conservation

Perspective

Other Effective Area-Based Conservation Measures (OECMs) in Australia: Key Considerations for Assessment and Implementation

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Abstract: Other effective area-based conservation measures (OECMs) have been a feature of global biodiversity targets since 2010 (Aichi Targets, Kunming-Montreal Global Biodiversity Framework), although the concept has only relatively recently been formally defined. Although uptake has been limited to date, there is much interest in identifying OECMs to contribute to the target of protecting at least 30% of terrestrial, freshwater and ocean areas by 2030, in conjunction with protected areas. Australia has a long history of protected area development across public, private and Indigenous lands, but consideration of OECMs in policy has recently begun in that country. We review principles proposed by the Australian Government for OECMs in Australia and highlight where these deviate from global guidance or established Australian area-based policy. We examined various land use categories and conservation mechanisms to determine the likelihood of these categories/mechanisms meeting the OECM definition, with a particular focus on longevity of the mechanism to sustain biodiversity. We identified that the number of categories/mechanisms that would meet the OECM definition is relatively small. A number of potentially perverse outcomes in classifying an area as an OECM are highlighted in order to guide proactive policy and program design to prevent such outcomes occurring.

Keywords: OECM; other effective area-based conservation measures; protected areas; Kunming-Montreal Global Biodiversity Framework; Convention on Biological Diversity; 30 × 30 protection target; private land conservation; offsets; public land; long-term biodiversity outcomes

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1. Introduction

Protected areas have long been a cornerstone of national and international conservation efforts and the main mechanism to deliver area-based conservation targets. A protected area is a clearly defined geographical space, recogniserecognised, dedicated and managed through legal or other effective means, to achieve the long-term conservation of nature with associated ecosystem services and cultural values [1]. In 2010, the Convention on Biological Diversity's (CBD) Aichi Biodiversity Target 11 specified new global area-based conservation targets to be achieved by 2020 for lands and waters but that these targets could be achieved not only through protected areas but "other effective area-based conservation measures" [2]. It would be 8 years before "other effective area-based conservation measures" (or OECMs) would be defined by the CBD [3] and by the International Union for Conservation of Nature [4]. The IUCN-WCPA Task Force on OECMs [4] defined OECMs as "A geographically defined area other than a Protected Area, which is governed and managed in ways that achieve positive and sustained long-term outcomes for the in-situ

conservation of biodiversity, with associated ecosystem functions and services and where applicable, cultural, spiritual, socio–economic, and other locally relevant values".

Under Target 3 of the CBD's Kunming-Montreal Global Biodiversity Framework, OECMs are again included as part of the area-based conservation targets [5]. In 2021, the Australian Government joined the High Ambition Coalition for Nature and People and committed to its target to protect 30% of the earth's lands and seas by 2030 (30 × 30 protection target) [6]. More recently, the new Australian Government announced the commitment to a domestic target of 30% of land and 30% of oceans protected by 2030 [7–9], which was also committed to by all Australian state and territory governments [10].

Australia has been a leader in the development of expanding its protected area estate across public, private and Indigenous land following the principles of comprehensiveness, adequacy and representativeness [11]. This has been based on considered policy and programs that recognised the importance of different underlying rights, tenure and ownership across public, private and Indigenous land [12–15]. This has seen the protected area estate grow from 7% of the continent (and mostly public protected areas) in the mid 1990s to a system now covering ~22% of the continent in mid 2022, with over half of this area made up of Indigenous Protected Areas (IPAs) and Privately Protected Areas (PPAs) [16]. Australia has one of the largest systems of privately protected areas in the world, by number and area [17–19].

Inclusion of protection mechanisms outside of the traditional public protected area estate into national networks has not been undertaken in many countries for various reasons [18–20]. Hence, areas with conservation as a primary objective identified as an OECM in many countries might have already been assessed as meeting the definition of a protected area in Australia (e.g., Indigenous Protected Areas).

Despite the increasing interest in OECMs [21,22], there have only been a limited number of jurisdictional-level reviews of what land/sea tenures or mechanisms might be considered as potential OECMs. These have included South Africa [23–25], Canada [26,27], the southern and eastern Mediterranean region [28], Asia [29] and oceans [30–32]. This lack of analysis [33] is likely in part due to the relatively recent definition of the OECM category. Confusion also remains about the category, as evident by multiple side events at the 2022 Convention on Biological Diversity's COP15 (pers. obs.) and in the academic literature. For example, Donald et al. [34] incorrectly suggested that legally binding Conservation Agreements registered on title in New South Wales could be potential OECMs, yet they are clearly privately protected areas [17,23] and recognised as such by the governing authority for those agreements [35,36], even if not spatially available in Australia's Collaborative Australian Protected Areas Database (CAPAD).

To determine which types of mechanisms may or may not qualify for area-based targets under global conservation commitments, careful consideration of the land use types and mechanisms that protect or retain biodiversity at national and subnational scales is important. In Australia, this has been done for protected areas at broad national scales [37], on public land at subnational scales (e.g., [38,39]) and for particular governance types (e.g., privately protected areas: [17,40,41]). OECMs, as a relatively newly defined category, have not yet had the same level of scrutiny and analysis (although see [23] for an initial differentiation with privately protected areas in Australia).

In 2023, the Australian Government's Department of Climate Change, Energy, the Environment and Water released a consultation paper, *Other effective area-based conservation measures: principles to guide their recognition in Australia* [42]. It was stated that the principles paper was developed "in collaboration with all Australian jurisdictions" (which referred to state and territory governments), but no consultation was undertaken with non-government organisations (NGOs) to inform its release. The proposed principles were developed to guide the recognition of "land based OECMs". The consultation paper states, "The final principles will be incorporated into a tool for assessing the eligibility of sites for recognition as OECMs in Australia; a site assessment tool" [42]. Here, we discuss these principles and

associated text. We also explore broad land use types in Australia that might qualify as candidate OECMs, compare them to the definitions of OECMs from the CBD and IUCN and discuss policy implications both for land/sea that might be classified as OECMs and for Australia's network of protected and conserved areas. We focus particularly on the "governed and managed in ways that achieve positive and sustained long-term outcomes for the in-situ conservation of biodiversity" element of the OECM definition.

2. Australian Government Consultation Paper on Principles to Guide OECM Recognition in Australia

The Australian Government identified and explored eleven principles in their consultation paper *Other effective area-based conservation measures: principles to guide their recognition in Australia* [42] (Table 1). While it was the intention that these principles be refined after an open consultation period, exploring elements of these principles (and associated justification, narrative and examples provided in that paper) is important to guide other national or subnational governments as they develop their own guidance and policies for OECMs in their jurisdictions.

Table 1. Draft principles to guide OECM recognition in Australia from the Australian Government's consultation paper *Other effective area-based conservation measures: principles to guide their recognition in Australia* [42].

