PUBLIC INTERESTS AND PRIVATE LAND: THE ECOLOGICAL FUNCTION OF PROPERTY IN BRAZIL

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Property law governs human interactions with land and resources as they exist within local and global landscapes. Major environmental concerns, such as climate change and wide-scale biodiversity loss, present challenges for reconciling liberal traditions of private property with public interests in the enjoyment of environmental goods, services, and resources.

This article analyzes how constitutional environmental principles can shift the property law paradigm by rebalancing individual and societal interests. Brazilian law and judicial decisions will serve as examples of this policy change. One of Brazil's highest courts, the Superior Tribunal de Justiça ("S.T.J."), has applied an "ecological function of property" in its jurisprudence, based on provisions in Brazil's Constitution. This principle articulates responsibilities of private parties, inherent in title to property, to maintain the public's ability to enjoy a right to an ecologically balanced environment.

Several of the S.T.J.'s opinions employing the ecological function of property will be examined, including a discussion of how this function of property affects regulatory takings law and application of Brazil's Forest Code. The article also compares this line of reasoning to the Public Trust Doctrine in the United States, which describes the right of the general public to essential natural resources that are held in trust by the government. Ultimately, the Brazilian experience demonstrates how "constitutionalizing" environmental principles can reshape property law and strike an appropriate balance between private and public interests.

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I. INTRODUCTION

Since before the beginning of recorded history, humans have interacted with and affected the planet's ecosystems. With the organization of individuals and families into communities, societies, and civilizations, human potential for altering the landscape changed profoundly. Division and specialization of labor, population growth, and the continued development of new technology have given us the ability to change forest to pasture and desert to farmland at an unprecedented scale and pace.[1] We have changed our environment so much that it has long become typical, at least in Western culture, to view nature as something that exists outside and apart from us.[2] So prevalent is the artificial that we must distinguish from it the wild.

Growth and development since the Industrial Revolution have increased access to goods, services, health, and knowledge for many, but have also moved the world toward environmental crises with the potential for tremendous local and global impact.[3] These crises, such as

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[1] Recently, historians have pointed out how we may not always recognize the impact that previous societies have had on landscapes, especially in the Western Hemisphere. *See generally* William M. Denevan, *The Pristine Myth: The Landscape of the Americas in 1492*, 82 ANN. ASS'N AMER. GEOGRAPHERS 369 (1992). Notwithstanding large-scale pre-Columbian influences on landscapes in North and South America, since the Industrial Revolution, technological capacity has allowed humans to drive ecosystem-wide impacts on land, air, and water on orders of magnitude higher than was possible before.

[2] *See generally id.*

[3] On climate change, *see, e.g.*, the recently released summary for policymakers from the Intergovernmental Panel on Climate Change (IPCC) as part of its Fifth Assessment Report

our changing climate, the vulnerability of species threatened with extinction, and the loss of biodiversity, are closely tied to our decisions regarding the management and use of land, water, and natural systems around us.[4] Deforestation in one parcel of land contributes not only to negative effects on neighboring lands but also to droughts in grasslands and floods on coastlines thousands of miles away.[5] Clearing vegetation along riverbanks upstream damages riparian buffers that provide critical filtering and anti-erosion benefits downstream.[6] These and other challenges, combined with better scientific observation of how human activities affect the environment, call for evolution in the norms and rules that govern human interactions with Earth's natural systems—the core essence of property and natural resources law.[7] In the face of such environmental crises, the major task of governments is to create a system that balances the private right to possess and use land with the public interest in limiting ecosystem-wide negative environmental externalities.

The intent of this article is to analyze Brazil's response to this challenge. In 1988, Brazil's Constitution redefined the relationship between property and environmental law by incorporating the ecological function of property principle into its legal system.[8] Courts in Brazil have begun to apply this principle to recognize a public interest in the ecological characteristics of privately held property.[9] In essence, a private owner does not hold unlimited discretion over how to use a parcel of land.[10] Rather, private rights are constrained by an obligation to maintain those natural systems that are necessary for the public to

("AR5"), which concluded that it is "*extremely likely* that human influence has been the dominant cause of the [Earth's] observed warming since the mid-20th century." IPCC Working Group I, *Summary for Policymakers* 12 (Sept. 27, 2013) (emphasis added), *available at* http://www.climatechange2013.org/images/uploads/WGIAR5-report/WG1AR5_SPM_FINAL.pdf.

[4] *Id.*

[5] Land use, land use change and forestry account for roughly one third of all anthropogenic CO_2 emissions since 1750. *See* IPCC Working Group I Fourth Assessment Report, *Climate Change 2007: The Physical Science Basis*, Section TS.2.1.1 (2007), *available at* http://www.ipcc.ch/publications_and_data/ar4/wg1/en/tssts-2-1-1.html.

[6] *E.g.*, NATURAL SOLUTIONS: PROTECTED AREAS HELPING PEOPLE COPE WITH CLIMATE CHANGE 48-49, 55 (Nigel Dudley et al., eds., 2010).

[7] Scientists have begun to refer to the present time as a new geological epoch, the Anthropocene, characterized by the near ubiquity of human influence on Earth's ecosystems. *See, e.g.*, *A Man Made World*, ECONOMIST, May 26, 2011, *available at* http://www.economist.com/node/18741749. Legal scholars have called for new principles and changes in legal systems to respond to the challenges of the Anthropocene. *See also* Nicholas A. Robinson, *Fundamental Principles of Law for the Anthropocene?*, 44 ENVTL. POL'Y & L. 13 (2014).

[8] *See* CONSTITUIÇÃO FEDERAL [C.F.] [CONSTITUTION] arts. 186, 225 (Braz.).

[9] *See infra* Part III.

[10] *See* C.F. arts. 184, 186.

enjoy its constitutionally guaranteed right to an ecologically balanced environment.[11]

Brazil's experience with the ecological function of property offers two critical lessons. First, it shows the importance and relevance of incorporating environmental principles into a constitution. By doing so, courts are able to appropriately balance public interests in environmental protection and conservation with other fundamental rights and principles. Second, it provides a useful approach for defining the environmental duties that are correlative to environmental rights. In this way, Brazil's ecological function of property can serve as an example for other countries, including the United States.

Part II below discusses the theoretical basis for the ecological function of property and its source in Brazil's Constitution. This framework is then compared with the Public Trust Doctrine in the United States, an analogous principle at the intersection of public and private property interests, the environment, and natural resources. Part III analyzes specific court decisions in Brazil that employ the ecological function of property and other constitutional environmental principles, paying particular attention to the jurisprudence of the Superior Tribunal de Justiça ("S.T.J.").[12] Part IV concludes with suggestions on how the ecological function principle can shape the definition of property and a prospective view on the broader role of constitutional norms in responding to environmental threats.

II. THEORETICAL FRAMEWORK FOR THE ECOLOGICAL FUNCTION OF PROPERTY

The ecological function of property is a principle woven from various provisions in the Brazilian Constitution of 1988. It is based on a combination of the social function of property doctrine and additional content designed to protect the "essential ecological processes" found in nature that contribute to an "ecologically balanced environment."[13] The ecological function of property recognizes a public interest in maintaining natural ecosystem services and places a degree of responsibility on landholders to refrain from unduly damaging that interest.[14]

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[11] *Id.* arts. 184, 186, 225.

[12] The S.T.J. is a federal appellate court of general jurisdiction in Brazil, created by the Constituion of 1988, and is the court of last resort for questions of infra-constitutional federal law (i.e. law inferior to the Constitution). *See* C.F. arts. 104–105. For more on the functioning of the S.T.J., *see* Nicholas S. Bryner, *Brazil's Green Court: Environmental Law in the* Superior Tribunal de Justiça *(High Court of Brazil)*, 29 PACE ENVTL. L. REV. 470, 482-85 (2012).

[13] *See* C.F. art. 225.

[14] *Id.* arts. 186, 225.

Brazil's Constitution establishes a framework in which environmental rights operate on equal footing with other rights and in which the public interest can take precedence over the private. This framework gives conservation and sustainable development principles normative weight in legal conflicts.

A. From Social Function to Ecological Function of Property in Brazil's Constitution

Article 5 of the Brazilian Constitution guarantees the fundamental rights of "life, liberty, equality, security, and property," with various definitions, limits, and qualifications.[15] While Clause 22 of Article 5 explicitly guarantees the right to private property, Clause 23 provides a crucial limitation: the principle that "property shall observe its social function."[16] In other words, private property ownership is constrained by society's interest in that property's use.

