Making Room for Rivers

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Rivers naturally adjust their course according to natural law. Our attempts to impose legal and cadastral (boundary and ownership) spatial definitions on rivers have been contrary to the natural movement of water bodies. From a property law perspective we seek to achieve certainty and security of property. Our survey system is highly evolved to provide such certainty in most situations, but when it comes to natural (riparian) boundaries we see that fixed property boundaries lose the connection between public and private property and waterways. Similarly, many riparian reserves which are created for public access to water soon become remote from the rivers they were created around and no longer serve their intended purpose. This article discusses aspects of property and surveying law and illustrates, by example, situations when legal boundaries and public reserves become isolated from waterways. It is suggested that riparian boundaries and reserves should be more consistently defined by ambulatory rivers, and correspondingly, that rivers are freed from our cadastral constraints. We must make room for rivers.

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1. INTRODUCTION

In a geologically young country like New Zealand, rivers are amongst the main active landscape-shaping forces.[1] They variously flow torrentially, orderly or calmly and almost always erosively from the mountains to the sea. Rivers have been described as "unruly and … unstable",[2] "anarchic",[3] and Strack has used the phrase "rebel rivers";[4] all such descriptions acknowledging that rivers are a law unto themselves — and that is natural ecological law, not our Western-styled and English-derived administrative and judicial law. Much has been written about water and river law, and we continue to devise ways to bring water and rivers into our legal doctrines, but they continue to evade easy categorisations. We can harness much energy from rivers and we can extract and use water for our instrumental purposes, but ultimately we cannot absolutely control water as it meanders or floods across the land. And as for owning waters or rivers, we find that attempts to own rivers are exercises in futility. Recent developments in river law (as seen in Te Awa Tupua (Whanganui River Claims Settlement) Act 2017) show some promising aspects in that the ownership issue is cleverly avoided.[5]

The reports and discussions about the law of rivers by the Property Law and Equity Reform Committee (1983)[6] and the Catchment Authorities Seminar (1985)[7] provide useful commentaries about river law. Since then, Brian Hayes[8] has compiled an excellent commentary about many aspects of the law surrounding rivers, adjoining land, roads and access[9] — initially as a

1 The actions of the sea in shaping the coastline, the seismic forces of plate tectonics which continue to raise up our mountains by faulting and folding, and volcanic action are the other significant land-changing forces.

2 MJ Conway in ASD Evans (ed) *The Law Relating to Watercourses: Seminar Proceedings 26–27 February 1985* (Water & Soil Miscellaneous Publication No 86, Water and Soil Directorate, Ministry of Works and Development, Wellington, 1985) at 107.

3 A Salmond "Rivers are anarchic — The Grid is static — Ecosystems are dynamic" (New Zealand Freshwater Sciences Society, Invercargill conference, December 2016).

4 M Strack "Rebel Rivers: An investigation into the river rights of Indigenous People of Canada and New Zealand" (PhD Thesis, School of Surveying, University of Otago, 2008).

5 M Strack "Land and Rivers can own themselves" (2017) 9(1) International Journal of Law in the Built Environment 4.

6 Property Law and Equity Reform Committee [PLERC] *Interim Report on the Law Relating to Water Courses* (Report to Minister of Justice, Wellington, 1983). See specifically AJ Forbes *Background Paper on Ownership of Rivers* (1981) in PLERC (1983).

7 ASD Evans (ed) *The Law Relating to Watercourses: Seminar Proceedings 26–27 February 1985* (Water & Soil Miscellaneous Publication No 86, Water and Soil Directorate, Ministry of Works and Development, Wellington, 1985).

8 Former Registrar-General of Land (1980–1996) and Companion of the Queen's Service Order (2015).

9 BE Hayes *Roads, Water Margins and Riverbeds: The Law on Public Access* (Faculty of

contribution to the work of the Walking Access Ministerial Reference Group which was investigating the issues relating to public access to waterways in 2003.[10]

This article examines aspects of the law about ownership of rivers, the nature of river boundaries, and the setting aside of riparian reserves.

2. PUBLIC / PRIVATE PROPERTY

Property is fundamental to capitalist philosophy. Economic development, both from an individual perspective and from a nation state's perspective, depends on the legal protection of property — security of rights, security of investment, and certainty.[11] Land has long been subject to a property regime, backed by various philosophies, but significantly from an English (and colonial) law perspective on the basis that the land was gifted by God for all mankind, but able to be acquired into private property by the exertion of labour and occupation.[12]

There has always been much tension between the protection of private property and the protection of public rights and interests in land in Aotearoa New Zealand. On the one hand, perhaps the primary driver of early colonial immigration into New Zealand from Britain was the promise of land: land held in freehold title, providing all the benefits and security of private property including the important political, economic and social functions of property.[13] On the other hand, there was a desire to start afresh in this new land in a way that would avoid the restrictions imposed by private property in Britain,[14] including, significantly, private access to waterways.

Law, University of Otago, Dunedin, and Ministry of Agriculture and Forestry, Wellington, 2008).

10 BE Hayes *The Law on Public Access along Water Margins: Report for the Land Access Ministerial Reference Group* (Ministry of Agriculture and Forestry, Wellington, 2003) and BE Hayes *Elements of the Law on Movable Water Boundaries* (Ministry of Agriculture and Forestry, Wellington, 2007).

11 See K Guerin *Property Rights and Environmental Policy: A New Zealand Perspective* (WP03/02, The Treasury, Wellington, 2003) <https://treasury.govt.nz/publications/wp/property-rights-and-environmental-policy-new-zealand-perspective-wp-03-02-html#section-6> for a useful discussion on property rights: Guerin details attributes of a property regime as incorporating durability, exclusivity, flexibility, divisibility, enforceability, and transferability.

12 See J Locke *Two Treatises of Government* (Dent: Everyman's Library, London, 1924; first published 1690).

13 Property ownership was required to vote and participate in the political life of Britain. Property established a level of social status as committed to the land. A foot on the property ladder allowed for economic leverage to expand and improve one's economic situation.

14 Land was primarily held by the aristocracy — a social and economic class maintained explicitly by ownership of property. Since the growth and development resulting from the

Queen Victoria's instructions to Hobson, her first Governor of Aotearoa New Zealand, provided instructions for the establishment of government here, but also significantly, included how surveys of the land would be carried out[15] and what lands should be set aside for public facilities, utilities and recreation. Among these instructions is the reference to reservations being made for the purpose of recreation, public convenience and access alongside navigable rivers to ensure they did not become privately occupied.[16] This is the origin of the "Queen's Chain"[17] and the expectation that rivers and waterways and their margins should be public.

3. OWNERSHIP OF WATERWAYS

Whether waterways (the sea, lakes, rivers and streams) are public or private is determined by various tests, variously employed, about the extent to which the common law of England applies to Aotearoa New Zealand's waterways.

