generalised linear model (GLM) was used to test for fire impacts on Trigger species reporting rates.

On average, the reporting rate of birds declined by 48% in burnt areas. The interaction between Before-After (time) and Control-Impact (location) was significant ($p < 0.05$); confirming that Trigger species indeed declined post-fire in burnt areas. This could be attributed to fire impacts rather than other factors such as drought because there was no significant change in reporting rates pre- to post-fire in unburnt areas (See map opposite).



Thank You!

The enthusiastic and knowledgeable work of KBA volunteers is invaluable to the conservation of nature's hotspots in Australia

103 Easter Health-checks

87 KBA Guardians and Guardian teams Checks

38 BirdLife Branches, affiliates and bird clubs as KBA Guardians

14 Indigenous Groups

72 other community Groups, Landcare, Friends, eNGOs, community groups

>3,400 Monitoring and Conservation Volunteers

>50,600 Monitoring and Conservation hours

KBAs in Danger and main threats to KBAs in 2020

Despite the massive extent of the 2019-2020 bushfires, fire was not the most frequently reported threat in 2020. Instead, invasive species, and climate related threats (drought, temperature extremes, storms, flooding, and shifting of species' habitat or climate envelope) were the most commonly reported threats which were found in over 60% of Australian KBAs. This was followed by recreational activities (44%), fire (38%), pollution (33%), agriculture (33%) and associated threats such as water management (24%), which exacerbates the effect of drought.

In total, 29 KBAs were listed as 'KBAs in Danger' in 2020 based on Health-check threat assessments by KBA Guardians, and their review by BirdLife Australia staff and BirdLife's Research and Conservation Committee. All threats to a KBA were assessed for the risk they pose to the persistence of the Trigger species of that KBA. With the exception of drought alone (see below), a rating of any threat as 'very high' led to the KBA being declared as a 'KBA in Danger'. Unsurprisingly, fire played a prominent role here. It was the most common threat to trigger 'in Danger' status to a KBA in 2020 - four new KBAs were added to the 'in Danger' list because of fire impacts.

Drought, which was the most common threat to cause a 'very high' risk to Trigger species was considered somewhat differently. For many KBAs, such as Lake Eyre, drought is at least partly a feature of their natural cycle, so that the complete 'collapse' of the population of a Trigger species at the site is not usually a cause for serious concern as the species e.g. Banded Stilt is, in fact, adapted to the boom and bust cycle. Therefore drought was only used to assign 'in Danger' status to a KBA where it was exacerbated by water management or other threats.

However, drought should not be ignored as a threat to biodiversity. Instead, it needs to be addressed urgently at a national and global level, to prevent worsening impact of drought as a result of climate change. Addressing other threats locally may also help mitigate the effects of drought on KBAs.

They saw it coming: KBA Guardians highlighted fire risk before it happened

The value of Health-check reporting becomes clear when looking at the threats Guardians were anticipating at the start of 2019 and compared this to KBAs that burnt the following summer. For this analysis KBAs were considered 'burnt' if >10% of their area overlapped with the fire footprint 5, and Guardians were considered to have 'predicted' fire if they recorded it as likely within 4 years and expected it to affect >10% of the KBA. We found that KBAs were significantly more likely to have been burnt if fire was predicted in the 2019 Health-check report ($\chi^2 = 10.2$, $df = 1$, $p < 0.05$). Fire was correctly predicted by Guardians of five of the most affected KBAs: Werrikimbe, Greater Blue Mountains, New England, Scenic Rim, and Australian Alps.



Preparing for the future: what threats are predicted?

Using insights gained from the 2019-2020 fires about the foresight of KBA Guardians, we examined what other threats KBA Guardians are anticipating. Looking into the future may ultimately be a crystal-ball exercise, but if predictions are informed by risk factors (tell-tale signs) that are visible today then hopefully we can be better prepared. Fire and fire suppression, and fuel reduction activities were the most frequently predicted threats for both the near (<4yrs) and longer-term (>4yrs) future. This was followed by other climate change related threats. Invasive species and recreation impacts were anticipated less often, possibly because they are already considered a current threat in many KBAs, but there is little reason to expect they will abate.