The drafters of the "social function" clause understood that the allocation and use of real property has profound impacts on the socioeconomic character of a society.[17] The concentration of land into large tracts held by a small number of owners can shut out the majority of people from access to productive land and can lead to inefficient and socially disruptive results.[18] The doctrine is common in Latin American countries and has a long history in Brazil.[19] The social function of property requires that rural property be put to "productive use."[20] This stands as a challenge to Brazilian property law that developed soon after the country's independence. At that time, large land concessions—*sesmarias*—issued by the Portuguese crown were converted into privately owned estates.[21]

While the terminology of the social function of property may not be familiar in the United States, the doctrine and its implications resonate with common law precedent, such as limitations on the right to impose

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15 *See* C.F. art. 5.

16 *Id.* art. 5, *caput.*, inciso XXIII.

17 *See generally* Alexandre dos Santos Cunha, *The Social Function of Property in Brazilian Law*, 80 FORDHAM L. REV. 1171 (2011).

18 *Id.*

19 The social function of property was first included as a constitutional principle in Brazil in 1934. CONSTITUIÇÃO DE 1934 [Brazilian Constitution of 1934] art. 113(17), *available at* http://pdba.georgetown.edu/Constitutions/ Brazil/brazil34.html; *see also* dos Santos Cunha, *supra* note 17, at 1175 (2011) (noting that in 1934, in Brazil, the social function of property was generally interpreted as allowing the government to impose external limitations on private property rights, rather than as a principle of limitations inherent in the right to property itself).

20 *See* dos Santos Cunha, *supra* note 17, at 1173.

21 *Id.*

future restrictions on alienation and on the right to exclude.[22] To further illustrate, in his well-known *Second Treatise of Government*, John Locke employed natural law to argue that individuals acquire property in the state of nature by "mixing their labor" with that which naturally exists.[23] While Locke suggested that allocation of private property was necessary in order to allow people to use the goods that existed in common,[24] he recognized a crucial limitation: after the person has "mixed his labor" with something existing in nature, that person gains an exclusive right to it only "where there is enough, and as good, left in common for others."[25] This reasoning displays something similar to a social function of property. While private property rights create a vehicle for access to and use of common goods, those rights are only justified inasmuch as they allow others sufficient access to resources or goods.

In 1988, following Brazil's transition from military dictatorship to civilian government, the country adopted a new Constitution that is still in force today.[26] The Constitution of 1988 transformed environmental law by including, for the first time in Brazil's history, a chapter focused specifically on the environment.[27] Article 225 provides that "[a]ll have the right to an ecologically balanced environment, which is an *asset of common use* and essential to a healthy quality of life, and both the Government and the community shall have the duty to defend and preserve it for present and future generations."[28] This provision incorporates the fundamental notion of collective interests and rights related to the environment, as well as ideas of an "ecological balance" and intergenerational responsibility.[29]

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[22] *See* Sheila Foster & Daniel Bonilla, *The Social Function of Property: A Comparative Law Perspective*, 80 FORDHAM L. REV. 101 (2011); Colin Crawford, *The Social Function of Property and the Human Capacity to Flourish*, 80 FORDHAM L. REV. 1089, 1090 (2011) (discussing social function-like examples in the United States). Crawford notes the invalidation of racially restrictive covenants in *Shelley v. Kraemer*, 334 U.S. 1, 23 (1948), and socially necessitated limits on application of trespass law in *State v. Shack*, 277 A.2d 369, 372 (N.J. 1971). *See id.* at 1090. In *Shack*, for example, the Supreme Court of New Jersey noted that "Property rights serve human values. They are recognized to that end, and are limited by it." 277 A.2d at 372.

[23] JOHN LOCKE, SECOND TREATISE OF GOVERNMENT § 27 (C.B. Macpherson ed., Hackett Publishing Co. 1980).

[24] *Id.* at § 28.

[25] *Id.* at § 27 (emphasis added).

[26] C.F.; *see, e.g.,* THOMAS E. SKIDMORE, BRAZIL: FIVE CENTURIES OF CHANGE 181-82 (2d ed. 2010).

[27] For more on the history of environmental law in Brazil leading up to the Constitution, see Bryner, *supra* note 12, at 477–80.

[28] C.F. art. 225, *caput* (emphasis added).

[29] *Id.*

The new environmental paradigm in Brazil's 1988 Constitution also redefined the social function of property. In the context of land reform, Article 184 of the Constitution authorizes the government to expropriate "rural property that is not performing its social function."[30] The revolutionary concept came when environmental conservation was included in the Constitution's definition of 'social function.' Article 186 lists several criteria for fulfilling the social function, including a specific requirement for the "appropriate use of available natural resources and preservation of the environment."[31] In addition, Article 170, which lists the principles upon which the economic order of Brazil is based, includes specifically "environmental protection," alongside "private property," "social function of property," and other principles.[32]

These provisions, taken together, set forth an ecological function of property within the social function. As such, Brazil's Constitution imposes on landowners a portion of the responsibility for environmental protection—maintaining an ecologically-balanced environment—shared by all members of society and the State under the terms of Article 225.[33]

The ecological function of property is not an obvious outgrowth of earlier understandings and interpretations of the social function of property doctrine as it has been employed in practice since the early 20th century. The social function's requirement of "productive use," which was seen as socially preferable, encouraged the clearing of forests or other vegetation and overexploitation of natural resources for developmental purposes—activities that are antithetical to environmental conservation.[34] Yet even if the ecological function is not

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[30] *Id.* art. 184.

[31] *Id.* art. 186(II). Article 186 reads, in part: "The social function is fulfilled when rural property meets, simultaneously, and according to the criteria and standards established by law, the following requirements: I – rational and appropriate use; II – appropriate use of available natural resources and preservation of the environment; . . . ." *Id.*

[32] *Id.* art. 170. Article 170 reads, in part:

> The economic order, based on recognition of the value of human labor and free enterprise, is intended to ensure for all a life with dignity, in accordance with the dictates of social justice, with due regard for the following principles: . . .
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> II – private property;
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> III – the social function of property; . . .
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> VI – protection of the environment, which may include differentiated treatment in accordance with the environmental impact of goods and services and of their respective production and delivery processes; . . . .

Id.

[33] *Id.* art. 225 (describing the duty of the Government and society to preserve an ecologically balanced environment).

[34] In the same way, initial formulations of the public trust doctrine in the United States (before Joseph Sax's influential article in 1970) were traditionally thought of as guaranteeing public access to exploit, rather than conservation of, resources such as waterways—a pro-development position not necessarily rooted in conservation principles. For example, much of the Court's

descended in practice from a pro-development application of the social function, it follows from the same premise that the distribution and use of private property impacts social welfare. This is because social development also depends on environmental and ecosystem stability, which can be threatened by private land uses.[35] In that context, the ecological function of property embraces the earlier social function theory, but applies it towards the preservation of essential ecological processes.

B. Public Trust Doctrine in the United States

The Public Trust Doctrine in the United States, though it has followed a different trajectory, serves as an important analogy to Brazil's ecological function of property. The Public Trust Doctrine is rooted in the law that governed the title to and use of navigable watercourses.[36] It articulates a right held by the general public to essential natural resources that are held in trust by the government and cannot be wholly reduced to private use or consumption.[37] In contrast to Brazil's ecological function of property, the Public Trust Doctrine in the United States did not develop from constitutional provisions.[38] Rather, some states have enacted constitutional public trust provisions in order to codify the doctrine since its recognition in the courts.[39] Despite the similarity to the ecological function principle, the Public Trust Doctrine

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concern in *Illinois Central Railroad Co. v. Illinois* was that private ownership of the Chicago harbor would leave the public's interest in developing the area to the whims of a private party that would not necessarily be responsive to the needs of a growing public. 146 U.S. 387, 452–55 (1892).

35 *See generally* U.N. Conf. on Sustainable Dev., *The Future We Want,* ¶ 4, U.N. Doc. A/Conf.216/L.1 (June 19, 2012) (noting the connection between sustainable consumption, protection, and management of natural resources with economic and social development).

36 *See, e.g.*, Charles F. Wilkinson, *The Headwaters of the Public Trust: Some Thoughts on the Source and Scope of the Traditional Doctrine*, 19 ENVTL. L. 425, 426–27 (1989).

