The Gulf Croaker

Issue 12, Autumn 2021

VIRTUAL FENCING: FROM WIRE TO WI-FI

Gulf Country trial for solar powered GPS cattle control

NORTHERN GULF IN DROUGHT RESILIENCE HUB

Partners to improve regional resilience and recovery

UPCOMING EVENTS ACROSS THE REGION

Find out what's happening in your area.

YOUR GULF WET SEASON PHOTOS

Competition shows our region at its best

PLUS

Northern Gulf environment annual report

A fresh look at northern farming

The real cost of invasive species

Reconciliation Week at Undara

BEHIND THE SCENES

A message from Zoe Williams


CEO Zoe Williams

At last month's Board Meeting we farewelled Director Jess Fealy and welcomed Georgetown grazier Kelly Bethel to the Board of Directors. Kelly brings to the Board her wealth of experience in the cattle industry, as well as her experience in business development and a long history of Northern Gulf corporate knowledge which will prove invaluable to the organisation. Thanks to Jess for her service over the past two years. We wish her all the best.

We say farewell to Drought Support Officer Kathy Rowling, Intensive Agricultural Officer Sally Fields, and Corporate Services Leader Jacinta Rae. Welcome to Denise Hinks, who replaces Jacinta, and to our new Community Partnerships Team Leader Sarah Rizvi and Support Officer Chelsea Smith. Congratulations to Communications Officer Rachel Smith, who has just had a baby, and welcome to Richard Dinnen, who is filling in for Rachel while she's on maternity leave.

Every April, the Fenner School of Environment and Society publishes its State of the Environment report. The current Northern Gulf Report Card is in this edition of the Gulf Croaker. Sadly, it indicates steadily declining environmental conditions in our region, due, in part, to increasing temperatures and below average river flows, reflecting the impacts of climate change on our landscapes. It's important we don't become apathetic about our ability to impact big environmental issues. We all saw the images of clean rivers, lifting smog, and wildlife reclaiming city streetscapes during the 2020 COVID lockdowns. Clearly, environmental degradation is reversible. Sadly, it took a global catastrophe to illustrate this.

At Northern Gulf, we see people taking steps every day to improve their local and global environment. We'll soon be producing our own State of the Region Report, including many of the metrics from the ANU report, but also highlighting the important work being done by organisations and individuals to improve the environment in their local communities. We believe it's important to highlight the challenges, but also to demonstrate how we can work collaboratively for improved outcomes for communities and the environment.

Zoe Williams

> Local people bringing local solutions;
> Caring for Country, Seas &
> Future Generations

OUT & ABOUT

BIG REWARDS FOR YOUNG FARMERS

If you get big smiles and grubby waves next time you visit your local school, it's probably one of the eight participating in our Remote Food Gardens Network.

Designated Garden Champions help students learn to sow, propagate and harvest everything from potatoes to passionfruit. Post-harvest, school kitchens produce smoothies, chutneys, jams and more. With goodies to spare, many school families receive tasty takeaway loads of fruit and veg. This is a real game-changer in remote towns, where such things aren't always readily available.

It hasn't been all smooth sailing for our young gardeners. Roos and wallabies ate the hard work of students at Mount Molloy and Irvinebank State schools. Heavy wet season rain created decidedly spongey garden beds across the region, turning vegie patches into veritable jungles. Thankfully, garden tidying is a fun chore when everyone pitches in, and a little bit of hard yakka has gone a long way.

Three more schools are due to join the Remote Food Gardens Network in the new financial year. It's funded by the Northern Queensland Primary Health Network.

