



MACKAY WHITSUNDAY ISAAC
NATIVE FORESTRY
SUSTAINABILITY GUIDE 2018



The Mackay Whitsunday Isaac Region Sustainable Forestry Guide provides relevant information and tools to assist producers in achieving sustainable management of their land, whilst maintaining or enhancing farm efficiency and productivity. It is designed to be a resource for finding information rather than a comprehensive manual on forestry management.

This guide has been written for landholders interested in diversifying into forestry in the Mackay Whitsunday Isaac region. It links to the Mackay Whitsunday ABCD Management Practice Framework for Forestry: 2018 Update (Reef Catchments 2017)

'A' Class or innovative practices from the ABCD Framework are identified throughout this document.

The Mackay Whitsunday region includes the catchments of the Pioneer, O'Connell and Proserpine River systems and covers an area of approximately 9,000 square kilometres. The climate is subtropical to tropical with a distinctive wet season. The average annual rainfall is 1,300 to 2,000 millimetres and over 50% of this falls in three months between January and March.

Forestry is a minor land use in the Mackay Whitsunday Isaac region, with sugarcane, grazing and natural areas being the most significant. However, this sector offers potential for value-adding. Reef Catchments is working with farmers to explore the possibility of using marginal land for forestry production purposes, to increase returns and deliver environmental benefits.

The Mackay Whitsunday Forestry Management Practices: ABCD Management Framework document has been designed to support the identification, validation, implementation and review of forestry practices that can improve both freshwater and marine water quality and ecosystem health as identified in the Mackay Whitsunday Isaac Water Quality Improvement Plan (WQIP) (Folkers et al. 2014).

The development of ABCD frameworks for a range of industries is pivotal to implementation, monitoring, measurement and continual improvement through the WQIP process. The ABCD frameworks are designed to highlight and facilitate communication about the different levels or standards of management practices (as opposed to resource condition) for different water quality parameters (i.e. sediment, nutrients and chemicals).

The classification provides a definition and scale of improvement from **Dated**, through **Conventional** and **Best Management Practice**, to future **Aspirational** cutting-edge practices. Over time, changes in knowledge, technology, costs and market conditions may validate **Aspirational** cutting-edge practices such that they eventually become **Best Management Practices**. If **Best Management Practices** are widely adopted and become the new industry standard, they may become **Conventional** practices, while **Conventional** practices may become dated.

Native Forestry is defined as; the sustainable management of an existing forest for the purpose of removing forest products without adversely affecting the health, structure and diversity of that forest.

A Aspirational

- New and innovative practices adopted by land managers that require further validation to determine industry wide environmental, social and economic costs/benefits.
- Validation requires R&D and if appropriate, some validated practices will become recommended BMP.
- Development of Farm Management Plans and utilisation of new and innovative technology.

B Best practices

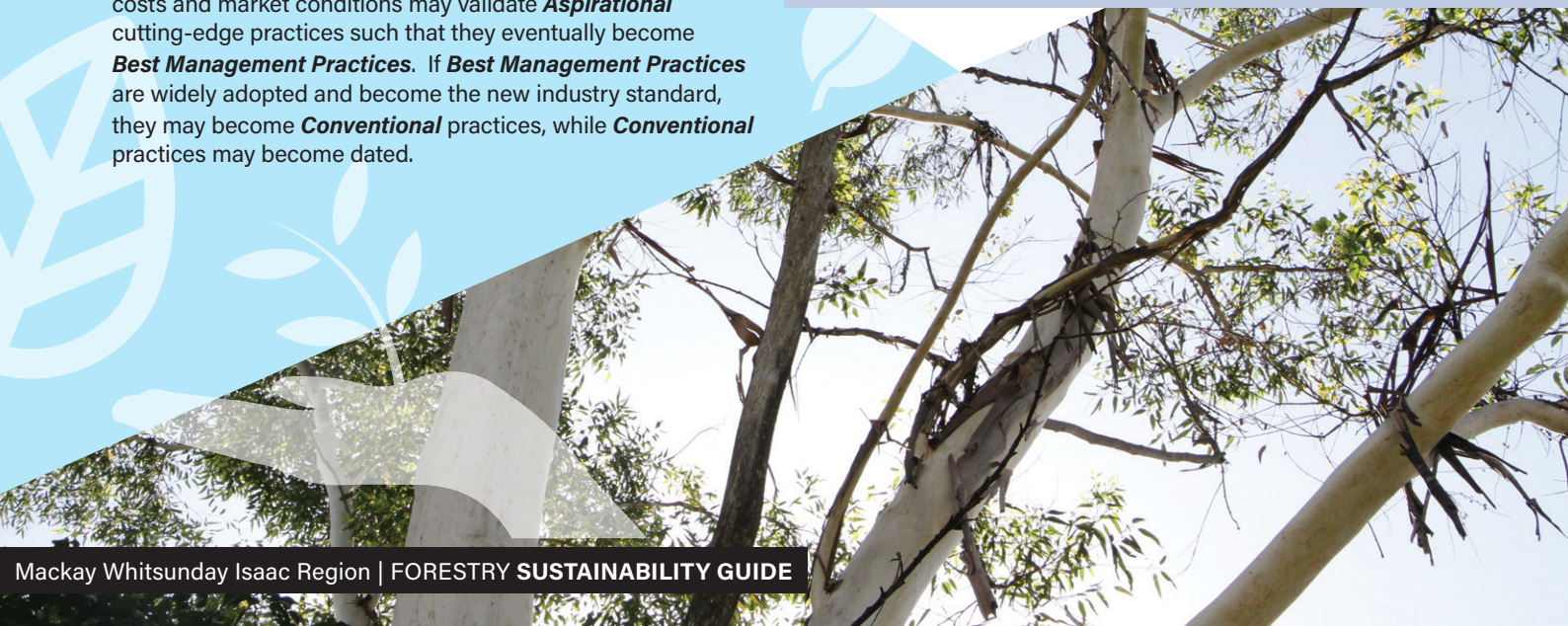
- Currently promoted practices referred to as **Best Management Practices**.
- Widely promoted by industry to achieve current and future industry expectations and community standards.
- Development of Farm Management Plans and utilisation of common technology.