Principle	Explanation
Consent	• Consent of the site's governance authority must be obtained before an eligibility assessment is undertaken.
Free, prior and informed consent	• Assessment and recognition of potential OECMs governed by First Nations people requires the free, prior and informed consent of those governance authorities.
Biodiversity values	• OECMs must have important biodiversity values, documented in detail at the time of the site assessment. These values are to be maintained in the long term.
Prioritization of areas of particular importance for biodiversity	• Areas of particular importance for biodiversity should be prioritised for assessment and designation as a formal protected area or recognition as an OECM.
Restoration sites	• A site that is severely degraded, damaged, or destroyed and not yet under restoration is not appropriate for OECM recognition. • A site under ecological restoration may be recognised as an OECM, once delivering demonstrable and significant biodiversity outcomes. Restoration actions must include actions that address the cause of the original degradation/biodiversity loss.
Protected area consideration	• A site's suitability for protected area designation should be considered first. Suitability for OECM recognition should be considered in circumstances where formal protected area designation is not appropriate, achievable or desirable.
Geographically defined area	• OECMs must be geographically defined, that is, have clear and agreed boundaries that can be accurately identified on maps and on the ground.
Land tenure	• OECMs can be recognised on all forms of land tenure in Australia. • To be recognised on leasehold land, conservation must be compatible with lease conditions/legislation.
Governance	• The following governance types will be recognised: governments; private individuals or organisations; First Nations people; and shared or jointly managed areas.
Site management	• Management objectives and activities must not be incompatible with biodiversity conservation. • Sites with a primary or secondary conservation objective should have a site management plan or arrangement that includes (at a minimum), a section on biodiversity conservation that outlines the conservation objectives for the site, adaptive management actions and relevant jurisdictional land management requirements. • Sites should meet minimum management requirements set by jurisdictions, relating to invasive/feral species management, fire risk management and any other minimum requirements set out in jurisdictions' regulations. • Aboriginal and Torres Strait Islander knowledge in caring for the Country should be considered in OECM management arrangements.
Sustained long-term	For a site to be recognised as an OECM with a primary or secondary biodiversity conservation management objective, and ancillary OECMs where applicable, at a minimum, there must be: • A clear long-term intention for the continuation of management arrangements that deliver in-situ biodiversity conservation outcomes. • A commitment to a minimum timeframe for management arrangements that deliver in situ biodiversity conservation outcomes, determined at the time of site assessment. • No intention to sell or develop the site in a manner incompatible with biodiversity conservation. • No land use zoning on the site that is incompatible with biodiversity conservation.

Overall, the draft principles provide a relatively good outline of key principles to guide OECM identification in Australia. However, a number of areas either misinterpret global guidance or are inconsistent with established area-based conservation policy in Australia, and these are outlined below.

2.1. Consent

Recognition of an OECM is intended to be voluntary. As worded, the principle of *consent* only refers to an eligibility assessment. Subsequent recognition and consent are further explained, but as this is not captured within the head principle, it could lead to confusion. To be compliant with global guidance, this principle would need to be reframed to capture both assessment and recognition of an OECM.

2.2. Biodiversity Values

The *biodiversity values* principle states, "OECMs must have important biodiversity values", however the term 'important' is not defined and nor is this a requirement under the international guidance from the IUCN [4]. Consistency with global guidance and intent is important and the emphasis on 'importance' is best covered in the principle "prioritisation of areas of particular importance for biodiversity", where the prioritisation of areas of 'particular importance' is recommended. The draft principles document also states "The changing climate may make it difficult for some biodiversity values to be maintained in the long-term". While this is true, it is ambiguous as to what is being implied. The IUCN's global guidance [4] provides a more definite statement, and this should be reflected in the Australian guidelines: "As climate change alters ecosystems, understanding of what is natural and effective in a particular place may also change. OECMs may need to be recognised and managed with adaptation to climate change in mind [43]".

Regarding the *prioritisation of areas of particular importance for biodiversity* principle, the consultation paper states: "The 30 by 30 target is about protecting and conserving quality areas, not just about reaching the 30% target". The term 'quality' is ambiguous and misused in the Australian conservation context. Quality typically refers to habitat or vegetation quality and condition (e.g., [44]). It is presumed 'quality' in the principles is being used for well-accepted concepts of protected area network design, such as meeting aspects of comprehensiveness, adequacy and representation. 'Quality' needs to be defined and better aligned with National Reserve System principles [45,46].

The *restoration sites* principle states that while a site "not yet under restoration is not appropriate for OECM recognition, . . .*a site under ecological restoration may be recognised as an OECM, once delivering demonstrable and significant biodiversity outcomes*". Acknowledging the potential role of OECMs in area-based conservation networks, a site's conservation value and contribution to strengthening existing protected area networks should be an additional key consideration, in addition to the site delivering demonstrable and significant biodiversity outcomes. This consideration will help to differentiate sites that should be considered as OECMs versus sites contributing to Target 2 of the Kunming-Montreal Global Biodiversity Framework, which relates to the restoration of degraded ecosystems.

2.3. Protected Area Consideration

In text explaining the *protected area consideration* principle, it is suggested "there is no legal protection" for OECMs. While it is true there are currently no legal instruments that specifically define OECMs by this name in Australia, the creation of new 'OECM-specific' instruments was not necessarily the intent under international guidelines. Indeed, the word 'other' in OECMs clearly indicates they can incorporate a range of different mechanisms other than protected areas. However, to imply that mechanisms that might qualify as OECMs are not legally protected is inaccurate. A number of mechanisms (e.g., designated water supply catchment areas, covenants that might not qualify as privately protected areas (e.g., [23]) are indeed legally protected.

The consultation paper states that "OECM recognition should be considered for areas that do not meet the protected area definition, or where formal protected area designation is not possible or supported" and provides three examples.

The first example "Where biodiversity conservation is a primary objective, but there are impediments to applying formal protected area designation, e.g., pastoral leasehold lands where lease requirements do not allow for a protective mechanism such as a covenant, but do allow for conservation" seems problematic. Pastoral leasehold lands purchased by conservation NGOs with funding from Australia's National Reserve System Program (NRSP) are considered protected areas, as explicitly stated in the legal contract between the Australian Government and the NGO [17,41]. In the absence of an NRSP contract or a conservation covenant, land purchased by conservation NGOs for the purpose of conservation is no different legally than a pastoral lease managed for grazing stock under the underlying state/territory-based pastoral law. Contrary to the example above, few pastoral leases in Australia allow for conservation to be a primary purpose, even in the absence of an ability to apply a covenant. If pastoral leases did allow this to occur and it could be clearly documented in the lease, there could be a case for conservation NGOs holding such leases to have those leases considered as privately protected areas and included as part of the National Reserve System or, failing that, apply directly to the World Conservation Monitoring Centre for recognition and inclusion in the World Database on Protected Areas (WDPA) [18–20,47], based on the primary purpose being conservation and legal recognition of that purpose.

The second example "Where the primary purpose is not biodiversity conservation, but the land is managed for biodiversity conservation as a secondary or ancillary purpose, e.g., urban parklands", fails to recognise the diverse spectrum of purposes and/or objectives of urban parklands. Many are indeed managed for the primary purpose of conservation of remnant native vegetation, with compatible, low-key recreation allowed [48]. Some of these, particularly if managed by state nature conservation agencies, are considered protected areas. Those managed by local governments for biodiversity conservation and having clear local regulations, management plans, etc., could well be considered protected areas after proper assessment. Others may well be OECMs.

The third example "where connectivity can be achieved between existing protected areas, but the connecting land has a primary purpose not compatible with protection" may be an appropriate approach for prioritizing effort towards the identification and recognition of OECMs. Various forms of area-based conservation have been shown to connect existing protected areas in Australia [49]. However, to qualify as an OECM, these areas would still need to meet the principles of an OECM, including sustained conservation outcome over the long term and maintenance of their conservation value.

2.4. Geographically Defined Area

For the principle *geographically defined area*, the justifying text states, "Where a proposed OECM is part of a larger property, the footprint of the OECM must be clearly described, to differentiate it from other parts of the property"; however, it is critical that this area is mapped and not just described. This principle should also clearly note international guidance that if an area is a protected area, it cannot also be an OECM.