The status of the sea has had considerable attention this century from Māori, public recreational interests, the judiciary and the legislature. The *Ngati Apa* case[18] reminded the Crown that the previously held assumption that the seabed was owned by the Crown[19] (as it is in England) was wrong; that Māori had a legitimate claim on the sea as unextinguished customary property.[20] The Crown

British Industrial Revolution, the business entrepreneur also acquired wealth and status by holding land.

15 The Instructions (para 37) suggested that a rectangular survey system be used (as was implemented in the open prairie lands of North America) to provide for standard-size allotments at a fixed price. This was found to be inappropriate for the diverse landscape of Aotearoa New Zealand — the Instructions were never interpreted as a fixed code.

16 Royal Instructions 1840 para 43 provided for land to be reserved and surveyed "as the sites of Quays or landing-places which it may at any future time be expedient to erect, form or establish on the sea coast or in the neighbourhood of navigable streams, or which it may be desirable to reserve for any other purpose of public convenience, utility, health, or enjoyment; …".

17 The status of which is explored in AJ Baldwin "Access to and along Water Margins: The Queen's Chain Myth" (MSurv Thesis, Department of Surveying, University of Otago, 1997).

18 *Ngati Apa v Attorney-General* [2003] 3 NZLR 643.

19 The Crown as custodian of the public interests in navigation and fisheries.

20 The Crown has always insisted that the sea (the water) cannot be owned, and it is just the seabed which can be considered as property. It is doubtful that any customary interests would be restricted to the bed, so there is a philosophical and very practical divide between Crown and Māori perceptions here. With regard to rivers, the courts (for example, *Te Runanganui o Te Ika Whenua v Attorney-General* [1994] 2 NZLR 20) and the Waitangi Tribunal have recognised that a Māori conception of rivers is as "a whole and indivisible entity, not separated into bed, banks and waters" (*The Mohaka River Report* (Wai 119, 1992) at 36).

responded to this Court of Appeal decision by passing the Foreshore and Seabed Act 2004 to extinguish customary title and to claim the seabed under Crown ownership. This was later repealed by the Marine and Coastal Area (Takutai Moana) Act 2011 (MACA Act) removing all ownership and accepting that the seabed was common to all.

Lakebeds and riverbeds have also been subject to various claims of proprietorship. The English common law's primary focus is riparianism — that owners of land adjoining lakes and rivers have riparian rights (to access, use, take, and drain the water), and also own the beds to the centreline — *ad medium filum aquae*. The exception then, applies a test of tidality (as if rivers are extensions of the sea) to determine Crown ownership. In practice this was often interpreted as a test of navigability.[21] So the beds of tidal or navigable lakes and rivers are assumed to be held by the Crown. All these common law tests continue to ignore Māori customary interests;[22] and that Māori property rights may not have been explicitly extinguished by the purchase of surrounding lands. Several judicial decisions[23] and several Treaty settlements[24] have dealt with aspects of claims on rivers and lakes by recognising a form of customary ownership in rivers and by vesting title in some lakes to the relevant iwi.

Under the common law, waterways were protected in public ownership for the protection of navigation[25] and fisheries.[26] More recently it has been suggested that river and flood management requires Crown ownership.[27]

21 Navigability as a test for Crown ownership was reinforced by the Coal-mines Act 1903 which stated at s 14(1): "Save where the bed of a navigable river is or has been granted by the Crown, the bed of such river shall remain and shall be deemed to have always been vested in the Crown, and, without limiting in any way the rights of the Crown thereto, all minerals, including coal, within such bed shall be the absolute property of the Crown."

22 As confirmed and guaranteed by art 2 of Te Tiriti o Waitangi.

23 Including *Te Runanganui o Te Ika Whenua Inc Society v Attorney-General* [1994] 2 NZLR 20 and *Paki v Attorney-General* [2015] 1 NZLR 67.

24 Including Ngāti Pāhauwera Treaty Claims Settlement Act 2012; Te Arawa Lakes Settlement Act 2006; Te Awa Tupua (Whanganui River Claims Settlement) Act 2017. See M Strack and DP Goodwin "More than Mere Shadow?: The Colonial Agenda of Recent Treaty Settlements" (2017) 25 Wai L Rev 41 for a critical discussion about these settlements.

25 Notwithstanding the fact that navigation on rivers is not restricted by private ownership. Owning a river *ad medium filum* does not allow for any right of exclusion of innocent navigation.

26 Fisheries are now systematically subject to state regulation and public fishing is not dependent on public ownership of rivers.

27 "The purpose of the reservation of the riverbed was to facilitate soil conservation and river control" (Spencer quoted in Evans, above n 7, at 53). I would suggest that now regional authorities assert their jurisdiction over river management irrespective of ownership. This is supported by recent case law: "in applying s 6(a) of the RMA regional councils have the power to preserve the natural character of rivers and their margins and to manage natural hazards" (*Dewhirst Land Co Ltd v Canterbury Regional Council* [2018] NZHC 3338,

Streams and even significant rivers[28] do not need to be shown on cadastral plans unless they mark a boundary.[29] It may then be assumed that any stream or river flowing through a parcel of land is within the boundaries of a private parcel of land and part of that allotment and therefore owned privately. However, if that stream is tidal or navigable, then there may be some uncertainty about whether the river has been taken (confiscated) by the Crown or if it was never part of the land. A strong argument exists that it was never vested with the land title and it remains public,[30] even though the title of land through which a river runs includes the area of the river in the area calculations.

The recent Whanganui River Treaty settlement[31] demonstrates a new model: a recognition that a river can own itself as its own legal entity.[32]

4. RIPARIAN RESERVES

Since 1840, the establishment of waterway reserves has been haphazard, often dependent on the whim of a surveyor about whether to set aside a riparian margin or not. Statutory requirements have been similarly inconsistent.

The Land Claims Ordinance 1841 provided for settling claims to land that was purchased from Māori prior to 1840. Section 6 of this Ordinance required that no "headland, promontory, bay, or island that may hereafter be required for any purpose of defence or for the site of any town or village reserve or for any other purpose of public utility, nor of any land situate on the sea-shore within one hundred feet of high water-mark" would be granted into private ownership. Nothing was mentioned about riverside reserves. These requirements, however, lasted less than 12 months, as the Land Claims Ordinance 1842 failed to mention any requirement for the setting aside of littoral reserves. This omission allowed for water margin areas to be granted into private ownership,

[2019] NZRMA 411 at [48]; aff'd *Canterbury Regional Council v Dewhirst Land Co Ltd* [2019] NZCA 486).

28 There is no absolute definition of river or stream. The Resource Management Act 1991 [RMA] describes a river as having an average width of 3 metres or more, but this is just for determining whether an esplanade reserve is required as a condition of consent for subdivision.