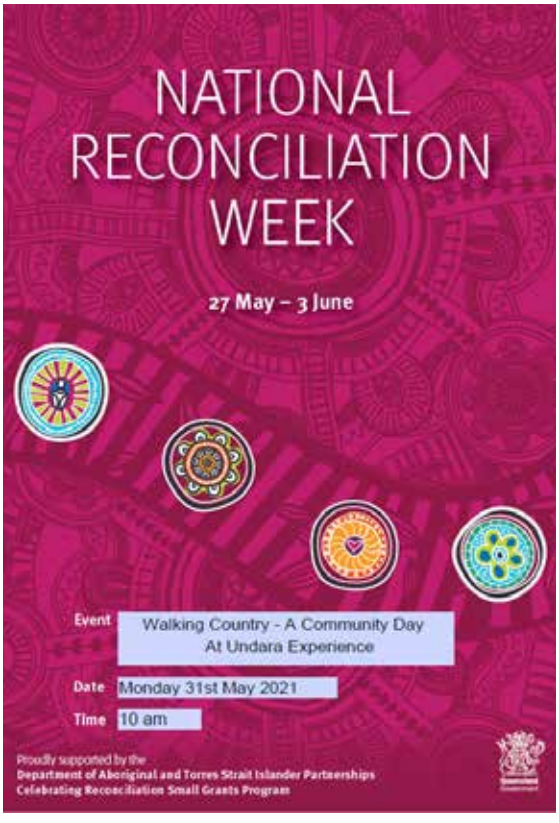
UNDARA TO HOST RECONCILIATION EVENT

Undara Experience is hosting a free Reconciliation Week event, with daytime activities for kids and evening yarns round the campfire.

Ewamian Rangers and Elder David Hudson will welcome you on country, ahead of a nature walk to see the fascinating local flora and fauna. There'll also be workshops on Indigenous arts and crafts for the kids and a tasty lunchtime sausage sizzle. Please RSVP for the daytime activities – call Vickie or Chelsea at our Mareeba office on 4092 1088.

In the evening, there will be fireside yarns from 6.30pm at the Undara campgrounds. No RSVP required. Just turn up and enjoy good company by the campfire. Join us at Undara Experience Monday May 31. Kids activities (parents/guardians welcome) from 10am - 2.30pm. Yarns by the fire from 6.30pm.

This event is facilitated by Northern Gulf Resource Management Group, in partnership with the Ewamian Corporation. It's proudly supported by the Department of Aboriginal and Torres Strait Islander Partnerships and the Celebrating Reconciliation Small Grants Program.



PROJECT UPDATES

TRADING WIRE FOR WI-FI

E-Beef Project

Northern Gulf graziers are some of the first in the world to try virtual fencing

Staff from the Northern Gulf Resource Management Group (NGRMG) and Queensland Department of Agriculture & Fisheries (QDAF) have teamed up with local graziers to trial eShepherd Virtual Fencing, produced by CSIRO in partnership with Agersens. As part of the project, a new trial has started in Georgetown, a small town 450km west of Cairns.

Gulf cattle wearing the solar powered GPS collar

Virtual fencing is an animal-friendly system that confines or moves livestock without fixed fences. It uses solar-powered cattle neckbands with coordinates, wireless technologies and sensors to control livestock. GPS tracking devices allow graziers to set virtual boundaries using a computer or tablet. When an animal approaches the border of a virtual paddock, the neckband gives an audio warning. If the animal continues towards the virtual fence, the neckband delivers a mild electric pulse. If the animal stops when it hears the audio cue, there's no pulse and the neckband continues to monitor the animal. Cattle learn to stop when they hear the audio warning and become trained to remain within the boundaries of the virtual paddocks. The trial is taking place on a mixed breeder operation, with 100 collars fitted to growing steers. They're being carefully monitored by project staff, the Agersens Team, and the participating graziers.

The trial will ask if virtual fences can:

- alert producers to animal health issues
- improve muster efficiency, reduce stress
- reduce fencing labour & materials
- increase total weight gains for cattle
- be reliable and easy to use

The E-Beef Project is an exciting opportunity for Northern Gulf graziers to look at new ways to improve productivity and profitability and maximise the benefits of collaboration and knowledge exchange between producers.

Contact John McLaughlin
Rangelands Project Officer
0411 294 331
john.mclaughlin@northerngulf.com.au

E-Beef
A Smart Farming Partnership

Read more about E-Beef
https://mynortherngulf.org/e-beef/

The E-Beef project is supported by a partnership comprising Southern Gulf NRM, Desert Channels Queensland, Northern Gulf RMG, and Queensland Department of Agriculture and Fisheries. Funding for the project is from the Australian Government's National Landcare Program and the Queensland Government Drought and Climate Adaptation Program

FORUM TAKES FRESH LOOK AT NORTHERN FARMING

The conversation about unlocking northern Australia's farming potential is decades, maybe centuries old. Studies by the CSIRO and others say it's possible to unlock significant agricultural production and economic growth in areas like Etheridge Shire, largely by identifying new irrigation opportunities.

