NARvis: the regional natural resource management strategy for the Northern Agricultural Region

2021 - 2030

Houtman Abrolhos Islands National Park. Photo by Samantha Walton.

NARVIS

This project is supported by NACC NRM through funding from the Australian Government.

Water on Badimaya Barna. Artwork by Barbara Merritt.

Acknowledgement of Country

We respectfully acknowledge the Yamatji and Noongar people, who are the Traditional Owners and original natural resource managers of the Northern Agricultural Region, and pay our respect to all of the Aboriginal Elders and leaders in the region, past, present and emerging.

The Northern Agricultural Region (NAR) covers the traditional land of the Southern Yamatji (also spelled Yamaji) and Noongar (also spelled Nyoongah or Nyungar) Peoples, distinguished by their distinct language groups and cultural practices. At least two Noongar language groups are represented in the NAR, with the main one being Yued. A least six Yamatji language groups are represented in the NAR, including Amangu, Naaguja, Nhanhagardi, Mullewa Wadjiri, Widi and Wilunyu. In addition, the Nanda people are the Traditional Owners of the lands and waters north of the Hutt River and the Badimia people are the Traditional Owners of the lands on the eastern boundary of the region, in the Shires of Perenjori and Dalwallinu.

Lesueur National Park. Photo by Julia Skoglund.

Foreword

The natural resources of the Northern Agricultural Region are the product of the ancient, infertile and variable land and seascapes of the region.

Over eons, the plants, animals and fungi of the region have evolved, often together, to survive and prosper in these challenging environments. That evolution has produced a diversity as intense as the variability of the landscapes.

Over millennia, the Yamatji and Noongar peoples have developed skills, practices and knowledge to manage, modify and maintain these ecosystems to forge and sustain a unique lifestyle.

Over decades, the farmers, fishers and communities of the region have adapted European practices to accommodate the region's peculiarities to feed and clothe vastly more than the region's population.

None of these journeys is at an end; evolution, modification and adaptation are ongoing. Climate change is likely to present a major challenge in the region, causing a rapid acceleration of many threatening processes.

Planning for natural resource management in the region must be as dynamic as the processes occurring here. NARvis 2021 – 2030 maintains our focus on the landscapes and coastlines, the biodiversity, the agriculture and the communities of the NAR while applying what hundreds of generations have learned and what science reveals to guide our activities with the constant objective of sustaining the natural values of the region for many generations to come.

I invite you to join us on this odyssey, with NARvis 2021-30 as the next small step along the way.

Dr Rob Keogh, Chair NACC NRM

Northampton. Photo by Annie Gillis.

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Devlin Pool, Greenough River. Photo by Serena Schewtschenko.

Introduction

The Northern Agricultural Region (NAR) extends along the coast from around Two Rocks in the Shire of Gingin to around Kalbarri in the Shire of Northampton and inland to New Norcia, Dalwallinu and Perenjori. The region covers approximately 7.5 million hectares of farming and fishing grounds to the north and north east of Perth, the traditional land and coastal waters of the Yamaji and Noongar People. The region is located in the Southwest Australia Global Biodiversity Hotspot, notable for extremely high floristic diversity and high levels of threat to this biodiversity from human land uses. The NAR is home to around 64,000 people, two national biodiversity hotspots, over 200 conservation reserves and a host of unique and diverse plants and animals. There are 15 Local Government Authorities within the region, including the City of Greater Geraldton, and the main land use is broadacre farming for grain production.

There has been a regional natural resource management (NRM) strategy in place in the NAR since 2005. The strategy guides environmental investment in the region, identifying priorities for conserving and enhancing natural assets and advancing sustainable development. It is focused on responding effectively to climate change, conserving biodiversity, promoting sustainable production, developing community capacity in NRM and grounding NRM planning and action in local ecological knowledge, recognising the vital role of Traditional Owners and Traditional Ecological Knowledge. The strategy was produced in consultation with land users, technical experts, community environmental and agricultural groups and government officials active in the NAR. Targets, actions and assets identified by the community in and since 2005 have formed the basis of all subsequent versions of the region's NRM strategy.

