

# The Emu: More-Than-Human and More-Than-Animal Geographies

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**Abstract:** The emu is endemic to Australia and is one of the world's largest flightless birds. For Indigenous peoples, the emu is a highly significant and totemic species—a fact that is poorly recognised by many. Emu shows itself, and is positioned as: a national symbol in the Australian Commonwealth Coat of Arms; a spirit and Dreaming-creation belief involving the sky; a scientific animal; medicine and food; an oil; and as a component that has been isolated, privatised and monopolised through the patent system. It is important to recognise the significance of animals like the emu, and its many uses. Yet to date there is limited critical discussion of the appropriation and patenting of emu oil products which appear to be based on Indigenous knowledge, uses and innovations. This article uses more-than-human and more-than-animal thinking to decentre, problematise and Indigenise “ways of thinking” about the emu. We also seek to reframe the subjugation of “traditional knowledge” in scientific discourses and to reify Indigenous Australian innovations, and relationships with animals and Country.

**Keywords:** emu, more-than-human, Indigenous knowledge, medicine, patent, spiritual

## Introduction

The emu, endemic to Australia, is one of the world's largest flightless birds. The focus, in this paper, on one of Australia's iconic animals following an estimated loss of a billion animals in the 2019–2020 Australian summer bushfires, which many scientists believe were exacerbated by human-induced climate change (RMIT ABC Fact Check 2020). At a time like this it is important to recognise the significance of animals like the emu. Yet to date there is limited critical discussion of the appropriation and patenting of emu oil products. We chose to focus on the emu because we became aware of commercial skin-care and related products using emu oil in the marketplace; discovered patents relating to the species during past patent searches and in the media; and because we have heard about the significance of the species for Indigenous Australian communities in either literature or in discussions with Indigenous colleagues.

This article utilises Indigenous perspectives for re-thinking and Indigenising the categorisation and commodification of nature. Panelli (2010:84), for example, contends that moving beyond “the Enlightenment meta-narrative which has served to separate humans from non-human nature will require the telling of a dramatically different story in Western thought (Johnson and Murton 2007:124–125) in ways that ensure that mainstream academic circles seriously consider Indigenous scholarship” and engage with Indigenous knowledges.

We acknowledge existing human-animal geographies (Buller 2014; Urbanik 2012). However, these studies have often failed to engage deeply with Indigenous perspectives, with some exceptions (Rose 2000). This article uses more-than-human and more-than-animal thinking to decentre, problematise and Indigenise “ways of thinking” about the emu. This paper explores Indigenous Australians totemic relationships with emus, which translates to mean that the emu may be a human and a human may be an emu (Robinson and Raven 2020). This paper recognises Indigenous conceptualisations of the emu, against the backdrop of the current “technologically molten” context (Whatmore 2006), whereby life and life-forms are reducible down to parts, components, extracts, oils and commodities by state-enforced monopolies in the name of scientific and capitalist “invention”. To this end, our paper critiques and debunks the construction of animal/emu extracts as “innovation”, because literature based on Indigenous knowledges verifies that Indigenous Australians have used emus for identical or near identical purposes. The paper queries the assumption and definition of “innovation” versus “discovery”, and the commodification/appropriation of more-than-human nature through patents. We seek to reframe the subjugation of “traditional knowledge” in scientific discourses and reify Indigenous Australian innovations, relationships and conceptualisations of nature. We do this by studying the emu.

The techno-legal construction of patents on life forms has been problematised and debated for some decades (Sherman 2008; Whatmore 2006). Amongst this discourse has been the call by Indigenous peoples and local communities, activists and biodiverse countries of the “south” to identify and eradicate “biopiracy” (Dutfield 2005; Robinson 2010). While there is no clear legal definition of “biopiracy”, it has been described as follows:

Biopiracy normally refers either to the unauthorised extraction of biological resources and/or associated traditional knowledge from developing countries [or Indigenous peoples and local communities], or to the patenting of spurious “inventions” based on such knowledge or resources without compensation.

International law and protocols now respond to “biopiracy”. The concern has legal basis under the 1992 “Convention on Biological Diversity” (CBD) and the 2010 “Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilisation” (Nagoya Protocol). The CBD and Nagoya Protocol require prior informed consent for authorised “utilisation” (meaning research and development) of genetic resources and associated traditional knowledge. The Protocol also requires a benefit-sharing agreement achieved through negotiation of mutually agreed terms (MAT). To act contrary to the CBD and Nagoya Protocol is to engage in biopiracy. Illustrating that this is

now a mainstream policy issue, the CBD has 196 ratifications or accessions—only the United States of America remains a non-party. The Nagoya Protocol, which entered into force in 2014, has 124 signatory parties. While the CBD briefly mentions “intellectual property”, neither it nor the Nagoya Protocol directly require monitoring of the patent system, or any rectifications to patent law or policy. This has meant that the international regime addresses some of the underlying concerns relating to biopiracy, but with very little action or reform of the patent system. Some countries have argued that there is insufficient evidence about the use of patents over Indigenous and traditional knowledge and its harms to warrant any major reforms to the patent system (see Keating 2017). This paper contributes to growing evidence about biopiracy, and broader concerns relating to the patenting of parts of animal as “genetic or biological resources”.