The inaugural Gilbert River Agricultural Forum was held in Georgetown in early April, providing a fresh look at the region's agricultural potential. The event was a major success with over 60 people attending, including graziers and producers, politicians, researchers, industry investors and stakeholders. The forum explored the individual and collective economic benefits of agricultural diversification, specifically in grazing, horticulture and cropping in the Gilbert River catchment.

UQ's Daniel Rodriguez & Ken Young from GRDC with sorghum at NGRMG trial site, Strathmore Station

More than 20 speakers, including Senator Susan McDonald and Richmond mayor John Wharton, shared industry research and data, real-life farming success stories, and the political environment around potential development. University of Queensland researchers Joe Eyre and Daniel Rodriguez, talked about their De-risking Broadacre Cropping Options in Northern Australia project, a partnership with NGRMG. The project has two trial sites in Etheridge Shire, exploring the viability of sorghum crops in the region. Our own John McLaughlin spoke about the local presence and impact of the Fall armyworm, an incredibly damaging pest species that arrived in Australia just over a year ago.

There was a full-day field tour of local sites that are pioneering agriculture in the region, including crop trials at Prestwood Station – one of the sites for the NGRMG sorghum project. The tour also went to Tonks Camp to learn about the local production of table grapes, and to Forest Home, to hear about a variety of crop trials being conducted by the Queensland Department of Agriculture & Fisheries. The field visit finished on the Gilbert River at an experienced local operation that has been growing mangoes in the region for close to three decades.

The Gilbert River Agricultural Forum was a great opportunity to learn more about the region's agricultural potential, and to get up to speed on what is already happening in the Shire. It was also a great opportunity to network, socialise and brainstorm for the future. If you want more information about the event or about agriculture in the region,contact John McLaughlin 0411 294 331 john.mclaughlin@northerngulf.com.au

NORTHERN GULF JOINS DROUGHT RESILIENCE HUB

James Cook Uni to lead program

Northern Gulf Resource Management Group will be a partner in the Drought Resilience Adoption and Innovation Hub to be established at James Cook University.

Northern Gulf CEO Zoe Williams said the Hub is a great opportunity to build resilience and capacity to deal with a growing environmental problem.

"This will help unite graziers, farmers, agribusinesses, communities, scientists and researchers to help all of us better prepare for and recover from droughts," Ms Williams said.

Northern Gulf CEO Zoe Williams (on right) at the launch of the drought resilience Hub at JCU

James Cook University in Cairns has been selected to be the centre of the Tropical North Queensland Hub, one of eight drought resilience adoption and innovation hubs to receive $8 million funding from the Australian Government's Future Drought Fund and over $18 million co-funding from JCU's consortium partners. Hub director Dan Christie said it will work with local farmers, supply chain businesses, and First Nations custodians of the land to develop economic, social, and environmental resilience against the impact of drought.

"Our Hub will empower, support and enable local communities to build drought resilience. Our stakeholders will co-design solutions and shape the decisions we collectively make, informed by the practical on-ground application of research. Our climate is changing and it's expected we will have hotter and more frequent hot days along with increased rainfall variability. It is essential that we prepare for this change if these industries are to survive, thrive and expand," Mr Christie said.

The JCU Hub will serve the sugar, beef, dairy, vegetables, citrus and tropical fruit sectors. Federal Minister for Agriculture David Littleproud said it's one of eight Hubs established around the country through the Government's Future Drought Fund.

"This Hub brings together a wide range of partner organisations including Enterprise Management Group, Sensand Technologies, Landcare Australia, Northern Gulf Resource Management Group, NQ Dry Tropics, Reef Catchments (Mackay Whitsundays Isaac), Southern Gulf Natural Resource Management, Sugar Research Australia, Torres Cape Indigenous Council Alliance, and the University of Queensland.

"These partners will engage directly with farmers, industry, traditional owners and agribusinesses to co-design drought preparedness activities for the whole region," Minister Littleproud said.

The Hub will be based at James Cook University's Ideas Lab in Cairns, with four nodes located in the Gulf, Mackay, and the Whitsundays, Cape York and Burdekin.