2.5. Land Tenure

For the principle *land tenure*, the text notes that as "pastoral lease requirements vary between jurisdictions, it is suggested that leased land only be eligible if conservation is compatible with lease conditions/governing legislation, and the lease is of a long-term nature." However, only having conservation 'compatible' with a lease would unlikely be enough. The OECM and/or its conservation objectives/outcomes would need to be more explicitly recognised in the lease itself or some other agreement/instrument over the lease, that would be valid even in the instance of the lease changing hands (see Section 2.7 *sustained long-term* below).

2.6. Site Management

For the *site management* principle, the explanatory text states "For ancillary OECMs, i.e., where biodiversity conservation is not a primary or secondary management objective, references to biodiversity conservation in management arrangements is not required". In an Australian context, including areas that make no reference to biodiversity conservation in management arrangements for area-based conservation targets seems perverse, considering the difficulty in assessing the likelihood of maintaining biodiversity in the long term in the absence of such a reference. In addition, monitoring the effectiveness of OECMs is highlighted in the IUCN guidelines as being needed and the establishment of a monitoring and evaluation plan will be critical to ensure that sites deliver conservation outcomes [4].

2.7. Sustained Long-Term

The guidance for the *sustained long-term* principle requires significant strengthening to comply with the intent and international guidance for an OECM.

As OECMs are intended to complement protected areas in achieving 30 × 30 outcomes, there is clear guidance for definitions of 'long-term' for protected areas that should also apply to OECMs. As guidance and policy consideration for protected areas has been in place for many years in Australia, many of the definitional issues relating to various aspects of OECMs are already dealt with by agreed national policy for protected areas. For example, *Australia's Strategy for the National Reserve System 2009–2030* [15] defined "long-term management" as "ideally this should be in perpetuity but, if this is not possible, then the minimum should be at least 99 years" for areas to be included in the National Reserve System. This definition would logically carry over as a requirement for OECMs in Australia.

Based on IUCN's definition of an OECM [4], especially the component "governed and managed in ways that achieve positive and sustained long-term outcomes for the in-situ conservation of biodiversity", it would be difficult for private land to qualify as candidate OECMs in Australia in the absence of a long-term legal agreement that would bind future owners to manage in a way that maintained or improved biodiversity. This is because, despite the best intent of a landholder to retain practices that maintain biodiversity, changes of circumstance or ownership can happen rapidly, with little certainty subsequent owners will manage in a similar way in the absence of a legal obligation to do so. The most obvious mechanisms in Australia at present are covenants that are binding on title that might not have biodiversity conservation as a primary purpose (and thus not qualify as a privately protected area [17]) or 100-year carbon agreements that retain native vegetation [50] and a variety of methodologies or 100-year agreements under the Nature Repair Market [51] (see Section 3.4.7 below). There may be other mechanisms associated with pastoral leases that will ensure the recognition of biodiversity outcomes binds on future owners of a lease for at least a period of 100 years.

The principle has an overreliance on 'intention' (e.g., "no intention to sell or develop the site", "long-term intention for management and governance"). However, experience in Australia shows that 'intention' in the absence of stated commitment that applies to the land itself (as opposed to just the owner at the time) is unlikely to result in 'sustained long-term' outcomes. For example, wildlife refuge agreements in New South Wales have the lowest security of any covenant in Australia as they are able to be removed by the landowner and have been shown to have the highest number of releases of any covenant program (19.3%; [52]).

References to 'revolving funds' used in this principle are confusing as revolving funds in Australia typically sell lands with a conservation covenant on title, and thus, they result in a privately protected area, not an OECM [41,53].

3. What Land Use Categories/Mechanisms Might Qualify as an OECM in Australia?

The Australian Government consultation paper, *Other effective area-based conservation measures: principles to guide their recognition in Australia* [42], did not provide detailed

assessments of broad land use categories that might be or might not be considered as candidate OECMs. Here, we consider broad land use/tenure categories and discuss factors that make them more or less likely to be considered candidate OECMs. Although the spectrum is deliberately broad, we do not suggest this covers all land use types or mechanisms that could qualify or be considered for OECMs in Australia. Even if broad land use/tenure categories are likely to qualify, careful consideration of each area individually, using empirical evidence and on a case by case using the *Site-level tool for identifying OECMs* [54] will be required. This will be critical for assessing elements such as equitable governance (see [55]).

Land tenure in Australia can be owned, leased, reserved or unallocated to a specific purpose. Freehold land is held in perpetuity; however, underlying mineral and petroleum rights remain the property of the Crown (state governments). Land tenure in Australia can be owned, leased, reserved or unallocated to a specific purpose. Freehold land and Aboriginal Land Trusts are held in perpetuity; underlying mineral and petroleum rights remain the property of the Crown (state governments) with some variation depending on jurisdiction. Crown land in Australia can be held by the state, territory or Commonwealth of Australia. Land in this category can also be granted to Indigenous peoples under Indigenous land grant instruments. Crown land may also be leased, for example, through termed or perpetual pastoral leases. While the tenure identifies the legal regime of a piece of land, a range of other legal (e.g., contractual) and policy mechanisms can sit over the land tenure and produce varying levels of biodiversity protection. Here, we discuss a range of tenure and other mechanisms and their likelihood for qualifying as OECMs. We do not consider mechanisms already classified as protected areas.

3.1. Public Land Categories

3.1.1. National Defence Agency Lands

Land managed by a national defence agency has been recognised as an OECM in Canada [56] and considered as a candidate OECM in South Africa [25].

The Australian Department of Defence maintains interest over terrestrial and marine training, practice and restricted areas, and approximately 18 million hectares or 2.3% of Australia's land area is designated as a Military Training Area (MTA) [57]. The tenure of land with Australian defence interests varies across the country and includes Crown land, Crown leasehold land and freehold. Approximately three million hectares are Commonwealth land considered in the *Defence Estate Heritage Strategy* [58] Native vegetation is present across most of the defence estate [59], and a number of properties have ecological significance (e.g., [60,61]). The Department of Defence must manage its estate to ensure it meets the requirements of the *Environment Protection and Biodiversity Conservation Act 1999* [57]. This includes the implementation of an environmental policy with an aim to recognise and manage the Australian defence estate's heritage values [62]. The Department of Defence *Environment and Heritage Manual* states, "Rare and threatened species and communities may require additional management actions specifically targeting local threats and circumstances. These actions may be described in recovery plans under the *Environment Protection and Biodiversity Conservation Act 1999* or may be Defence-specific risk management programs or plans. In some settings the establishment of native vegetation and high-density animal populations or the maintenance of other environmental values may not be compatible with Defence activities. Defence aims to manage these areas through detailed risk-based planning to support the Australian Defence Force capability and minimise risks to people and the environment" [59].

Overall, 23 Australian defence properties, including Military Training Areas (MTAs), covering over two million ha, are recognised on Australia's Commonwealth Heritage List for their significant biodiversity value. There are some overlaps between military training, practice and restricted areas with Indigenous protected areas (e.g., [63]) and national parks (e.g., [64]) and there have been attempts to support management of defence properties through other conservation mechanisms (e.g., biodiversity offsets [65]).

