The Earth and jurisprudence are both systems. The Earth is a system of physical and interlinked relationships. Jurisprudence is a system of abstract laws. Jurisprudence is a human creation. As such, jurisprudence is a system that depends for its existence on the systems of Earth because the former is the creation of a species whose existence is of the latter. It is therefore important, indeed necessary, to situate the system of laws within the physical context of the Earth's systems, because although the law currently situates itself above or separate to the physical realm, in reality the converse is true. Humans are physical beings dependent on, and subject to, their only home and ultimate jurisdiction – Earth. In a discussion of the idea of Earth Jurisprudence it is necessary to consider the laws of land and water ownership and use in terms of their physical (or economic) viability. In other words, laws that regulate the ownership and use of the Earth and its resources would need to both facilitate and regulate human-earth relations that are consistent with the unilateral dependence of humans and their socio-economic systems on the Earth's systems.

This chapter considers the notions of human ownership and property in the Earth and its resources through an exploration of two questions. First, what is it, precisely, that is thought to be owned? Second, what does ownership mean? Section II of the chapter addresses the first question by exploring the object of ownership in modern property law. Dominated by the notion of 'rights', modern property law lacks any referent to the physical realm and thus, disturbingly, disconnects ownership from the physical conditions of the land. Section III challenges the concept of ownership as rights in modern property law. It discusses the potential cultural and environmental significance of embedding the concept of responsibility for that which is owned within the property law of an Earth Jurisprudence. Finally, Section IV of the chapter contrasts the notion of property as entitlement with property as responsibility in the context of the interaction of human systems with the earth's systems. It argues that positioning the knowledge of the land prior to the exercise of any rights and responsibilities of ownership would render property law viable and enduring. The achievement of an Earth Jurisprudence means the recognition and integration of the capacities and limits of the Earth's systems within the laws that regulate the ownership and use of the resources of those systems.
Owning the Earth as a Right

Property law would seem an obvious starting point for a discussion of the laws that regulate land use and ownership. Or would it? If you have studied a property law course you would have learned about different forms of title (e.g. Old System Title, Torrens Title, Qualified Title, Possessory Title and Native Title) and about how those forms of title are secured and lost against other claims to the title (priorities). You would have learned about whether and how those titles could be used to secure loans of money (mortgages). You would have learned about how holders of the title could sell pieces of their property to other people both temporarily (leases are the sale of the right of possession for a period of time) and permanently (easements, covenants and the sale of all or a portion of the property). You would have learned about the ways that people can share title to property with others (co-ownership). But you would not have learned about the ownership of land - because property is not about land.

In law schools across the Anglophone world, one of the first things that students are taught is that property law is not about real things such as land or water. Modern property law is about abstract ‘rights’ between ‘persons’. So what you would learn in a course on property law has nothing to do with the ownership of land - it concerns only the ownership of abstract things, ‘rights’. Property law regulates the relationships we have with each other, not the relationships we have with the Earth. What we ‘own’ is not, in a legal sense, land. What we ‘own’ is a ‘right’ against another ‘person’ - the land is irrelevant. Property law is not about the physical world - property law is about the metaphysical world of human creation. For this reason, property is referred to by lawyers and scholars as ‘dephysicalised’.1

The idea that property law is not about the real and physical world is a point repeated in the case law, in legislation and by eminent legal scholars. And it is a point that has been made for centuries.2

Does it matter that land is irrelevant to the law that governs its ownership? Or in legal terms, does it matter that property is ‘dephysicalised’? If the ownership of land is not the same thing as the use of land, which is addressed by another area of law, environmental law, then why do these questions matter? It matters because ownership facilitates particular kinds of land and water uses and because these uses have physical, and potentially adverse, consequences for those lands and waters. The human ownership and use of various parcels of the Earth and its resources are directly related. Our jurisprudence or system of laws should therefore reflect this direct relationship through the alignment of the law that governs use and ownership -- the alignment of property law and environmental law. But the law that regulates human relationships to the land in contemporary jurisprudence is divided into two. Both property law and environmental law abstract the relationship between people and place, between humans and the Earth. Both laws dephysicalise what is a physical relationship in a physical world.