The strategy was updated in 2015 to include a deeper consideration of the impacts of climate change in the region. It was at this time that the strategy was converted into its current online format, known as NARvis. This 2021-2030 version of the strategy represents the most recent update. It is based on extensive consultation with the NRM community in the NAR, via a series of workshops, technical meetings and online surveys. The strategy is focused on addressing emerging threats and opportunities for regional NRM as well as the changing needs and priorities of our diverse NRM community, including an emphasis on environmental custodianship by and with the Traditional Owners in our region.

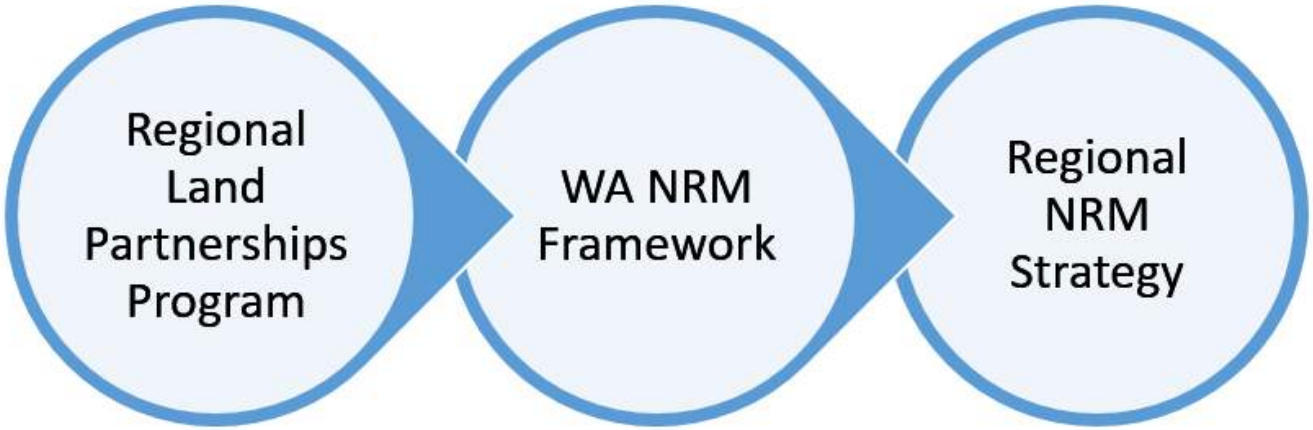
Farmer field days in Dalwallinu. Photos by NACC NRM.

Purpose

This strategy provides an integrated framework for natural resource management planning and action in the Northern Agricultural Region. It serves to identify our regional priorities and inform investment planning locally and by federal and state Landcare programs.

The strategy fits in with an established series of NRM plans ranging in scope from the national to state to local level. Regional NRM planning is one of the core functions of the 54 regional NRM organisations across Australia. This regional NRM strategy presents an opportunity to express regional priorities and demonstrate how these align with the goals and priorities of state and federal Landcare programs. It is also an opportunity to ensure that locally-important concerns and priority actions remain on the agenda, even when these are not a priority at the state or federal level.

Ensuring that local priorities are articulated in the regional NRM plan, and are based on comprehensive consultation with the NRM community in the region, provides a platform for advocating that state and federal funding agencies recognise and support local needs.



The Region

STATS & FACTS

Area: 7,576,117 hectares.

Population: 64,645 people.

Traditional Owners: Yamatji and Noongar Peoples, including Amangu, Badimia, Naaguja, Nanda, Nhanhagardi, Mullewa Wadjiri, Whadjuk, Widi, Wilunyu and Yued language groups; www.nntt.gov.au.

Main land uses: broadacre grain farming (primarily wheat), livestock grazing (primarily sheep), nature conservation (public and private reserves) and mining (iron ore, construction materials, minerals, gas).

Main industries: Agriculture (crops and livestock), aquaculture, fishing (Western Rock Lobster, demersal scalefish), mining, services (construction, education, health, retail, public adminstration) and tourism. The $11 billion a year agriculture sector accounts for more than a third of the region's economy and ~70% of land use.

Why our region matters

The Northern Agricultural Region is home to ~7,480 native plants and animals. It also contains three of Australia's 15 national biodiversity hotspots and five of the 89 recognised Interim Biogeographic Regionalisation for Australia (IBRA) regions. Around 80 fauna species and nearly 900 flora species are under threat in the region.

