

National
Farmers
Federation

Ecological Knowledge System (EKS)

November 2024



The National Farmers' Federation (NFF) is the voice of Australian farmers.

The NFF was established in 1979 as the national peak body representing farmers and more broadly, agriculture across Australia. The NFF's membership comprises all of Australia's major agricultural commodities across the breadth and the length of the supply chain.

Operating under a federated structure, individual farmers join their respective state farm organisation and/or national commodity council. These organisations form the NFF.

The NFF represents Australian agriculture on national and foreign policy issues including workplace relations, trade, and natural resource management. Our members complement this work through the delivery of direct 'grass roots' member services as well as state-based policy and commodity-specific interests.

NFF Member Organisations



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04 November 2024

Nature Repair Market Team
Department of Climate Change, Energy, the Environment, and Water
King Edward Terrace
Parkes ACT 2600

Via email: naturerepairmarket@dcceew.gov.au

RE: Ecological Knowledge System (EKS)

Overview

Dear Sir / Madam,

The National Farmers' Federation (NFF) welcomes the opportunity to provide feedback on the high-level technical summary of the Ecological Knowledge System (EKS) developed by the Department in partnership with CSIRO to support the Nature Repair Market.

The EKS is a partnership between the CSIRO and Australian Government to establish a transparent and authoritative source of information and biodiversity assessment capability for the Nature Repair Market. **The EKS will be comprised of three components (ecosystem models, National Biodiversity Assessment System, and First Nations knowledge, values, and data – Figure 1) and is designed to help market participants access the locally relevant ecological information needed to plan Nature Repair projects that deliver genuine biodiversity benefits.** It will also help participants design projects, assess potential biodiversity benefits, provide a mechanism for investors to compare the benefits of different projects, and inform future development of methodologies and Biodiversity Assessment Instruments. The development of an EKS will provide market participants with information regarding:

- *Biodiversity status of a proposed project area (e.g., ecosystem type and condition).*
- *Management actions needed to enhance biodiversity.*
- *Expected biodiversity benefits from implementing those management actions.*
- *Likelihood of these biodiversity benefits being achieved over specific timeframes.*

The NFF supports the development of a transparent information source and biodiversity assessment capability for the Nature Repair Market that is aligned to support a range of market methodologies. It is essential that the Nature Repair Committee maintain a priority focus on undertaking work to deliver EKS coverage across all of Australia. This will ensure that the web-based Platform for Land and Nature Repair (PLANR) management tool is available for use for all landholders including interested proponents for methodologies where use of the EKS to forecast expected project biodiversity benefits is mandated (i.e., the proposed Replanting Native Forest and Woodland Ecosystems methodology). Further, significant time and attention should be dedicated to ensuring the EKS is continuously refined with the support and input of regional expertise. These measures executed together support best-practice implementation and market operation.