Environmental law exists independently of the physical consequences of its
jurisdiction and is based on the rules and regulations of the governments and councils of the day. Environmental law is subordinate to property law. Property rights are important to the cultural identity, economy and law of modern Anglophone societies. In some jurisdictions, property rights are regarded as fundamental rights of citizenship, are equated with liberty, and are protected in national constitutions. The task of governments, in environmental regulation, can thus be a difficult one that challenges the long-established cultural and legal priority of property law and its notion of ownership as ‘rights’. Disputes between people over parcels of the Earth and its resources are often framed as one between the interests of society (freedom) and the needs of society (sustainable environment). These disputes pit proprietorship against environmentalism in a false and adversarial picture of a relationship between people and place that cannot be anything other than one of dependency. The fact is there would be no proprietorship, no property law, no concept of ownership, if there were no ‘thing’ to own — no Earth. The tension and conflict between property rights and environmental regulation forgets that we, and our system of laws, depend on the Earth’s systems and cannot, truly, be thought to somehow triumph against it.

Given the legal priority of property rights, and given our cultural preoccupation with entitlement, the content of property rights requires some clarification. What kinds of rights, precisely, are property rights? Property rights, in modern law, provide the right-holder first and foremost with the right to exclude all others from the object of property. The right of exclusion is considered the foundation of the system of private property. The other important right held by the property right holder is the right to dispose of or alienate the property. The sale of part or all of one’s property can be achieved only by the right to dispose of it as one chooses — to alienate the land from one’s self. The right of disposition or alienation is also a central aspect of the system of private property. Another important right of a property right-holder is so important that it almost goes without saying. The holder of a property right may very well believe that their right entitles them to a diverse range of activities on and uses of one’s ‘property’ notwithstanding the views of others. These activities and uses are regarded as the purpose of ownership — the benefits or profits of ownership. Without these, the very idea of ownership seems pointless.

In Australian and American case law, cultural and judicial perceptions of property are expressed and debated in terms of the right to use one’s property in a way that ensures the benefits and profits of ownership. Courts hear and uphold arguments that without the benefits and profits, the property right is worthless. The conflation of the land with its commercial value and potential is all but unchallenged both in our culture and at law. In Australia, the High Court case of Newcrest Mining for example, saw the argument of a mining company that although their property right had not been compulsorily acquired or taken by the government of the day, it may as well have been because changes to land use law that prohibited mining activities in the land in question, effectively ‘sterilised’ the
property right itself. The sterilisation of the land by the mining activity was not at issue. The claim was for compensation for the loss of the property right and the Court accepted this claim. In the United States Supreme Court case of *Lucas*, the same argument was made out by an individual against the local council that had prohibited further development on an area of land subject to erosion, accretion and catastrophic flooding. David Lucas claimed that although the council had not taken his land, they may as well have because without the right to develop the land he owned, the land was worthless to him. He argued for compensation and the Court accepted this claim. The value of property in both these cases is a right to a commercial benefit or profit. The value of the land corresponds directly to that benefit and profit, and thus without the right to use the land in a way that achieves that profit, the property holder believes they hold nothing. The Courts’ acceptance of this argument in both jurisdictions are two examples of the law’s facilitation and protection of a dephysicalised idea of property that renders land irrelevant to the laws of ownership.

The focus of modern property law on rights and entitlement is an obstacle to the development of an Earth Jurisprudence. The notion of rights does not adequately account for and respond to the interaction between the systems of the earth and the systems of human society, of which law is one. The privileging of rights above other kinds of relationships between people and place renders invisible and irrelevant the ‘things’ that make life possible. Laws of ownership that fail to enquire, understand and accept the capacities and limits of the earth’s systems fail to achieve their ultimate purpose — to regulate viable land and water use practices on an enduring basis. How might property be reconceived to facilitate a more enduring and physically responsive regulatory framework for people-place relations? If we thought about ownership in broader and deeper terms of responsibility, would property law achieve its purpose? Is that all that is required of an Earth Jurisprudence — a change of vocabulary? The following section of the chapter explores the concept of ownership in terms of responsibility and participation in the use and management of the earth’s resources.

