

Private Nature Reserves: An Innovative Wetland Protection Mechanism to Fill in the Gaps Left by the SWANCC and *Rapanos* Rulings

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I. INTRODUCTION

Wetlands are among the most biodiverse and productive ecosystems on earth.¹ They are described as “the kidneys of the landscape” for the important functions they perform in nature’s hydrologic and chemical cycles.² Wetlands are also referred to as “biological supermarkets” because of the diversity of life they support.³ They provide valuable ecosystem services to humans and perform critical ecological functions.⁴ Some of the functions and services that wetlands provide include: habitat for wildlife and fish,⁵ water purification, flood control, groundwater recharge, and recreational opportunities, such as hunting, fishing, and bird watching.⁶

Historically, the United States undervalued wetlands and viewed them as mosquito and disease breeding nuisances, which citizens could use more efficiently and effectively.⁷ This led to widespread wetland destruction.⁸ However, this perception gradually changed as humans began to appreciate the important economic and environmental value of wetlands.⁹ Laws and policies of the United States, which shifted from encouraging wetland destruction to promoting wetland protection, reflect this change.¹⁰

The most significant example of this shift is section 404 of the Clean Water

¹ EDWARD B. BARBIER, MIKE ACREMAN & DUNCAN KNOWLER, RAMSAR CONVENTION BUREAU, *ECONOMIC VALUATION OF WETLANDS: A GUIDE FOR POLICY MAKERS AND PLANNERS* ix (1997), available at http://www.ramsar.org/pdf/lib/lib_valuation_e.pdf.

² *Id.*

³ *Id.*

⁴ From an economic perspective, wetlands are extremely valuable to humans. For instance, more than seventy percent of species in the U.S. seafood industry, which generates more than thirty-eight billion dollars annually, are wetland dependent. Ryan M. Seidemann & Catherine D. Susman, *Wetlands Conservation in Louisiana: Voluntary Incentives and Other Alternatives*, 17 J. ENVTL. L. & LITIG. 441, 497 n.18 (2002).

⁵ It is estimated that more than one third of all threatened and endangered species in the United States live in wetlands, and an additional twenty percent of threatened and endangered species depend on wetlands at some point in their lives. ENVTL. PROTECTION AGENCY (EPA), *ECONOMIC BENEFITS OF WETLANDS* (2006) [hereinafter *ECONOMIC BENEFITS OF WETLANDS*].

⁶ For an overview of wetland ecosystem services and functions see MILLENNIUM ECOSYSTEM ASSESSMENT, *ECOSYSTEMS AND HUMAN WELL-BEING: WETLANDS AND WATER SYNTHESIS 2* (2005), available at <http://www.maweb.org/documents/document.358.aspx.pdf>.

⁷ See ROYAL C. GARDNER, *LAWYERS, SWAMPS, AND MONEY: U.S. WETLAND LAW AND POLICY* 5 (2011) (citing *Leovy v. United States*, 177 U.S. 621, 637 (1900)) [hereinafter *LAWYERS, SWAMPS, AND MONEY*].

⁸ Between the 1780s and 1980s, the United States lost approximately fifty-three percent of its wetland base. THOMAS E. DAHL, U.S. FISH & WILDLIFE SERV. (USFWS), *WETLAND LOSSES IN THE UNITED STATES 1780’S TO 1980’S* 1 (1990), available at <http://www.fws.gov/wetlands/Documents/Wetlands-Losses-in-the-United-States-1780s-to-1980s.pdf>; *E.g.*, Joshua P. Welsh, Comment, *Firm Ground for Wetland Protection: Using the Treaty Power to Strengthen Conservation Easements*, 36 STETSON L. REV. 207, 208 (2006).

⁹ ROYAL C. GARDNER, *LAWYERS, SWAMPS, AND MONEY*, *supra* note 7, at 7-12.

¹⁰ CLAUDIA COPELAND, CONG. RESEARCH SERV., RL 33483, *WETLANDS: AN OVERVIEW OF ISSUES* 1 (2010).