29 They may be shown as topographical rather than legal features.

30 *Mueller v Taupiri Coal Mines Ltd* (1900) 20 NZLR 89 is strong support for that statement. This case determined that in spite of the assumption of *ad medium* ownership of the river, because the river was a navigable and military highway during the New Zealand Wars invasion of the Waikato, the river was never included in the original Crown grant.

31 Te Awa Tupua (Whanganui River Claims Settlement) Act 2017, s 14(1): "Te Awa Tupua is a legal person and has all the rights, powers, duties, and liabilities of a legal person."

32 To a cynical mind this might seem like a deliberate effort to avoid having to acknowledge Māori customary rights in rivers by having no one owning the river.

while the only requirement accompanying riparian land was that the smallest edge of a rectangular parcel should abut the river or sea. The earliest explicit requirements for reserves of 100 links in width alongside rivers was in 1851 by instruction of the Chief Surveyor of Canterbury, Thomas Cass.[33]

5. THE LAND ACTS

The 1886 Survey Regulations introduced a requirement for all coastlines and navigable rivers throughout New Zealand to have a reserve frontage of at least 100 links wide. The Land Act 1892 introduced directions for reserving land along coasts, rivers and lakes that included specific width and area requirements. Section 10 stated:[34]

> there shall be reserved from sale or other disposition a strip of land not less than sixty-six feet in width along all high-water lines of the sea, and of its bays, inlets or creeks, and along the margins of all lakes exceeding fifty acres in area, and along the banks of all rivers and streams of an average width exceeding thirty-three feet, and, in the discretion of the Commissioner, along the bank of any river or stream of less width than thirty-three feet.

For some time in the 1890s marginal reserves were identified as roads and coloured burnt sienna on plans. Later, by 1914, these reservations were shown and labelled as river-bank reserve.[35] The main changes enacted through the Land Act 1948, with regard to water margin reserve, came through s 58, where the width and area requirements changed, with one-chain reserves required alongside rivers with an average width of over 10 feet, and lakes with an area of over 20 acres. Reservations made under s 58 of the Land Act 1948 are now commonly referred to as "section 58 strips", and the standards that were set out continued until repealed by the Conservation Law Reform Act 1990.

5.1 The Conservation Law Reform Act 1990

The Conservation Act 1987 introduced requirements for the establishment and management of marginal strips, but the Conservation Law Reform Act 1990 repealed s 58 of the Land Act 1948 and amended s 24 of the Conservation Act regarding marginal strips. The Conservation Law Reform Act 1990 created the concept of a 20-metre-wide marginal strip that was recorded on the title instead

33 Baldwin, above n 17.
34 Land Act 1892, s 10.
35 Baldwin, above n 17.

of being fixed on a survey plan.[36] Marginal strips were noted on the survey plans and with a memorial on the title to the effect that the parcel is "Subject to Part 4A Conservation Act 1987".[37] This gave adequate notice to both the title holder and (to the extent that the public may have access to such documents) to the public — providing notice that there was a public access strip available for use.

The Conservation Law Reform Act 1990, s 24G(2) stated that "[w]here, for any reason, the course of any river or stream is altered and the alteration affects an existing marginal strip, a new marginal strip shall be deemed to have been reserved simultaneously with each and every such alteration". This meant that marginal strips along rivers would be ambulatory and therefore move with the river, without reference to the doctrine of accretion and erosion. It also provided for all strips that had been set aside under previous legislation to be deemed to be marginal strips under the Conservation Act and therefore to be similarly ambulatory (s 24(3)).

5.2 The Resource Management Act 1991

With regard to private riverside land, the only opportunity to bring land back into public hands is when a subdivision application allows a local authority to require an esplanade reserve to be set aside as a condition of subdivision consent. The Land Subdivision in Counties Act 1946 introduced a requirement that reserves should only be created on lots of less than 10 acres (4 hectares). The Resource Management Act 1991 continued the requirement that esplanade reserves be set aside when land was being subdivided. These reserves are created as separate lots, with the landward boundary being an irregular boundary which does not change as a river moves.[38] The Act originally omitted the requirement that only the subdivision of lots under 4 hectares would require

36 Conservation Law Reform Act 1990, s 24D(7) states "land reserved as marginal strip … shall not be required to be surveyed …". At least one reason for this was the very high costs of physically defining by survey very large areas of rivers in the Crown estate.

37 Conservation Law Reform Act, s 24D(1): "Upon the registration of any disposition … the Registrar … shall … record on the certificate of title for that land a statement to the effect that the land … is subject to this Part of this Act"; and s 24D(5): "Every statement recorded on a certificate of title … shall be deemed to sufficiently protect any reservation made by this part of the Act …".

38 Another provision in the RMA introduced esplanade strips. These strips differ from esplanade reserves in that, similar to the marginal strips created through the Conservation Law Reform Act 1990, they are ambulatory and are not required to be fixed by survey. Another point of difference is that these esplanade strips are not created as separate parcels in the way that esplanade reserves are, and instead sit on top of the underlying parcel in a similar fashion to a right of way easement. Unlike easements, however, these strips are not required to be shown on survey plans. It is not necessary to wait for subdivision to occur to create a strip, as esplanade strips can be created upon agreement with the registered owner.

the creation of an esplanade reserve, but this was short-lived and was repealed through the Resource Management Amendment Act 1993. This meant that, once again, the creation of esplanade reserves is only mandatory for lots under 4 hectares, reducing the potential for riparian access to be created. With regard to rivers, s 230 of the Resource Management Act 1991 redefined the required width so that any riverbed with an average width of over 3 metres would require an esplanade reserve adjoining a lot of less than 4 hectares. Local and territorial authorities could also use their discretion, through modifications to their respective district plans, to determine if riverbeds with an average width of less than 3 metres would also require abutting reserves.

6. NATURAL BOUNDARIES

Our cadastral survey system is built on the clear definition of property boundaries and a similarly clear definition of the rights, restrictions and responsibilities attaching to title to that property. Within acceptable tolerances, the accurate spatial definition of property is achieved, by marking with physical monuments the corners of all parcels of land.[39] This spatial definition certainty falls apart when natural boundaries are involved. Natural boundaries reflect the physical limits of use, occupation and development of land, and as such are very appropriate boundaries; readily recognised and complied with by proprietors. The problem with them, however, is that they are unstable, they move with natural forces and are not susceptible to mathematical or graphical certainty, and therefore, cause problems within the cadastre.