**Owning the Earth as a Responsibility**

Rather than reinventing the wheel, an effort to reform the rights-based law of ownership could learn a great deal from the long-established and successful systems of law or jurisprudence of indigenous peoples. Indigenous Australian jurisprudence, for example, offers numerous and diverse laws of people-place relations that are based on notions of responsibility for the land, often described as ‘caring for country’. In recognition of the dependence of human systems on the earth’s systems, Indigenous Australian law is structured around the ‘laws of reciprocity and obligation’. The concept of ownership in this legal system is not one of right and entitlement as in the Anglo-Australian legal system, but custodial. The relationship between people and place is not proprietary in the sense of the land being
The worldview that underpins Indigenous jurisprudence comprises a world in which there is a continuum and integrity of the earth's systems that includes the human species. Within this worldview, there is not the separation of people and place that characterises the worldview of Anglo-Australian jurisprudence. In English, the definition of the word 'environment' is 'the aggregate of surrounding things' and this reflects, to an extent, a worldview in which people are positioned at its centre and everything else around them. In this view, culture is separate from nature so it is unsurprising that law, being cultural, does not regard itself as derivative of nature. The separation between the physical and metaphysical, between place and people, is almost antithetical to Indigenous jurisprudence. Indigenous Australian legal scholar Irene Watson wrote:

The non-indigenous relationship to land is to take more than is needed, depleting ruma [land] and depleting self. Their way with the land is separate and alien, unable to understand how it is we communicate with the natural world. We are talking to relations and our family, for we are one.13

Watson's account of a familial bond with the land is shared by many other Indigenous Australian lawyers and elders. Eualeyai Elder, Paul Behrendt, employed the metaphor of the parent–child relationship to explain the connection to, and specifically, the responsibility to country that attaches to Indigenous Australian law:

Ownership [of land] for the white people is something in a piece of paper. We have a different system. You can no more sell our land than sell the sky ... Our affinity with the land is like the bonding between a parent and a child. You have responsibilities and obligations to look after and care for a child. You can speak for a child. But you don't own a child.14

Watson and Behrendt articulate a system of law that interacts with the earth's systems in a way that rationally and consciously responds to the dependence of the former on the latter. More accurately, they articulate not the interaction of two separate systems, cultural and natural, but the integrity of a single system. Perhaps this alignment of culture and nature, of the system of human laws and the systems of the earth, holds the key to the recognition of an appropriate formulation of an Earth Jurisprudence for non-Indigenous communities. But as Deborah Bird Rose observed two decades ago,
(In) spite of ... many eloquent statements by American Indians, Aboriginal Australians and others, we have very little idea of what a non-human-centred cosmos looks like and how it can be thought to work.\textsuperscript{15}

If we accept Rose's point, the important question to ask is what prevents the possibility of a non-human-centred cosmos taking shape in Anglo-centric law and culture? Could it be that the concept of a 'right' is itself part of an inward focus that places a priority on the identification and protection of the needs and interests of the self? Watson's work suggests this is the case. In her critique of native title law, Watson remarks that 'granting title to land has never been our question.'\textsuperscript{16} The notion of entitlement she argues 'is the domain of those who want it named and determined for their short time and space on earth.' Watson links property-as-right and the concept of entitlement to greed,\textsuperscript{17} which she says is different from and antithetical to 'caring for country'. If Watson is correct, then the development of an Earth Jurisprudence will need to critically reflect on the anatomy of the concept of ownership in modern property law. It is not sufficient to know that modern property law is dephysicalised and rights-based, nor is it sufficient to know that what those rights consist of. The worldview from which property rights follow must be part of the audit. How is the concept of 'right' at the origin of modern property law manifest in its day-to-day operation?

In the practice and experience of modern property law, decisions are made about land and water use by property rights-holders predominantly on the basis of the most commercially profitable use available to them. Where lands, waters and the resources therein are shared across boundaries or are indeed public lands, decisions that are made about their use are complicated by the competing desires and needs of multiple property rights-holders, government agencies and community members. In natural resource planning and management literature, these people and groups of people are referred to 'stakeholders'. Where decisions about land and water use arouse the interests and needs of multiple stakeholders, they are referred to in the literature as 'wicked problems'. Wicked problems are those where there are complex interconnected systems linked by social processes, with little certainty as to where problems begin and end, leading to difficulty in knowing where and how constructive interventions should be made and where the problem boundaries lie.\textsuperscript{18}