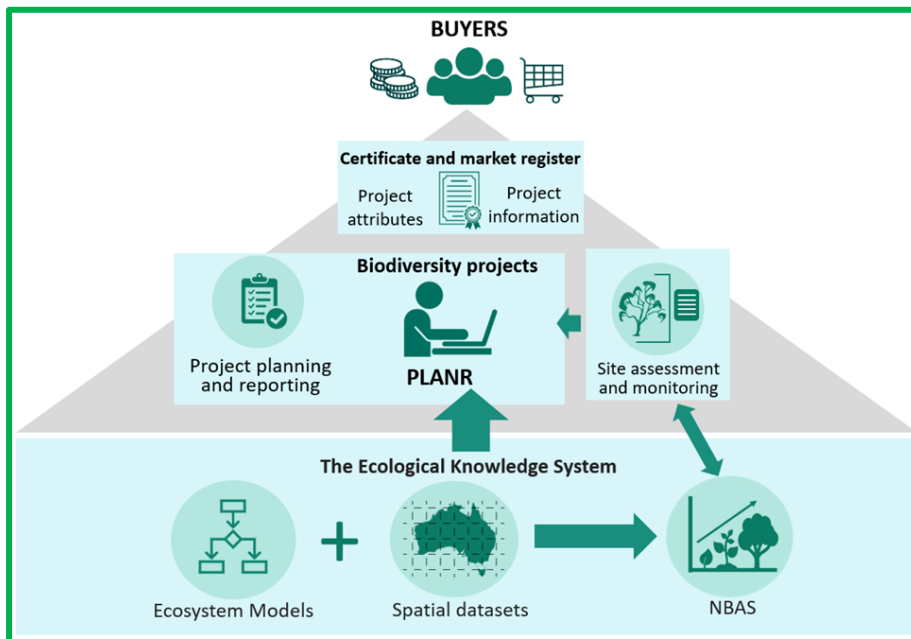


Figure 1: How information is expected to flow from the EKS through the PLANR platform to project proponents, and then through the Clean Energy Regulator to the register, certificate, and buyers.

Platform for Land and Nature Repair (PLANR)

It is intended that the PLANR platform will be made available for priority ecosystems in eligible regions under the first Nature Repair Market methodology upon official commencement of the market. The tool will serve as a gateway process for landholders to access biodiversity and carbon service markets, connect with willing market participants, and effectively plan, apply, and cost biodiversity projects. This will assist project proponents to produce paddock-level insights on current biodiversity assets and forecast biodiversity benefits from potential projects, outcomes that the NFF strongly support. Upon market opening, PLANR will provide the web interface for the National Biodiversity Assessment System (NBAS) and provide access to the ecosystem models and other data developed through the EKS.

The NFF have identified several serious flaws in the web-based PLANR management tool which impede functionality and usability for landholders. These issues demand urgent attention and must be resolved prior to market commencement to ensure there are no impediments toward participation. This is a critical matter as several methodologies will explicitly require use of the EKS and by extension the PLANR platform to forecast expected benefits of a project for biodiversity (e.g., the proposed Replanting Native Forest and Woodland Ecosystems methodology).

Key Flaws, Limitations, and Areas for Further Refinement

The PLANR platform must at the minimum be accompanied with an easily accessible, strongly maintained, and continuously resourced human service capability that supports and resolves user enquiries and issues. Similar platforms designed to support equivalent outcomes such as the New South Wales Biodiversity Conservation Trust do not have staff available to provide direct communication with landholders to provide user support.

Contact is primarily conducted either through email communication or an automatic chat box, outcomes that are significantly limited and unsatisfactory. The PLANR platform must learn from the limitations of comparable services to ensure the Nature Repair Market is operating in an accessible, user-friendly manner that enshrines user confidence. Landholder participation is essential to ensuring the success of the market and any effort to support this must be undertaken.

NFF have identified the following issues and limitations that need to be resolved:

- *Ability to input cost of land does not function correctly in some instances.*
- *No ability to describe native pasture.*
- *No ability to select an option that pasture is not renewed.*
- *Further refinement and clarity to explain figures for tree cover VS ground cover. For example, in one instance, tree cover indicated 20% forest while ground cover displayed at 0%. This is imperative as target levels for native vegetation cover will be set in the NBAS to determine biodiversity outcomes required.*
- *Greater functionality and customisation required for the carbon sequestration section.*
- *Significant improvement to the scope and detail of the project planning section (information that must be submitted under a Project Plan for at least the first proposed methodology). For example, requirements to include significant work such as fencing and firebreaks.*

Aligning Outcomes with Formal Market Commencement

NFF stresses that formal commencement of the market should be aligned with the proper development and stress-testing of the PLANR platform and be complemented with a suite of methodologies ready on day one to ensure the market is operating in an accessible, robust manner that enshrines participant confidence. The Nature Repair Committee must not hesitate to delay this process to ensure a seamless launch.

EKS Governance Framework

The NFF is supportive of the development of a EKS Governance Framework that outlines clear principles and policies to guide the implementation of the EKS including ongoing improvements (through feedback). There is no specific consultation document on what this may look like, NFF await further information.

It is intended that the Governance Framework be founded on the following high-level core principles, the NFF do not object to either element:

- *Transparency.*
- *Integrity.*
- *Reliability.*
- *Consistency.*
- *Sustainability.*

The manner whereby EKS core principles are incorporated into the procedures specific to the NBAS and State and Transition Models (STMs) are outlined below in Figure 2. NFF are

supportive of the limited information and examples provided and we await a more comprehensive and targeted discussion.