Act (CWA).¹¹ Section 404 is the main federal regulatory program for wetland protection in the United States.¹² It prohibits the discharge of dredge and fill material into “waters of the United States” without first obtaining a permit from the U.S. Army Corps of Engineers (the Corps).¹³ Additionally, recognizing the need to protect wetlands, the federal government adopted a short-term policy of “no net loss”¹⁴ and a long-term policy of “net gain” of wetland functions and values.¹⁵ Congress has also adopted a number of significant wetland protection programs, including the Swampbuster Program, the Conservation Reserve Program (CRP), and the Wetlands Reserve Program (WRP), among others.¹⁶

Notwithstanding these wetland protection efforts and reported net gains in wetland area, these gains do not necessarily equate to no net loss of wetland functions.¹⁷ Additionally, relatively recent Supreme Court rulings have significantly restricted the Corps’ geographic jurisdiction over wetlands under Section 404, particularly intrastate isolated wetlands.¹⁸ The Court has also questioned the federal government’s jurisdictional authority under the Commerce Clause.¹⁹ The impact of these rulings is significant considering that seventy-five percent of non-federal wetlands, including isolated wetlands, in the United States are located in private lands.²⁰ Some of these intrastate isolated wetlands, such as vernal pools²¹ and prairie potholes,²² are of great ecologic and

¹¹ Clean Water Act § 404, 33 U.S.C. § 1344 (2006).

¹² COPELAND, *supra* note 10, at 5.

¹³ 33 U.S.C. § 1344(a). *See also* §§ 1311(a), 1362(6), (7) & (12) (prohibiting discharge and defining pollutant, discharge, and navigable waters).

¹⁴ This policy, declared by the first Bush administration in 1988 and subsequently endorsed by the Clinton and second Bush administrations, seeks to “balance wetlands losses and gains in the short term and achieve net gains in the long term.” COPELAND, *supra* note 10, at 4.

¹⁵ Royal C. Gardner, *Banking on Entrepreneurs: Wetlands, Mitigation Banking, and Takings*, 81 IOWA L. REV. 527, 534 (1996).

¹⁶ COPELAND, *supra* note 10, at 13-16.

¹⁷ While a government study reported an average annual increase in wetland area of 32,000 acres between 1998-2004, the study did not provide an assessment of wetland functions. THOMAS E. DAHL, USFWS, STATUS AND TRENDS OF WETLANDS IN THE CONTERMINOUS UNITED STATES 1998 TO 2004 15, 19 (2006), available at <http://www.fws.gov/wetlands/Documents/Status-and-Trends-of-Wetlands-in-the-Conterminous-United-States-1998-to-2004.pdf>. *But see* COPELAND, *supra* note 10, at 4 (stating that environmentalists caution that the reported net increase in wetland area is due to an increase in man-made open water ponds, rather than natural wetlands).

¹⁸ *See Rapanos v. United States*, 547 U.S. 715 (2006) and *Solid Waste Agency of Northern Cook County v. U.S. Army Corps of Eng’rs*, 531 U.S. 159 (2001). Isolated wetlands are those without a hydrologic connection to water bodies deemed navigable. ROYAL C. GARDNER, LAWYERS, SWAMPS, AND MONEY, *supra* note 7, at 38.

¹⁹ COPELAND, *supra* note 10, at 2; Welsh, *supra* note 8, at 216-18.

²⁰ EPA, THREATS TO WETLANDS (2001), available at <http://water.epa.gov/type/wetlands/outreach/upload/threats.pdf>.

²¹ Vernal pools are “seasonal depressional wetlands” found in the U.S. West Coast. *Vernal Pools*, EPA, <http://water.epa.gov/type/wetlands/vernal.cfm> (last updated Mar. 6, 2012). Although they serve as habitat for many species, they are under significant threat. It is estimated that over ninety percent of vernal pools in California have been destroyed. *Id.*

economic significance and may no longer fall within the CWA's protection.²³ Thus, because these valuable wetlands may now be more vulnerable to land development pressures, landowners can play a critical role in their protection.

While federal wetland protection efforts remain essential, additional protection mechanisms, including non-regulatory private conservation incentives, are necessary to achieve a more robust and coherent national wetland protection framework.