37 On the development of the public trust doctrine, see Joseph Sax, *The Public Trust Doctrine in Natural Resource Law: Effective Judicial Intervention*, 68 MICH. L. REV. 471 (1970), and Wilkinson, *supra* note 36. For an alternative view on the roots and classification of the public trust doctrine, see James L. Huffman, *A Fish Out of Water: The Public Trust Doctrine in a Constitutional Democracy*, 19 ENVTL. L. 527 (1989) (arguing that the public trust doctrine should act as a easement held by the public and that more expansive readings of the doctrine are inconsistent with constitutional democracy).

38 Although the foundational U.S. case on the Public Trust Doctrine, *Illinois Central Railroad Co. v. Illinois*, 146 U.S. 387 (1892), was decided by the Supreme Court, the doctrine is a matter of state common law and varies significantly from state to state.

39 *See, e.g.*, PA. CONST. art. 1, § 27 ("Pennsylvania's public natural resources are the common property of all the people, including generations yet to come. As trustee of these resources, the Commonwealth shall conserve and maintain them for the benefit of all the people."); *see also* William D. Araiza, *The Public Trust Doctrine as Interpretive Canon*, 45 U.C. DAVIS L. REV. 693, 696 (2012).

has been neither uniformly applied nor extended to all ecological concerns.[40] Further, regulatory takings law can push the balance of private and public rights in the opposite direction towards greater privatization.[41]

In the late nineteenth century, the Public Trust Doctrine developed as a duty of the state, enforceable by citizens, to hold and manage certain resources—especially navigable water—in trust for public use and access.[42] In *Illinois Central Railroad Co. v. Illinois*—decided in 1892—the Supreme Court focused on the state's trust responsibility with regard to the lands under the navigable waters of Lake Michigan in the Chicago harbor.[43] The Court noted that the state's title to submerged lands was "different in character" than the title to other lands; unlike for other areas, "[i]t is a title held in trust for the people of the state, that they may enjoy the navigation of the waters, carry on commerce over them, and have liberty of fishing therein, freed from the obstruction or interference of private parties."[44] As Joseph Sax described it:

> When a state holds a resource which is available for the free use of the general public, a court will look with considerable skepticism upon *any* governmental conduct which is calculated *either* to reallocate that resource to more restricted uses *or* to subject public uses to the self-interest of private parties.[45]

The *Illinois Central* Court was concerned that, without the Public Trust Doctrine, a resource that ought to be available for public use could be reduced to exclusive control. The majority in the case indicated that "parcels" of the submerged lands in the harbor could be granted to private parties for construction of improvements, so long as such grants would not "substantially impair the public interest in the lands and waters remaining."[46] Here, the Court recognized something like a "social function" of the harbor area; some of it could be alienated, consistent with the trust, but to convey it all permanently would interfere with the societal interest in the harbor area that the state was supposed to guarantee.

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[40] *See* Araiza, *supra* note 38, at 696.

[41] *See, e.g.*, Lucas v. S.C. Coastal Council, 505 U.S. 1003 (1992).

[42] *See, e.g.*, *Illinois Central R.R*, 146 U.S. 387.

[43] *Id*. at 452–53.

[44] *Id.* at 452.

[45] Sax, *supra* note 36, at 490 (emphasis in original).

[46] *Illinois Central R.R.*, 146 U.S. at 452. Justice Shiras, dissenting in the case, expressed skepticism with the majority's view that the application of the Public Trust Doctrine could depend on the size of the parcel granted by Illinois to the railroad, a principle that would erode legislative discretion. *Id.* at 467 (Shiras, J., dissenting).

In the century since its articulation in *Illinois Central*, courts in several states have recognized and applied the doctrine in broader contexts, including, for example, recreational and environmental interests in water.[47] The modern Public Trust Doctrine can refer both to a sort of easement, which ensures public rights of use or access, and to a servitude on land, which guarantees the public interest by ensuring that natural resources, even if granted in part to private parties, are appropriately managed and preserved for present and future public needs.[48]

However, the Public Trust Doctrine's reach is limited. Few courts have applied it to other essential resources, such as the atmosphere.[49] Unlike Brazil's ecological function of property, the Public Trust Doctrine is not directly included in the foundational texts as a limit on private property. The Public Trust Doctrine's formulation is rooted in a state-centered perspective—or rather, fifty different state perspectives—of responsibility to maintain natural resources. In contrast, the ecological function of property acts as an imposition of private obligations to manage property so as to ensure the public's right to a healthy environment.

In turning to the application of the ecological function of property in Brazil, judicial decisions demonstrate how the principle can reshape property law in order to reconcile private rights with an ecosystem-based view of public interests and environmental law.

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[47] Note, for example, the line of public trust cases in California. *See, e.g.*, Marks v. Whitney, 491 P.2d 374 (Cal. 1971) (extending the doctrine to include a public trust protection of environmental and recreational resources); Nat'l Audubon Soc'y v. Superior Court, 658 P.2d 709 (Cal. 1983) (applying the public trust doctrine to Mono Lake to redefine consumptive water rights).

[48] *See* MARY CHRISTINA WOOD, NATURE'S TRUST: ENVIRONMENTAL LAW FOR A NEW ECOLOGICAL AGE 328 (2014); J. Peter Byrne, *The Public Trust Doctrine, Legislation, and Green Property: A Future Convergence?*, 45 U. C. DAVIS L. REV. 915, 915–16 (2012). Professor Byrne's discussion and suggestion that public trust doctrine can trump regulatory takings limitations on environmental regulations reflects an evolution of the doctrine's proponents, as a response to pushback from judges and scholars in favor of stronger private property rights interpretations, especially in the 1990s. *Compare* Byrne, *supra*, *with* Richard J. Lazarus, *Changing Conceptions of Property and Sovereignty in Natural Resources: Questioning the Public Trust Doctrine*, 71 IOWA L. REV. 631, 691–92 (1986) (arguing that expansion of the public trust doctrine was unnecessary and perhaps counterproductive for environmental protection at the time, due to advances in environmental legislation and regulation of private property in the 1970s and 1980s).

[49] *See* Foster v, Wash. Dep't of Ecology, No. 14-2-25295-1 SEA, slip op. (Wash. Super. Ct. Nov. 19, 2015) (applying Public Trust Doctrine to the atmosphere, requiring the state to protect it from GHG emissions, but denying the petitioners' claim due to an ongoing state rulemaking process). *But see* Alec L. v. McCarthy, 561 Fed. App'x 7 (D.C. Cir. 2014), *cert denied*, 135 S. Ct. 774 (2014) (dismissing a claim of a federal public trust over the atmosphere).

III. APPLYING THE ECOLOGICAL FUNCTION OF PROPERTY IN BRAZIL

The notion of an ecological function of property rights in Brazil is derived from the Constitution of 1988. In particular, the principle is woven together from the description of the social function of property, an articulation of rights and duties related to the environment, and the list of organizing principles upon which the economic order of Brazil is based.[50] Turning to consider the judicial application of the ecological function of property in Brazil, this section quotes extensively from the jurisprudence of the Superior Tribunal de Justiça ("S.T.J.") and analyzes the evolution and application of the ecological function of property in the past several years.[51] These decisions strike a new balance between public and private interests and exemplify how the principle affects the relationship between environmental law and property rights.

The S.T.J. was created by the Constitution of 1988 as a court of last resort for questions of federal law, separate from the Supremo Tribunal Federal ("S.T.F."), which retains jurisdiction over interpretation of the Constitution.[52] Even though the S.T.J. does not directly interpret the Constitution, it must apply constitutional principles when interpreting federal law, giving the Court a critical role in applying the ecological function of property.[53]

The Second Panel[54] of the S.T.J. issued a decision in 2012 that describes the foundation and scope of the doctrine of the ecological function on property in Brazil.[55] The case dealt with a private property owner's failure to maintain vegetation in a riparian area along the Santo Antônio River in the State of Paraná[56] under the terms of the Brazil's Forest Code—the centerpiece of Brazilian law on the protection of flora.[57] The Forest Code requires private landowners to set aside Permanent Preservation Areas (*Áreas de Preservação Permanente*, or

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50 C.F. arts. 170, 186, 225; *see also supra* notes 30–32 and accompanying text.