A natural boundary is usually defined as the position of the natural feature,[40] but there are some provisos about that within the English common law. The doctrine of erosion and accretion is a doctrine of the common law which provides for a boundary to follow the natural feature if that movement is "natural, slow, gradual and imperceptible". The law recognises that if you cannot observe some change happening then it is assumed to not happen.[41]

39 These monuments are placed by reference to accurate geodetic control networks, and boundary vectors (bearings and distances) and coordinates are calculated to complete the cadastral record and provide useful information for land proprietors and to facilitate reinstatement surveys.

40 The sea, lakes and rivers are (perhaps exclusively) the only forms of natural boundary accepted by our cadastre. The sea boundary is either MHWM (by the Crown Grants Act 1883, s 41) or MHWS (by the RMA). Lake and river boundaries are usually the bank, generally defined as the edge of "the space of land which the waters of the river cover at its fullest flow without overtopping its banks … [or] the waters of the lake cover at its highest level without exceeding its margin" (RMA 1991, s 2).

41 The legal doctrine of *de minimis* — that the law takes no account of trifling things.

Counter to this is when a natural feature changes rapidly (avulsion) then the boundary remains where it was. This perhaps assumes that a rapid change of a flood (for example) can be responded to by a restoration of the original position before the sea, lake or river settles into its new position. While there is some logic to this different treatment, it actually provides difficult definitional and occupational problems for the affected property.

The doctrine of accretion and erosion is based on mutuality — in other words, riparian owners with ambulatory boundaries (shown on survey plans as the bank) have the opportunity to gain or lose from accretion or erosion of the boundary feature. The fact of an ambulatory boundary means that the boundary is possibly constantly moving. A claim to have that accreted land added to the registered title is a process that requires evidence of the tests (slow, gradual, imperceptible, natural, indirect effect) before a record of title can be corrected. The boundary changes along with the accretion, not because of survey or registration. The plans supporting a registered title serve to graphically depict the boundary, but are not conclusive with respect to the ambulatory boundary — the lines are merely a convenient representation of the actual boundary which remains the bank wherever it happens to be at any time.[42]

7. CASE LAW

Several case law examples illustrate the difficulties of determining boundaries adjoining rivers.

In *Pipi Te Ngahuru v The Mercer Road Board* a road running alongside a river was eroded and unusable.[43] The Supreme Court in Wellington ruled that, due to the need for public access, there was entitlement for a road over the abutting private land. This ruling is the first suggestion of ambulatory road reserves along rivers in New Zealand, and a local departure from English law.[44] This ruling seems well suited to the environment of New Zealand in recognising the importance of access to and along our waterways. However, the precedent set by this case only remained until 1906.

Attorney-General v Miller was also based around erosion to a riverside road.[45] In this case, the Attorney-General and Southland County Council sought that the road deviate into privately owned land to allow for its continued public use. The matter of accretion and erosion was raised but it was determined that,

42 Except in the case of avulsion.

43 *Pipi Te Ngahuru v The Mercer Road Board* (1888) 6 NZLR 19.

44 Note: English law was only introduced into New Zealand "so far as applicable to the circumstances of the Colony" (English Laws Act 1858).

45 *Attorney-General and Southland County Council v Miller* (1906) 26 NZLR 348.

because the private land was separated from the river by a road reserve, the land could neither gain from accretion nor lose due to erosion. It was ruled by Cooper J:[46]

> the owner of land abutting upon a public road is under no liability to give up to the public use, if the road adjoining his land is destroyed or washed away, part of his land to take the place of a road so destroyed. If there is a public necessity for the existence of such a road in place of the one destroyed, and the road cannot be obtained without encroaching on private land, then a new line of road must be taken under the Public Works Act, and the owner of the land must be compensated.

This decision confirmed that the doctrine of accretion and erosion did not apply to non-riparian land. The ruling of *Attorney-General v Miller* adopted English common law; that the road remains a road in the position it was first established irrespective of whether it gets eroded away, but it can still gain from accretion.[47]

The comparison of these two similar cases, with very different decisions, highlights the potential problems associated with using English common law in New Zealand, and questions whether it should have applied. In a later case, *MacDougalls Transport Ltd v Southland Catchment Board*,[48] this issue was again touched on by Somers J:[49]

> Undoubtedly the common law rules about watercourses form part of the law. But they are rules which developed in a different physical climate, which were formulated centuries ago and whose object was to regulate the lives of men settled along the banks of rivers and streams. And such rules cannot automatically be applied to some of the circumstances of New Zealand which are wholly different. Rivers such as the great South Island watersheds had no part in the formulation of the common law rule.

The ruling from *Attorney-General v Miller* was influential in the interpretations of cases and the formation of legislation regarding the erosion of roads alongside rivers. The introduction of s 315 into the Local Government Act

46 At 349.

47 See Hayes, above n 9, at 99 fn 96. In a sense, the riverside boundary is ambulatory, but the landward side boundary is not — notwithstanding the fact that the landward side boundary was only established and identified as a one-chain offset from the river boundary. The problem for the surveyor is: how to define that "fixed" boundary when the reference point, the river bank, has moved.

48 *MacDougalls Transport Ltd v Southland Catchment Board* SC Invercargill M.63/75, 27 April 1976, unreported decision of the Supreme Court.

49 *McDougalls Transport*, above n 48; extracted from Hayes, above n 9, at 95 fn 93, and also cited with approval in *Te Tawa Kaiti*, below n 59, at [45].

1974 echoed the ruling of *Attorney-General v Miller* in that a road could gain from accretion but not lose land through erosion.[50] Hayes contends that, had Cooper J followed the New Zealand precedent rather than reverting to English common law, the legislation to follow would have taken a very different route.[51] If this were the case, the introduction of ambulatory roads and reserves abutting rivers would have come much earlier and many definitional issues could have been decided in favour of public interests.

Humphrey v Burrell is another important case regarding the issue of accretion and erosion.[52] The case involved two properties on opposite sides of the Ōroua River, both with riparian boundaries. The river was non-navigable, and it was not tidal, so therefore the assumption of *ad medium filum* applied to both properties. This meant that both parties shared a common boundary that was defined by the centreline of the river.[53] At some point in time the original position of the Ōroua River moved, resulting in Humphrey adversely occupying 11 acres of land that belonged to Burrell. For the boundary to have moved, the movement of a water body must have been slow, gradual and imperceptible. Burrell argued that this movement to the riverbed had occurred through the processes of avulsion (a single flood event) and the doctrine of accretion and erosion should therefore not apply and that the boundary did not move with the river. Humphrey claimed that the change in the river had occurred over many years through the processes of accretion and erosion, and this therefore entitled him to the 11 acres that he was occupying (see Figure 1). The eventual outcome of the case was that the movement was judged to have occurred through avulsion, and as a result the boundaries remained as defined by the original river centreline.[54]

50 Local Government Act 1974, s 315: "(4) Every accretion to any road along the bank of a river or stream or along the mean high-water mark of the sea or along the margin of any lake caused by the action of the river or stream or of the sea or lake shall form part of the road. (5) Where any road along the bank of a river or stream or along the mean high-water mark of the sea or along the margin of any lake is eroded by the action of the river or stream or of the sea or lake, the portion of road so eroded shall continue to be a road." This may have been modified by the Marine and Coastal Areas (Takutai Moana) Act 2011, s 14: if a road is eroded into the common marine and coastal area and remains unformed for 15 years it is deemed to be stopped.