Approximately 21% of the land is conserved in a high-conservation-value network of protected areas including the Houtman-Abrolhos Islands National Park and Lesueur National Park. The coastline is over 550km long. The NAR is dominated by two major geological regions, the Perth Basin and the Yilgarn Craton, separated by the Darling Fault. Soils are mostly deep and sandy, inherently low in nutrients and acid in profile. The landscape supports an incredibly productive economy based mainly on agriculture. The main crop grown in the NAR is wheat.

Gutha, Shire of Morawa. Photo by Adele Killen.

Threatening Processes

Climate Change: The climate of the NAR has already been measurably altered by climate change. Impacts include increasing temperatures, a substantial reduction in autumn and winter rainfall, rising sea levels and warming oceans and an increase in fire risk and the length of the fire season.

Development: Human settlements, transport and services infrastructure and extractive industries such as fuel production, mining and fisheries put pressure on the natural environment and have the potential to cause harm through overuse, habitat destruction and pollution. These sectors are major industries and sources of employment in the region. All are highly regulated and closely managed to minimise impacts on the local environments.

Erosion: Seasonal wind erosion threatens most unprotected land in the NAR. Water erosion risk is low across the inland part of the region, but coastal erosion and inundation is increasingly a risk as sea levels rise with climate change. Coastal erosion can undermine infrastructure and houses and damage natural habitats.

Fire: Natural or induced bushfires can cause destruction of native vegetation and habitat. This may increase vulnerability to erosion, invasive species and diseases such as *Phytophthora cinnamomi* dieback.

Habitat Loss: Loss of good quality native vegetation is the biggest threat facing biodiversity in the region. Small and fragmented islands of native vegetation support fewer species and make it more difficult for animals to move from one area to the next for breeding and foraging.

Invasive Species: Introduced plant and animal species can spread rapidly and have a very damaging impact on people, agriculture and the natural environment. Feral animals and weeds displace native species, spread diseases and contribute to land degradation.

Soil Health: Dryland salinity is a significant issue causing land degradation in the NAR. It is most often caused by changes to the water balance after vegetation has been cleared. Other soil health concerns include declining fertility, compaction, soil acidity and water repellence.

Water quality: Water quality in the NAR is generally good, although estuaries can suffer from eutrophication, sedimentation and poor drainage. Some monitoring points reflect dropping ground water levels and increasing salinity.

Water on Badimaya Barna. Artwork by Barbara Merritt.

Vision

Sound natural resource management by a vibrant local community will support a healthy and well-functioning environment and a diversified regional economy

Traditional grinding stone, Northampton. Photo by Jacqueline Bradley.

Goals: Aboriginal Custodianship

Vision

We embrace the importance of Aboriginal cultural, heritage and traditional knowledge systems in every aspect of natural resource management, and respect all Traditional Custodians across the NAR.

Goal 1: All natural resource management projects in the region acknowledge and engage with Traditional Custodians and their representative bodies or corporations, by 2030.

Goal 2: At least 5 additional traditional knowledge projects, led by Traditional Custodians, designed and implemented by 2030.

Goal 3: 100 activities undertaken to manage and protect Aboriginal cultural and heritage sites in consultation with Traditional Custodians by 2030.

Goal 4: 10 Aboriginal-owned organisations and businesses supported to engage in natural resource management in the region by 2030.

Goal 5: 100 Aboriginal People employed in natural resource management in the region by 2030.

Maya, Shire of Perenjori. Photo by Peter Waterhouse.

Goals: Biodiversity Conservation

Vision

Terrestrial biodiversity and ecosystem integrity are valued, maintained, improved and restored at a landscape scale.

Goal 1: Conservation status of all terrestrial threatened and priority plants, animals and ecological communities is maintained or improved, and no extinctions occur, by 2030.

Goal 2: 30% of land area in each distinct ecological community managed, reserved and/or formally protected for biodiversity conservation by 2030.

Goal 3: An additional 5,000 ha of degraded private or public land restored to benefit biodiversity in the region by 2030.