51 The decisions of the S.T.J. are published only in Portuguese. As a result, the author's translations of extended portions of the key decisions into English are printed here in order to enhance the reader's access to the relevant material for analyzing this subject.

52 C.F. art. 104, 105; *see also* Bryner, *supra* note 12, at 482–85.

53 *See* Bryner, *supra* note 12, at 482–85.

54 The S.T.J. is divided into three Sections of ten justices (*ministros*) each, according to subject matter (generally speaking, the subject matter is split into public law, private law, and criminal law). Each Section is further divided into two Panels of five. Decisions regarding environmental law generally come from the First Section, which includes the First and Second Panels. *See* S.T.J. Internal Regulations, arts. 2, 3, 9; Bryner, *supra* note 12, at 484.

55 S.T.J., REsp No. 1.240.122/PR (2d Panel), Relator: Min. Antonio Herman Benjamin, 28.06.2009, DIÁRIO DO JUDICIÁRIO ELECTRÔNICO, [D.Je.] 11.09.2012.

56 *Id.*

57 Lei No. 12.651, de 25 de Maio de 2012, DIÁRIO OFICIAL DA UNIÃO [D.O.U.] 28.5.2012, arts. 3–4 (Braz.). The Forest Code was amended in 2012, but dates in large part to 1965.

"APPs") along riverbanks in conditions that maintain the environmental function of riparian wetlands.[58]

The Panel affirmed the judgment of a regional appeals court, upholding an order for the owner to pay a fine and denying the owner's claim against the government for reimbursement of the cost of reforesting the area in question.[59] In reaching this decision, the Court provided a history of environmental law's relationship to property rights, as well as the advancement of the social function doctrine in the early 20th century:

> According to the decision below, "the right to use property is not unlimited, being bounded by constitutional, among other limits." This is most decidedly correct. [This Court] has dispelled the hypothetical notion of a total or absolute right of enjoyment of rural or urban real property, given that, even before "the promulgation of the current Constitution, the Congress had already undertaken to impose certain conditions on the use of property related to the preservation of the environment" (quoting EREsp No. 628.588/SP, Rel. Min. Eliana Calmon, 1a Seção, D.Je. Feb. 9, 2009); such restrictions, under the Constitution of 1988, as discussed below, are based on the *ecological function* of the property rights to exercise domain and possession, rules that are rooted in *ius utendi*, *fruendi*, *abutendi* and *aedificandi* [rights of use, enjoyment, disposal, and building on property].
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> It is important to note that the right to private property has never (except during the feudal period, when the Crown's central control was weak) been absolute. [Private property rights have never been] insulated or covered with a mantle of untouchability, particularly in relation to limits designed to make them compatible with collective interests, because "the property owner is not alone in the world" . . . .Much to the contrary, the limits "are everywhere" . . . .[E]ven in the first decade of the 1900s, [Henri Hayem noted] that "there now exists a right of property surrounded by innumerable restrictions," and that we should see in it, then, an "*essentially relative* right."[60]

The Court referred to the history of the social function of property and its justification as the backdrop for a transition toward an ecological function as well, based on the same theoretical principles of ensuring

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[58] *Id.* at arts. 3–4.

[59] S.T.J., REsp No. 1.240.122/PR, at 7.

[60] *Id.* at 8 (emphasis in original) (internal citations omitted).

the compatibility of societal interests with private property rights. The Court continued:

> Furthermore, if it is the Legislative branch that confers and secures the right of property—and not via divine grant, as formerly advocated—it is incumbent on that branch to create in that institution not only a bundle of rights, prerogatives, and powers, but also an increasingly extensive range of assumptions, obligations, and responsibilities.
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> In this line of reasoning . . . the right to property, [merely] because it is guaranteed in the Constitution, cannot be seen as a blank slate. Rather . . . "it is for the law, within what the Constitution provides, to define its *content* and regulate its *exercise*, *establishing* the proper *limits*," because the titleholder's claim is, in these terms, "statutory, regulatory, and as such, subject to modification by law. Such powers and faculties are not immutable." [. . .]
>
> Thus, the modern judge should not be persuaded by nostalgic claims of those who insist on defending an extreme vision of property rights, a position that, in Brazil, any student of Law will deem outdated since at least the Constitution of 1934, and with greater emphasis, since that of 1988. Today, what prevails is the position that the owner is lord of the land only insofar as is consistent with respect for the aspirations established in favor of society as a whole and of future generations, including, with ever—increasing importance, environmental protection. This takes the form of a kind of *collective and intergenerational socio-ecological contract* as the new framework for property rights . . . .[61]

In this balancing of property rights with other interests, the ecological function operates not to allow, but to impose a duty on the State to regulate uses of private property that have an impact on the environment.[62] In other words, because the Constitution requires the State to preserve essential ecological process, the Forest Code's requirements are no more than a practical and objectively verifiable guideline for preserving rural properties' ecological function; therefore, the property owner cannot claim a taking or seek reimbursement for restoring the area in question because doing so is a requirement for fulfilling the property's ecological function.

The Court's description of the ecological function of property as a new social contract provides a means for bridging gaps between

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[61] *Id.* at 8–9 (emphasis in original) (internal citations omitted).

[62] *Id*.

scientific understanding of global environmental crises and the policy instruments that our societies use to respond to these challenges.[63] This new social contract creates a mandate to reshape property law in light of the interconnectedness of ecosystems and in response to globally experienced environmental problems, such as climate change.[64] What is critical in the Court's interpretation is that this mandate clearly stems from Brazil's Constitution. Because ecological processes are linked to the social function concept, the Court takes a clear, logical step in recognizing the societal interest in the ecological characteristics of a particular geographical area.

The following cases show several examples of how this new paradigm affects private property arrangements. Here, three subthemes among the S.T.J.'s cases are represented. First is the notion that environmental regulations may truly restrict private property rights. Second is the interpretation of the Constitution's provisions on water and property relative to the previously existing legal system. Although this does not explicitly rely on a constitutional ecological function of property, it employs similar public trust-like principles to reshape property law. Third is the S.T.J.'s emphasis on public interests over private interests in cases involving natural and cultural heritage. These cases exemplify how the recognition of constitutional environmental principles, including the ecological function of property, affects other interests in practice and enhances the ability of property law to reconcile private rights with ecosystem-wide concerns.

A. The Ecological Function of Property as a Restriction on Property Rights

Recent S.T.J. decisions emphasize that the ecological function of property can give legitimacy to administrative restrictions on private property rights. One such example is a 2009 decision by the S.T.J.'s Second Panel in a case involving a regulatory takings claim against the federal government.[65] The case dealt with an executive decree from

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[63] On the need to address gaps between science and policy related to global environmental problems, see generally GARY C. BRYNER, PROTECTING THE GLOBAL ENVIRONMENT (2011).

[64] As Wood argues, the central purpose of the Public Trust Doctrine, even as described in the 19th century in *Illinois Central*, allows for, and in fact calls for, a reshaping of the scope of the public trust to meet changing societal needs. *See* WOOD, *supra* note 48, at 146 (stating "Fundamentally, the trust protects both the natural infrastructure essential to societal welfare and the public's right to use such ecological wealth . . . .The Supreme Court's attention to submerged lands in *Illinois Central* reflected society's core interests *at that time*—fishing, navigation, and commerce. But the governing rationale of *Illinois Central* was not limited to streambeds—rather, it tied discernibly to crucial societal interests.") (emphasis in original).

[65] S.T.J., REsp No. 1.109.778/SC (2d Panel), Relator: Min. Antonio Herman Benjamin, 10.11.2009, D.Je. 04.05.2011.