51 BE Hayes *Roads, Water Margins and Riverbeds: The Law on Public Access* (Faculty of Law, University of Otago, Dunedin, and Ministry of Agriculture and Forestry, Wellington, 2008) at 101.

52 *Humphrey v Burrell* [1951] NZLR 270.

53 Notwithstanding the fact that the survey and title plans showed the river banks as the boundaries.

54 Again (see n 47 above) the problem for surveyors arises: how to define that "fixed" boundary when the reference point, the river bank, has moved.

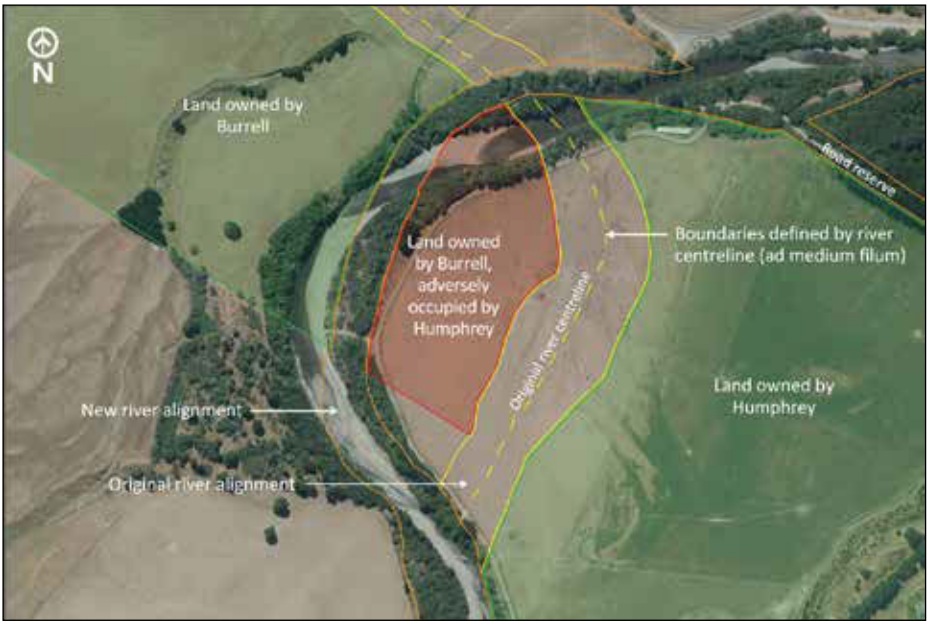

Figure 1: Depiction of the *Humphrey v Burrell* case.[55]

Greeson J described the process of accretion and erosion as:[56]

> necessary that it should have been brought about by a process so slow and gradual as to be in a practical sense imperceptible, by which is meant that the addition cannot be observed in its actual progress from moment to moment or from hour to hour, although after a certain period it may be possible to observe that there has been a fresh addition to the bank or border of the stream.

The decision of *Humphrey v Burrell* highlights the inconvenient results that can occur as a result of the rules surrounding the doctrine of accretion and erosion, while raising the question of the relevance of the rule. A flood event is just as naturally occurring as the slow erosion of a river bank, but for some reason it affects boundaries differently.

Despite the seemingly correct decision being made, the decision hints that perhaps the common law rulings are not always the most practical answers in a country such as New Zealand. New Zealand rivers are different:[57]

55 It is clear from this overlay of the cadastral record on an aerial photo that the river has continued to change course since the last survey definition in 1951.

56 *Humphrey v Burrell*, above n 52, at 263.

57 At 263.

> In New Zealand, the application of the rule is complicated by the fact that there is a great diversity of streams and rivers — some comparable to the rivers of England, flowing in well-defined courses, with banks well consolidated, through country cultivated and stable, others springing from the mountains or hills and becoming at times raging torrents, swollen and tumultuous, which, whilst in that state, are prone to carve out new channels; some are narrow, and some have a width from bank to bank of two miles or more.

While the outcome of the case was that both owners retained ownership of all their original land, in reality it meant that both owners now had land located on opposite sides of the river and were occupying land adversely to the documentary owners.[58]

A case at the Māori Land Court, *Te Tawa Kaiti Trust v Tuhoe Putaiao Trust* in 2012,[59] was required to determine who had rights to the gravel in a riverbed.[60] An earlier hearing had determined that the Crown had no claim to the river,[61] so this court was required to determine the centreline of the river (*ad medium filum*). The Court examined the various statutory definitions of riverbed[62] and the English common law statements,[63] then reverted to case precedent, specifically *Kingdon v Hutt River Board*,[64] to decide that in New Zealand, winter "freshes" normally filled a river from bank to bank, and only exceptional "floods" overflowed the banks. Once the banks have been defined (and therefore they delineate the cadastral boundary of the adjoining land) then the centreline can be determined (and therefore the extent of the common law rights of the adjoining land). However, even though the Court found in favour of the "bank to bank" test,[65] it used evidence about water flow in an adjoining minor channel (variously described as a drain or a tributary of the river) to determine the bank even though there was no evidence of the river ever filling up from "bank to bank" or of the minor channel joining with the main channel.[66]

58 The new course of the river is within the adjoining private fee simple titles, and the original legal riverbed is occupied by Humphrey.

59 *Te Tawa Kaiti Trust v Tuhoe Putaiao Trust* (2012) 50 Waiariki MB 247 (50 WAR 247).

60 A question also at the forefront of *Tait-Jamieson v G C Smith Metal Contractors Ltd* [1984] 2 NZLR 513.

61 *Te Tawa Kaiti Trust v Tuhoe Putaiao Trust* (2009) 128 Whakatane MB 54 (128 WHK 54).

62 And finding that they were specific to those statutory purposes — for example, the RMA definition was for the purpose of setting aside esplanade reserves.

63 For example, *Halsbury's Law of England* which referenced average flows to determine the banks of rivers.

64 *Kingdon v Hutt River Board* (1905) 25 NZLR 145.

65 *Te Tawa Kaiti*, above n 59, at [49](c).