SATELLITES ENLISTED IN FIGHT AGAINST INVASIVE GAMBA GRASS

Researchers from CSIRO, Charles Darwin University and University of Western Australia have teamed up to develop a way of using high resolution satellite imagery to detect invasive gamba grass across northern Australia.

Gamba grass is a native of Africa, introduced to Australia as a pasture grass in the 1930s. Gamba is now one of 32 on the Weeds of National Significance list. It can grow to four metres high, is highly productive, and displaces native grasses. It promotes destructive high intensity late season fires that reduce biodiversity, tree cover and carbon stores.

One big obstacle to gamba control has been the lack of a way to map its distribution at large scales. Researchers have looked to new solutions to locate infestations across the northern Australia landscape.

Picking out the gamba on a crowded landscape is like looking for a needle in a haystack. The solution is combining high resolution multispectral aerial imagery with machine learning. Computer models are 'trained' by human operators to detect gamba grass. The imagery captures multiple spectrums of light reflectance that can be used to define the unique signal of gamba grass.

Gamba grass stays greener longer into the season, so this approach relies on capturing the imagery at the right time of year. The model has a 90 per cent success rate, and it's hoped it becomes freely available for land managers to measure spread and manage gamba on their properties.

Lost in the weeds. Gamba grass can grow to 4 metres.

THREATENED SPECIES RECOVERY AT KOWANYAMA

News from Mitchell River Watershed Management Group

A Queensland Government Community Sustainability Action grant is enabling researchers, rangers, and community members to work together to support the recovery of the White-bellied Crimson Finch (picture left).

Field Ecologist Ray Pierce is leading the technical and survey work, focussed on mitigating threats to the bird's habitat and forage. "We see a lot of young cabbage palms and pandanus being destroyed by hot fires, made worse by weed encroachment and the impacts of feral pigs, horses, and cattle," Doctor Pierce said.

Senior ranger Anzac Frank has been doing regular surveys, seeing decent populations of the iconic species. Long-time champion Viv Sinammon has contributed invaluable rhizomes of the bird's preferred forage, native canegrass, which has become all but extinct around local lagoons. It is hoped that with improved fencing and fire management, combined with an on-country re-vegetation program led by cultural figures and youth, the "little red bird" has a bright future ahead.

SPOTLIGHT ON THREATENED SPECIES

Regional groups meet on conservation strategies

They say it takes a village to raise a child. It also takes a village to save our threatened species – that was the clear message from the recent North Queensland Threatened Species Symposium.

The event shared research on conservation successes and failures. Threatened Species Recovery Hub's Stephen Garnett told a crowd of 150 sustained conservation action had prevented many extinctions and taken species off the threatened list. There are currently 180 threatened species and four threatened ecological communities within an incredibly biodiverse North Queensland. They include cassowaries, gliders, the northern bettong, golden-shouldered parrot, sawfish, marine turtles, Mabi and littoral forests.

Conservation in focus at Threatened Species Symposium

KEYS TO SUCCESS

Professor Garnett drew on his 30 years experience in threatened species recovery to list seven ingredients of successful recovery efforts:

- strategic recovery plans with well-considered actions
- recovery teams have wide range of skills, include government and non-government representatives
- find champions who are in for the long haul, with succession planning
- legislation and policy. Take account of it and take advantage of reviews
- resources - look everywhere for government and non-government options
- research and monitoring to devise strategic, well-supported actions
- tell the story to build awareness and sustain interest

Professor Garnett was one of 45 speakers and workshop leaders at the two-day event, which brought together passionate advocates for threatened species from recovery and conservation groups, traditional owners, scientists, government representatives including Threatened Species Commissioner Sally Box, and natural resource management practitioners.

The symposium was the first event of its kind in this region, and was organised by the NQ NRM Alliance – Terrain, Northern Gulf and Cape York natural resource management organisations, in partnership with the National Environmental Science Program's Threatened Species Recovery Hub.

See videos from the North Queensland Threatened Species Symposium at https://www.youtube.com/c/TerrainNRM/videos

This NQ NRM Alliance and Threatened Species Recovery Hub event was supported through funding from the Australian Government's National Landcare Program and National Environmental Science Program. It was sponsored by The Nature Conservancy, South Endeavour Trust, Bush Heritage and the Wet Tropics Management Authority.

STUDENTS SHINE IN PADDOCK TO PLATE FILM FESTIVAL

Three videos celebrating agriculture in our region were screened at the Paddock To Plate Film Festival in Mareeba.