1993 that prohibited—except in limited, approved cases of public interest—the cutting or suppression of Atlantic Forest vegetation.[66] The appellant in the case, an owner of land covered by Atlantic Forest, brought an action against the federal government, characterizing the decree as an indirect taking.[67]

The case exemplifies how the S.T.J. employs the ecological function of property as a restriction on the constitutional right to property. As presented on appeal before the S.T.J., the major issue in the case turned on which statute of limitations applied.[68] If the Atlantic Forest decree caused an indirect taking, then the appellant's claim for compensation was timely within the 20-year limit.[69] However, if the decree was simply a generally applicable administrative limit on use of the land, then the 5-year limit in which to challenge the statute prohibited the appellant's claim.[70] While the landowner in the case claimed that the decree interfered with basic property rights, such as control over use and disposal of the land and expectations regarding economic activity on the land, the Second Panel responded with an explanation of how the ecological function of property reshapes takings law:

> . . . [C]ontemporary judicial regimes require that real properties—rural or urban—serve *multiple ends* (private and public, including ecological), which means that their economic utility is not exhausted on *one single use* or the *best use*, let alone the *most lucrative* use.
>
> In truth, the Brazilian constitutional-legal order does not guarantee property and business owners the *maximum possible financial return* on private goods and on activities undertaken [on real property].
>
> Requirements of ecological sustainability in the pursuit and utilization of economic goods are insufficient to show a "taking" or an unjustified public intervention into the private domain. Requiring individuals to comply with certain environmental precautions in the use of their property is not discriminatory, nor does it interfere with the principle of equal protection under the law, principally because nothing can be confiscated from a person if she does not properly own or hold title to it.

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[66] Decreto No. 750, de 10 de Fevereiro de 1993, D.O.U. de 11.02.1993 (The decree itself has been revoked and replaced by a subsequent decree on the subject. *See* Decreto No. 6.660, de 21 de Novembro de 2008, D.O.U. de 24.11.2008).

[67] S.T.J., REsp No. 1.109.778/SC, at 4.

[68] *Id.*

[69] *Id.*

[70] *Id.* at 3–4.

> If landowners and occupiers are subject to the social and ecological functions of property, it makes no sense to claim as unjust the loss of something that, under the constitutional and legal regime in effect, they never had, that is, the possibility of complete, absolute use, in scorched-earth fashion, of the land and its natural resources. Rather, making such claim would be an illegal takeover . . . of the *public attributes* of private property (the essential ecological processes and services), which are "good[s] for the common use of the people" in the terms of the heading to Article 225 of the Constitution of 1988.[71]

The ecological function of property, when properly applied, turns a property owner's takings claim on its head. Rather than characterizing an environmental regulation as a taking of private property, the Court holds that such a characterization would effectively lead to a private takeover of the public's ecological interest in the land. The Court's ruling prevents landowners from forcing negative externalities on society through unsustainable use or destruction of natural resources.

This is what Justice Antonio Herman Benjamin of the S.T.J. has called the "redistributive function" of environmental law:[72] if all people share and benefit from ecosystem services,[73] the concept of the ecological function of property rights grants the Government the authority to prohibit and punish attempts to appropriate these public goods for private use.[74] As the Court describes, due to property's ecological function, the area's value cannot be reduced to one single, private use.[75] The ecological function redefines the private landowner's expectations regarding the economic potential of land. Its value cannot be described in isolation, but rather must be considered with reference to the public's interest in the ecologically important Atlantic Forest ecosystem.

In the conclusion of the case, the Court summarizes the legal rule regarding regulatory takings as follows:

> [I]n Brazilian law, if the administrative regulation [on property] is general (applicable to all real property similarly situated or sharing a particular characteristic) and does not absolutely prevent possession or economic use of the property,

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71 *Id.* at 5.

72 *See* Antonio Herman Benjamin, *We, the Judges, and the Environment*, 29 PACE ENVTL. L. REV. 582, 587 (2012).

73 The vehicle for society to 'share' these services could be through a right to an ecologically balanced environment, as in Brazil, or through a public trust managed for the benefit of the people, as in the contexts where the Public Trust Doctrine has been applied in the United States.

74 *See* Benjamin, *supra* note 72, at 587.

75 *Id.*

> compensation is inappropriate, for to do otherwise would be to nullify the very constitutional duty imposed on the State and on property owners to protect the environment.[76]

Regulatory takings law in the United States incorporates some of these fundamental ideas, but takes a different turn. In *Lucas v. S.C. Coastal Council*, the Supreme Court considered the validity of a takings claim by a beachfront property owner against the state's Beachfront Management Act.[77] The act was designed to prevent damage to the coastal ecosystem and prevented the property owner from building houses on his two lots.[78] The trial court in the case found that the regulation eliminated all economic value of Lucas's land.[79] As the Supreme Court could not review this finding of fact, the Court crafted a new categorical rule, holding that any regulation that "prohibit[ed] all economically beneficial use of land" is equivalent to a physical taking, compensable under the Takings Clause of the U.S. Constitution.[80] In the Court's opinion, Justice Scalia admitted exceptions to this rule, but wrote that "[a]ny limitation [on property rights] so severe cannot be newly legislated or decreed (without compensation), but must inhere in the title itself, in the restrictions that background principles of the State's law of property and nuisance already place upon land ownership."[81]

Herein lies the potential importance of constitutional environmental rights and an explicit ecological function of property. With the construction in Brazil's Constitution, as well as the Civil Code of 2002,[82] such "background principles" could be articulated. In the Atlantic Forest case above, the S.T.J. recognized the government's legislative authority to give meaning to the ecological function of property, classifying the maintenance of the Atlantic Forest ecosystem as a matter of public interest that inheres in the private title.[83] In the

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[76] S.T.J., REsp No. 1.109.778/SC, at 11.

[77] Lucas v. S.C. Coastal Council, 505 U.S. 1003 (1992).

[78] *Id.* at 1007–08.

[79] *Id.*

[80] *Id.* at 1028–29; U.S. CONST. amend. V.

[81] *Lucas*, 505 U.S. at 1029.

[82] Article 1228, Paragraph 1, of the Civil Code provides that "The right to property must be exercised, consonant with its economic and social ends, and in accordance with specific law, such that flora, fauna, natural wonders, ecological equilibrium and artistic and historic heritage are preserved, and air and water pollution are avoided." CÓDIGO CIVIL [C.C.], Lei 10.406, de 10 de Janeiro de 2002, D.O.U. de 11.1.2002, art 1.228, § 1, *available at* http://www.planalto.gov.br/ccivil_03/leis/2002/L10406.htm.

[83] Note that, notwithstanding this background principle of the ecological function of property, the S.T.J. does not directly preclude compensation (i.e., a holding that a taking has occurred for which compensation is required) in the case of a regulation that "absolutely prevent[ed] possession or economic use of the property." *See* text accompanying note 77. This appears on its

Lucas case, Justice Scalia assumed that any such finding upon remand to the state court based on common law principles—namely, state public nuisance law—would be "unlikely," given the fact that adjacent property owners had built houses in the area and that, indeed, beach house construction was the "essential use" of the land.[84]

The Public Trust Doctrine, of course, has the potential to satisfy this reasoning as a background principle of law.[85] Eleven years after *Lucas*, the South Carolina Supreme Court adopted this notion in another case, *McQueen v. S.C. Coastal Council*, in which the state had denied a permit to build improvements on coastal lots.[86] In *McQueen*, the court held that because the area in question "had reverted to tidelands," the lots were therefore subject to public trust restrictions "inherent in the ownership of property bordering tidal water."[87] However, this application of Public Trust Doctrine is limited by the extent to which a given state has recognized public trust duties toward different resources or within specific geographic areas; in other words, whether the trust is limited to tidelands and water resources or extends to a public interest in land or air resources.[88]

A second example of how the S.T.J. has resolved conflict between public and private interests is a case regarding the interpretation of the Forest Code.[89] One key provision of the Forest Code is the legal forest reserve (*reserva legal*), which requires rural landowners to set aside a portion of land to remain covered with vegetation.[90] Depending on the biome in which the property is located, the legal reserve requirement ranges from 20 percent in many parts of Brazil to 80 percent in the Amazon region.[91] Additionally, the Forest Code requires that the owner officially register the portion to be kept aside as the reserve.[92]

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face similar to the rule in *Lucas.* The S.T.J. did not directly reach the question, however, and the reference to "possession" indicates that the Court would be looking to circumstances that go beyond impairing the "use" aspect of the property rights bundle—the portion on which the *Lucas* court exclusively placed its focus.

84 *See Lucas*, 505 U.S. at 1031.

85 *See* John Echeverria, *Public Trust Doctrine as a Background Principles Defense in Takings Litigation*, 45 U.C. DAVIS L. REV. 931 (2012); Byrne, *supra* note 47, at 924 (citing McQueen v. S.C. Coastal Council, 580 S.E.2d 116 (S.C. 2003).

86 *McQueen*, 580 S.E.2d at 120.

87 *Id*. at 119–20.