66 This decision also ignored the significant areas of mature vegetation within those banks of the river.

The question of the definition of river banks was also examined in other recent cases. In *Whitby v Porirua*,[67] the Environment Court analysed the RMA definition of riverbed[68] as a two-part test; firstly determining the "fullest flow" and secondly what was meant by "without overtopping its banks". The Court used hydrologic modelling to determine a fullest flow as the defining factor of the extent of the bed. It considered that only flood water that took a path away from the river flow direction was "overtopping its banks". This case seemed to overturn normal surveying precepts about the extent of a riverbed by defining the river bank as an observable feature.

Perhaps fortuitously,[69] the High Court in *Dewhirst v Canterbury Regional Council* in 2018 took a contrary view: that the reasonably observable banks "needed to be established first" while accepting that the margins and flood plains will often be inundated by the fullest flow.[70]

All these cases demonstrate the difficult problem the courts, and indeed surveyors, have in identifying where the banks of rivers are and what happens when they move. All these cases note that English common law should not always apply to New Zealand cases. The application of common law principles, with regard to rivers in New Zealand, may not be the best solution to dealing with these issues.

8. WHEN RIVERS MOVE

This part of the article uses two recent land surveys to highlight the types of problems that can occur when rivers move. The two contrasting cases used here highlight the problems associated with river movement, and identify the issues that arise when attempting to resolve these boundary complications.

8.1 The Ōreti River

The Ōreti River, located in Southland, is a river whose path has frequently altered since the time of its original survey.[71] The movement, or straightening,

67 *Whitby Coastal Estates Ltd v Porirua City Council* [2009] NZRMA 269.

68 RMA, s 2: bed means "the space of land which the waters of the river cover at its fullest flow without overtopping its banks".

69 And perhaps controversially, given the anticipated appeal.

70 *Dewhirst Land Co Ltd v Canterbury Regional Council* [2018] NZHC 3338, [2019] NZRMA 411 at [34]; aff'd *Canterbury Regional Council v Dewhirst Land Co Ltd* [2019] NZCA 486.

71 M Strack "Natural boundaries, legal definitions: Making room for rivers" in M Strack, N Wheen, B Lovelock and A Carr (eds) *Riverscapes: Research essays on the social context of southern catchments of Aotearoa New Zealand* (Catchments Otago, Dunedin, 2018).

of this once meandering river has occurred through both natural and artificial processes over time. Slow, gradual processes such as accretion and erosion have played a part, as well as the more sudden changes associated with avulsion. Man-made alterations, as well as changes in land use, have also added to the movement of the river, with very little regard being given to the problems that this might cause in the future. Despite the numerous factors contributing to the straightening of the Ōreti River, it is commonly accepted that the main cause of this movement has been through the processes of avulsion associated with large floods.[72] This movement has meant that the physical position of the Ōreti River now differs from its originally surveyed position in many places, producing a scenario where large sections of the river now flow through privately owned land.[73] Similarly, well-established and -used farmland is encroaching on the legal river (the old riverbed) (see Figure 2), and riparian reserves are now remote from the waterway and traverse open farmland. These changes have resulted in numerous uncertainties with regard to property boundaries and uncertainty about access along the banks of the river.

Figure 2: The current cadastral boundaries of a section of the Ōreti River, overlaid onto an aerial photo. (Source LINZ Data Service)

One example of the issues associated with the movement of the Ōreti River can be shown through a subdivision alongside the river in 1992 (see Figure 3). This survey came about as the owner of the original parcels, Part Sections 1

72 Personal communication with D Moir, licenced cadastral surveyor.

73 This example of the divergence of cadastral boundaries and current Ōreti river course was also used in discussions in the Catchments Seminar: Evans, above n 7.

and 23 SO 382, to the east of the Ōreti River was intending to sell part of their land containing gravel pits to a local roading company. In order to do this the land needed to be subdivided and the new position of the riverbed could not be left in their title, meaning that a new definition of the river was required. DP 12985 shows the original position of the Ōreti River, abutted by road reserve, along with the new parcels (including riverbed parcels) created as part of the subdivision. The movement of the river did not move the boundaries of the original parcels and, as a result, Lot 1 was created to the west of the newly defined river. Two newly defined sections of the Ōreti River were created as Lots 3 and 8, with each parcel abutted by esplanade reserves, shown as Lots 2, 4 and 7 (Figure 3). Despite these esplanade reserves being displayed as irregular lines on the deposited plans, the boundaries of these reserves are defined with reference to the observed banks of the river at the time of survey, meaning that they are fixed in place. It was suggested by the surveyor that the Ōreti River had reached a point where it had straightened, become stable and was unlikely to change considerably in the future.[74] It is perhaps unwise to create fixed reserves given the history of river movement.

Rivers are not typically created as lots on a survey plan. A river is usually defined by the left-over, or residue, land between parcels and usually has no title or survey definition associated with it.[75] However, DP 12985 creates two newly defined sections of river as lots to be transferred to the Crown as riverbed.

The implications of carrying out the survey in this way are uncertain. However, there are several factors to consider. Firstly, DP 12985 states that Lots 3 and 8 will be transferred to the Crown. The purpose of the survey was to subdivide several pieces of the client's land so that it may be sold, with the definition of the riverbed being a requirement through the Resource Management Act. As the road adjoining the original river definition has not been stopped, Lots 3 and 8 now sit isolated from the rest of the river as primary parcels owned by the Crown. The esplanade reserves created adjoining the then position of the river are not ambulatory although their definition is based on a previously existing natural boundary, as the bank of the river.

One of the leading issues relating to this survey alongside the Ōreti River is that only the sections of river located on Part Sections 1 and 23 were redefined, with the remaining section of river between the newly created Lots 3 and 8 left undefined. This creates a situation where there is a section of the river between Lots 3 and 8 that is still flowing through private land. To add to this, parts of the old riverbed and road reserve, specifically those to the east of Lots 3 and 8, were not extinguished during the survey. This results in an untidy

74 Personal communication with D Moir, licenced cadastral surveyor.

75 In other words, it is usually left to the interpretation of the legal principles discussed herein to determine the ownership status of a river.

Figure 3: DP 12985 showing the newly created river parcels and existing river definition. (Source: Landonline)

and confusing scenario where part of the Ōreti River is correctly defined, part is not defined at all, and parts where the original surveyed river boundary and abutting road reserve remain, despite the dry riverbed, are now privately occupied. Furthermore, the new esplanade reserves are functionally landlocked and inaccessible.

Our cadastral system is failing if it does not appropriately and correctly identify the status of land parcels: which are private; which public; which capable of occupation and use; and which are water parcels? But who is willing to "tidy up" this confusion? The Crown had no interest, as there is no clear benefit to doing so. Adjoining owners will only do anything if they wish to further subdivide their land. Other landowners are happy to continue to occupy roads, reserves and dried-up riverbed until that occupation is challenged by others. The public are not able to assert their rights of access on roads or reserves because there is no evidence on the ground of where the public strips are, or because of the physical barrier of the river slicing through cadastral boundaries. The cadastre just does not match the physical features.