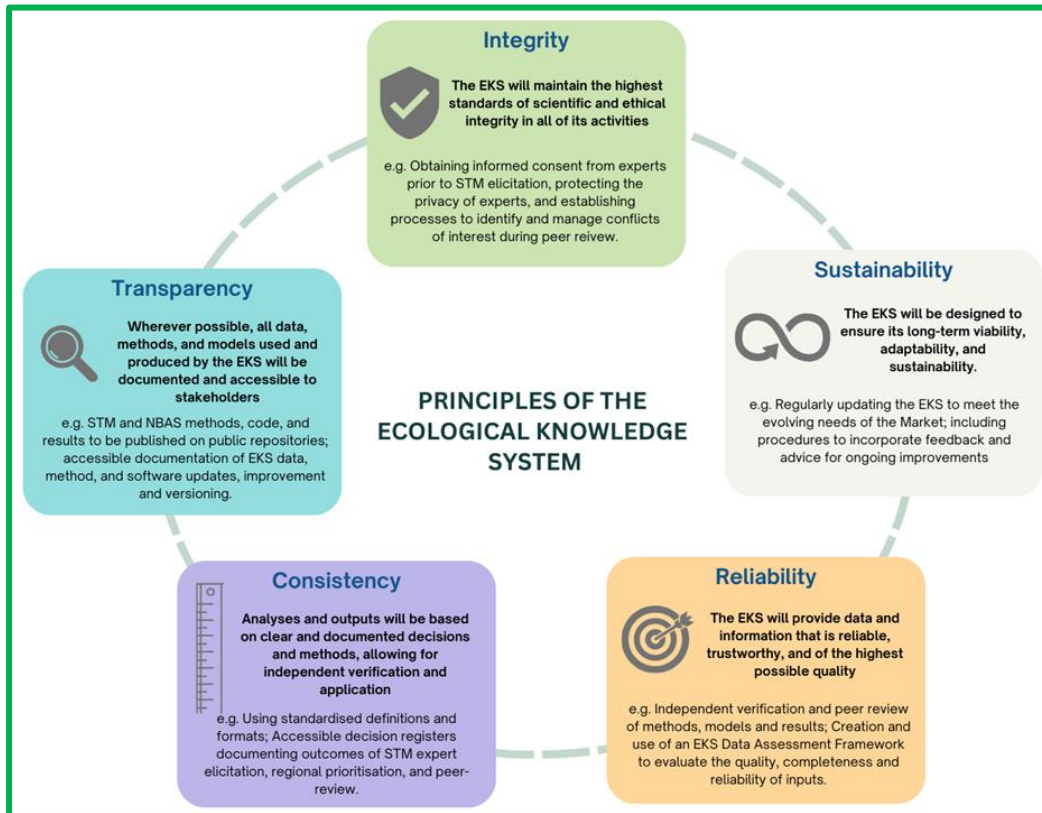


Figure 2: Definitions of the proposed core principles of the EKS and examples of how they are incorporated.

First Nations Knowledge, Values, and Data

Development of a First Nations Framework

NFF understands that there exists ongoing work to explore how First Nations knowledge, values, and data could interact appropriately with the EKS. A process is currently underway for the co-design of a Framework to guide this interaction. **This disappointingly does not seem to recognise the role of farmers, often multigenerational, in understanding and sustainably managing landscapes for which they have stewardship over, this represents 55% of the Australian landscape.**

NFF seek clarification on the necessity for the Governance Framework to be aligned with a First Nations Framework exclusive or in isolation to guide the interaction of Indigenous knowledge and values with the EKS, particularly as the latter has not yet been developed or shared for initial scoping and framing with public or industry. It is understood that the potential development of a First Nations Framework will be limited in the sense that it will be guided solely by an Indigenous Advisory Group operating under a delivery timeframe of circa mid-2025. It can be presumed such a Framework will be developed to address the relevant provision in the *Nature Repair Act 2023* requiring biodiversity integrity standards to be consistent with relevant Indigenous knowledge and values. **If this is the case, NFF seeks advice on the necessity for a First Nations Framework that might operate in conflict with**

an agriculture framework. The legislation does not seem to require such a process. It can be easily achieved by applying existing best-practice principles with respect to the provision and disclosure of such knowledge (i.e., data protection, privacy, confidentiality) not withstanding existing mechanisms whereby such knowledge is already being provided. That is, the framework should focus on what is the best outcome using all available sources of information.