This article thinks through ways of understanding the emu as national icon; emu as totem, Dreaming-creation and law; emu as scientific animal; emu as medicine and food; and emu as oil. We structure the article like this to explore and explain the plural ways that the emu is perceived, defined and also related to. In doing so, we highlight the ways that Indigenous perspectives on the emu have been pushed to the background in the way that emus have been symbolised, used, commodified and appropriated. Our approach and framing borrows from the materialist turn in geography, and seeks to draw parallels with the “following” approach (Cook 2004, 2006), including “following species” (Kirksey and Helmreich 2010), as well as more-than-human geography (O’Gorman 2017, 2021; Thomas 2015; Whatmore 2006; Wright et al. 2012).

## Emu as Spirit, Totem, Dreaming-Creation, Law and Country

Before delving into emu Dreaming-creation beliefs, it is worth noting that Indigenous law, often described as “customary law”, is derived from “law-stories” which often include Dreaming-creation stories for First Nations Aboriginal peoples of Australia (see Watson 2000). Many of these beliefs are considered to impart laws about the conduct of humans in relation to nature, and nature in relation to humans. Specifically, “customary law” establishes a framework for the management of landscapes which the emu inhabits, and the hunting, collecting and use of emu eggs, meat, feathers and oil. Use and stewardship of emu may not be seamless or perfect (Hermes 2018), however, these activities are directed through kinship responsibilities or totemic relationship as ancestral beings. As Gammage (2011) explained:

Aboriginal religious philosophy explained and enforced ... [complex and long-term land management], chiefly via totems. All things were responsible for others of its totem and their habitats. For example, emu people must care for emus and emu habitats, and emus must care for them. There was too a lesser but still strong responsibility to other totems and habitats, ensuring that all things were always under care. Totems underwrote the ecological arrangement of Australia, creating an entire continent managed under the same Law for similar biodiverse purposes, no matter what the vegetation.

Similarly, Aboriginal story, dance, song, art and place are also intrinsically interwoven within “customary law” that relates the animate nature of the emu as a keystone species. Breaches of customary law were and are seen to be very serious matters that infringe on the spiritual and cultural beliefs of Aboriginal peoples.

The emu is intrinsically linked to Aboriginal people’s culture, identity and economy, and is woven within the fabric of networks of customary law and inter-tribal relationships. As Uncle Ian Sim (1992) explains:

That Emu is my relative. My Dthingaa or meat (totem) and that means you come from the Emu. Anyone who is an Emu man or woman is my close relative. If you show disrespect to the Emu, you’re hurting me and my family.

The emu is a link that connects the natural world to the identity of Aboriginal peoples through creation—that set down custodial relationships that imbue customary law rights and responsibilities for the Emu and Emu people. The Dreaming or Dreamings are creation beliefs often described in plural form because for different Aboriginal peoples in Australia, there are different, but interlinked genealogical creation stories of ancestors, kin and descent (Stanner 1953). Many of these creation stories inscribe totemic or kinship relations to species including the emu. As Garde (2017:xv) explains, there is something very special about emus for many Indigenous Australians:

... the enormous, ever-curious bird who cannot fly. In the Aboriginal Australian world view, animals are other kinds of people and emu, perhaps more than most animals, is a special kind of person. She wanders the bush constantly in search of food, always returning to places in the right season to get what she wants. In the Bininj Kunwok languages of western Arnhem Land and Kakadu National Park, she is described as “ngal-rongmiken”, which means “always turning from place to place, a bush traveller” ... Bininj say that in the period of creation when the world began, in what some English speakers call “the Dreaming”, the animals we see today were in human form.

Creation stories about the emu often describe Aboriginal astronomical features in the stars that document knowledge about the emu and its connection between sky and Country (and the term “Country” has plural significance beyond landscape to include cultural and spiritual meanings):

This emu was once a human being and ... all these figures [points to an image being painted of the “greedy emu” story with human-like creatures] they were humans who changed into animals. They flew up into the sky and they left the emu on the ground to walk around. Mmm she was Bulanjdjan [a skin name]. (Jimmy Kalarriya, Bininj elder, at Manmoyi Outstation in Western Arnhem Land, in Garde 2017:5–6)

The narrative may be similar for Aboriginal peoples, but as Fuller et al. (2014:4–5) explain, the “Emu in the Sky” story may differ for Aboriginal people based on their geographic location:

The Emu, as seen by the Kamilaroi and Euahlayi, changed in position from season to season, as the Milky Way containing the Emu changed position in the night sky. As the Emu changes position, it alters in appearance, and that appearance has connections to cultural and resource matters.

The emu is a very important totemic animal for the Kamilaroi and Euahlayi peoples, whose territory is located across what is now northern and north-western New South Wales and south western Queensland. Differences in the stories about emu may point to distinct places on their Country. The birds specific characteristics are all explained through creation stories and those who possess the emu as their totem have a specific responsibility to look after the stories and the bird itself as a direct kin relation through customary law (Sim 1992).<sup>1</sup>

The Emu is in the sky like a mirror on country and inside us. When the Emu moves in the stars, it moves inside us, I am the Emu and the Emu is me. You can't pull him out! (Sim 1992)

In Kamilaroi and Euahlayi languages the Emu in the sky is called Gawargay (Ash et al. 2003), who is a spirit creature (Norris and Norris 2009). Gawargay is believed to inhabit both the Barwon River, in north-western NSW, and Warrambool, the celestial river in the sky, which is colloquially known as the Milky Way and scientifically as Coalsack Nebula. Coalsack Nebula is one of the most prominent dark nebulas in the skies. As the night sky turns through the seasons, Gawargay acts as an ecological indicator that flags a period for collecting emu eggs and hunting the birds (Sim 1992). The male emu incubates and raises the chicks and can only be hunted prior to breeding, while the female can only be hunted after laying eggs. The position of Gawargay in the sky also indicates seasonal rains and flooding from waters travelling down the river systems located in upper catchment areas of Queensland (Sveiby and Skuthorpe 2008).