Some surveys further down the Ōreti River where all parties abutting the river were eager to fix the boundary discrepancies often took months or years to resolve their boundaries, and cost the landowners tens of thousands of dollars.[76] The locations and the legal rights to rivers and public riparian strips will continue to be ambiguous and uncertain. In an ideal situation, owners on both sides of the river and the Crown as owning the roads or reserves alongside the river would have to be willing to fix these boundary issues. Unfortunately, it seems this is rarely the case.

8.2 Moke Creek

Located to the west of Ben Lomond in Otago, the Moke Creek runs north from Moke Lake until it joins the Shotover River. A parcel of Crown Pastoral Land was to be redefined and subdivided to create several freehold parcels to sell. This involved the definition of Moke Creek as part of its eastern boundary. Over the course of approximately 140 years, the channel of Moke Creek has fluctuated dramatically across and within the gravel bed, and it still differs from the course illustrated by the aerial photo (see Figure 4).[77] The various definitions of the creek include the original surveyed definition SO 5720 (both field book fix and digitisation) and SO 23804, which was carried out in the early 1990s.

The current surveyed position of Moke Creek shows a small area of the river encroaching beyond the historic cadastral boundaries and into the parcel to the south. This would affect the definition of the parcel on the opposite side

76 Personal communication with D Moir, licenced cadastral surveyor.

77 Personal communication with M Geddes, licensed cadastral surveyor.

of the river, which would be problematic for the surveyor and the record of land title (which cannot accept overlapping claims). Advice from Land Information New Zealand (LINZ) was to ignore the new river definition and revert back to a definition carried out in the early 1990s. LINZ took the position that as the river had moved outside of the original lease boundary the new definition could not be held.[78] The result therefore ignored the reality and recorded a boundary that no longer matched reality, merely for the sake of a tidy cadastre.

This solution ignored the fact that the parcel was always defined as having a riparian boundary, defined by the river bank, and for convenience illustrated on a plan. It is clear, in Figure 4, that at least parts of this creek open out into a wide shingle bed over which the actual channel meanders at will, and presumably over which full "freshes" regularly flow. Although previous surveys appeared to have defined the channel, the actual boundary has always been, and should have been illustrated as, the bank of that wide bed — the "bank-to-bank" test as decided in *Te Tawa Kaiti* and *Dewhirst*. It is not the line on the plan that is the boundary, it is the actual bank of the creek, and all the various depictions of the channel are within those banks.

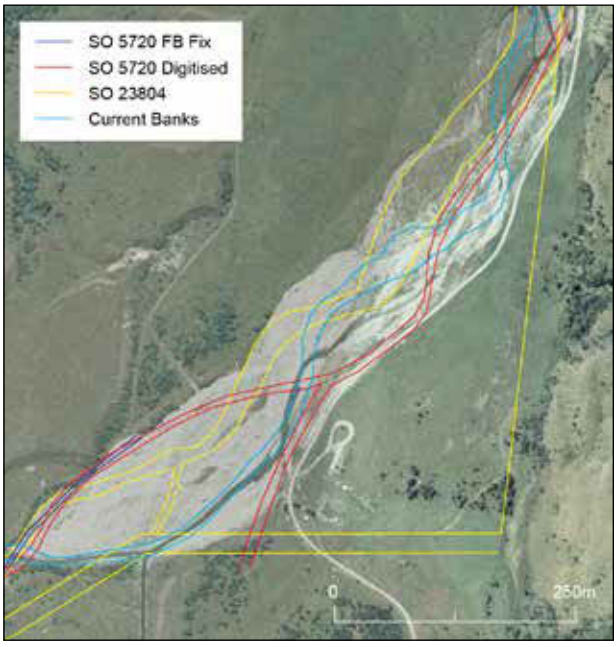

Figure 4: Image depicting several river definitions along a section of the Moke Creek, overlaid on an aerial image.[79] (Source: Mark Geddes)

78 This decision seems to ignore the fact that the river IS the boundary, and as there is no evidence of sudden changes, any gains or losses affect titles on both sides of the river.

79 Note that the date of the aerial imagery used is between 2004 and 2011, while the latest

The final outcome of this survey was that the plan needed to show a historic alignment of the river. This did not resolve any of the issues associated with rivers differing from their originally surveyed boundaries. The physical position of the river now sits some tens of metres away from the plan depiction. Marginal strips were created alongside the river but are misleadingly depicted on the plan and not shown with reference to the current river location. Using the historic definition of the river and not its real position had a great influence on the area of the title and misrepresents the extent and the value of the land.

It is logical to expect that a natural boundary should be defined by the river. The problem arises, where there has been significant accretion and erosion, while resurveying a riparian boundary on one side of a river the alignment depicted may overlap the depiction of the boundary of the opposite side of the river. The cadastre cannot accept overlaps of boundaries and properties and it is unreasonable to survey the opposite side parcel. Without both owners being willing to resolve the conflicting depiction, surveyors cannot accurately depict the boundary. In situations where a river has been shown as a boundary and that has then been drawn on a plan, it is tempting to assume that it is the line on the plan which is the boundary. But in fact the boundary remains the river (bank or centreline). A redrawing on a plan is just another representation — a snapshot in time. A line not quite matching a previously depicted line is merely a graphical issue not a boundary issue.

9. DISCUSSION

The philosophy of "making room for rivers" is gaining widespread international support as a way of reducing flood and erosion risks and allowing rivers to exhibit their more natural morphological behaviour.[80] New Zealand law, in its application of common law riparian assumptions and its emphasis on protection of private property, makes it difficult for rivers to be free to move. This article suggests a new vision for rivers and here proposes some legal direction.

It would seem from anecdotal evidence that New Zealanders expect rivers and the sea to be public or un-owned. However, private property owners

definition (current banks) of the Moke Creek is from 2017. It is worth noting that none of these channel definitions define the riverbed as from bank to bank.

80 For example, the Rhine and the Mississippi catchments, which are both heavily populated and in the past have been controlled with levees, dykes and groynes, are now being re-engineered to provide a more natural approach to flood control, freeing up floodplains and restoring wetlands: Renee Cho "Making Room for Rivers: A Different Approach to Flood Control" (7 June 2011) Columbia Water Center, Columbia University <http://blogs.ei.columbia.edu/2011/06/07/making-room-for-rivers-a-different-approach-to-flood-control/>.

with economically valuable riparian rights are likely to defend their property vigorously. Property brings an expectation of exclusivity of rights, rather than the responsibilities of a collective commons. The Māori concept of kaitiakitanga (guardianship) which is about responsibility towards Papatūānuku (the Earth) is a world apart from the concept of rights that flow from the Western property regime. Property is therefore a barrier to public responsibility for ecological management.