The potential for threats to cause additional KBAs to be classified as 'in Danger' in the future was assessed on combined severity and scale scores, with threats rated 'high' to 'very high' risk within the next four years predicted to cause a KBA in Danger status. Drought, fire, recreational activities and temperature extremes all could potentially put additional KBAs in Danger. In conclusion, protecting unburnt KBAs as refuges for fire affected species is a high priority, and examining which KBAs are most at risk of future fire events is a way to target preventative action.

Birddata monitoring: a finger on the pulse of Australia's birds in KBAs

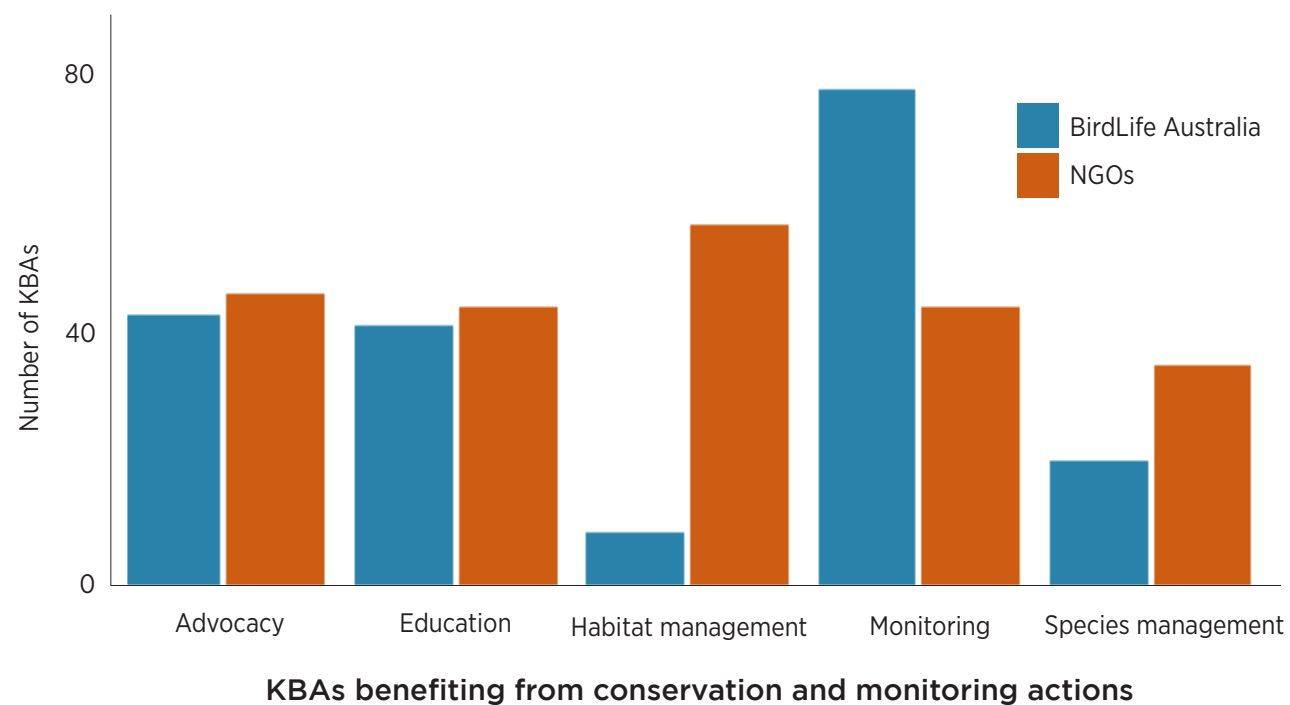


Birddata is a powerful citizen science platform through which bird survey data is gathered, enabling monitoring of Australian birds. Monitoring is particularly useful when surveys are repeated over time at the same location and using the same standardised methods. Fortunately, there is a large network of 'Shared Sites' across KBAs at which repeat standardised surveys are carried out and entered into Birddata. A total of 14,501 Birddata surveys across 215 KBAs were conducted during the Easter 2019 – 2020 reporting period, by 969 people – mostly volunteers. Of these, 5,601 surveys were conducted at 1,239 Shared Sites. Birddata citizen scientists were in the field surveying KBAs for a whopping 28,000 combined hours (equivalent to 3.2 years!). Almost all (95%) KBA's with an Easter Health Check had Birddata surveys supporting their report.