The videos were made by students from Mareeba High School and Dimbulah State School in a project facilitated by Northern Gulf Resource Management Group.

Three teams of students made videos documenting the journey of produce from local farms to far north Queensland consumers. One group covered eggs, the second reported from a barramundi farm, and the third told the story of lamb.

NGRMG Regional Agricultural Landcare Facilitator Dan Wingett mentored one of the groups.

"It's such an important story to tell, the story of where that produce comes from, the chicken in our sandwiches, the eggs we eat for breakfast.

The Gulf Youth To AG team after their videos premiered at the Paddock to Plate Film Festival in Mareeba

"It was great to see these ideas develop into three really good video documentaries. And it was great to see the kids develop, build relationships and flourish as video makers, telling the paddock to plate story," Dan said.

The videos will be shared with all schools in the Northern Gulf region, where they'll be a resource for children studying agriculture, economics and geography. NGRMG CEO Zoe Williams said they'll also be available on Youtube.

"We'd love to have these videos shared as widely as we can, because they're such a great resource, and they really do tell the story from the perspective of these talented young film makers.

The whole country needs farmers. It's great to showcase to our young people that there are really wonderful careers in agriculture. It was a real pleasure to see children and their families here tonight to watch the videos. I'm so proud of our Gulf Youth In Ag students - they did such a a fantastic job," Zoe said.

NGRMG supported the project by securing funding, bringing the students together with a mentor, arranging media skills training workshops and video editing services. The project received a grant from the Foundation for Rural and Regional Renewal via its ABC Heywire Youth Innovation Grants Program.

REGIONAL REPORT CARD

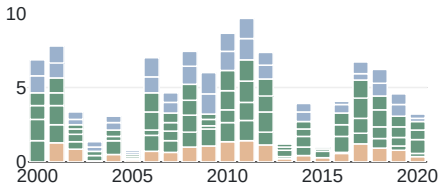
ANU Terrestrial Ecosystem Research Network 2020 study tracks Northern Gulf environment

One of 60 NRM Regions in Australia.

Summary Score

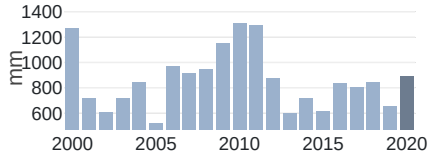
3.2

-1.4



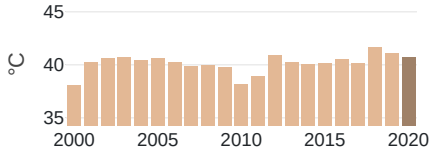
The overall environmental score (out of 10) was 3.2, down from 4.6 in 2019.

Rainfall



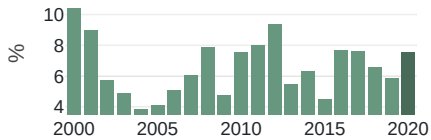
Rainfall was about average

Maximum temperature



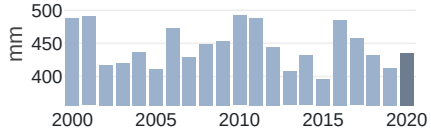
Maximum temperature was 2nd highest since 2000

Tree cover



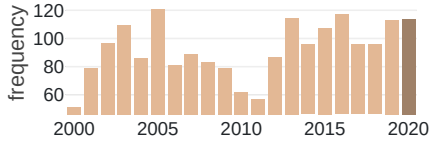
Woody vegetation cover was above average

Soil moisture



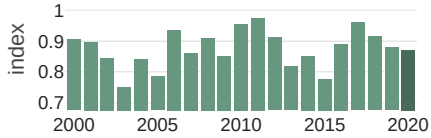
The mean amount of moisture in the soil was about average.

Hot days



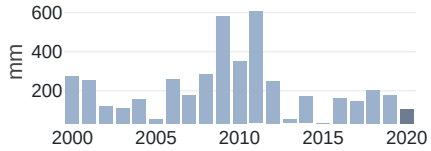
The number of days above 35 °C was 3rd highest since 2000

Vegetation condition



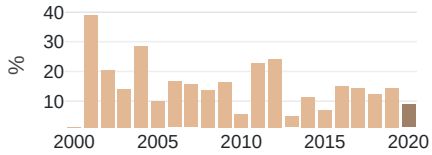
Leaf area index was about average

River flows



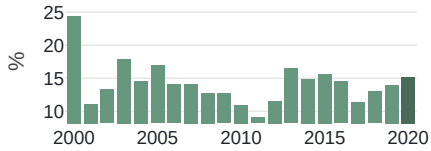
River flows were below average.