An emu creation dreaming story also exists for the Gariweld landscape (the Grampians in Victoria, southern Australia) which is a special place for the Djab Wurrung and the Jardwadjali peoples. In this creation story, Tchingal, the mighty emu, chases Waa the crow and slams into a mountain. The mountain split open under the force of the impact releasing a mountain stream and creating Barigar, also known as Rose's Gap (Martin Gordon, cited in Budja Budja Aboriginal Co-operative 2020). This highlights the merging of the cultural and the natural in Indigenous creation beliefs. It gives a very different "more-than-human" geography and nature than we find with the Australian scientific story of the Grampian mountain range. This creation story also projects itself onto the night sky and star-scape, as Budja Budja Aboriginal Co-operative explain:

Now, if you look at the Southern Cross, you can see the story told in the stars. At the head of the Cross is Bunya, the timid possum. Three of the stars are the spears hurled by the Bram-bram-bult [brothers]. The large western star is the spear that struck Tchingal in the chest, the smaller star next to it is the spear that passed through his neck, and the star at the bottom of the Cross is the spear that struck him in the rump.

Tchingal himself is the dark shape that lies next to the Southern Cross. The eastern star of the Cross is Druk, the mother of the Bram-bram-bult, and the two brothers are the Pointers of the Southern Cross. Waa the Crow is at a safe distance on the other side of the sky, as the star we know as Canopus. (Martin Gordon, cited in Budja Budja Aboriginal Co-operative 2020)

There are also sacred sites relating to emu stories and Dreaming-creation stories in many other parts of the country, including in Arnhem land:

There's an Emu Dreaming/sacred site at Kurdukadji Dedjbarlkarrhmeng in the Maburinj estate. That's duwa moiety country. That's the emu with the dark neck [and therefore duwa moiety]. (Jimmy Kalarriya at Bolkdjam Outstation, Western Arnhem Land, in Garde 2017:26)

And also at Mount Catt, a site called Yunjyunj, the ancestral emu being made that place, the emu ... where she plodded along. At Yunjyunj the first emu created that place in the Dreamtime. Yunjyunj is the emu's place. (Jack Nawilil at Bolkdjam Outstation, Western Arnhem Land, in Garde 2017:26)

These sites embed Indigenous culture and beliefs into the landscape—the origins of those sites linked to the stories, animals and humans. The emu is symbolised in kinship and marriage choice under Indigenous law in Arnhem Land, being a reflection of skin names and moiety, as (Garde 2017:xv) explains:

Emu was a woman in the Bulanjdjan or Ngal-kangila skin group in the yirridjja moiety—one of the two halves into which everything in the world is classified ... As a result of emu's position in the world of kinship, people in Arnhem land can fix emu into their social networks.

Aboriginal creation stories develop narratives that portray examples of good and bad behaviour to create a moral compass to guide humans in their understanding of what is acceptable and unacceptable conduct. In one of the Kamilaroi creation stories of the emu, the emu and brolga go into competition with one another and use trickery in an attempt to gain personal advantage. This results in the mutilation of the emu's once powerful wings by cutting and by fire. In turn, the brolga is tricked into murdering her many children, only leaving two remaining (Austin and Tindale 1985; Clarke 2018; Wilson 1937). The story describes the physical and biological character of both species, while giving a moral warning of the outcomes of competitive rivalry and deceit. The story provides a framework to understand what is fair and provides an antithesis of patenting and monopolistic advantage-seeking.

Besides biological and ecological observations of emus, there are also many observations about the nature and behaviour of emus as animals as curious or intelligent beings. There are many Indigenous and also colonial stories about emus being “cheeky”, inquisitive, an explorer going from place to place, as sometimes being tame and friendly with people, snatching food, and cavorting with other animals (e.g. Chisholm 1917; Garde 2017; Garvey et al. 2011).

## Emu as Scientific Animal

The emu, *Dromaius novaehollandiae*, is the largest endemic bird in Australia, reaching up to a height of 1.9 m tall. Emu are the second tallest bird species in the world after ostriches. Adult emus are covered with grey-brown double shafted feathers, excepting the neck and head, which is bluish-black in colouring. The wings are small, while the legs are long and powerful. Each foot has three

forward-facing toes and no hind toe. The emu belongs to the flightless birds group of ratites along with the ostrich, kiwi, rhea, choique and cassowary (Jeengar et al. 2015). They are classified by biologists as ratites from the superorder Palaeognathae and order struthioniformes (Jeengar et al. 2015). The emu inhabits much of the Australian continent, with a preference for savannah woodlands, grasslands and sclerophyll forest. Emus also lived in Tasmania and its offshore islands, but were exterminated during European colonisation (Brasil 1914; Dickson 1925; Le Souef 1903; MacDonald 1978). The literature also suggests that Aboriginal hunting may have diminished emu populations on Groote Eylandt, Northern Territory (Hermes 2018).

The emu is adapted to arid environments meaning that they have low requirements for total energy and protein (Dawson and Herd 1983) and water, and a low turn-over rate of water (Dawson et al. 1983). The emu can also feed on leaves and berries of salt bushes (Dawson et al. 1984; Skadhauge et al. 1991). Ecologically speaking, the emu plays a significant role as a keystone species being a seed disperser for many plant species, in terms of volume and distance both locally and over long distances (McGrath and Bass 1999; Nield et al. 2015; Noble 1975). The emu has a generalist diet (Dunstan et al. 2013) making it an ideal general seed disperser, and likely contributor to the demography of many species.