Historical fauna and flora surveys provide some information on the conservation value of Australia's heritage listed MTAs enabling their heritage recognition [66]. The Department of Defence has shown commitment to conservation-based management through the engagement of not-for-profit conservation specialists (Australian Wildlife Conservancy) at the Yampi Sound Training Area [67] and outlining of their conservation efforts in intact areas adjoining World Heritage Areas [60]. However, there has been limited public assessment of the effectiveness of management on Australian MTAs for biodiversity conservation. The impact of weapons training at the Beecroft Weapons Range was assessed by Lindenmayer et al. [68], who observed differences in biodiversity between impact and non-impact areas; however, while the training areas maintained considerable conservation value, including for threatened species, it was not possible to link this to positive biodiversity outcomes. They recommend that definition of specific management objectives would be needed to integrate training and environmental values and ensure assessment of progress towards positive biodiversity outcomes [68,69].

Recognition of key properties (in whole or part) in Australia's defence estate as OECMs could provide an important contribution to Australia's 30 × 30 targets. However, defence agencies would need to show the delivery of effective conservation outcomes, and careful consultation with Indigenous and local community stakeholders will be required to meet OECM criteria and manage community expectations.

3.1.2. Designated Water Supply Catchment Areas on Public land

Intact native forested catchments provide an important ecosystem service for water supply for human populations, with benefits including improved water quality and greater reliability. Maintaining a high-quality water supply has been argued as an additional reason for the permanent protection of designated water production areas [70].

Protection of these areas also provides additional benefits in terms of biodiversity conservation, cultural heritage, recreation and social and economic values. Around one-third of the world's largest cities, including Melbourne and Sydney, obtain a significant proportion of their drinking water directly from protected catchments [70].

Over 90% of Melbourne's water supply comes from forested catchments with over 50% under protection, including 80,500 hectares of national park (Yarra Ranges National Park, Kinglake National Park and Baw Baw National Park). Reservoirs in closed forested catchments, set aside for the purpose of water supply in the 19th century and excluding forestry and recreational access, are a key part of that supply [71]. Some 68,500 hectares of these catchments (outside of closed catchments) are state forests, which, until late 2023, were largely available for timber harvesting.

There is approximately one million hectares of native vegetation within the Sydney Catchment area. While more than half of the Sydney catchment is under private ownership, one-third of the catchment is in the protected area estate, including the recently designated Gardens of Stone State Conservation Area. About 6% of the catchment is owned by WaterNSW, 3% is state forest and 4% is other Crown land. Special Areas are mostly public protected areas or WaterNSW tenure. Special areas under the *Sydney Water Catchment Management Act 1998* cover approximately 364,000 hectares of mostly unspoilt native bushland in public protected areas (e.g., national parks) and WaterNSW (freehold land owned by the water authority) around the water storages and water supply infrastructure that supply Sydney, the Illawarra, Blue Mountains, Southern Highlands and Shoalhaven regions. Public access and activities are restricted to protect water quality in these areas and the majority of the special areas are off-limits or restricted to the general public [72].

A number of countries have included water catchments as OECMs (e.g., Colombia, Canada), and 'water supply catchment areas' are used as an example of potential OECMs in Australia [42]. The Australian experience suggests that water production areas in forested catchments are highly compatible with joint protected area classification (e.g., national parks), even where those catchments remain 'closed' to public access. Nonetheless, where water supply catchments occur on public land (and perhaps freehold land owned by a

water authority (Figure 1)), contain native forest (or other natural ecosystems) and have legal or other long-term provisions to prevent activities such as logging or grazing of stock, and are not already in the protected area estate, they are highly likely to qualify as OECMs.

Figure 1. Water supply reserve in the Otway Ranges, Victoria, Australia. Photo: James Fitzsimons.

3.1.3. Reserves Managed for Maintaining Natural Features, but Not Considered Protected Areas

Some Australian jurisdictions have public land categories designated under legislation that protects natural areas, are considered part of the broader 'parks estate' and managed by the principal parks agency but are not considered 'protected areas'. Victoria is one such state which has a diverse classification system [38,39]. Some of these non-protected area parks and reserves are managed for the maintenance of particular natural values or cultural features in a natural setting along with other recreational uses that are compatible with the maintenance of biodiversity [38]. A number of these are likely to be considered potential OECMs. For example, regional parks are extensive areas of natural or semi-natural land close to population centres or major tourist routes or easily accessible. Their purpose is to provide opportunities for informal recreation for large numbers of people associated with the enjoyment of natural or semi-natural surroundings or semi-natural open space, to protect natural and semi-natural landscapes and scenic values and to protect natural biodiversity to the extent consistent with the above [39]. Lake reserves (Figure 2) and some historic reserves are also likely to maintain biodiversity values and would also likely qualify as OECMs.

3.1.4. Local Government Reserves/Urban Parks Managed to Protect Native Vegetation

The IUCN-WCPA Task Force on OECMs [4] states that "Small, semi-natural areas within an intensively-managed landscape with limited biodiversity conservation value, such as municipal parks, formal/domestic gardens, arboreta, field margins, roadside verges, hedgerows, narrow shoreline or watercourse setbacks, firebreaks, recreational beaches, marinas and golf courses" would be examples of areas unlikely to meet the OECM criteria. However, the IUCN-WCPA Task Force on OECMs [4] also states, "Urban or municipal parks managed primarily for public recreation, but which are large enough and sufficiently natural to also effectively achieve the in-situ conservation of biodiversity (e.g., wild grassland, wetlands) and which are managed to maintain these biodiversity values"

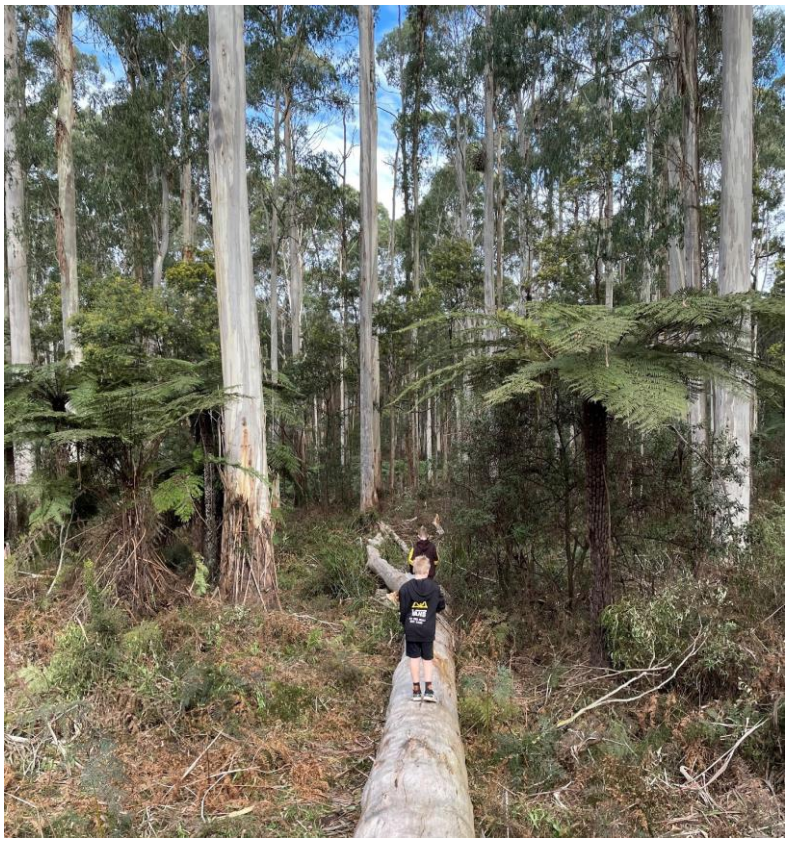
could be considered potential OECMs. In Australia, many natural areas are managed for conservation and protected in the form of local parks and reserves by local governments in the urban matrix [48]. Currently, most are not classified as protected areas as they are not managed by the state-based parks agency. Although with a systematic assessment, many of these could prove to be protected areas, others are likely to qualify as OECMs based on their ecological values (Figure 3), intent, management and longevity of designation.