Bushfire extent



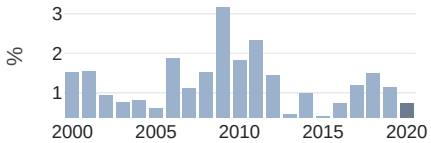
The area burnt was about average

Exposed soil



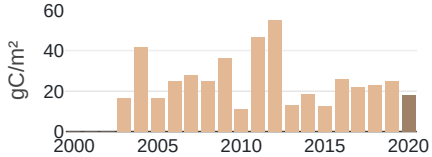
The area of unprotected soil was about average.

Inundation



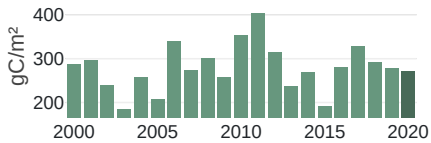
Inundation was below average.

Biomass burnt



Fire carbon emissions were about average.

Vegetation growth



Vegetation growth was about average.

Northern Gulf

NRM Regions

Area: 141,340 km²

Climate indicators
averages for 2000-2019
Precipitation: 864 mm per year
Days over 35°C: 92.1 per year
Days with frost: 0 per year

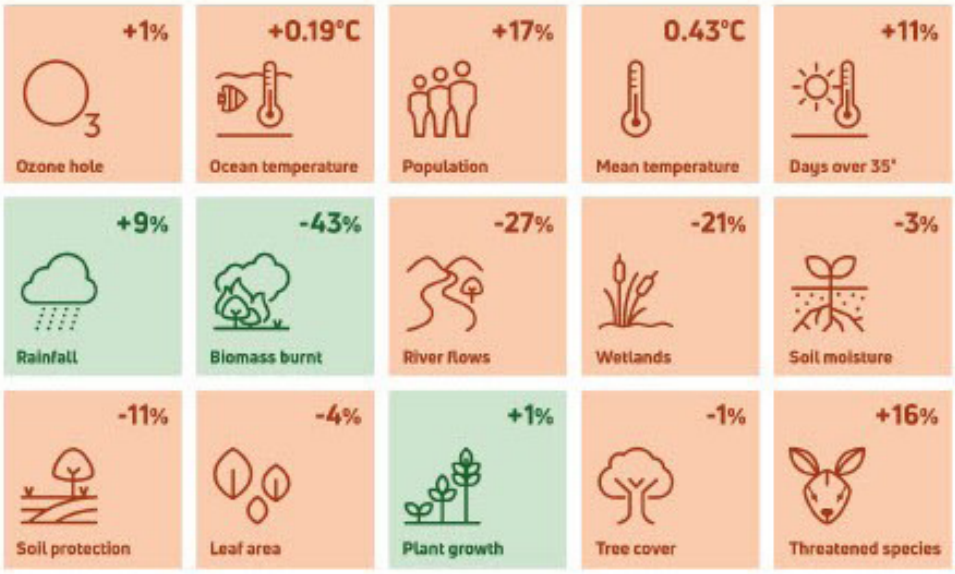
Land use: Grazing on native pasture (88%), Natural environments (8%)

Tree cover: 1.07 Mha or 7.6% (2019)

For more information about this region follow this link

National context

Deviation from 2000-2019 average



About This Report

The annual Australia's Environment Report summarises a large number of observations on the trajectory of our natural resources and ecosystems.

On the report website, you can find a national summary report, as well as report cards for different types of administrative and geographical regions. In the accompanying data explorer, the spatial data can be viewed as maps, accounts or charts by region and land use type, and downloaded for further use.

Acknowledgements: Australia's Environment is produced with support from TERN, an NCRIS-enabled National Research Infrastructure. Production is made possible by the National Computational Infrastructure (NCI) and data published by Bureau of Meteorology, CSIRO, Geoscience Australia, Australian Bureau of Statistics, Australian Government Departments, Terrestrial Ecosystem Research Network, Atlas of Living Australia, NASA, European Centre for Medium-range Weather Forecasts and others.