C Conventional

- Common practices widely adopted by industry but meet only basic current industry expectations and community standards.

D Dated

- Practices superseded or unacceptable by current industry expectations and community standards.



PRINCIPLE	MANAGEMENT PRACTICE CATEGORY	D DATED	C CONVENTIONAL	B BEST PRACTICE	A ASPIRATIONAL
		Unacceptable and potentially degrading practices	Practices that meet minimum expectations	Current best management practice	Innovative practices that require further validation
1. Business Planning	Native forest managed for multiple use economic outcomes, including timber production, is more likely to be seen as an asset of value by landholders and therefore warrant an appropriate level of input that maintains commercial and environmental integrity.	No business plan, no defined markets for products and/ or consideration for secondary products, no agricultural or environmental services identified.	Basic plan (i.e immediate financial costs and legislative requirements as detailed in Local and State Government legislation and regulations (2)), no defined markets or estimate for secondary products.	A costed plan for silviculture, harvesting, infrastructure establishment and maintenance, fire management in place. Some consideration of products and markets and plan considers returns from secondary products but not environmental services.	Soil types and landforms mapped and assessed for site suitability. Forestry resource stratified into management units. Obtaining professional advice for sustainable yield management. Operations compliant with Local and State Government regulations & with Code of Practice (1). Costed plan for yield estimation, fire management. Identification of target products and markets & of timber and secondary returns and environmental services. Acquired grower certification, AFS, FSC (see definition of terms).
2. Site suitability/ selection	Integrated farm management planning is central to efficient farm management and optimum use of land in line with its inherent capability.	No consideration of site attributes or land capability for native forest practices, sustainability, or resources required. No evaluation of end products.	Minimal consideration of site attributes or species selection Capacity to operate compliant with Local and State Government regulations & with Code of Practice (1).	Soil types and landforms mapped and assessed for site suitability. Forestry resource stratified into management units. Obtaining professional advice for sustainable yield management. Operations compliant with Local and State Government regulations & Code of Practice (1).	As for Best Practice plus:- Active management for production and environmental integrity and services. Consideration of a changing climate, (more wind resistance/ heat tolerance, flood and drought etc.) in long term management objectives.
3. Property Planning	Property planning assists in the process of matching land-use to land capability, overall farm economic return, consideration of on-site and off-site environmental influences, and capacity to maintain an appropriate level of management and resource inputs.	No Property Plan, fire management infrastructure. Watercourses not identified and classified. No consideration of natural topography for siting of maintenance, access and harvesting/snigging tracks.	Aerial photography of property with basic site access based on ease/ existing tracks. Watercourse buffers identified on plan and marked in the field prior to silviculture and harvesting activities. Compliance with Native Forest COP (1).	Documented native forest management plan consistent with Native Forest COP, identifying soil types, slope classes, watercourses and stream order, buffers, management units, access tracks etc. Interaction with surface water considered in accordance with catchment management plans and WQIP.	As for Best Practice plus:- Influence on environmental values, biodiversity, habitat values & on socio-economic impacts of native forest operations considered (i.e. high scenic quality, biological sites, cultural sites) considered. Acquired certification (eg AFS, FSC).
4. Silviculture	Management of an existing forest to maximise growth of preferred species. Actions could include, improvements to soil nutrition and structure, thinning to remove undesirable species and to achieve sustainable stocking rates, pruning, pest and weed management and burning to promote desirable species and control weeds	Silviculture operations result in major erosion, loss of top soil, wash-aways and slips which silt waterways and degrade site productivity. May result in legal liability, (and cause conflict with downstream neighbours).	Silviculture regime planned and documented. Avoid operating on waterlogged soils & on slopes exceeding 25o, (approximately 45%). Allow no more than 5% of the area disturbed by roads, tracks, snig tracks or log dumps. Do not leave mineral earth exposed. Compliance with the Native Forest COP.	As for Conventional Practice plus:- Management defined by approved Regional Ecosystem. Habitat trees, nest and recruitment retained as per COP. Ground disturbance not greater than 50% of the surface in any 50m x 50m area. Plan for no gaps greater than 0.5ha. Even stocking distribution maintained. Observe all relevant buffer zones as per COP. Silviculture thinning undertaken to encourage growth of retained trees.	As for Best Practice plus:- Compliance with all aspects of the Native Forestry COP. Balancing nutrient cycling requirements with profit opportunities.