88 *Cf.* Alec L. v. McCarthy, 561 Fed. App'x. 7 (D.C. Cir. 2014), *cert denied*, 135 S. Ct. 774 (2014) (dismissing a claim of a federal public trust over the atmosphere).

89 Lei No. 12.651, de 25 de Maio de 2012, D.O.U. de 28.5.2012 (The Forest Code superseded the older Code, found in Act 4.771 of 1965.).

90 *Id.* at art. 12.

91 *Id.*

92 The 2012 Code establishes a Rural Environmental Registry (*Cadastro Ambiental Rural*) as a new consolidated system for registering the legal reserve. *See id.* at arts. 29–30.

Brazilian courts have held that the legal forest reserve requirement is an obligation *propter rem*, running with the land, and can therefore be enforced against new owners that acquire rural property, regardless of whether they themselves have taken any action to deforest the parcel of land.[93] In addition, the S.T.J.'s decisions affirm that the obligation to *register* the legal reserve is also applicable to new landowners, even when the previous owner has failed to do so.[94] Justice João Otávio de Noronha, writing for the Second Panel, issued the decision, highlighting the relationship between the Forest Code's legal forest reserve requirement and private property rights.[95] The Court explained:

> [The Forest Code], in providing for the setting-aside of a portion of rural properties to establish a legal forest reserve, was the result of a welcome and necessary ecological consciousness that has arisen in society due to the effects of natural disasters that have occurred over time, resulting from mankind's unchecked environmental degradation. These nefarious consequences gradually lead to an awareness that natural resources must be used sustainably and preserved so as to assure a high quality of life for future generations.
>
> What we have in this case is the public interest prevailing over the private; this collective interest affects even the owner of the reserve, in the sense that such may also benefit from a stable and balanced environment. Thus, the *legal reserve* comprises part of private lands and constitutes a true restriction on property rights.
>
> . . . [W]ere it not so, legal reserves would never be restored on private lands, which would frustrate the law's purpose of assuring environmental preservation and equilibrium.[96]

The key point from this S.T.J. opinion is that environmental law can in some cases restrict private property rights to protect the public's collective interest in the property's ecological function. The Court recognizes that, under the constitutional ecological function of property, legislation can delineate how that function can be met. For the Forest Code, the Court's application of the ecological function of property includes a limitation on the use of private land.[97] The portion of the private land that is needed to ensure proper functioning of essential ecological processes—defined as the legal reserve, plus permanently

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[93] For further discussion of the application of *propter rem* environmental obligations, see Bryner, *supra* note 12, at 507–13.

[94] S.T.J., RMS No. 18.301/MG (2d Panel), Relator: Min. João Otávio de Noronha, 28.04.2005, D.J. 03.10.2005.

[95] *Id.*

[96] *Id.* at 6–7.

[97] *Id.*

protected riparian and other vulnerable areas—is encumbered by the public interest in those ecological processes.[98] This burden is inherent in the title and is passed on to future landholders, regardless of prior actions.

The Court continued by tying the case to a change in the legal paradigm through the application of new constitutional provisions on the environment in 1988:

> The ecologically balanced environment was elevated to the category of constitutional dogma as a right enjoyed by all (art. 225 of the Constitution), encompassing present and future generations. However, there still remains a considerable portion of the population that resists this collective idea, seeing only their immediate interests.
>
> In this sense, to free landowners from the registration requirement would be to make the law empty and void. The same applies to a person who acquires any title to the land, in the act of registering the property. There is no sense in freeing such persons from their respective registration requirements, seeing that the legal reserve is a restriction on property rights, established legally since 1965. In this regard, I emphasize that this restriction will be forty years old this coming September [2005], giving sufficient time for incorporation into the culture, and not justifying that, even today, there are owners resistant to establishing the reserve.[99]

The constitutional language plays an important role in the S.T.J.'s decision, which applied scientific understanding of the ecological impacts of land use change to balance public and private interests in its interpretation of federal law.[100] Though both public and private interests are rooted in the Constitution, the S.T.J. established a position that "the public interest must prevail over the private" when the two cannot be reconciled.[101] Constitutional environmental principles, taken together to describe an ecological function of property, are on par with other constitutional guarantees, giving legitimacy to the statutory legal restrictions on property rights.

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[98] *Id.*

[99] *Id.* at 7–8.

[100] *Id.*

[101] S.T.J., REsp No. 403.190/SP (2d Panel), Relator: Min. João Otávio de Noronha, 27.06.2006, D.J. 14.08.2006, 8.

B. Water and Property: Property Law in Light of the 1988 Constitution

Brazil's Constitution of 1988 laid out a new system of management for the nation's water resources based on federal government ownership of interstate waters.[102] Given the importance of water as a public good and a component of an ecologically balanced environment, the Constitution placed restrictions on the types of private property rights that may be exercised on submerged lands, banks, and floodplains—just like the Public Trust Doctrine in the United States.[103]

Article 20 of the Constitution lists, as the "property of the Union," "lakes, rivers, and any watercourse in lands within its domain, or that wash more than one state, that serve as boundaries with other countries, or that extend into foreign territory or proceed therefrom, as well as bank lands and river beaches."[104] One issue that then arises under this system of federal ownership of waters and riverbanks is whether any compensation is due when riparian areas—claimed by private parties—are required for public use.

The S.T.F. interpreted the Constitution in this regard to mean that "the banks of navigable rivers are within the public domain, not susceptible to expropriation, and therefore, excluded from compensation."[105] Although the S.T.J. does not have jurisdiction to decide constitutional questions, this constitutional provision and interpretation is relevant to the S.T.J.'s application of related federal laws.[106]

In what is now the S.T.J.'s leading case on this issue, the Second Panel decided a controversy between a state electricity company, which was developing a hydroelectric project, and a private property owner.[107] At issue before the court was whether the electricity company was required to pay compensation to the property owner for the portion of riverbank land affected—land that was registered as belonging to the property owner,[108] but was also defined as "reserved lands" (*terrenos reservados*) under Brazil's Water Code.[109] Justice Otávio de Noronha's

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102 C.F. art. 20 (III).

103 Note that this article of the Brazilian Constitution places ownership in federal control, while in the United States, submerged lands under navigable waters are generally owned by the states, rather than the federal government.

104 C.F. art. 20 (III).

105 *See* Súmula 479/STF.

106 *See* S.T.J., REsp No. 508.377/MS (2d Panel), Relator: Min. João Otávio de Noronha, 23.10.2007, D.Je. 11.11.2009, 14 (opinion of Min. Herman Benjamin).

107 *Id.* at 11–12.

108 *Id.* at 8 (original opinion of Min. João Otávio de Noronha, Relator).

109 CÓDIGO DAS ÁGUAS [Water Code], Decreto No. 24.643, de 10 de Julho de 1934, arts. 11–12, 14, *available at* http://www.planalto.gov.br/ccivil_03/decreto/d24643.htm (defining reserved lands).

original opinion in the case held that, because the area was registered in the name of the appellees, compensation would be required. [110] Any attempt to conclude otherwise would impermissibly require a re-examination of the lower court's findings of fact.[111]

Justice Benjamin then issued a separate opinion in the case, concluding that the property owner had no legal interest in the "reserved lands" and that the area must therefore be excluded for purposes of compensation.[112] Justice Benjamin's opinion describes the case's broad repercussions in Brazil.[113] It raised the question of whether an express constitutional provision that dedicates ownership to the federal government—in a similar way to some formulations of the Public Trust Doctrine—can defeat an asserted private property interest.

The decision explained how previous decisions of the S.T.J. interpreted the 1934 Water Code and its application to *reserved lands* next to public waterways.[114] Before this case, the Court had held that "areas located along the banks of navigable rivers are not public when a private party holds a valid title" under the Water Code.[115] While the Water Code had allowed an exception for private parties to hold title to waterways, the 1988 Constitution does not. Reading Article 20, regarding the property of the federal government, together with Article 26, regarding the property of the states, the possibility of private ownership of *reserved lands* envisioned in the Water Code is no longer valid.[116]

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[110] Under the procedures of the S.T.J., the rapporteur (*relator*) issues an opinion for the Panel in a case, which is then reviewed by the rest of the Panel along with the rest of the record. If the rapporteur is in the majority in the case, her decision may be subsequently revised and issued as the Panel's judgment. *See* S.T.J., *Regimento Interno* [Internal Rules of Procedure], art. 34.