The description above situates, and makes, the emu a scientific animal. The name *Dromaius novaehollandiae* slots the emu into the Linnaeus classification system; and along with descriptions of physical characteristics, brings it into “relationship” with other species that look similar. Until the rise of cultural ecology, the relationship that animals such as emu had to other species such as humans, was largely ignored (Blute 2008; Head and Atchison 2009). The Linnaean classification ignores a cultural ecology lens, for one that is concerned with classifying animals according to a set of unique specific biological characteristics.

## Emu as a Medicine and Food

There is extensive documentation of Aboriginal peoples’ use of emus by early colonial researchers, historians and anthropologists, often in regards to its consumption as food (Beveridge 1884; Elkin 1977; Gason 1879; Hardy 1969; Howitt 1904). Indigenous uses of emu oil are mentioned in ethnobiological and other historical texts. For example, Byard (1988:794, citing Ling Roth 1899) wrote:

... the Aborigines used animal derivatives in their healing practices. Animal fat liniments for “rheumatism” and musculoskeletal pain were in wide use, with the types of oil used depending on the availability of local animals. For example, in Tasmania the oil of the “mutton bird” was used, while on the mainland goanna oil, obtained from a lizard, was a remedy adopted by early settlers. Snake and emu fat were also used as liniments and wound dressings.

Additionally, Colliver, citing earlier work, noted early colonial observations and recorded uses of emu oil as an embrocation or balm for “rheumatism and allied aches and pains” (Colliver 1972:10, citing Stephens 1890). Colliver (1972:6, citing Roth 1903) also discusses the use of paper bark, clay, emu fat and hot ashes

to staunch the bleeding from circumcision procedures and minor surgeries. Furthermore, there are historically documented uses of emu for moisturising skin, decreasing inflammation, healing wounds, scars, and sun burn (Beveridge 1884; Elkin 1977; Gason 1879; Hardy 1969; Howitt 1904).

The use of plant and animals for different purposes is controlled by Indigenous laws and beliefs. Across parts of Australia, Aboriginal peoples generally avoided eating certain spirit totem species they were associated with. This was because if the spirit totem species was an animal it was akin to eating your own flesh (Clarke 2015; Howitt 1904). Consumption of certain animal foods also has rules and risks for some parts of the community. It is common in Indigenous customary law for First Nations Australians to have gendered laws and rules that guided and structured traditional lifestyles. In southwestern Victoria, for example, “Women are not permitted to eat the flesh or eggs of the gigantic crane [brolga], or of the emu, till they are old and grey-headed” (Dawson 1881, cited in Clarke 2018). Similarly, Ngarrindjerri people of the Lower Murray River in South Australia believed that parts of the emu’s flesh contained sacred power, and therefore the butchering of them was highly ritualised, must be undertaken by men only, and follow a specific process (Howitt 1904, cited in Clarke 2018).

## Emu as National Icon

The emu has become a national icon for post-colonial Australia. The emu, alongside the kangaroo, features on the Australian national coat of arms. “The Commonwealth Coat of Arms is the formal symbol of the Commonwealth of Australia. It is used to identify the authority and property of the Australian Government, the Australian Parliament and Commonwealth courts” (PEO 2020). This symbol appears on, for example, Australian passports, government buildings and some Australian currency. The Commonwealth Coat of Arms is a symbol of nationalism that supports colonial rule, but it also represents the extension of colonial rule over animals and plants (as depicted by the kangaroo, emu and the golden wattle). The placement of the emu on the coat of arms claims the animal as both a symbol and a resource of the Australian state.

Arguably, the presence of the emu on the coat of arms has probably contributed to relatively low consumption and sale of emu meat (and to a lesser extent kangaroo) in Australia (Snowden et al. 1999). When emu is introduced as an Australian culinary experience, there is usually a critical response. As Lee (2018) reported, “When Qantas briefly served the meat in meals on some flights, such was the public backlash about eating one half of the nation’s coat of arms, the airline quickly removed it again”. The placement of the emu on the coat of arms, the broader public’s meaning attached to the bird, and the reporting of it highlights the way that an “animal” becomes a contextualised object whereby certain powerful narratives triumph others. After all, emu has long been a major food source for Indigenous Australians and yet for some it is considered too special to eat.

Cognisant of the way that the kangaroo and emu had been used to depict State sovereignty, in January 2002, Aboriginal protesters removed the Australian



coat of arms from the old Parliament House, Canberra (Mohr 2005). As Mohr (2005:180) argues, “they objected to the use of sacred animals on the symbol of Australian government sovereignty”, while the government of the time did “not recognise the prior rights and sovereignty of the Indigenous people of the continent”. This act highlights the continued acts and assertions of Indigenous sovereignty that question the very notion that the Australia State owns the plants and animals claimed as part of its land mass, waterways and seas. But it did more than this, it showed a reverence for an animal that is deeply embedded and a part of Aboriginal people’s lives and beliefs.