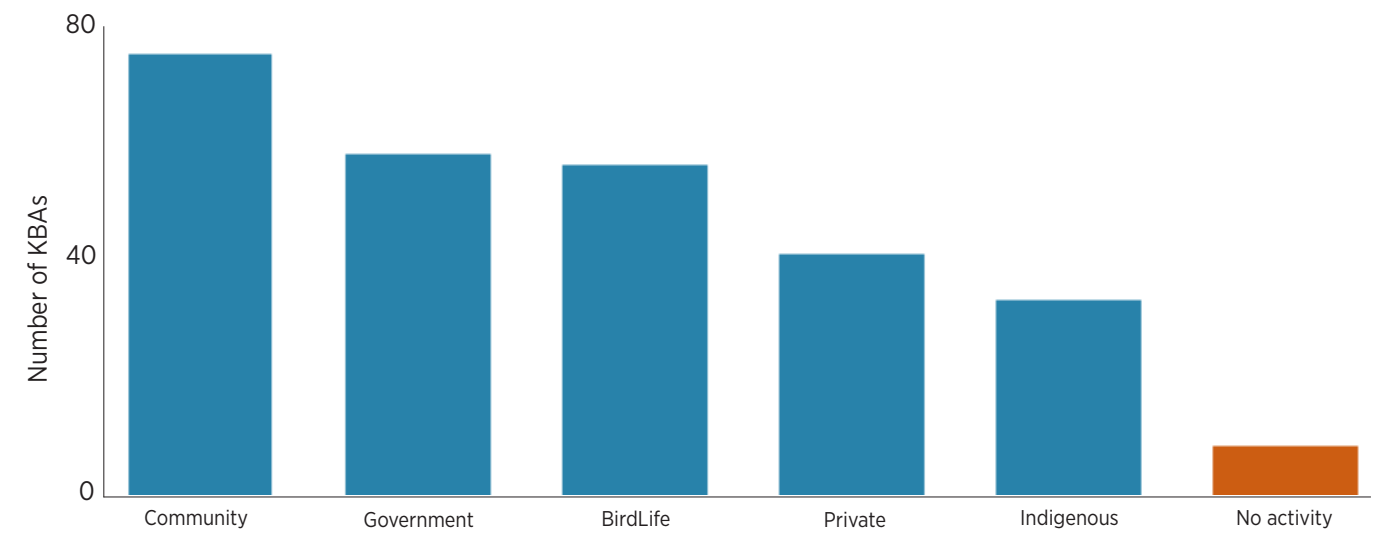
This massive effort is extremely worthwhile: 178,492 sightings of 673 bird species were recorded in KBAs this year. Invaluable data from threatened species such as Australasian Bittern, Baudin's Black-Cockatoo, Carnaby's Black-Cockatoo, Powerful Owl and Swift Parrot were collected, which will assist conservation efforts to save these birds. In fact, all seven critically endangered Trigger species, 22 out of 24 endangered Trigger species and 13 out of 15 vulnerable Trigger species were sighted.

Conservation Actions

KBAs benefit from conservation actions by a diverse range of organisations, especially from the NGO sector. All but nine KBAs reported conservation actions during 2020. Across much of the KBA estate First Nations Australians contribute to the conservation and management of biodiversity through their support, generous advice and implementation of Traditional Knowledge, and plenty of hard yakka. In 34 KBAs (33%) Indigenous Rangers have taken a lead role - many of these KBAs are also Indigenous Protected Areas. Private landholders, too, do their bit with 42 KBAs (41%) benefiting from private landholder conservation action. This is an important part of KBA conservation given that large parts of the KBA estate are on private land.



Organisations contributing to the conservation of KBAs (excluding monitoring)



Top photo: Mourachan Conservation Reserve, St. George area, QLD, by Robert Irwin
This photo: Greater Blue Mountains KBA by Stephanie Todd



Photo: White-breasted Woodswallows by Shelley Pearson



Photo: Fairy tern by Claire Greenwell

Ways to get involved

There are many ways to volunteer in the KBA program. With KBAs being so diverse there is bound to be something you enjoy and are good at! Help protect Australia's most important nature hotspots and take action for KBAs.