About The Data

Summary score: overall environmental condition expressed between 0 and 10 relative to previous years. It is calculated as the average of the ranking of component scores (from top to bottom in the bar graph): inundation and streamflow (blue), vegetation growth, leaf area, soil protection and tree cover (green) and the number of hot days (orange).

Indicators: measures of the condition of natural resources and ecosystems summarised from several spatial data sources. Land cover, inundation, fire occurrence, burn extent, exposed soil, and vegetation leaf area are derived by automated analysis of satellite imagery. The other indicators are estimated by integrating ground- and satellite data with environmental prediction models. For full details on the methods, follow this link.

National context: Selected environmental indicators as a relative change from average conditions since 2000. Such a change can be part of a long-term trend or be within normal variability. For historical context on each indicator follow this link.

About Us

The Centre for Water and Landscape Dynamics develops new methods to measure, monitor and forecast climate, water availability and landscape conditions. Our solutions often combine large amounts of data from satellites and sensor networks with field research, biophysical modelling and machine learning.

Our focus areas are extreme weather, bushfires, water resources, agriculture, forestry and our natural environment. Our activities span education and training, research, and developing practical solutions for decision-making. Among others, we develop innovative web-based platforms to help you find, explore and interpret environmental information derived from satellites and on-ground networks.

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For further information on the environment condition of this and other parts of Australia visit
9 www.ausenv.online

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ANU College of Science

Australia's Environment is produced by the Australian National University's Centre for Water and Landscape Dynamics with support from TERN, an NCRIS-enabled National Research Infrastructure.

YOUR PHOTOS SHOW THE BEAUTY OF OUR REGION

Thanks to everyone who entered our Northern Gulf wet season photo competition. Your beautiful pictures captured our region at a time when the beauty and power of this country is on full display.

There are brooding skies, beautiful sunrises, enchanting sunsets. We see rivers and creeks going full tilt, cattle in great condition, and country in its finest wet season green.

And your photos show Gulf Country people enjoying the season, and doing the work that doesn't stop because it's holiday time. You've helped us document life during the 2020/21 Northern Gulf wet season. We're very grateful to everyone who entered. See a gallery of images at https://mynortherngulf.org/photos-videos/

In the adult category, our staff and Directors were deadlocked, so we asked our Facebook friends to vote. Kiera Archer won with her photo of Minty the dog welcoming the wet. Tina Newman was a very close second with an epic storm cloud over Normanton. Another entry appears on the cover, a beautiful wet season view from the John Deere, taken by Natalie Jone. Congratulations to Nikki Bethel, who won the primary school category, and Annie Kidd at Tabletop Station, winner of the high school category with this wet season view from the verandah.

Kiera Archer

Annie Kidd

Kiera Archer

Tina Newman

Jack Kidd

INVASIVE SPECIES

PEST PLANTS AND ANIMALS LEAVE A FRIGHTENING $1.7 TRILLION BILL

By Corey Bradshaw, Boris Leroy, Christophe Diagne, Franck Courchamp and Camille Bernery in The Conversation

They're one of the most damaging environmental forces on Earth. They've colonised pretty much every place humans have set foot on the planet. Yet you might not even know they exist.

We're talking about alien species. Not little green extraterrestrials, but invasive plants and animals not native to an ecosystem and which become pests. They might be plants from South America, starfish from Africa, insects from Europe or birds from Asia.

These species can threaten the health of plants and animals, including humans. And they cause huge economic harm. Our research, recently published in the journal Nature, puts a figure on that damage. We found that globally, invasive species cost A$1.7 trillion in money lost or spent between 1970 and 2017.

The cost is increasing exponentially over time. And troublingly, most of the cost relates to the damage and losses invasive species cause. Meanwhile, far cheaper control and prevention measures are often ignored.

Drone being used on Greenhills Station to target rubber vine, a major threat to biodiversity in far north Queensland

Invasive species have been invading foreign territories for centuries. They hail from habitats as diverse as tropical forests, dry savannas, temperate lakes and cold oceans. They arrived because we brought them — as pets, ornamental plants or as stowaways on our holidays or via commercial trade. The problems they cause can be ecological, such as causing the extinction of native species, human health-related, such as causing allergies and spreading disease, and economic, such as reducing crop yields or destroying human-built infrastructure. In Australia, invasive species are one of our most serious environmental problems – and the biggest cause of extinctions.