It is therefore concerning to see that funding and resourcing have been committed toward establishing an Advisory Group to lead the development process of this proposed Framework, resources that would be better served toward developing additional Nature Repair methodologies including for invertebrate pests and stress-testing and improving coverage of the PLANR interface – priority actions and success factors that support market operation that both lack sufficient resourcing. **The NFF seeks further information on what funding and resources have been allocated to this process as well as how the entire agriculture sector will be incorporated in those discussions.**

Nevertheless, it is imperative that the development of a First Nations Framework, should it occur, is inclusive and guided by an extensive co-design process representative of both Indigenous and non-Indigenous stakeholders. **All stakeholder groups must be provided equal opportunity to engage. We reiterate the importance of there being a balanced approach.**

State and Transition Models

As described, STMs are used in the EKS to synthesise knowledge of the dynamics, management, and restoration of ecosystems. STMs are conceptual tools that describe the state of a particular ecosystem and the drivers or agents that cause transitions between states.

NFF understands STM coverage will be classified into three models of varying resolution. These include Regional Models (developed through the EKS regional expert elicitation process), Nationally-Resolved Models (developed with input by experts in multiple regions and adapted where required), and a Generic Model category for where ecosystem STMs are not available.

At market commencement, STMs will be available for priority ecosystem types in regions likely to be eligible under the first method. Provided that the proposed methodology for Replanting Native Forest and Woodland Ecosystems is successful and implemented, regional STMs will need to be provided in eligible project areas on day one as outlined by the Department in the graphic below. Current STM coverage lacks Regional Models in eligible project areas for the majority of NSW, areas of Victoria, and all Western Australia. Further work needs to be undertaken and alongside effort to engage regional knowledge holders to ensure the EKS is providing tailored, regionally specific information to support initial project administration and establishment. Provided that the EKS is expected to play a major role in the rollout of certain methodologies, it is imperative that STM data is accurate and can be challenged. On-ground assessment and verification of the ecosystem state, ecosystem condition, and other parameters need to be routinely conducted across all model types, with particular focus on Nationally-Resolved and Generic STM models as these are not regionally specific and significantly more prone to error due to their reliance on broad assumptions.



Figure 3: Eligible regions for the proposed methodology for Replanting Native Forest and Woodland Ecosystems as provided in the corresponding public consultation paper by the Department.