Figure 2. Mitre Dam Lake Reserve, western Victoria, Australia. A reserve category on public land dedicated to preserving the natural features and managed by the Victoria's parks service (Parks Victoria) but not considered a protected area. These land use categories would likely qualify as potential OECMs. Photo: James Fitzsimons.

3.1.5. State Forest Zoning

Australia's Regional Forest Agreements (RFAs) are long-term (20-year) plans for the sustainable management and conservation of Australia's native forests, signed between the Australian Government and state governments where commercial timber harvesting occurs. RFAs were a key element in the National Forest Policy Statement and required parties to an RFA to develop a reserve system in accordance with the *Nationally Agreed Criteria for the Establishment of a Comprehensive, Adequate and Representative Reserve System for Forests in Australia* ('the JANIS criteria'; [12]). The JANIS criteria required states to meet certain percentage reservation thresholds for ecosystems (and old growth forests) using 'dedicated reserves' (i.e., protected areas) and 'informal reserves' ("In situations where it is not possible or practicable to include conservation values into Dedicated Reserves, it is appropriate for areas to be reserved under other secure tenure or management arrangements (e.g., within approved forest management plans)"). Most RFAs established new dedicated reserves to meet the criteria, although Victoria's five RFAs used mostly new informal reserves (Special Protection Zones (SPZs) in state forests) with no justification provided for doing so [73]. SPZs are not considered protected areas in Victoria [39]. Many SPZs are large and contain important ecological values. SPZs in Victoria (and potentially Informal reserves in state forests in other states) might qualify as an OECMs, provided there is long-term intent to retain the SPZ in that current location. However, past evidence is that some SPZ boundaries

have been changed with updates of regional forest management plans, so greater assurance on the longevity of the zone beyond the life of a forest management plan would be required.



(**a**)

(**b**)

Figure 3. Local government reserves are often set aside for the specific purpose of nature conservation but may not be classified as protected areas in Australia. They may contain significant biodiversity, such as (**a**) the Butterfield Wildlife Reserve in the Dandenong Ranges, Victoria, Australia, and (**b**) the East Point Reserve near Darwin, Northern Territory, Australia. Photos: James Fitzsimons.

3.1.6. Travelling Stock Routes or Reserves

Travelling stock routes (or reserves) (TSR) represent a vast network of tracks (60 m to 2 km wide) and small blocks of remnant vegetation on public land set aside for use by travelling stock. They stretch mainly across the eastern length of Australia, covering approximately 5 million ha [74], and while the greatest number of routes exist in Queensland and New South Wales (NSW), there are tracks in other states. Being Crown land, the TSRs are the responsibility of Crown lands management entities for each state. TSRs often contain unique and threatened flora and fauna, some of the oldest remnants of native vegetation and some of the largest remnants of underrepresented vegetation in the protected area estate [74] and provide wildlife corridors, connecting isolated patches of habitat.

In NSW, the Local Land Services (LLS) manages 5339 km^2 (27%) in the central and eastern divisions; the NSW Department of Industry, Lands and Water manages 14,555 km^2 (73%) in the western divisions; and Reserve trusts and local councils manage the remaining 2.8 km^2 of TSRs [75]. Western land leases generally cover the TSRs in the western division and the leaseholders manage the care and control. Reserves in the western division can only be used for stock movement [76]. Reserves in the central and eastern area are used for recreation (walking, horse riding, birdwatching), emergency refuge and fodder for stock, and productive uses such as carbon sequestration, apiary and forestry.

LLS developed a state-wide plan of management in 2019 for 5339 km^2 of TSRs under their management. The management plan contains requirements to develop annual business plans, a best management practice toolkit, annual reporting and five-year reviews. The TSRs were broken into five categories based on their use and value, and Types 2, 3 and 4 (representing 99.55% of all TSRs under LLS's management) all include biodiversity as an essential component. The management plan outlines the following activities: (a) an increase in the area of land managed for conservation, (b) habitat maintained or improved at specific sites, (c) more TSR contributing to the protected estate and (d) stock used as a conservation tool [75]. It will be several years before it will be possible to determine if their management is delivering on biodiversity protection and improvement.

The Queensland Government manages the stock route network with local governments under the *Stock Route Management Act 2002.* The legislation requires a strategy to be developed and reviewed every five years, the most recent being 2021–2025 [77]. This plan outlines six key provisions; provision three is the sustainable management of the network's natural resources. The management of the TSR does not appear to be under the control of one entity. Instead, it relies on the collaborative effort of the many stakeholders (including multiple state departments such as transport, resources, environment, local governments, industry representatives and conservation organisations). It is unclear if the current management is protecting and improving biodiversity.

Although many TSRs are likely to contain important biodiversity (including that under-represented in the protected area estate) and connectivity value, the diversity of management regimes and authorities and policy directions would mean each TSR would need to be considered individually for OECM status.

3.1.7. Fisheries Closures

The IUCN OECM Guidelines [4] specifically highlight circumstances where fisheries closures are likely or unlikely to be considered OECMs. Those that are likely include: "Permanent or long-term fisheries closure areas designed to protect complete ecosystems for stock recruitment or to protect specialised ecosystems and their full complement of species". Those that are unlikely are: "Fishery closures, and other fisheries management tools, including, but not limited to, temporary set asides or gear restriction areas with a single species, species group, or habitat focus, that may be subject to periodic exploitation and/or be defined for stock management purposes, and that do not deliver in-situ conservation of the associated ecosystems, habitats and species with which target species are associated." This would be consistent for Australia (although, see [31] for some issues on implementation and governance related to this). Considering Australia has an advanced marine protected

area estate, and all jurisdictions have a range of MPA categories or zoning schemes to meet area-based conservation targets [78], the intent for permanent fisheries closures "to protect complete ecosystems" is more likely to see an MPA declaration rather than an OECM classification.

3.2. Private and Leasehold Land

3.2.1. Pastoral Leases

Pastoral leases, which typically occur on large areas of native vegetation, cover around 44% of Australia's land area and exist in South Australia, Western Australia, Queensland, New South Wales and the Northern Territory to control the use of the land for pastoralism. The prescriptive nature of pastoral lease legislation has been recognised as needing updating to better enable alternative forms of land use, e.g., tourism, farming of livestock other than cattle or sheep and the conservation of native wildlife [79].

Some states (Queensland, NSW) allow conservation covenants to be applied to pastoral leases, whereas, for other states, this has not been possible or extremely difficult (Western Australia, South Australia, although amendments to the *Pastoral Land Management and Conservation Act 1989* may make this easier in South Australia [80]. Few pastoral leases in Australia allow for conservation to be a primary purpose in the absence of a covenant. However, as noted above, NGO land trusts have purchased pastoral leases with the purpose of managing them as privately protected areas with both funding through the Australian Government's NRSP and at other times with largely philanthropic funding. The former automatically qualifies as a protected area as a result of the contractual agreement clearly stating this, and while the latter is legally more ambiguous, the purpose and intended longevity would likely see these arrangements considered privately protected if reported directly to the WDPA.