[111] S.T.J., REsp No. 508.377/MS, at 8 (original opinion of Min. João Otávio de Noronha). The S.T.J.'s scope of review in a Special Appeal is limited to questions of law, rather than fact. *See* Súmula 7/S.T.J.

[112] S.T.J., REsp No. 508.377/MS, at 14–19 (opinion of Min. Herman Benjamin).

[113] The opinion describes the issues in the case as follows:

> [An] assessment of the legal nature of the so-called *reserved lands*, on the banks of federally-owned rivers, specifically as to: a) the public nature [of the *reserved lands*]; b) the possibility of private acquisition; c) the legal effect of a real estate ownership record of a public good, drawn up in contradiction with an express constitutional provision; and d) whether the Government has the duty, when expropriating the rest of the grove, to also provide compensation [for the *reserved lands*].

Id. at 12.

[114] *Id.* at 14–15.

[115] *See id.* at 14–15. The Court quoted from Article 11 of the Water Code: "The following are public domain, *unless* designated for common use, or by some *legitimate title* they belong to some *private domain*; . . . 2) *reserved lands* on the banks of public waterways . . . ." *Id.* at 14 (*quoting* Decreto No. 24.643, de 10 de Julho de 1934, C.L.B.R. 27.07.1934, art. 11 [Water Code] (emphasis in original).

[116] S.T.J., REsp No. 508.377/MS, at 16 (emphasis added).

Thus, Justice Benjamin's opinion concludes, the only "legitimate title" a private party may have under the Water Code would be through lease or concession, in which case the government could be made responsible for providing compensation in certain cases.[117] The absence of lease or concession in this case led the S.T.J. to hold that the property owner's claim to compensation for the riverbank area was invalid.[118] Justice Otávio de Noronha modified the Panel's decision to reflect that judgment.[119]

Aside from the more immediate context of defining the federal government's authority over waterways, the case also highlights how the S.T.J. applies Brazil's Constitution to resolve issues of environmental law and balances public interests against private rights to property. Even though the S.T.J. is not a constitutional court—interpretation is left to the S.T.F.—it cannot ignore the Constitution.

> While it is not up to this Court to directly interpret the Federal Constitution, provisions of federal law must be examined in light of the Greater Law, especially as to their *validity*. If it were understood differently, the S.T.J. would be applying infraconstitutional norms in this case that have been clearly revoked by the Constitution's drafters.[120]

This statement of the Court's approach makes it clear that new constitutional principles can and do reshape earlier understandings of private property rights. When the Constitution is clear, a court must examine federal laws in light of the Constitution, even when many of the federal laws in the country predate the higher law.[121] Although this decision was issued in 2007—nearly twenty years after the adoption of Brazil's current Constitution—it represents a shift in thinking about how the Constitution affects the previously existing legal system.

As in the ecological function cases cited above, property law is restricted by the government's management of a public good: water.[122] If the constitutional provisions regarding public ownership of water have such an effect on interpreting long-standing laws, then other provisions, read in conjunction with the social and ecological function of property, will define the exercise of private property rights as well.

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117 *Id.* at 17–18.
118 *Id*. at 17–19.
119 *Id.* at 23–24 (modified opinion of Min. João Otávio de Noronha, Relator).
120 *Id.* at 15.
121 S.T.J., REsp No. 508.377/MS, at 14–15.
122 *Id.*

C. Preserving Natural and Cultural Heritage: Private Appropriation of Public Goods

Following the ecological function of property, with its recognition of public goods in the maintenance of ecological characteristics on private property, the S.T.J. also has several precedents involving the private use of land—be it publicly or privately owned—that is protected for its value as natural or cultural heritage.[123] Three cases—regarding respectively the Billings Reservoir in São Paulo, the Botanic Gardens of Rio de Janeiro, and the planned residential blocks in Brazil's greatest urban planning project, Brasília—merit citation in particular. In each case, the S.T.J. recognizes the public interest in preserving natural and cultural heritage as paramount, notwithstanding conflicting private interests—whether in regards to property use, housing, or even safety.[124] In the first two cases, it is the government on which the Court places the duty of maintaining an ecological function in land use management.[125] In the third, the Court applies the concept to regard cultural heritage as a public attribute of private property that must also be maintained.[126]

The first case involves the Billings Reservoir, which is located to the south of the city of São Paulo and serves as a major source of freshwater for the area.[127] The São Paulo State Public Prosecutors' Office brought the suit seeking the removal of an illegal housing development near the reservoir and compensation for environmental damage caused.[128] The Second Panel upheld the state court's order requiring the defendants to "restore the area to its previous state, including the complete restoration of the ecosystem, demolition of buildings constructed, restoration of the surface of the land, recovery of the soil with vegetation, removal of sediment from streams, and other measures as indicated by a technical expert in order to compensate for environmental damage caused."[129]

The case involved a degree of social tension, as it would require the removal and dislocation of lower-class families from the area; in justifying this action, however, Justice Otávio de Noronha's opinion relies on anthropocentric, rather than ecocentric, concerns:

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123 *See, e.g.*, S.T.J., REsp No. 403.190/SP (2d Panel), Relator: Min. João Otávio de Noronha, 27.06.2006, D.J. 14.08.2006; S.T.J., REsp No. 808.708/RJ (2d Panel), Relator: Min. Antonio Herman Benjamin, 18.08.2009, D.Je. 04.05.2011, 7; S.T.J., REsp No. 840.918/DF (2d Panel), Relator: Min. Eliana Calmon, 14.10.2008, D.Je. 10.09.2010 (Majority Opinion, Min. Antonio Herman Benjamin).

124 *See supra* note 123.

125 S.T.J., REsp No. 403.190/SP; S.T.J., REsp No. 808.708/RJ.

126 S.T.J., REsp No. 840.918/DF.

127 S.T.J., REsp No. 403.190/SP.

128 *Id.*

129 *Id.* at 2.

> However, in this specific case, the opinion below notes an important piece of information, that the "Billings Reservoir" serves a part of the Greater São Paulo area with water (citation omitted). As such, the environmental damage denounced here stands out not only because of the destruction of Atlantic Forest, but principally because of the reservoir, which, according to the record, is being filled with sediment, which will, evidently, compromise the reservoir's function as a water source for São Paulo, which is already subjected to water rationing at specified times throughout the year.
>
> There is clearly a social factor that weighs on the decision—the removal of families residing clandestinely in the area . . . .
>
> This case is not a matter of wanting to preserve a few trees at the expense of needy families that were probably deceived by the project developers in the hope of obtaining a place to live with dignity, but rather of preserving an urban reservoir that benefits a far greater number of people than those living in the preserved area. Thus, the public interest must prevail over the private, given that, *in casu*, there is no way to satisfactorily reconcile the two. Evidently, fulfilling the court's order will cause suffering for those people affected; however, it will avoid greater suffering by a greater number of people in the future, and this cannot be ignored.[130]

The Court does not explicitly cite the ecological function of property, but the principle is at work in defining the state's obligation vis-à-vis those living in the illegal housing development. Regardless of who owns the land adjacent to the reservoir, the ecological function of property recognizes the public interest in the functioning of the ecosystem's water purification services. The Court would not allow this interest to be overtaken even by a utilitarian argument for meeting acute private needs.

The second case involved a house illegally built on federal property comprising the Botanic Gardens of Rio de Janeiro in the 1950s.[131] The Botanic Gardens, founded originally by the Portuguese King Dom João VI upon his arrival in Rio de Janeiro in 1808, have been registered as a natural and cultural heritage site in Brazil since 1937.[132] Before the S.T.J., the only issue in the case was whether the occupant of the house was entitled to compensation from the government upon its removal, as

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[130] *Id.* at 7–8.

[131] S.T.J., REsp No. 808.708/RJ (2d Panel), Relator: Min. Antonio Herman Benjamin, 18.08.2009, D.Je. 04.05.2011, 7.