The difficulty of environmental decision-making, it seems, is that the decisions are made with a number of rights in conflict. It is the existence of the concept of the 'right' itself that is at the heart of the difficulty. Were the relationship characterised by responsibility, would the same complexity, competition and conflict arise? Were the decisions on the use of land and water based on knowledge of the capacity and limit of the land to support that use, would it be simpler? Environmental decision-making literature sheds light on how the concept of rights influences and indeed dominates modern property law in its daily operation.
In Montana, U.S., natural resource management scholars Paul Lachapelle and Stephen McCool found that ownership can be conceptualised and approached in terms of participation and responsibility. Focusing on forest management, they argue that the interest of both title-holders and non-title holders in decisions about forests was experienced differently because of the conflation of property rights with control or power over the use of land. Where the entire community, not just the dominant right-holding stakeholder, is engaged in the decision-making process 'a sense of ownership ... is created, leading to greater chances for political support and implementation'. Their argument, however, does not subvert the concept of ownership as a series of rights in the earth’s systems and resources; rather it extends those rights to people beyond those on the formal legal title. As a democratisation of a process, this is an interesting and valuable point. However, their discussion of responsibility for environmental decision-making does not replace the priority of the 'right' -- it complements it. For them, responsibility is not for the land but for the decision, and hence ownership is not of the land but of the decisions about and over the land which remain, ultimately, separate from the human community.

Could ownership of land be regarded in the same way we think about ownership of human behaviour? In the discipline of psychology, ownership refers to the taking of responsibility for one's actions and their consequences. How would this meaning of ownership work in application to the land? In particular, how would one own or take responsibility for the actions and consequences of mining land when the purpose of the ownership (the conditions of the mining lease) is contingent on mining activities? Surely the content of property rights, specifically the rights of exclusion and alienation, prohibit the appointment and acceptance of ownership of the consequences of the relevant land use activities? It is at this point that knowledge of consequences becomes important to a discussion of redefining ownership to include responsibility.

In modern non-Indigenous society, the source of knowledge of land and water features and processes is science. Lachapelle and McCool refer to a 'technocentric' approach to natural resource planning in which science and scientific method dominate the decision-making process. They critique this approach for its failure to recognise, validate and perhaps accommodate a range of human interests in the land notwithstanding scientific fact. They argue that 'science alone does not address the desirability of the conditions, since these are normative decisions based on value judgments'. In other words, information about the earth and its systems, while important, does not and cannot override the human interest in decisions about the resources of those systems. The argument that knowledge of place may describe the capacities and limits of the land, but that human needs and interest remain paramount, if only for pragmatic reasons, is concerning. The displacement of the knowledge of place is a key feature of 'rights' in modern property law. It is to the question of the relationship between knowledge and ownership that the chapter next turns.
Ownership and Knowledge

Modern property rights exist independently of the knowledge of the capacities and limits of the land over which those rights are exercised. Indeed, some property rights, for example the right to graze livestock, the right to irrigate, the right to mine and the right to develop coastal and estuarine landscapes, may be exercised despite clear and long-standing evidence that the capacities and limits of the lands over which they have been exercised have been exceeded. Clearly, there are physical limits to the status quo. The hope for effective environmental protection and the establishment of viable and enduring laws that regulate the relationship between people and place, between humans and their home, the Earth, must take cognisance of the artificial and unhelpful separation of questions of ownership and use and endeavour to once more align the two into an integrated land law. This would achieve a 'rephysicalising' of property law and restore the centrality of the physical world to jurisprudence.

One of the best-known failures of the current global economy has been the method used to allocate the costs of the negative or adverse consequences of the production and consumption of the earth's resources. The 'externalisation' of these costs is one of the most significant issues facing governments around the world. A popular response has been the promotion of the idea of environmental markets – in carbon, for example. By integrating a knowledge not only of the capacities (or benefits) of land and water to produce certain resources, but also of the limits (or burdens) of such production, the total cost of ownership is thought to be calculable. The disposition or alienation of property may gradually be understood as being more than the right to any profitability of the land, to include the responsibility or 'cost' of restoring any damage and/or the cost of protecting the land and its resources from any harm.23

The development of property and ownership laws in an Earth Jurisprudence would contain and indeed be based upon the knowledge of the earth's systems. Such knowledge can provide information about the capacities and limits not in general terms but in specific terms of place-based contexts. Certainly, the overarching biophysical system must be understood as an entirety and the interaction between its five components24 is elementary to sound environmental decision-making. Feedback processes, both positive and negative, are also important to understand, particularly the impact of human actions on these spheres, in terms of energy and waste in particular. This would help the law to integrate its authority with the laws of the physical world.