Feral animals such as rabbits, goats, cattle, pigs and horses can degrade grazing areas and compact soil, damaging farm production. Feral rabbits take over the burrows of native animals, while feral cats and foxes hunt and kill native animals. Introduced insects, such as yellow crazy ants on Christmas Island, pose a serious threat to a native species. Across Australia, feral honeybees compete with native animals for nectar, pollen and habitat. Invasive fish compete with native species, disturb aquatic vegetation and introduce disease. Some, such as plague minnows, prey on the eggs and tadpoles of frogs and attack native fish. Environmental weeds and invasive fungi and parasites also cause major damage.

Of course, the problem is global – and examples abound. In Africa's Lake Victoria, the huge, carnivorous Nile perch — introduced to boost fisheries – has wiped out more than 200 of the 300 known species of cichlid fish — prized by aquarium enthusiasts the world over. And in the Florida Everglades, thousands of five metre-long Burmese pythons have gobbled up small, native mammals at alarming rates.

continued next page

Money talks

Despite the serious threat biological invasions pose, the problem receives little political, media or public attention. Our research sought to reframe the problem of invasive species in terms of economic cost. But this was not an easy task. The costs are diverse and not easily compared. Our analysis involved thousands of cost estimates, compiled and analysed over several years in our still-growing InvaCost database. Economists and ecologists helped fine-tune the data.

The results were staggering. We discovered invasive species have cost the world US$1.3 trillion (A$1.7 trillion) lost or spent between 1970 and 2017. The cost largely involves damages and losses; the cost of preventing or controlling the invasions were ten to 100 times lower.

Clearly, getting on top of control and prevention would have helped avoid the massive damage bill. Average costs have been increasing exponentially — trebling each decade since 1970. For 2017 alone, the estimated cost of invasive species was more than US$163 billion. That's more than 20 times higher than the combined budgets of the World Health Organisation and the United Nations in the same year. Perhaps more alarming, this massive cost is a conservative estimate and likely represents only the tip of the iceberg, for several reasons: we analysed only the most robust available data; had we included all published data, the cost figure would have been 33 times higher for the estimate in 2017. Some damage caused by invasive species cannot be measured in dollars, such as carbon uptake and the loss of ecosystem services such as pollination. Most of the impacts have not been properly estimated. Most countries have little to no relevant data.

Prevention is better than cure

National regulations for dealing with invasive species are patently insufficient. And because alien species do not respect borders, the problem also requires a global approach.

International cooperation must include financial assistance for developing countries where invasions are expected to increase substantially in the coming decades, and where regulations and management are most lacking.

Proactive measures to prevent invasion must become a priority. As the old saying goes, an ounce of prevention is better than a pound of cure. And this must happen early – if we miss the start of an invasion, control in many cases is impossible.

Northern Gulf on weed patrol. Managing invasive species requires a strategic approach and lots of resources

More and better research on the economic costs of biological invasions is essential. Our current knowledge is fragmented, hampering our understanding of patterns and trends, and our capacity to manage the problem efficiently. We hope quantifying the economic impacts of invasive species will mean political leaders start to take notice. Certainly, confirmation of a A$1.7 trillion bill should be enough to get the ball rolling.

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THE CONVERSATION

The Gulf Croaker

Northern Gulf Resource Management Group

Photo by Sally Fields

WHAT'S ON IN OUR REGION

WHEN	WHAT	WHERE
May 7 - 9	Northern Nats	Arriga
May 17	E-Beef online meeting	Online
May 26 - 28	Rotary FNQ Field Days	Mareeba
May 31	Reconciliation Day	National
June 4 - 6	Georgetown Campdraft	Georgetown
June 5 - 7	Gulf Fire Workshop	Mount Carbine
June 7	E-Beef Field Day	Croydon
June 14 - 19	Croydon Heritage Week & Dance	Croydon
June 25 - 27	Mount Surprise Campdraft	Mount Surprise
June 26 - 27	Poddy Dodgers Festival	Croydon
June 26 - July 2	Cairns To Karumba Bike Ride	Cairns - Karumba

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