There have been an increasing number of partnerships between conservation organisations and pastoralists that seek to improve management of pastoral leases for biodiversity values. For example, the Australian Wildlife Conservancy [81,82] has formed partnerships to demonstrate how conservation and pastoral activities can co-exist and precipitate positive outcomes for biodiversity across 12.5 million ha.

Although pastoral leases are typically medium- to long-term in length (e.g., between 40–99 years), they can be bought and sold by lessees on the open market at any time. Thus, despite good intentions and commitment of a lessee in managing for conservation, there are few provisions (beyond conservation covenants, in jurisdictions they can be applied on pastoral leases) for those intentions to be carried over to a new lessee if the lease is sold. Thus, in the absence of specific provisions for conservation management and/or conservation outcomes to carry for the length of the lease, pastoral leases on their own are unlikely to be considered candidates for OECMs as the lessee could change at any time.

3.2.2. Covenants on Private Land Where the Primary Purpose Might Not Be Biodiversity Conservation

The majority of conservation covenant programs on private land in Australia sign agreements that would be considered privately protected areas [17], even if they are not recorded as such under national or international databases. However, some covenant programs on private land may not be considered privately protected areas (for reasons of levels of security/authority for signoff (e.g., covenants under Victoria's *Conservation, Forests and Lands Act 1987;* [41]) or purpose—Western Australia's *Soil and Land Conservation Act 1945* covenants; [17]) but still protect native vegetation. It is likely the binding nature of these agreements would allow them to qualify as OECMs (see also [23]). Wildlife refuges in NSW, which can be removed by either party (landholder or government) at any time [36], would not likely qualify as an OECM as there is little guarantee of the longevity of the agreement. As noted earlier, wildlife refuge agreements have been shown to have the highest number of releases of any covenant program (19.3%; [52]).

3.2.3. Set-Term Agreements from Conservation Tenders

Conservation tenders resulting in (mostly) short- to medium set-term agreements (e.g., 5–20 years) have been popular in Australia, with over AUD 178 million spent on 94 different tender schemes between 2001 and 2012 resulting in >2177 successful bids covering over >2.5 million ha [83]. While these typically target areas of biodiversity importance and financial resources are provided to land managers (typically on private land) to manage the biodiversity values, questions have been raised about the long-term strategy for properties under set term agreements when that agreement comes to an end, particularly as most tender programs are not ongoing [84]. Considering the typical short- to medium-term nature of the agreements and lack of strategy for maintaining biodiversity beyond the life of those agreements, conservation tenders would be unlikely to qualify as OECMs.

3.2.4. Land for Wildlife Program Agreements

Land for Wildlife is a popular national voluntary conservation program with over 14,000 properties covering 2.3 million ha currently registered and at least 500,000 ha of habitat managed for conservation as at 2018 [85]. Land for Wildlife agreements are non-legal, non-binding and can be cancelled by either party at any time. As the agreement is with the current landholder and does not run with title, a new agreement is required when a new landholder takes over and there is no obligation for the new landholder to do so. Thus, they would not be considered OECMs as longevity of the land use and maintenance of biodiversity is not secured.

3.3. Indigenous Land Estate

Indigenous and Community Conservation Areas (ICCAs) have been recognised as OECMs or potential OECMs in several countries including South Africa, Canada and the Philippines (World Database on OECMs [86]). Many of these areas have a primary objective of conservation, but due to a range of reasons (including historical relationships with protected area establishment, FPIC, uncertain land tenure/rights, local governance/capacity and protected area legislation), they are not considered formal protected areas. These areas have many similarities to Australia's IPAs, which have long been considered as protected areas in Australia's National Reserve System [87]. For Australian IPAs, Traditional Owners formally commit to in-perpetuity protection aligned to an IUCN protected area category in their plans of management [88]. In some parts of Australia, Indigenous land may also have conservation covenants (a privately protected area) on title, such as Nature Refuges in Cape York, north Queensland [89] and parts of Gayini in southern NSW [90,91].

Where exclusive possession Native Title rights has been determined over Crown land and Indigenous communities have committed to managing Country to improve its ecological and cultural health and have confirmed objectives and governance such as through Healthy Country Plans [92], there is a reasonable case that these areas would qualify as OECMs. Unlike freehold land and pastoral leases, which can be sold, selling Crown land with exclusive native title rights would be extremely difficult for either the native title holders or the government. As such, longevity of the ownership and management control is assured.

Where non-exclusive Native Title has been determined over Crown land, especially on pastoral leases, it is less likely that these would be considered OECMs in the absence of other provisions, as the pastoral lease purpose does not prioritise conservation, and the lease can be sold at any time (see discussion of pastoral leases above).

3.4. Mechanisms across Multiple Tenures

3.4.1. World Heritage Areas

Most World Heritage Areas (WHAs) in Australia that protect natural heritage values fall within existing protected areas. However, in some cases World Heritage Areas may include other tenures (e.g., Ssate forests, small areas of other Crown reserves such as Rabbit Board paddock reserves, prison purposes lands and road reserves in Gondwana

Rainforests of Australia WHA and pastoral leases in Willandra Lakes Region WHA). The Australian Government has an international obligation to protect and conserve World Heritage properties, including preventing activities that threaten any of the outstanding universal values of the property [93], and, as such, they are listed under the *Environment Protection and Biodiversity Conservation Act 1999*. Thus, World Heritage Areas not within protected areas and designated for natural and natural/cultural values could qualify as OECMs, however assessment of the suitability of the Crown land reserves for upgrade to a protected area should be conducted.

3.4.2. National Heritage Places

Australia's National Heritage list is a list of places of outstanding significance to the nation. A heritage area may be listed for its natural, Indigenous or historic heritage values under the *Environment Protection and Biodiversity Conservation Act 1999*. As of early 2024, there are 121 sites listed on the National Heritage list, 35 are listed for their natural values [94].

There are relatively strong provisions for Commonwealth government agencies. For example, the Minister must make plans to protect and manage the National Heritage values of National Heritage places, and the Commonwealth and Commonwealth agencies must not contravene those plans. For National Heritage Listed places on Commonwealth land, the values are 'protected' if the land is sold or leased: the sale/lease contract must include provisions for the placement of a covenant on the land that protects the national heritage values, unless inclusion of covenant is impracticable or there are other means to protect the values. For land outside Commonwealth areas, the Commonwealth can provide assistance for the identification, promotion, protection or conservation of National Heritage places.

The majority of national heritage places that contain ecologically important areas are over already-established protected areas. Beyond areas owned by the Commonwealth, there are few provisions under the *Environment Protection and Biodiversity Conservation Act 1999* to compel land managers to maintain ecological values, especially on private land or pastoral leases. While each individual National Heritage list site should be assessed, it is unlikely most sites outside of Commonwealth areas would qualify as an OECM on national heritage laws alone.