5. Site Access Tracks	Forest roads and access tracks must provide safe access for routine forest management and protection activities, and heavy equipment required for specific operations. Access track design standards and location should aim to minimise overall construction cost and be suitable for use in key operational activities (particularly harvesting) while maintaining environmental values.	Access tracks are a source of erosion and not managed. Non-compliance with the Native Forest COP.	Design of tracks with appropriate drainage structures and to minimise cut and fill disturbance to watercourses. Maintained and managed to minimise deterioration. Compliance with Native Forestry COP.	As for Conventional Practice plus:- Whoa boys, turn-outs, filter strips, buffer zones, and sediment retention basins installed to manage runoff. Spacing and type of track drainage structure constructed according to COP specified intervals. Runoff diverted onto undisturbed areas. Design of watercourse crossings according to stream size, flow, profile and to minimise barriers to fish and aquatic fauna. For unregulated streams, tracks should not cross unstable areas, involve excavation or filling, or be set on the level of the bed. Restrict access to tracks during periods of prolonged wet weather. Effective drainage maintained, and fully drained during temporary or final cessation of operations.	As for Best Practice plus:- Use imported stable disease free road base materials where required. Property plan map updated to show location and class of tracks eg. Boundary track, snig track haul road fire track etc.
6. Biodiversity and Ecosystem Management	Management of significant environmental values, including protected plants, regulated native vegetation, breeding sites of protected animals and koala habitat is required under legislation.	Clearing of regulated native vegetation & regulated breeding sites of habitat. Lack of buffer zones around watercourses and environmental sensitive areas. Disturbance in banks and bed of waterways.	Protection of land supporting protected plants, regulated native vegetation, or areas with significant environmental value. Protection of breeding sites of protected animals, koala habitat, or essential habitat. Buffers around water courses and areas of environmental significance.	As for Conventional Practice plus:- Management confined to approved Regional Ecosystems. Minimal disturbance to waterways and retention of Riparian zones. Minimal erosion potential by avoiding operations on steep slopes. Compliance with Native Forest COP.	As for Best Practice plus:- Active regeneration and expansion of riparian vegetation. Creating/maintaining biodiversity corridors between remnants including windbreaks and nature strips. Protected areas shown on Management Map. Acquired certification (eg AFS,FSC).
7. Weed and Pest Management	Minimisation of damaging agents (pests and diseases) in a native forest will maintain its productive potential and economic value. Some elements of weed management, such as noxious weed control, are required by legislation.	Lack of; disease and pest monitoring, stand hygiene management, weed maintenance or noxious weed control, and no compliance with ACDC herbicide use or APVMA chemical registration requirements.	Some type of weed and pest control in pace, minimise the use of chemicals.	Regular scheduled visual pest and disease monitoring. Hygienic thinning and or clearing to contain pest and disease outbreaks. Minimal use of chemicals to control pests and diseases. Maintenance of forest health and regrowth via silviculture, fire and grazing management to minimise weed incursion. Noxious declared weed control as required. Judicious use of registered herbicide to label specifications or off label permitted use. Up to date records of herbicide and pesticide use. Compliance with Native Forest COP.	As for Best Practice plus:- Uses of low pressure, (minimal drift) spray equipment. Collaboration with neighbours for pest, disease and weed management. Aquatic weed control. Property Pest management Plan up to date and working; (record of weed species, time and place and abundance), reviewed annually. Biological control of pests and diseases, facilitation of natural insectivores.
8. Stock Management	Managed appropriately, stock grazing in native forest areas offers a number of silviculture, economic and environmental benefits including control or weed growth, improved access, reduction of fuel loads and returns from cattle grazing.	No stock control resulting in soil compaction, erosion, bare soil, tree rubbing etc. No control of stock access to watercourses resulting in damaged stream beds and banks.	Stock not excluded from any areas spatially or temporally to allow natural regeneration. No active management of cattle rotation within forest resulting in selective grazing. No control or stock access to watercourses resulting in damage to stream beds and banks.	Stock periodically excluded from areas spatially or temporally to allow natural regeneration. Stock managed on a conventional range management basis. Exclusion of stock from sensitive riparian creek lines through fencing and off creek watering points.	Grazing managed on a controlled rotational basis to avoid selective browsing, maximise recovery time between rotations, maximise grass vigour and cover, and minimise damage to trees. Exclusion of stock from sensitive riparian creek lines through fencing and off creek watering points. Grazing plan in place and reviewed each year as per ABCD Grazing Best Practice.