## Emu as Oil

While the ostrich has become known for its skin and meat products, emus have become known for the oil from their subcutaneous and retroperitoneal fat (Hoffman 2008). Since the 1980s there has been an increased interest in emu oil for medicinal and skin care purposes. The majority of these relate to treatments for rheumatoid problems, arthritis and skin care problems such as eczema, and wound/skin repair (Abimosleh et al. 2012; Fein et al. 1995; Ghosh et al. 1995; Lee 2018; Snowden et al. 1999; Zemstov et al. 1996). These are all treatments that have been used by Indigenous Australians for thousands of years (Beveridge 1884; Elkin 1977; Gason 1879; Hardy 1969; Howitt 1904). For instance, the US-based research by Zemstov et al. (1996) for cosmetic and skin-care creams used emu oil for a clinical study that was imported from an Australian company, which is clearly based on Aboriginal knowledge (as noted in their introduction).

Often this research was done prior to the establishment of the Nagoya Protocol and was at the early stages after the ratification of the CBD by Australia in 1993. As we will discuss in the following section, much of this above-cited emu research appears to free-ride on Indigenous knowledge, which is being used as a lead towards patent claims for monopolies over “new inventions”. Through a Nagoya Protocol lens, this type of behaviour could be considered “biopiracy”. Analysis of these research reports and subsequent patents highlight the lack of novelty and inventiveness of the patent claims relating to emu oil.

Additionally, some of the language surrounding the “research and development” of emu oil at times is dismissive of the labour and observations present in Indigenous knowledge, uses and innovations. For example, an Australian Government funded report by consultants Snowden et al. (1999), for the Rural Industries Research and Development Corporation (RIRDC), states that:

Prior to the commencement of this study, the evidence for the efficacy of emu oil as an anti-inflammatory agent has been largely anecdotal, such as “Australian aboriginals have used emu oil for centuries to treat inflamed joints”.<sup>2</sup> The first accounts of the efficacy of this oil were published in the mid 1800’s. However recently, a wide range of therapeutic applications for the oil have been claimed in two United States patents. Unfortunately, no statistical evaluation of the results was presented in these patents. (Snowden et al. 1999:1)

The placement of centuries old Aboriginal use of emu as “anecdotal”, and situating colonial published records from the mid-1800s as superior, plays into the creation of emu as a scientific object. While Snowden et al. (1999) sought scientific data to justify efficacy of emu oil; there is a need to re-evaluate the inherent privileging of knowledges through this sort of language in scientific publications that make references to Indigenous knowledge. Despite these shortcomings, Snowden et al. (1999) do provide a critique of the lack of scientific evidence of efficacy in two earlier US patents (Fein et al. 1995; Ghosh et al. 1995) filed on emu oil for anti-inflammatory purposes.

### ***Patent Mapping: A Method for Tracing Knowledge Ownership***

A limited number of attempts exist to quantify and identify “biopiracy”, use of Indigenous knowledge, and related spurious patents in the patent system (for example see Lai et al. 2019; Robinson 2010; Robinson and Raven 2017). Broad scale patent landscaping or patent mapping has been used by Oldham et al. (2013) to determine the scale of the use of biological diversity—using species names—globally. Bubela et al. (2013:202) explain that “a landscape is an analysis of the relationships between multiple sets of indicators measured against temporal, technical or spatial dimensions” and can be applied to patents, scientific articles clinical trials and other indicators. Oldham et al. (2013:1) searched six million species names in approximately 11 million patent documents, and identified “76,274 full Latin species names ... in 767,955 patent documents”, and of these “25,595 species appeared in the claims section of 136,880 patent documents”. The search highlights the large volume of scientific use and “innovation” of species that are being monopolised through the patent system.

This paper, along with others (Lai et al. 2019; Robinson and Raven 2017) seeks to narrow Oldham et al.’s global metrics approach to species that may have traditional and Indigenous knowledge associated with them. The research for this paper is based on a simple search of “emu oil” in the Lens (<https://www.lens.org/>), in the title, abstract and claims sections, and the full text of patents for broader results. The benefit of doing a full-text search of patents is that you can identify where patents may make incidental uses of the subject matter. This approach helps to identify who is patenting and filing for emu oil products globally.

### ***Emu Oil Patents***

A full text search of “emu oil” in the Lens in 2018 yielded 1604 results of 650 patent families. This was used as a starting point to highlight that there may be significant use and patenting of emu oil. However, many of these patents had erroneous detections of “emu” or “emu oil”, without the animal or the oil being mentioned in the patent claims—which forms the basis for monopoly rights granted under the patent system.

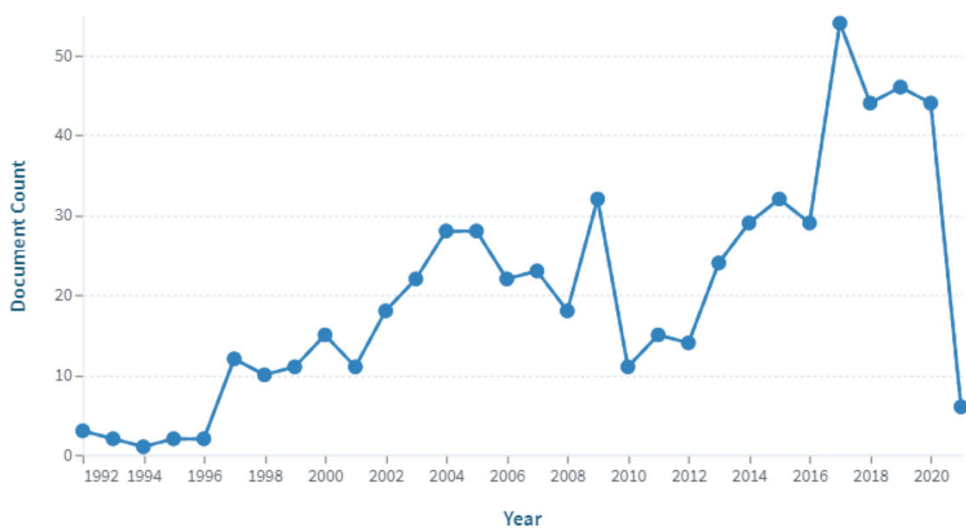
Undertaking a narrower “structured” search, by analysing “emu oil” (in double quotation marks) in patent title, abstract or claims gave 531 patent results from 260 patent families. Multi-jurisdiction, or international filings, means in practices