MESSY

Get your hands dirty planting trees in KBAs

Help clean up weeds and rubbish from nature's beauty spots

EASY

Go on holiday to or near a KBA and tell everyone that this is why you are visiting

Put this KBA Status Report on your coffee table and fly the flag for KBAs

Join BirdLife Australia birdlife.org.au/support-us/join-us

COMFY

Volunteer for data entry from the convenience of your armchair

Never miss a worthy cause by signing up to monthly BirdLife e-news at support.birdlife.org.au/sign-up

Alert kba@birdlife.org.au when you hear about a threat to local KBA

BIRDY

Get the free Birdata app, and start recording birds in KBAs birdata.birdlife.org.au

Raise funds for threatened species in KBAs through the Twitchathon on the last weekend of October

Join your local BirdLife Australia branch on special KBA activities

Report chance sightings of rare birds on Birdata

FRIENDLY

Become a KBA Guardian for one of Nature's Hotspots

Work with local councils or Friends Groups to take on-ground actions

KBA contacts and local coordinators

KBA National Coordination Group (NCG)

Dr James Watson, WCS, Chairperson
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Dr Golo Maurer, BirdLife Australia, Secretary
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Stephanie Todd, BirdLife Australia, KBA Project Officer
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KBA-Guardian Program Coordinators

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QLD (N): Kath Shurcliff crabplover@westnet.com.au

QLD (S): Tida Nou tida.nou@gmail.com

SA: Vacant

TAS: BirdLife Tasmania Monitoring Subcommittee, led by Mike Newman omgnewman@bigpond.com

VIC: Greg Turner gregturner56@bigpond.com

WA: Linda Borrison lindaborrison@iinet.net.au

KBA Resources

KBA Blog: keybiodiversityareas.org.au

Australia's KBA Health-check data portal: portal.birdlife.org.au/kba-health-check/

KBA-criteria: portals.iucn.org/library/node/46259

Guidelines for using the KBA standards: portals.iucn.org/library/node/47982

State of KBA Reports: birdlife.org.au/projects/KBA

Detailed information on KBAs: datazone.birdlife.org/site/search

KBA-maps Australia: birdlife.org.au/projects/KBA/volunteers-kba

Everyone can play a role in safeguarding the future of Australia's nature hotspots—will you join us?

1. Todd, S. & Maurer, G. Bushfire recovery where it matters most. Impacts and actions in Key Biodiversity Areas affected by the 2019/20 Bushfire Crisis. (2020).
2. Rowley, J. J. L., Callaghan, C. T. & Cornwell, W. K. Widespread short-term persistence of frog species after the 2019–2020 bushfires in eastern Australia revealed by citizen science. Conservation Science and Practice 2, e287 (2020).
3. Smokorowski, K. E. & Randall, R. G. Cautions on using the Before-After-Control-Impact design in environmental effects monitoring programs. FACETS 2, 212–232 (2017).
4. Roff, A. Australian Google Earth Engine Burnt Area Map: A Rapid, National Approach to Fire Severity. (2020) doi:10.13140/RG.2.2.13434.52167.
5. Department of Agriculture, Water and the Environment. National Indicative Aggregated Fire Extent Datasets. <https://www.environment.gov.au/fed/catalog/search/resource/downloadData.page?uuiid=%7B9ACDCB09-0364-4FE8-9459-2A56C792C743%7D> (2020).

2020

KBA Achievements



PLACES YOU LOVE

>50%

of Australians live within 30 min of a KBA



VOLUNTEERS

over **50,611**

Volunteer hours



BIRDS YOU LOVE

199

bird species (218 including other taxa) threatened, endemic or gregarious covered by KBA



THREATS

29 KBA

are in danger



COMMUNITY

135 NGOs

contributing to KBA conservation



COVERAGE

103 of 333 KBA

31%

of KBAs received Health-checks

SUCCESS

2 BirdLife Indigenous Grants awarded for work in KBAs

Australia's voice for birds since 1901

BirdLife Australia is dedicated to achieving outstanding conservation results for our native birds and their habitats.

With our specialised knowledge and the commitment of an Australia-wide network of volunteers and supporters, we are creating a bright future for Australia's birds.

join us

volunteer

donate