9. Fire Management	Management to minimise the risk of uncontrolled wildfires in native forest will maintain productive potential and economic value. Some elements of fire management are stipulated by legislation.	Lack of fire management plan, fire breaks increasing risk of uncontrolled wildfires. Forest not partitioned by access tracks. Changes to forest structure by too often or too few fires. Loss of productivity if subjected to wildfires.	Compliant with local and state regulations including development of a Fire Management Plan. Forest area partitioned by access tracks. Fire breaks constructed and regularly maintained.	As for Conventional Practice plus:- Fire Management Plans consider site, species, aspect, seasonal conditions & includes local expert advice. Compliant with Native Forest COP.	As for Best Practice plus:- Fire Management Plan involves neighbours and local fire brigades. Controlled burns for ecosystem and biodiversity health. Acquired certification eg, AFS, FSC.
10. Harvesting	Harvesting operations necessarily remove vegetation cover, create disturbance to soil and require active use of access tracks. Harvesting operations can be planned and managed to minimise soil disturbance through planning	No harvest plan and inappropriate management practices, creating erosion, compaction, stem damage etc., No or very inappropriate silviculture practices.	Harvesting plan in accordance with the harvesting Code of Practice(2007) Appendix 3 and Native Forest COP. Harvesting plan includes:- timing, selection, access tracks, extraction routes, fuel storage, equipment, products, wet soil types, environmental hazards, weather areas, etc.	As for Conventional Practice plus:- Location of harvest boundaries marked in the field. Sufficient number of trees remain for forest to remain remnant or returning to remnant within 20 years. Harvest suspended during wet periods. Avoid felling trees against future crop trees, habitat trees, into buffer or watercourses. Trees not to be felled within buffer or filter strips. No tracks located on unstable features. Soil disturbance minimised and appropriately drained into undisturbed areas. No soil disturbance in buffer zones and filter strips. Log camps no larger than 50m x 50m. Post-harvest management plan developed including: progressive rehabilitation/replanting and coppicing.	As for Best Practice plus:- Mechanised low ground pressure harvesting equipment. Harvesting plan gives consideration to seasonal biodiversity requirements
11. Drainage Management	Management of natural drainage systems within native forest areas presents both the greatest opportunity and greatest risk for managing export of suspended sediments and nutrients.	No drainage management in place. Minimal understanding of hydrological impacts of disturbance to drainage system. No identification of unstable or sensitive riparian areas.	Minimal understanding of hydrological impacts of disturbance to drainage system. Limited identification of unstable or sensitive riparian areas. No control of stock access to watercourse resulting in damage to stream bed and banks.	Stream orders identified and mapped. Unstable or sensitive riparian areas identified and mapped. Activities and restrictions near watercourses clearly documented in Management Plan. Prescribed buffer zone marked and observed in field. Forestry operations excluded from buffer zone and restricted in filter zone. Ensure operations do not impact on or alter the natural hydrological regime or restrict aquatic fauna movement or impact aquatic habitat. Exclusion of stock from sensitive riparian zone and supply of off creek watering points. Compliant with Native Forest COP.	As for Best Practice plus:- Protected riparian areas enhanced and /or extended. Runoff water quality monitored and records maintained.
12. Ongoing Management and Review	Monitoring of managed native forest will assist in appropriate and timely management interventions that maintain health, condition, productive potential and infrastructure asset value. It will also inform key management decisions such as sustainable yield and harvest planning.	No management plans, records kept or regular monitoring in pace.	Minimal management plan in place. Records collected or maintained and compliant with relevant legislation (e.g. herbicide application). No routine inventory measurement, no post silviculture practice auditing or review.	Detailed Native Forest Management Plan incorporating monitoring schedule. Regular visual monitoring program for pests and disease, weed growth, health, feral animals, infrastructure etc., Routine inventory of timber production, yield estimate, and harvest planning. Records of harvesting and/ or silviculture thinning activity maintained. Records of all tree use, (Forest Products) maintained. Post silviculture practices auditing, review and updating of plans with continual improvements.	As for Best Practice plus:- Records of inventory maintained. Assessment of permanent yield plots. Use of remote sensing to assess forest health, (Normalised Difference Vegetation Index).