Goal 4: 25 research or monitoring projects implemented to increase scientific knowledge and community awareness of the region's terrestrial biodiversity and improve conservation outcomes by 2030.

Goal 5: Most suitable ecological fire regimes identified and developed, and impacts on biodiversity monitored, in at least 5 distinct ecological communities by 2030.

Pindar, City of Greater Geraldton. Photo by Sam de Vries.

Goals: Climate Change

Vision

Communities are responding urgently and effectively to climate change, minimising the negative impacts of climate change on ecological, social and economic well-being.

Goal 1: Carbon emissions reduced by at least 50% by 2030, and on a clear trajectory towards net zero emissions by 2050.

Goal 2: 30 ecosystem-based climate change adaptation projects implemented by 2030.

Goal 3: 20 research or monitoring projects implemented to increase scientific knowledge and community awareness of the impacts of climate change on ecological function and sustainable production in the region by 2030.

Goal 4: Collaborative efforts result in the development and implementation of climate change adaptation and mitigation plans in all Local Government Areas in the region by 2030.

Goal 5: Collaborative efforts result in the development and implementation of climate change adaptation and mitigation plans in at least three sectors or industries in the region by 2030.

North Island, Houtman Abrolhos Islands National Park. Photo by Hamish Longbottom.

Goals: Coastal & Marine

Vision

Coastal and marine biodiversity, landforms and ecosystem integrity are valued, maintained, improved and restored across the whole system.

Goal 1: Conservation status of all coastal and marine threatened and priority plants, animals and ecological communities is maintained or improved, and no extinctions occur, by 2030.

Goal 2: All commercial and recreational fisheries in the region practice sustainable fishing, with commercial enterprises achieving and maintaining Marine Stewardship Council certification by 2030.

Goal 3: 25 research or monitoring projects implemented to increase scientific knowledge and community awareness of coastal and marine biodiversity conservation in the region by 2030.

Goal 4: Coastal Local Government Authorities have implemented all the recommendations identified in Coastal Hazard Risk Management and Adaptation Plans by 2030.

East Maya, Shire of Perenjori. Photo by Peter Waterhouse.

Goals: Community Capacity

Vision

The local community has the knowledge, ability and willingness to contribute effectively to natural resource management.

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Goal 1: 200 community events delivered to build natural resource management knowledge, ability and willingness in the local community by 2030.

Goal 2: 10 citizen science project partnerships contribute monitoring data to recognised local, state or federal datasets at least once per year by 2030.

Goal 3: Environmental education projects engage school children and the public in at least 30 towns across the region by 2030.

Goal 4: At least 20 community-based natural resource management groups remain viable through ongoing recruitment of volunteers or members by 2030.

Goal 5: 25 projects implemented to incorporate ecologically sustainable development into built environments around the region by 2030.



Verbesina enceloides Golden Crownbeard. Photo by NACC NRM. Red Fox at Coomallo Nature Reserve. Photo by John Birch. *Juncus acutus* Spiny Rush. Photo by NACC NRM.

Goals: Invasive Species

Vision

Invasive species, including plants, animals and diseases, are effectively managed both at a local and regional scale taking a nil-tenure approach.*

*An approach in which a range of control methods are applied across all tenures by all stakeholders at a 'landscape' level (rather than property level) in a cooperative and coordinated manner.

Goal 1: 20 research projects implemented to determine the level of risk and/or impacts associated with invasive and potentially invasive species in the region by 2030.

Goal 2: 50 stakeholder groups or individuals participate in coordinated surveillance of high priority established invasive species, contributing monitoring data to recognised local, state or federal datasets at least once per year by 2030.

Goal 3: 100 coordinated management actions (across multiple properties or involving multiple stakeholder groups) implemented to manage and reduce the impact of invasive and potentially invasive species in the region by 2030.

Moore River, Shire of Gingin. Photo by Nellie Gay.

Goals: Sustainable Agriculture

Vision

Agricultural production systems are diverse, adaptable, and proactively managed using responsible practices suited to the environment.

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Goal 1: 300 farmers or farm businesses across the region engaged in building skills and capacity in best practice land use and management on farms in the region by 2030.