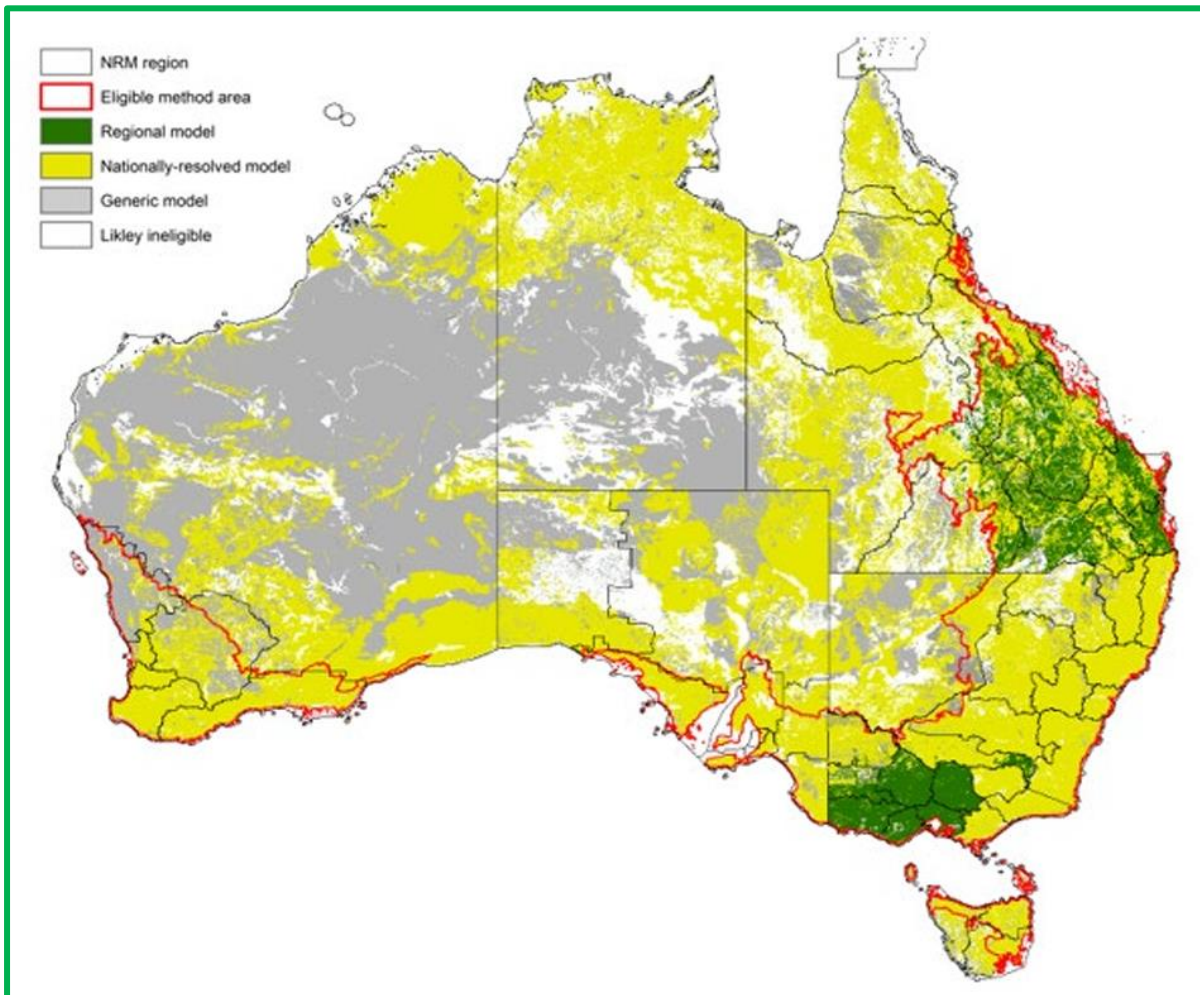


Figure 4: Proposed STM model coverage in Australian ecosystems.

NFF notes that the colour-coded legend for NRM Region and likely Ineligible regions are recorded in the same colour. This is a problem that causes unnecessary confusion and needs to be resolved.

Classifying Ecosystem States

The Australian Ecosystem Models Framework currently under development by DCCEE in collaboration with the CSIRO is a nationally consistent framework to describe landscape change and detect transitions that alter ecosystem integrity useful for decision-making. NFF supports the concept that the Framework is a useful tool in which management-focused STMs can be developed to forecast changes in ecological integrity and biodiversity persistence in landscapes under different management interventions for participating market proponents.

The Framework recognises 14 umbrella ecosystem types that reflect the 32 Major Vegetation Groups of the National Vegetation Information System and describes the Reference Ecosystem dynamics of each umbrella group. Dynamics include soil type, climate, topography, and disturbance regime. Within each umbrella group, two types of conceptual models can be accommodated: Archetype Ecosystem Models and STMs. STMs describe known, assumed, or predicted changes in the state of an ecosystem resulting from post-industrialisation disturbances. These are built on generalised sets of modified ecosystem states and drivers and then applied at a regional or national scale (i.e., Regional and National STMs). From this perspective, STMs are an effective mechanism as they ensure they produce proportional, regionally specific impacts to disturbances. It is important to note however that STMs will never reflect the true local context of a particular project as they are geographically confined, and their use-case is limited to the best-available option (notwithstanding there may be a complete lack of STMs for a given ecosystem due to either: it not being developed, not undergone EKS regional expert elicitation, or is not regionally specific at all – which is certainly the case for the proposed Replanting Native Forest and Woodland methodology [see above Figure 4]).

NFF recognises the need to ensure STMs are climate-adjusted to reflect changing ecosystem states. It is important to recognise that climate change will result in opportunities and disadvantages for ecosystem types, and that transitional models will always be embedded with uncertainty as they forecast outcomes using assumptions and probabilities. These realities need to be factored into the process, and in the spirit of transparency, assumptions used to underpin STM models should be fully disclosed, published, and opportunities provided within the expert elicitation process to challenge and review decision-making.