[132] *Id.* at 14.

it had already been determined before the appeal that the house was built illegally.[133]

The Second Panel held that "without the express, unequivocal, valid, and current authorization" of the government entity responsible for managing the property, "occupation of a public area . . . cannot generate rights" such as a vested right to compensation for removal from the land.[134] As in the previous case, the court's opinion turns to balance between one private party and the interests of society:

> [T]he grave housing crisis that continues to affect Brazil will not be resolved, nor would it be prudent to do so, by destroying the historic and cultural heritage sites of the nation. Rich and poor, schooled or illiterate, we are all co-owners of what tangibly and intangibly remains of our history as a Nation. To mutilate or destroy it under the pretext of providing a home and shelter to a few would nonetheless leave millions more without a roof over their heads and, at the same time, without their inheritance from the past to recount and pass on to their descendants.[135]

In sum, in this line of cases, the S.T.J. reiterates its position that efforts to solve other, perhaps serious, societal problems will not justify the suspension of environmental laws that protect the public interest.

The same position was emphasized with regard to the planned residential blocks of the "pilot plan" area of Brasília, the modern urban planning project. Lúcio Costa, the architect who planned the city layout, had designed ground-level terraces (*pilotis*) to be included underneath all residential buildings in the city,[136] so as to provide open spaces where neighbors could gather and people could pass through within the city blocks (*superquadras*).[137]

The pilot plan of Brasília is listed on the national registry for protection of heritage sites, and it is also protected under the Convention Concerning the Protection of the World Cultural and Natural Heritage (often referred to as the "World Heritage Convention").[138] In addition, the original act regarding the administrative organization of the Federal District encompassing Brasília prohibits any "alteration of the pilot

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133 *Id.* at 8.

134 *Id.* at 12.

135 *Id.* at 17–18.

136 All residential buildings in the "pilot plan" area of Brasília are raised up, as if on stilts.

137 S.T.J., REsp No. 840.918/DF (2d Panel), Relator: Min. Eliana Calmon, 14.10.2008, D.Je. 10.09.2010 (Majority Opinion, Min. Antonio Herman Benjamin).

138 *See id.* at 25–26 (Majority Opinion, Min. Antonio Herman Benjamin); Convention Concerning the Protection of the World Cultural and Natural Heritage, 1037 U.N.T.S. 151 (1972).

plan . . . without authorization by federal law."[139] Notwithstanding these restrictions, the local government in the Federal District permitted private parties to fence off the terraces of residential buildings in the Cruzeiro Novo neighborhood in an effort to protect properties from criminal activity.[140] Placing fences around the building terraces represented a direct affront to the cultural heritage of the city design, intended to create open spaces. Once again, the S.T.J.'s Second Panel rejects the idea that the existence of another societal interest, even related to citizen safety and security, would excuse any deviance from the mandate to protect natural and cultural heritage:

> The grave problem of urban violence, which, unfortunately, devastates and intimidates our cities, does not excuse compromising our Brazilian cultural heritage, nor does it authorize the private appropriation of public space. Public security can be achieved by increasing and improving policing, along with social inclusion programs, and not by offending other collective interests and goods, especially those that also belong to future generations.[141]

In reaching this decision, the S.T.J. recognizes the essence of the ecological function of property, as applied in the cultural heritage context. The historic and culturally significant character of the open ground-level areas beneath buildings in Brasília is like the forested areas in cases described above: under the principle of an ecological function, that aspect of the property is part of the public interest that inheres in private title, and property owners have the maintaining the characteristics of their property that preserve that cultural value.

The common theme running throughout all these cases is that Brazil's constitutional principle of an ecological function of property requires the recognition and preservation of environment-related interests as an inherent duty of private property rightsholders. While the state can give content to the ecological function principle via legislation such as the Forest Code, the duty to ensure fulfillment of the ecological function of property extends also to private parties.[142] The constitutional nature of the principle allows courts to hold public interests above limited, private interests—a hierarchy that has not existed historically, but which constitutional environmental law in Brazil now demands.

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[139] Lei 3.751, de 13 de Abril de 1960, D.O.U. de 13.4.1960, *available at* http://www.planalto.gov.br/ccivil_03/leis/L3751.htm (quoted in S.T.J., REsp No. 840.918/DF, at 22).

[140] S.T.J., REsp No. 840.918/DF, at 12.

[141] *Id.* at 31.

[142] *See supra* notes 89–101 and accompanying text.

IV. CONCLUSIONS

The introduction of environmental rights to the Brazilian Constitution has provided a framework under which the S.T.J. applies an ecological component to the social function of property.[143] This ecological function emphasizes the public good associated with environmental protection.[144] The doctrine legitimizes a public interest in maintaining ecosystem services and environmental functions of resources and land that are owned and managed by private parties, recognizing that use and distribution of property has a tremendous impact on the health and sustainability of ecosystems.

This framework offers two critical lessons for application in other countries and contexts. First, in Brazil, by challenging and redefining the traditional understanding of property, the ecological function principle demonstrates how the elevation of environmental values to the constitutional level can have a practical impact on environmental and property legislation. As the S.T.J. described in its 2012 case on Permanent Preservation Areas:[145]

> Environmental legislation, inspired and authenticated thus by the *ecological function of property* (a technical derivation and ethical broadening of the social function), restrains the custom or pretense of maximized or unlimited use of the soil, a practice inherited from *laissez-faire* thinking and legitimized historically, more in fact than in law, by passivity, if not collusion against the law on the part of public authorities, including the Judiciary. In the legal-environmental microsystem, then, Parliament made a point of putting an end to that which [one scholar has] described as "widespread delinquency in response to assertions of absolute, exclusive or speculative property rights" . . . .[146]

This idea and doctrine does not require any logical leap from the basic principle that property law should restrict activities that would infringe on the rights of others. Rather, it relies simply on a serious application of science, recognition of the interdependence of humans and nature, and the importance of ecosystem-wide management. However, when such ecological public interests are placed clearly in a constitution, the imperative (for the judiciary and for other branches of government) to protect those interests is even greater.

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143 *See supra* Part II.A.

144 *See supra* Part III.A.

145 *See supra* notes 55–61 and accompanying text.

146 S.T.J., No. REsp 1.240.122/PR (2d Panel), Relator: Min. Antonio Herman Benjamin, 28.06.2009, 10–11, D.Je. 11.09.2012 (internal citations omitted).

Second, the ecological function of property is crucially important in designing a legal system that promotes environmental sustainability, because it defines the obligations of private parties—balancing traditional private property rights with the need to ensure that the public's environmental rights are not infringed. Inasmuch as individual actions and poor management of private property, such as deforestation adjacent to waterways, can affect others' property and the public's environmental rights, the ecological function of property naturally restrains and imposes a duty on private owners to mitigate those negative impacts.

The principle therefore moves Brazil's legal system toward the vision of scholars that propose an expanded public trust in the United States.[147] It expands the trust geographically, articulating a public trust interest in all essential ecological processes,[148] and legally, placing duties and obligations on private parties.[149] Because it is centrally focused on redefining the obligations and rights associated with private property ownership, the principle can go beyond the traditional U.S. Public Trust Doctrine.

This experience in Brazil shows how law, and its judicial enforcement, is moving in line with constitutional doctrine on property law. These precedents are helpful for putting ecological principles in practice in countries that are developing new laws and constitutions. They also show how constitutional provisions can legitimize and give greater weight to previously existing legal protections that may not have been effectively realized.

The emphasis on the constitutional embodiment of these principles in Brazil does not necessarily prohibit their application in a country such as the United States, which has no similar constitutional provision (at the national level) for environmental rights and duties or the maintenance of essential ecological processes.[150] The Public Trust Doctrine encapsulates the notion that public interests inhere in land with

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147 *See supra* Part II.B.

148 *See* WOOD, *supra* note 48, at 153 ("The challenge remains for courts to forthrightly align the geographic scope of the public trust obligation with the scope of government's police power in natural resources law.").

149 *See id.* at 147 ("private property owners must comport with trust standards as well").

150 Elevating the public trust-like principle to a constitutional level responds to the criticism that judicial evolution of the public trust doctrine is not reflected by developments in positive law that would provide a basis for challenging private rights holders' expectations in property. *See, e.g.*, Huffman, *supra* note 37, at 571. While I would argue that common law principles of refraining from using one's property so as to injure another are broad enough to encompass injuries to the public interest, based on an ever-developing scientific understanding of ecosystem services, the Brazilian example strongly suggests that constitutional language can better facilitate an effective transition in a way that courts can more uniformly recognize.

special characteristics. Nuisance law can further address issues of substantial and unreasonable interference with the public use and enjoyment of natural resources; however, placing an environmental principle in the constitutional framework gives clearer justification for law that effectively considers both local and global environmental concerns in shaping private property owners' rights and obligations.