3.4.3. Wetlands of International Importance: Ramsar Sites

Australia has 65 Ramsar wetlands that cover more than 8.3 million hectares. As a Contracting Party to the Ramsar Convention, Australia has an obligation to 'wisely use' all wetlands and aquatic ecosystems. Ramsar sites (wetlands of international importance) are not considered protected areas by default in Australia, despite being an area-based conservation measure that is recognised under Federal legislation (i.e., *Environment Protection and Biodiversity Conservation Act 1999)*. However, they will often overlap with jurisdictional protected areas. Where Ramsar sites occur outside of protected areas, they may well qualify as OECMs (for the reasons given for World Heritage Areas above). However, Ramsar sites can occur across a range of tenures, including in areas such as state forests where logging may continue (e.g., Gunbower Forest). In these circumstances, while wetland values may be protected and maintained, other important elements of biodiversity may not be. The IUCN-WCPA Task Force on OECMs [4] states that "Forests that are managed commercially for timber supply and are intended for logging, even though they may have some conservation values. . ." is an example of areas unlikely to qualify as an OECM.

3.4.4. Biosphere Reserves

Internationally, there are 13 biosphere reserves (10 in South Africa and 3 in Columbia) recognised as OECMs (as of January 2024). The total area recognised as an OECM is 182,350 km^2 (World Database on OECMs [86]). Prior to 2018, most biosphere reserves in Australia did not extend beyond a core protected area [95] with just a few exceptions [96,97]). As a result, and in accordance with UNESCO's request that all Biosphere Reserves unable

to comply with the revised criteria outlined in the 1995 Seville Strategy and Statutory Framework withdraw from the Man and the Biosphere Programme by 2020, Australia withdrew 10 biosphere reserves from the programme between 2018 and 2020 [98].

More recent approaches to biosphere reserves in Australia have covered peri-urban areas (Mornington Peninsula and Western Port, Noosa, Sunshine Coast) encompassing thousands of different properties. These would not be OECMs as they cover broad, multi-tenure approaches, including land with no biodiversity value, and the biosphere reserve mechanism on its own would not secure biodiversity. There may be specific area-based conservation mechanisms inside a biosphere reserve buffer zones that would qualify as an OECM (e.g., as identified elsewhere in this paper), and each would have to be assessed individually.

Similarly, there may be other multi-tenure management approaches, such as water supply catchment areas or regional planning approaches which may contain a mix of protected areas, OECMs or neither depending on the values and land use.

3.4.5. Biodiversity Offsets

Biodiversity offsets are measurable conservation outcomes designed to compensate for adverse and unavoidable impacts of projects, in addition to prevention and mitigation measures already implemented [99]. The schemes vary between Australian jurisdictions, and thus the conditions on the offset area can vary. In general, they require another area to be set aside that protects biodiversity, often with a 'like for like' requirement to restore, manage and/or protect an equivalent area of the same values that were lost by the development (e.g., [100,101]). Where offset agreements are long term (i.e., at least 100 years) and are not also protected by a mechanism that would be considered a protected area (e.g., a conservation covenant), they would likely qualify as an OECM if they protected intact native vegetation. Offset agreements are typically protected by legal agreements, but concerns around monitoring, management and accountability have been raised (e.g., [102]), and thus each separate jurisdiction's offset programs, as well as the individual offset agreements themselves would need to be considered separately and carefully for OECM status.

3.4.6. Carbon Farming Agreements over Native Vegetation under the Australian Carbon Credit Unit Scheme Methodologies

Various activities relating to native vegetation can attract carbon credits under the Australian Carbon Credit Unit (ACCU) Scheme (formerly known as the Emissions Reduction Fund) [103]. These activities include avoided deforestation, avoided clearing of regrowth, human-induced regeneration, managed regrowth of native vegetation and tidal inundation of re-establish blue carbon ecosystems (e.g., saltmarsh and mangroves). Credits are sold, and income is usually used in part to manage the native vegetation to maintain carbon stocks. Carbon farming projects have clear boundaries, and projects are for 25 or 100 years under legal agreements. The land is managed and monitored to satisfy carbon farming regulations. While carbon farming aims to retain carbon, actions such as stock exclusion, avoided deforestation and managed regrowth are likely to support biodiversity and ecosystem restoration.

In Queensland, carbon credits can be combined with biodiversity credits under the Land Restoration Fund [104]. They have clear boundaries, and clear monitoring procedures have been established (e.g., using the Accounting for Nature framework for measuring, monitoring and performance reporting). However, projects are for 15 years.

Sites under long-term (i.e., 100-year agreements) demonstrate longevity and, presuming there is management capacity to manage the native vegetation that results in a biodiversity outcome, would likely qualify as OECMs. It is important to note that a site under restoration cannot be considered an OECM until it delivers demonstrable and significant biodiversity outcomes [4]. Hence, it may be some years before some carbon farming methodologies and projects could be considered potential OECMs.

3.4.7. Nature Repair Market Certificates

The *Nature Repair Act 2023* established a framework for voluntary, legislated Nature Repair Market in Australia which "will enable private finance to help to repair and protect [Australia's] unique natural environment and will reward landholders for protecting biodiversity" [105]. Similar to Australia's regulated carbon market, approved methods for particular types of activities will be developed to enable "projects to protect existing habitats, restore and improve damaged areas and establish new plantings to promote biodiversity and animal habitats" [105]. Landholders will be issued tradeable biodiversity certificates for approved projects.

In the explanatory memorandum for introduction of the legislation into the Parliament, aspects of the 'permanence periods' for certificates were discussed [106]: "The Bill would provide for a mandatory permanence period of 25 or 100 years unless the method allows for a different permanence period. The permanence period would be the total duration of the project and would be published on the public register. The activity period would cover the period of active management to achieve the projected biodiversity outcome. The permanence period may be longer than the activity period. For example, a project may have a 100-year permanence period but provide for active management for 25 years. Methods would define the requirements for the permanence period as well as the activity period".

Considering the enforceability of the provisions of the certificates, those certificates that have a longevity period of 100 years (or longer) would qualify as an OECM, provided other conditions (such as the quality of existing biodiversity in the area covered by the certificate; noting that sites requiring substantial restoration would not qualify as an OECM, according to global guidelines) are met [4].

4. Discussion

Australia, in its ambition to create a comprehensive, adequate, representative protected area system, has taken an expansive approach by actively incorporating private and Indigenous lands in addition to public land into the protected area network for the past 30 years. This approach has been based on considered policy and interpretation of the 'legal or other effective means' component of the definition of protected areas. In other countries, conservation mechanisms on Indigenous or private land might be considered OECMs by default, even though they have characteristics more akin to protected areas. Anecdotally, the similar terms in the OECM title ("other effective area-based conservation measures") to a component of the protected area definition (i.e., "other effective means") has led to confusion and potential misclassifications.

We have highlighted a number of issues that need further policy consideration and explored the likely applicability of an OECM classification to broad land uses and mechanisms. Many land use/ownership types would struggle to demonstrate the ability to maintain biodiversity in the long term (at least 99 years, a length of time well established in Australian protected area policy as equating to 'long term'). Where land use types/mechanisms would potentially qualify, each site would need to be assessed on a site-by-site basis.

4.1. Greater Policy Development for OECMs in Australia

Longevity of outcomes and thus tenure and conservation mechanisms are key elements for a site to be considered an OECM and this needs to be clear in OECM policy in Australia. As Jonas et al. [107] stated, "While the draft IUCN and CBD definitions differ slightly . . . the guidance underscores that the conservation outcome must be 'long-term' and therefore is expected to be ongoing. Short-term or temporary management strategies will be unlikely to support effective conservation outcomes and areas with short-term restrictions therefore fail to qualify as an OECM".