Acronyms

AFS - Australian Forestry Standard: a not-for-profit public company which owns and manages the Australian Forest Certification Scheme (AFCS)

FSC - The Forest Stewardship Council (FSC) is an international non-profit, multi-stakeholder organization established in 1993 to promote responsible management of the world's forests. The FSC does this by setting standards on forest products, along with certifying and labelling them as eco-friendly.

WQIP - Water Quality Improvement Plan 2014- 2021. (Folkers, A., Rohde, K., Delaney, K., Flett, I. Mackay Whitsunday Water Quality Improvement Plan 2014-2021. December 2014. 174pp.)

COP - Refers to the "Managing Native Forest Practice: A self-assessable vegetation clearing code" available from <https://publications.qld.gov.au/dataset/6e2e563c-fbd4-4f50-97af-f368bf1ef298/resource/a73f5b44-008c-4f92-8644-f92e6caf6592/download/managing-native-forest-practice-code.pdf>

ACDC- Agricultural Chemical Distribution and Control. An Act that regulates chemicals and the operators that use the chemicals.

APVMA- The Australian Pesticides and Veterinary Medicines Authority (APVMA) is the National Registration Authority for agricultural and veterinary chemicals. The APVMA operates the Australian system which evaluates, registers and regulates agricultural and veterinary chemicals.

RE Mapping- Regional ecosystems mapping showing past and existing forest and component characteristics. See <https://www.qld.gov.au/environment/plants-animals/plants/herbarium/mapping-ecosystems>

Definitions

Riparian area. The zone of vegetation adjacent to creeks and streams that has increased productivity due to its sheltered position in the landscape and the increased availability of water or moisture.

Regional Ecosystem. State classification of vegetation assemblages occurring together in the landscape.

Buffer zones. Areas surrounding environmental significant sites where no operations are to be carried out to protect the site.

Environmental Services. Ecosystem services are the many and varied benefits that humans freely gain from the natural environment and from properly-functioning ecosystems. Collectively, these benefits are integral to the provisioning of clean drinking water, the decomposition of wastes, and the natural pollination of crops and other plants that humans use..

Silviculture. Treatment of a forest to promote recruitment and growth of favourable species.

Whoa-boy. Diversion ridge and associated drain running across road to intercept water and divert it off the road.

Superscripts

(1) Refers to the "Managing Native Forest Practice: A self-assessable vegetation clearing code" available from <https://publications.qld.gov.au/dataset/6e2e563c-fbd4-4f50-97af-f368bf1ef298/resource/a73f5b44-008c-4f92-8644-f92e6caf6592/download/managing-native-forest-practice-code.pdf>

(2) Relevant Legislation for Forestry Operations:-

- Planning Act 2016 (Qld)
- Vegetation Management Act (1999)
- Nature Conservation Act (1992)
- Work Health and Safety Act (2011)
- Environmental Protection Act (1994)
- Biosecurity Act(Qld) 2014

And more relevant legislation see page 35 of the code (1)



For more information please go to:

Australian Forest Growers (AFG) www.afg.asn.au

Timber Queensland – Queensland’s peak timber industry body www.timberqueensland.com.au

Queensland Department of Agriculture and Fisheries www.daf.qld.gov.au

Institute of Foresters Australia www.forestry.org.au

Private Plantations Queensland www.pfsq.net

Reef Catchments has produced this framework with the help of Peter Alden from Whitsunday Catchment Landcare to identify progress of sustainable practices in forestry.

Thanks to the following members of the Forestry Working Group for being involved updating the information used in this guide:

Phil Trendell (Qld Department of Agriculture and Fisheries), Jim Dickens, Ray Greaves (Silviculturist), Carla Lambropoulos (Pioneer Catchment Landcare), Juliane Kasiske (Reef Catchments), Sophie Glasser (Reef Catchments), Dianne Williams (Forest Grower/Pioneer Catchment Landcare).

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