there are 260 patent documents filed as granted patent monopolies or as patent applications, with the duplicates of many of these filed in multiple jurisdictions making up the total of 531. Both figures are relevant, but it should be understood that there are 260 distinct patents globally. The data cleaning exercise found that some of these patents were not on the emu bird/species, but rather mention emu oil as one of many ingredients in a list of oils, or as a minor part of the claims of a patent.<sup>3</sup>

To help narrow down to a smaller number of “patents of concern or interest” we undertook another Lens search for patent title, abstract *and* claims for “emu oil”. This gave 46 patent results from 19 patent families. Because “emu oil” is mentioned in all categories, there is little doubt that these patent holders or applicants are claiming or seeking monopolies over a product based on “emu oil” in some substantive sense. Of these there were 24 granted patents, 21 patent applications and 1 limited patent. These 19 patent families and their multiple national filing (making up 46 patents) are the patents of most concern and interest which we explain below.

The Lens provides a number of outputs including patent trends and geographic distribution. Patent filings for emu oil started in the early 1990s and have steadily increased to the present (see Figure 1). The majority of filings have been in the USA (34), followed by eight international filings in the World Intellectual Property Organisation (WIPO), two in Australia and two in the European Patent Office (Lepore 2014). The significant number of filings in the US is concerning because they have not ratified the CBD.

The Lens analysis reveals the largest number of these filings (24) receive an “international patent classification” (IPC) code of A61K35/12:



**Figure 1:** Patent Publications by Year Citing “emu oil” in Patent Title, Abstract or Claims (source: reproduced by permission of the Lens; <https://www.lens.org/> [CC BY-NC 4.0; <https://creativecommons.org/licenses/by-nc/4.0/>]) [Colour figure can be viewed at [wileyonlinelibrary.com](http://wileyonlinelibrary.com)]

Materials from mammals; Compositions comprising non-specified tissues or cells; Compositions comprising non-embryonic stem cells; Genetically modified cells; uncharacterised stem cells; vaccines or medicinal preparations containing antigens or antibodies.

There are also 18 filings with IPC code A61K35/57: "Birds; Materials from birds, e.g. eggs, feathers, egg white, egg yolk or endothelium corneum gigeriae galli." This highlights that the majority of the innovations identified in the searches are on a number of different types of extracts or compositions based on parts of the emu, especially the oil.

These classifications highlight the "technological melting" (Whatmore 2006) of a living animal, broken up into many "chunks" to be manipulated, studied and appropriated. Examining the patents in detail highlights ethical, cultural and legal concerns. For example Patent Application US 2004/0185115 A1 (Pearson and Barr 2004) "Emu Oil Based Methods and Compositions for Skin Ailments", published on 23 September 2004, is an application filed by US applicants. The application is for:

Methods and compositions for treating skin ailments are described herein. Embodiments of the invention include a therapeutic composition. The therapeutic composition is adapted for cleansing and treating skin and further includes an emu oil-based composition ... (Pearson and Barr 2004)

The patent claims list a number of skin ailments which the product could treat, many of which are very similar or identical to Indigenous uses (Beveridge 1884; Elkin 1977 Ghosh 1995; Howitt 1904). Although it does not acknowledge anything about "Indigenous" or "Aboriginal" uses, this patent application appears to derive directly from Indigenous Australian uses.

In a slightly differing approach, US Patent 7,371,407 B2, granted on 13 May 2008, acknowledges Indigenous Australian uses and then seeks to differentiate its claims. Entitled "Use of Emu Oil and Its Various Fractions as a Carrier for Antifungal, Antibacterial, and Antiviral Medications and Preparations", the inventor (Farmer 2008:1) describes their claims:

An animal-derived lipid is disclosed that is useful as a carrying agent for anti-microbial formulations. Pharmaceutical and other preparations including emu oil are also described as profoundly useful components in anti-bacterial, anti-fungal, and anti-viral treatments. This lipid material is extracted from the emu (*Dromais novaehollandiae*), an indigenous bird of Australia ...

This patent claims monopoly for a product that uses emu oil as a carrier in ointments and creams for other antibacterial or antimicrobial compounds. Indigenous peoples similarly used emu oil as an anti-inflammatory liniment for the treatment of skin conditions (Farmer 2008). The claimant themselves even partially acknowledges the existence of Indigenous knowledge by stating, in somewhat patronising language, that:

Traditional beliefs of geographically widely-separated Australian Aboriginal communities agree on the beneficial properties of emu oil as a natural remedy. The oral history

of the Australian Aborigines indicates their use of emu oil for over forty thousand years to reduce pain and stiffness in sore muscles and joints, to help expedite wound healing, as a dermal protectorate from the effects of wind and sun, and in the treatment of bruised subcutaneous tissue, burns and dry skin problems. (Farmer 2008:8)

Indigenous prior art certainly appears to exist in this patent. And, arguably, even if the “prior art” is not viewed as related here, the use of emu oil is not inventive and would be obvious to someone trained in dermatology. These patents suggest “discovery” has occurred, rather than any genuine innovation or inventiveness, and the attempts to claim monopoly rights free-rides on Indigenous knowledge and innovation. Given this background, then, researchers who aim to profit from this product have an ethical (as per the fairness and equity considerations in the CBD and Nagoya Protocol, and many other ethical protocols and statements globally) obligation to consult with Australian Indigenous peoples and share benefits. Without existing Indigenous knowledge, uses, experimentation, and innovation with emu oil, it seems highly unlikely that these researchers have even thought to extract and use the oils from the fat of the emu.