As guidance and policy consideration for protected areas has been in place for many years in Australia, many of the definitional issues relating to various aspects of OECMs are already dealt with by agreed national policy for protected areas. For example, the Natural Resource Management Ministerial Council [14,15] defined "long-term management" as

"ideally this should be in perpetuity but, if this is not possible, then the minimum should be at least 99 years" for areas to be included in the National Reserve System. This definition would naturally carry over as a requirement for OECMs in Australia to meet the intent of global guidance.

Based on IUCN's definition of an OECM, especially the component "governed and managed in ways that achieve positive and sustained long-term outcomes for the in-situ conservation of biodiversity", it would be difficult for private and leasehold land to qualify as candidate OECMs in the absence of a long-term legal agreement that would bind future owners to manage in a way that maintained or improved biodiversity. This is because, despite the best intent of a landholder to retain practices that maintain biodiversity, changes of circumstance or ownership can happen rapidly, with little certainty that subsequent owners will manage in a similar way in the absence of a legal obligation. The most obvious mechanisms in Australia at present are covenants that are binding on title that might not have biodiversity conservation as a primary purpose (and thus not qualify as privately protected areas; see [17,23]) or 100-year carbon agreements or 100-year Nature Repair Market methodologies that retain native vegetation. However, in all cases, the individual requirements of each agreement would need to be assessed, as well as the landholder's consent to an OECM classification.

The relative newness of the OECM definition, guidance and interpretation has posed some definitional issues. For example, the IUCN guidelines [4] state that "most areas managed for industrial production, even if they have some biodiversity benefits, should not be considered as OECMs", whereas the CBD definition does not mention industrial uses [3]. Likewise, there are also inconsistencies in the IUCN's guidance on delineating between protected area and OECM definitions. For example, the IUCN-WCPA [4] erroneously cites Mitchell et al. [20] in stating "Privately conserved areas, which are managed with a specific conservation objective, but which are not recognised as protected areas under national legislation" could be considered OECMs. However, national legislation is only one of a number of ways privately protected areas can be recognised [20,23]. This is relevant to the Australian context as not all protected areas (or areas that would qualify as protected areas) are included in CAPAD, particularly conservation covenants. The reasons for this are varied but include issues of privacy and permission from landholders not having been sought to do so [108].

4.2. Contribution of OECMs to 30 × 30 Target in Australia

Although there are clear differences in terms of intent (conservation needing to be a primary intent in protected areas, not necessarily so for OECMs) and understanding (protected areas have been around for more than 100 years, while OECMs have only been recently defined) within global area-based targets, there is currently no differentiation between the contribution that protected areas and OECMs might make to Target 3 of the Global Biodiversity Framework.

Within Australia, this has the potential to create some perverse outcomes that will need to be considered as policy is developed. Considering the ambitious targets of 30 × 30, there could be a temptation to count as many conservation activities outside of protected areas as possible as OECMs to meet the 30 × 30 target in the 'least cost' and/or 'least effort' way. This was also an explicit concern of the OECM idea when Canada was assessing progress and target sites to reach Aichi Target 11 [26]. The Australian Land Conservation Alliance has proposed that at least 29% of the 30% protection target be made up of protected areas [109], while other NGOs have proposed that the 30 × 30 target can be made with investment in existing and established protected area mechanisms [16].

There are opportunities for OECMs to contribute to Australia's domestic and global conservation targets. However, it should be remembered that there is a diverse spectrum of area-based conservation mechanisms in Australia [110], many of which would not be protected areas or OECMs, but all can play an important part in broader landscape-scale conservation [49,111,112]. As Stolton et al. [113] noted for privately protected areas (PPAs),

"Not all private conservation initiatives can or should become PPAs, although some initiatives that are not currently PPAs could become so with minor changes in management and emphasis". The same is true for OECMs. Some of the most well-known and popular mechanisms, such as Land for Wildlife [85], are neither protected areas nor OECMs, but are nonetheless an important part of the suite of tools for private land conservation in Australia.

4.3. Additional Policy and Program Considerations

4.3.1. Would Recognition as an OECM Lessen the Need for a Protected Area Designation and Associated Funding on the Same Site in Future?

If a primary motive for governments to recognise OECMs is their contribution to meeting Australia's domestic 30 × 30 target, once classified as an OECM, would this lessen the priority for declaring that site a protected area in future? This scenario is relevant across all tenures but has particularly important implications for private and Indigenous landholders if they would like a higher level of protection or recognition and/or the financial incentives that might be available to protected area mechanisms (e.g., IPAs, some conservation covenants). Perverse outcomes already exist in Australia in relation to existing privately protected areas [114], so this is a critical consideration. Explicit pathways from OECM to protected area status should be provided and accommodated in state and federal programs and funding.

4.3.2. Lack of Profile for OECMs

OECMS have only been relatively recently defined and lack profile in Australia. By their definition, they are mechanisms 'other' than protected areas. Determining whether OECMs will be 'branded' as a tool or funding program (high-profile approach) or whether existing mechanisms will be identified that would simply 'qualify' as an OECM (low-profile approach) is an important consideration. There are lessons here from other Australian private land conservation programs which have been discontinued, support stopped and short- and long-term agreements effectively 'orphaned' [85,115].

4.3.3. Management Obligations for OECM Landowners

Protected areas should have biodiversity conservation as a primary objective while OECMs are required to show an effective contribution to in-situ conservation of biodiversity regardless of their main objective [3]. Paradoxically, this may hold OECM landholders to a higher standard than managed protected areas; however, it is uncertain how and to what standard the effectiveness will be assessed (e.g., [24]). During discussions with managers of land that might be considered potential OECMs, transparently explaining the expectations and obligations of being recognised as an OECM will be essential.

4.3.4. Resourcing OECMs

Related to the above, capacity and resources for assessing, supporting and monitoring OECMs will be an important consideration. There are currently limited resources for supporting and monitoring existing protected area and private land conservation programs in Australia [16,36], reflecting a broader underfunding of biodiversity conservation in Australia [116]. There has been concern that resources may be diverted away from protected areas to OECMs [25], and it will be important to ensure the spending on area-based conservation is prioritised to approaches that deliver the highest likelihood of long-term success.

4.4. Defining and Reporting OECMs

The Australian Government and state and territory governments will need to formally integrate OECMs into policy frameworks to facilitate their acceptance. This will include a process for submitting data on OECMs to an equivalent of the Collaborative Australian Protected Areas Database (CAPAD) and then to the World Database on OECMs, and for assessments of how biodiversity is being maintained.

5. Conclusions

OECMs have the potential to complement protected areas in contributing to global area-based conservation targets, such as the Kunming-Montreal Global Biodiversity Framework. The relative contributions that OECMs will make towards area-based conservation targets are likely to vary by country based on factors including land ownership and tenure and the extent and diversity of mechanisms in the existing protected area estate. Australia has taken an expansive view of protected areas for the past three decades, actively encompassing private and indigenous land tenures. Australia also has clear operational policy for defining 'long-term' for protected areas (i.e., at least 99 years). As OECMs, by definition, also need to deliver long-term outcomes, it follows that the same timeframe would apply to OECMs in Australia. Our analysis suggests some draft principles for OECMs in Australia need to be modified to reflect global guidance and intent for OECMs and that, while a number of land use categories/conservation mechanisms (mostly on public land) may qualify as OECMs, many others would not, based on an inability to secure long-term biodiversity outcomes. A number of operational issues for implementing successful policies and programs for OECMs in Australia are outlined, but we note that Australia already has a comprehensive suite of proven protected area mechanisms that, with increased investment, are likely to deliver the best chance of meeting its 30 × 30 protection target [16].

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