Goal 2: 50 coordinated, multi-site projects implemented to deliver and support profitable best practice land use and management on farms in the region by 2030.

Goal 3: 10 research projects undertaken to investigate the potential for new techniques and technologies to advance best practice land use and management in the region by 2030.

Goal 4: Farmers across an additional ~50,000 ha per year change their on-farm activities to achieve a total of at least 500,000 more ha under best practice land use and management by 2030.

Goal 5: At least three new markets for sustainably farmed products developed by 2030, as an incentive for farmers in the region adopting best practice land use management.

Murchison River. Photo by Liam Starcevich.

Goals: Water

Vision

Water resources, rights and interests are highly valued and actively managed to support water-dependent communities and ecosystems

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Goal 1: All water allocation plans and distribution systems in the region account for the impacts of climate change by 2030.

Goal 2: All water resources are distributed equitably and sustainably between social, environmental and economic requirements by 2030.

Goal 3: 25 projects implemented to monitor, maintain or enhance water quality in the region by 2030.

Goal 4: 25 projects implemented to monitor, maintain or enhance ecosystem health and function in water-dependent ecosystems in the region by 2030.

Goal 5: Support at least three Traditional Custodians and their representative groups to secure and sustainably manage water rights and interests by 2030.

Our Shared Roles & Responsibilities

Stewardship of the natural resources in the Northern Agricultural Region is a shared responsibility between all levels of government, public and private organisations, community groups and individuals. A large number of legislative instruments govern or otherwise inform management of the region's biodiversity, coastal zone, human settlements, production landscapes and water resources. Natural resource management is also defined by the changing needs, interests and priorities of local Traditional Owners, farmers, political leaders, industry and community members, and requires coordinated action over large areas to achieve successful outcomes for biodiversity and people.

Infographic by Rachel Weaver, studio8T4.com.

Our Shared Roles & Responsibilities

Federal Government: The federal government provides essential scientific data, technical information and guidance for natural resource management planning and decision-making. Federal government defines national targets, priorities and guidelines and set national legislative and regulatory frameworks.

State Government: State government agencies deliver a broad range of services, administer legislation and manage a significant number of assets (natural and built) and public infrastructure. They provide regulatory and market frameworks, generate and distribute regionally appropriate information and deliver policies and regulations.

Local Government: Local governments are on the frontline of natural resource management planning and action. They inform state and federal governments about the needs of local communities, communicate directly with communities, and respond quickly to local circumstances. They manage large areas of land and are responsible for local planning processes including zoning and development.

Traditional Owners: As major landowners and managers and holders of significant local ecological knowledge, Aboriginal peoples have an important stake and significant role to play in natural resource management planning and action through independent Aboriginal corporations and other organisations, native title rights and processes and relevant government agencies.

Private Organisations: Many businesses and industries are dependent on land and other natural resources. They provide significant employment and economic development opportunities and are responsible for operating in a sustainable manner to minimise the impact of their activities on the region's natural resources.

NACC NRM: The Northern Agricultural Catchments Council (NACC NRM) is the regional natural resource management group in the NAR, working in partnership with all tiers of government, regional organisations, industry, landowners and environmental groups. NACC is the custodian of the regional NRM strategy, and is responsible for ensuring that the strategy is up-to-date and represents the needs and priorities of the local NRM community in the NAR.

Local NGOs and Producer Groups: The many local and regional conservation NGOs and agricultural producer groups active in the region work directly with local landowners, land managers and communities. These groups undertake a wide range of activities including raising environmental awareness, coordinating action on, for example, soil health or biosecurity, conducting monitoring activities and implementing species or site protection actions.

Community Groups: The community plays an important role in natural resource management planning and action in the NAR. Many people play an active role in management, monitoring and rehabilitation activities through their involvement in local Coastcare and Landcare groups or recreational user groups.

Individuals: The land and waters of the region provide an array of livelihood and recreational opportunities for the community. Ensuring that enjoyment of these resources contributes to conserving our soil, water and biodiversity resources and does not negatively impact on the environment is everyone's responsibility.

Leeman, Shire of Coorow. Photo by Dorothy Wynne.

Further information

Please visit www.narvis.com.au

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Port Dension, Shire of Irwin. Photo by Annie Gillis.