The law could be modified to acknowledge the greater public interest in rivers in a similar way to how the law deals with the greater public interest in roads and the foreshore and seabed. Similarly, any river space could be recognised as public even though it may exist within a legal private land title. Public conservation and access strips could be provided where they do not currently exist and they should always remain ambulatory so that they remain attached to the watercourse. Furthermore, the right to development, use and occupation of riverside land should not be protected, but retreat from mobile river courses should be encouraged.

It is worth comparing the situation with roads. The public nature and the legality of roads is not dependent on them being shown as separate cadastral parcels. Even if they appear to be incorporated within a private title, they remain as legal roads; the legality of a road survives the inclusion of that space in a private title.[81] This is because of the paramount public interest in roads for access to land. Rivers could similarly be seen to provide such dominant public interest that they should also override private claims upon them. Notwithstanding current rules of law, it would seem that most people do not see the logic or the justice of private ownership of rivers or even riverbeds. Rivers are a special part of our natural landscapes and merely the desire for all our waterways to be accessible and available for recreation indicates that private property in rivers does not make sense.

The 1985 Catchments Seminar recommended a statutory intervention to override the common law ownership of rivers and have them vested in the Crown.[82] At the time, the Crown chose not to act but to leave it to the courts to determine ownership and boundaries. In 2003 when similar uncertainties came to light with the foreshore and seabed,[83] the Crown intervened and passed the Foreshore and Seabed Act 2004 to assert Crown title to the public foreshore and seabed. It is within the power of the Crown to arrange river ownership

81 Land Transfer Act 1952, s 77: "No right to any public road or reserve shall be acquired, or be deemed to have been acquired, by the unauthorised inclusion thereof in any certificate of title or by the registration of any instrument purporting to deal therewith otherwise than as authorised by law." See also Land Transfer Act 2017, s 53.

82 Evans, above n 7.

83 *Ngati Apa*, above n 18.

differently (although potentially arousing considerable protest from riparian owners),[84] especially given that many judges have expressed doubt about the common law's applicability in New Zealand in this respect.

The rigidity of the cadastral record (fixed boundaries) is an impediment to integrated management of rivers. On the one hand, there are continuing calls to strengthen property rights;[85] on the other hand, the concept of property in the foreshore and seabed (MACA Act) has been removed, and the allocation of property in the Whanganui River and Te Urewera has been radically modified. Perhaps the example of Te Awa Tupua (ie rivers are owned by themselves) may provide a new approach.[86] Although this is a settlement of a Māori Treaty claim to the river, a similar approach could easily be used for other significant rivers even where there is no Māori claim. The concept of rivers owning themselves at least avoids the concerns of property owners that their property rights are being confiscated and allocated back to the Crown. However, to date the Crown has avoided affecting private property in these arrangements. The Crown has only removed property from the *public* foreshore and seabed (MACA Act) and the *publicly* owned parts of the Whanganui River (Te Awa Tupua (Whanganui River Claims Settlement) Act 2017). There is an opportunity for the Crown to acknowledge that rivers have a greater public value, that private ownership of rivers (and the sea) makes little sense, and the removal of private property in rivers is not a significant derogation of property. Rivers should be declared part of the public commons.

When private land is being subdivided, the Resource Management Act 1991 requires esplanade reserves to be set aside and fixed by survey, identified on survey plans and title documents, and for them to be held as separate parcels by local authorities.[87] While this might clarify and protect land title boundaries, it results in spatial anomalies and disconnections when rivers move while boundaries remain fixed.

Since 1990, when Crown land is alienated it is subject to the setting aside of a marginal reserve. Such reserve does not need to be surveyed as a separate parcel of land nor spatially indicated on the cadastral record. All that is required

84 It is worth noting here that riparian rights — the rights to access the river, enjoy the quality and quantity of flow, to take water for domestic purposes and drain water from land — is unaffected by the ownership of the river. Perhaps that is where the value of upland riparian ownership lies.

85 For example, in attempts to include the right to property in the Bill of Rights Act, and resistance to imposing a capital gains tax that would perhaps compromise the investment value of land.

86 Strack, above n 5.

87 In other words, esplanade reserves are fixed in place — and although the waterside boundary may move with the doctrine of accretion and erosion, the landward boundary does not move.

is that a notation is recorded on the title recording that it is "Subject to Part 4A Conservation Act 1987". In this way the reserve is exclusively defined by the course of the river rather than by survey marks or dimensions, and is therefore infinitely mobile and will always serve the reserve purposes (conservation, recreation and access) without derogating from the surrounding private land titles. From an ecological point of view, the ambulatory boundaries allow for logical riparian spaces, and provide notice to owners that riparian margins are free to move. The situation illustrated in Figure 2 above would not exist and private property will not be a hindrance to river management or public access if boundaries can move.

If such reserves could be established on all riparian boundaries, it would ensure that property claims cannot encroach on the river margins and the margins can be more explicitly used for riparian management. And because public access to rivers for fishing and other recreation is a reasonable expectation, and one that exists at least in the mythology of Kiwis,[88] then those reserves should be identified as allowing public access. The Crown will need to negotiate these conflicting positions carefully. The lesson from the orange ribbon campaign of 2005 is evidence of that.[89]

In short, rivers should be seen as public spaces (specifically to allow for integrated management), riparian margins should have public reserves set aside (primarily for conservation, but also when appropriate for public recreation and access), and those reserves should be ambulatory (they should move with the natural movement of the river).

The physical position of a river is always going to represent a barrier to use and access. A river is therefore an appropriate boundary. It matters little how the river came to be in that position — by accretion or avulsion. A river moves irrespective of legal principles. Our effort to impose legal controls is at odds with our desire to restore natural ecosystems. We should ensure that natural rivers take precedence over legal property arrangements.

It is right that our socially and culturally developed law should generally provide security and stability of private property rights. It is also right that the protection of river ecosystems (and water quantity and quality) is of such strong public importance that we should remove rivers from the private realm. It is to our advantage that our common law system provides flexibility and adaptability.

88 Baldwin, above n 17.

89 The orange ribbon campaign in 2005 was Federated Farmers' rejection response to a proposal that a 5-metre public access strip alongside all watercourses could be declared. See Nicola Boyes "Farmers launch orange ribbon campaign at Fieldays" *The New Zealand Herald* (online ed, Auckland, 16 June 2005) <https://www.nzherald.co.nz/nz/news/article.cfm?c_id=1&objectid=10331140>.

This gives our courts some scope to consider new arguments about the rights of rivers to move. But a more consistent response will require some legislative intervention to restrict private claims over what should be public. In the case of management of waterways subject to natural laws generally beyond human control and in the confirmation of reasonable property rights, we need to be more proactive in ensuring that the law makes room for rivers.