### **Emu as More-Than-Human and More-Than-Animal**

The materialist turn in human geography, and related fields such as science and technology studies, has developed to find “new ways of approaching the vital nexus between the bio (life) and the geo (earth), or the ‘livingness’ of the world, in a context in which the modality of life” is studied and genetically reduced, commodified and monopolised (Whatmore 2006:600). More-than-human geographies attempt to decentre human thinking away from the anthropocentric, to give primacy to the “other” living and natural world. Influenced by feminist, postcolonial and performance studies, more-than-human thinking encourages researchers to generate new narratives about the materiality of the world. This interest has intensified, as Whatmore (2006:601) explains, with the proliferation of what Bruno Latour calls “matters of concern” and what Michel Callon calls “hot situations” associated with our scrutiny of the interface between “life” and “informatic” sciences and politics. Not only has life science research in biotechnologies proliferated, but also the legal claims over biological resources through intellectual property rights have rapidly expanded (Robinson and Raven 2017). These processes should be interrogated.

Underpinning more-than-human thinking is an academic push towards a relational ontology and ethic “that posits that everything is ‘constantly in-the-making’ (Ginn 2008:336); [and that] both humans and nonhumans are mutually constituted, emerging through complex intra-actions, or assemblages (Law and Mol 2008)” (Thomas 2015:977; see also Panelli 2010). This paper applied a more-than-human geography approach and more-than-animal thinking, to explore the ways that emu is perceived, situated, categorised and materialised as an animal that symbolises nationalism, provides spiritual lessons, is categorised as a scientific object, used as medicine and food, and materialises as emu oil with monopoly rights.

As Whatmore (2002) argues, “the act of describing and attempting to understand the relations that produce humans and nonhumans is a productive way to begin to change human nonhuman relationships and build alternative realities” (Thomas 2015:977; see also Panelli 2010). While this is important and generative in seeking to reimagine environmental futures, Thomas (2015:978) points out that “Indigenous geographers have focused on the ways that colonial relationships have worked and continue to work to exclude *already existing* relational ethics”. As Thomas (2015:978) argues, the “task for Indigenous geographers and communities, therefore, has not been imagining ‘new’ ethical formations, but confronting power inequalities and imagining how a plurality of worldviews might respectfully coexist”. This includes thinking about the ways that science and law sculpt these inequalities and assert specific worldviews.

The more-than-human literature arguably unwittingly recreates a binary that is problematic for thinking about the plurality of relationships and connections with animals. For many people, it is easy to forget about an animal as a living being, but also the dynamic aspects of human relationships to the animals, complex animal-plant ecological connections, and the complexities of biocultural connections in Indigenous understandings of Country. This arguably happens to animals when they are de-materialised as a national symbol, or they are scientifically deconstructed down into oils or food. Or when they become entangled in an abstract system of property rights, like intellectual property rights, that apply to a set of chemical compounds that come from the animal.

The beginning sections of this paper, through a discussion of emu creation, shows that the emu is more-than-human. It is the sky that looks down upon us. It is moral stories, and part of a network of other stories, that teach humans how to live with each other and all living beings. However, the emu is also more-than-animal. As Aboriginal creation beliefs suggest, humans are emus and emus are humans. The distinction between “animal” and “human” is not neatly drawn for emus and humans. Through Indigenous spirituality the emu may be a human and a human may be an emu, depending upon the moiety and skin name of the emu-people. An Indigenous Australian understanding of the emu breaks down the binary between human and animal and establishes a circle of connection within the web of life. But Aboriginal understandings of the emu go even further than that, because the emu emerge in the landscape (in rock formations and sacred sites) as well as in the stars, breaking down the barriers between human, animal, landscape and skyscape. An Indigenous understanding, one that may include both a more-than-human and more-than-animal understanding, helps us to recognise and respect “the knowledge and agency of the human and nonhuman actors involved in co-producing” (Wright et al. 2012:39) research, knowledge and other things/objects, such as the multi-faceted emu, who is “always turning from place to place” (Garde 2017). We look to the work of authors such as Wright et al. (2012:39) “to move beyond the human/nonhuman binary in our storytelling, we look to Aboriginal Australian concepts of Country in which place [and nature] is relationally defined and continually co-created by both human and nonhuman agents”. As other authors have suggested, the range of perspectives on non-human-animals might more constructively be thought of as “animal

pluralities" (multiple ways of knowing and defining animals) which include Indigenous perspectives (see Todd 2014).

The emu mentioned by Indigenous people is a related but different emu to the scientific animal. When the emu is classified as a scientific animal, with its name *Dromaius novaehollandiae*, it becomes more-than-animal. It becomes an object in a Linnaeus classification which enables scientists, and others, to speak a common language and to situate it in relation to other species that share similar physical characteristics. The emu maintains its more-than-human features but is now slotted into a system that enables it to be studied according to scientific practices and protocols. It moves the emu from Indigenous stories about the beginning of time and moral lessons, to stories related to evolution and ecology.