An important part of knowledge of the earth's systems is not limited to space and place. It also involves an understanding of time – the physical change within and between the earth's systems both in terms of repeating patterns and rhythms and in terms of permanent change. The changes of the Earth and its systems underline that Earth is not a state, but a living thing. Each part of the Earth's system affects other parts in complex processes of feedback. All species must, of
necessity, constantly adapt to changes in their ecological conditions such as water supply and changing temperature, which in turn are changing or adapting in response to other factors in the feedback process. Failed adaptations lead to extinction as well as to speciation. Creating laws that take into account the dimension of time, as well as space, is vital to those laws being viable and enduring. For example, in the allocation of property rights in water, knowledge of the El Niño–Southern Oscillation variations of the wet La Niña and the dry El Niño, in addition to knowledge of seasonal rainfall patterns, would help make those rights and the laws that regulate them functional. Without incorporating that knowledge into water law, over-allocation has led to desertification (anthropogenic drought), financial hardship, family and community crisis and economic damage to society. Whether change is temporary or permanent, property laws that are dephysicalised lack the capacity and flexibility to accommodate change in the physical conditions of those rights and thus become dysfunctional and meaningless.29

The viability of knowledge-based land laws is evident in the long-established and successful Indigenous Australian legal system. The system is not inherently superior nor was it rapid in development. The Indigenous Australian legal system linked the knowledge of place to law through sheer experience of specific geographical conditions, over a very long period of time and across a vast continent of diverse and changing climatic conditions. The point is not to essentialise and racialise law but to identify and respect the intellectual integrity and practical success of laws that have been and remain locally viable and authoritative. The intellectual and practical opportunities of learning about Indigenous land laws are opportunities to learn about many complex systems, patterns and relationships that connect people and place. Ownership cannot exist without responsibility, and responsibility cannot exist without knowledge. How can we assume responsibility for things we don’t know and understand? How can we claim entitlement to things we assumed no responsibility for maintaining? Modern property law conceptualises and articulates limits to its application in terms of jurisdiction and authority. Yet this authority and jurisdiction derives not from the specific physical conditions of local places, but from itself, in a circuitous and irrational fashion. As modern property law increasingly exceeds the physical conditions of its own existence — what local authority can it be said to have?

Conclusion

The principle objective of modern property law is not the regulation of human-earth relations but the regulation of human-human relations and the distribution of the earth’s resources between people as tradeable commodities. This anthropocentric and dephysicalised approach to defining and regulating the ownership of the land is a potent obstacle to the development of Earth Jurisprudence. It renders invisible and irrelevant the actual physical capacities and limits of the Earth to the model of ownership of land and consequently facilitates maladapted land use
practices. Anglo-Australian property law is devoid of a vocabulary of responsibility to and for land. By contrast, Indigenous-Australian land laws take the concept of custodianship as the foundation of their systems. The geophysical success of such a regime is a helpful starting point for reflection and reform of the dominant dephysicalised property of Anglo-Australian law. In particular, the centrality of the knowledge of place to Indigenous land law is a helpful lesson in reshaping a more rational and functional law of ownership. So when we think about what it is that we claim to own, we speak of a place, not an income, and a place with geographically specific conditions and geologically specific histories that are not finished. Land exists in place and in time. Our knowledge of those dimensions is important to our knowledge of the consequences of our actions on and to the land long after we are gone. Such knowledge might constitute a law of ownership befitting a body of Earth Jurisprudence.

Notes
7 See page 214 of this book.
17 Ibid.
20 P. Lachapelle and S. McCool, ‘Exploring the Concept of ‘Ownership’ in Natural
21 Ibid, p. 280.
23 See N. Graham, ‘The Mythology of Environmental Markets’ in Property Rights and
24 The atmosphere, hydrosphere, cryosphere, lithosphere and biosphere.
25 For example, ‘[f]armer Malcolm Holm accidentally cut off his left hand in a grain
machine the day after being notified that his pre-purchased water allocation was to
be reduced by thirty-two per cent due to the low level of the Hume Weir.’ Beyond