Ecosystem Score

The Habitat Condition Assessment System (HCAS) will be used in STMs to link ecosystem states to condition scores via the VAST Narrative Framework. It is understood that HCAS reference sites are identified using multiple lines of evidence including expert knowledge using the Habitat Condition Assessment Tool and land-use mapping. It is critical that land-use mapping is subject to routine on-ground verification to ensure outputs are correct. There are recurring errors in many national datasets delineating property boundaries and land-use particularly for the agriculture sector. This erodes confidence in the process and there must be a transparent, accessible mechanism for landholders to seek a review. The

burden of proof needs to rest with the developer of the tool rather than the landholder to demonstrate accuracy.

Expert Knowledge

Australian landholders and farming families have, and continue to remain, excellent environmental stewards of the terrestrial landscape. As a sector, agriculture accounts for over 55% of Australian land-use (excluding timber production)¹. Farmers have a vested interest in supporting the sustainable management of Australia's natural landscape as these practices contribute toward, and safeguard, their livelihoods, economic subsistence, and long-term business viability for successive generations. It is important to recognise that the sustainable and localised management of Australia's landscape by successive generations of farming families has resulted in an expert understanding and knowledge of nature, and the broader Australian landscape. **Expert knowledge held by farmers must not be discounted in the development of this methodology or broader market implementation.**

Expert Elicitation STM Process

Expert elicitation is used to build sets of consistent and structured estimates or hypotheses about how ecosystems will respond to drivers or management interventions from different starting ecosystem states. NFF understands that the full STM Expert Method will be published prior to market opening, a transparency measure that is strongly supported. **Individuals with experience in landholder management and agriculture must be included and recognised as experts and significant knowledge holders and be treated as a significant party to the STM building process.**

National Biodiversity Assessment System

The NBAS integrates information from the ecosystem models (i.e., STMs), local project data, and national scale mapping to forecast expected biodiversity benefits at the local and the whole-of-system level. Whole-of system level benefits include contribution to landscape connectivity, restoration of highly cleared vegetation types, and overall persistence of biodiversity. It is critical that spatial and ecological data utilised to predict how proposed management actions will impact biodiversity is accurate and of high-quality. As previously raised, national scale mapping is often prone to inconsistencies that require on-ground verification to resolve and STMs will never reflect the true local context of a particular project as they are geographically confined, and their use-case is limited to the best-available option. There are also questions regarding the accuracy of NVIS pre-1750 vegetation mapping.

The NBAS will be accessed through the PLANR interface and will provide a nationally consistent approach to forecasting the expected biodiversity benefits and changes in biodiversity persistence of a given project. As addressed in the above sections, NFF have

¹ Australian Government, Department of Agriculture, Fisheries, and Forestry: [Snapshot of Australian Agriculture 2024](#)

identified several flaws and limitations with the PLANR platform that require immediate addressment and rectification before market commencement.

The Summary Report document mentions that biodiversity persistence will be assessed as a function of the change in ecosystem condition expected at project level, the contribution of the project to enhancing connectivity across the broader landscape, and the conservation significance of the ecosystem type. NFF seek clarification on how this will be undertaken and whether any weighting will be applied to either of the categories to assess a project's contribution to ecosystem condition and biodiversity persistence. We cannot provide any commentary on how the NBAS will operate as there is simply not enough information provided to describe in-depth and in a clear manner how this assessment will be conducted. This is a novel and technically complex process. We therefore seek opportunity to engage with the Department and broader Team to discuss this further to develop our understanding.

Definitions

The definition for biodiversity health is appropriate and supported including the threshold measure that the elements making up biodiversity (e.g., species) will continue to exist “*without significant loss or decline*”, both now and into the foreseeable future.

Conclusion

The NFF thanks the Nature Repair Market Team for the opportunity to provide an initial submission on this emerging subject. We look forward to further engagement with the Department, including further consultations on how to align the EKS with additional methodologies and data sources as they become available.

Yours sincerely,



TONY MAHAR

Chief Executive Officer



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