In becoming food and medicine, the emu is both more-than-human and more-than-animal. It remains more-than-human as the meat and organs that are consumed. But it becomes more-than-animal through the addition of Indigenous know-how for hunting and butchering the bird, and the creation of medicines. However, the absolute extent of this more-than-humanisation of emu is when it becomes emu oil as a patent monopoly. With the exception of some (Grigg 1999, 2011; McDonald 2003), geographic interest in fats and oils derived from plants and animals is limited. Emu oil is a unique use of animal fats and oils. It is not only consumed, but also has specific claims of ownership over them. While Indigenous Australians hunt, use and trade emu meat, oil and feathers, it was not owned in the same way or made into property, other than for immediate use or trade (Garvey et al. 2011; MacPherson 1933). Emu oil is an extract of the emu that has extended the emu from a more-than-human to a more-than-animal both materially and in abstract ways. The creation and extraction of the oil is a material process involving butchery, and which was a common process contributing to Aboriginal diets (Garvey et al. 2011). But patents over emu oil make it an abstract extension of more-than-animal. Patent compartmentalised and extracts claimed in limited time—20 years, and space—by jurisdiction to create monopoly rights. This process has been called "biopiracy" by Indigenous peoples, local communities, farmers, and other concerned actors, since the early 1990s (Robinson 2010), where Indigenous knowledge associated with biological resources has been researched and patented without appropriate permissions and agreements about benefit-sharing.

There are multiple reasons to be concerned about this. The development of emu oil patents threatens Aboriginal customary rights and spiritual guardianship connected to the emu. The patent claims ignore customary law rights associated with the Indigenous use of emu oil, which negates Aboriginal peoples from benefiting from ongoing ancient traditions and economies underpinned by totemic relationships to the emu. The act of overwriting "customary law" for private property rights is an act of cultural destruction to which the impacts are yet to be measured. The United Nations Declaration on the Rights of Indigenous People clearly identifies the rights of Indigenous peoples to benefit both economically and socially from traditional knowledge (see Articles 11, 20, 21, 23, 24—United Nations 2007). What does it mean for Aboriginal people if one's laws are continually ignored? As we continue this research we hope to collect more Indigenous perspectives to help shape our next steps.

An Indigenous reading of this may resort to a creation story. In a contemporary sense the new characters and players in the emu and brolga creation belief are those wishing to secure benefit over emu oil through patent law and Indigenous communities struggling to protect their customary rights. The narrative reflecting the tragedy of deceit and rivalry always has the same ending, one or both always lose. In order to learn from the wisdom of ancient stories and traditional knowledge we have to recognise that trust and respect is key to beneficial outcomes for all parties. The innovative capacity of Indigenous people is connected to relationships. Reciprocal relationships produce more positive outcomes. If we try to deceive or take advantage of Indigenous communities, the harm and detriment affects all those involved.

That is what the story of the emu and brolga is still relevant today and reflects the longevity and resilience of the oldest continuing cultures in the world. Indigenous Australian peoples' experimentation, use and innovation of emus over millennia is more than "traditional knowledge", it is a form of customary innovation enshrined in a series of kinship relationships that extend beyond the human. There is great disrespect occurring in relation to many of the publications and patents being made "in the name of science" and more typically in the name of commerce over Indigenous peoples' innovations. While Indigenous innovations are being treated as "discoveries" or uses, the researchers are claiming to be the real innovators. In most cases the research is in fact incremental, and the much more significant innovation was undertaken by Indigenous Australians. For these reasons we argue that the international discourses around "traditional knowledge" should be shifted to "Indigenous innovation". In addition, Indigenous laws need to be better recognised, and Indigenous more-than-human/animal perspectives such as totemism, that bridge the human-nature divide, need to be acknowledged and respected in the way we engage with the emu and other species (Robinson and Raven 2020).

## Conclusions

We hope that this paper has enabled a broadening of thinking about emu in all its forms. Emu shows itself, and is positioned as, a national symbol in the Commonwealth Coat of Arms; a spirit and Dreaming-creation belief involving the sky; a scientific animal; medicine and food; as an oil; and as a component that has been privatised and monopolised through the patent system. Emu is more-than-human but it is also more-than-animal, and the more-than-animal is poorly recognised. However, the conceptualisation of more-than-human in conjunction with more-than-animals appears to reaffirm the nature-culture binary. Framings such as "animal pluralities" might help ensure that these conceptualisations create language for understanding Indigenous ontologies, rather than repeating different orientations of binaries about animals. Or more simply, Indigenous biocultural connections to Country need to be more widely recognised.

This paper as a starting point in what we hope is a much longer conversation about emus, to determine in more detail what it means for Indigenous Australians that the emu and its oil has been patented. What does it mean if one's totem,



one's mother or one's aunt is patented? What does it mean if a symbol of one's creation—the emu from people's creation stories—is held as a monopoly right?

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## Notes

<sup>1</sup> One of the authors is a Gamilaraay/Kamilarai/Kamilaroi man and his uncle, Ian, is an Emu man.

<sup>2</sup> Snowden et al. (1999) cite Bennett's (1860) *Gatherings of a Naturalist in Australasia: Being Observations Principally on the Animal and Vegetable Productions of New South Wales, New Zealand, and Some of the Austral Islands*.

<sup>3</sup> It can be a patent strategy to cite an ingredient as one of many in a list so as to make as broad as possible a patent claim to discourage competitors from using those ingredients. Doing this may dilute the patent claim though, if a challenge goes to court.

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