One potential non-traditional incentive for private wetland conservation is the creation of a network of private nature reserves to supplement existing programs. Many countries utilize private nature reserves as a flexible biodiversity conservation tool.²⁴ With a private nature reserve, landowners voluntarily designate their property as a reserve, undertaking certain conservation measures and land use restrictions in exchange for economic incentives. For instance, in Colombia, private nature reserves, or Reservas Naturales de la Sociedad Civil [RNSCs] [Nature Reserves of Civil Society], are voluntary biodiversity conservation mechanisms under the Sistema Nacional de Áreas Protegidas [SINAP] [National Protected Areas System].²⁵ RNSCs require landowners to set aside conservation areas in their property, while allowing for productive, sustainable uses of their land.²⁶ Thus, landowners can benefit from

²² Potholes, the common name for prairie wetlands, make up the Prairie Pothole Region, one of the "most productive waterfowl habitats on the continent." DENIS HUEL, SASKATCHEWAN WETLAND CONSERVATION CORP., *MANAGING SASKATCHEWAN WETLANDS: A LANDOWNER'S GUIDE* 4, 8 (2000), available at <http://www.southsaskriverstewards.ca/ckfinder/userfiles/files/ManagingSaskatchewanWetlands.pdf?PHPSESSID=hr0j0knlod1uqiveg37873n1u0>. See also ECONOMIC BENEFITS OF WETLANDS, *supra* note 5 (noting that approximately "[f]ive to seven million migratory waterfowl, including the endangered whooping crane," depend on wetlands such as prairie potholes).

²³ JON KUSLER, ASS'N OF STATE WETLAND MANAGERS, *THE SWANCC DECISION: STATE REGULATION OF WETLANDS TO FILL THE GAP 6-7* (2004), available at http://aswm.org/pdf_lib/swancc_decision_030404.pdf.

²⁴ Countries that have adopted this mechanism include: Brazil, Chile, Colombia, Costa Rica, Ecuador, Kenya, and South Africa, among others. ENVTL. LAW INST., *LEGAL TOOLS AND INCENTIVES FOR PRIVATE LANDS CONSERVATION IN LATIN AMERICA: BUILDING MODELS FOR SUCCESS* 17 (2003) [hereinafter *BUILDING MODELS FOR SUCCESS*]; *Freelance Conservationists*, *ECONOMIST*, Aug. 25, 2001, at 62, available at <http://www.economist.com/node/748602>. In fact, private nature reserves are estimated to encompass over "an eighth of the total amount of land on which wildlife is protected around the world." *ECONOMIST*, *supra* at 62.

²⁵ *Reservas Naturales de la Sociedad Civil* [RNSC] [Natural Reserves of Civil Society], PARQUES NACIONALES NATURALES DE COLOMBIA [PNN] [National Parks of Colombia], <http://www.parquesnacionales.gov.co/PNN/portel/libreria/php/decide.php?patron=01.061107> (last updated Oct. 2, 2012) [hereinafter *Reservas Naturales de la Sociedad Civil*] (Colom.). Colombia created the SINAP, and in turn RNSCs, to meet its commitments under the Convention on Biological Diversity. *¿Qué es el Sistema Nacional de Áreas Protegidas?*, PNN, <http://www.parquesnacionales.gov.co/PNN/portel/libreria/php/decide.php?patron=01.11> (last updated Oct. 02, 2012) (Colom.); E-mail from Luis Fernando Macías Gómez, Founding Partner, Macías Gómez & Asociados S.A., and President, Colombian Institute for Environmental Law, to author (Sept. 13, 2012, 21:48 EST) (on file with author).

²⁶ *Reservas Naturales de la Sociedad Civil*, *supra* note 25.

the goods and services of the ecosystems they are protecting and are eligible for economic incentives and technical assistance.²⁷

Much like traditional regulatory tools, private nature reserves have drawbacks. One of the main criticisms associated with these reserves is their lack of permanence.²⁸ Additionally, to achieve designation the government must consider the land biologically important, a process that can be lengthy and cumbersome.²⁹ The management and reporting requirements of these reserves can be burdensome, and government monitoring and enforcement can be difficult.³⁰ Finally, there is limited data about private nature reserves, since they are relatively novel tools.³¹ Therefore, the extent of their ecologic effectiveness has yet to be fully determined.³² However, some of these shortcomings can be addressed by reforming the designation process, as well as the management and reporting requirements associated with these reserves.³³

This paper will propose that a network of private nature reserves, such as RNSCs, can be a flexible mechanism to incentivize private wetland conservation in the United States, particularly of isolated wetlands. These reserves would effectively address jurisdictional issues under Section 404 and would help stem the continuous loss of wetland functions in the United States.³⁴

Part I of this article will discuss the jurisdictional issues under the Section 404 program as a result of recent Supreme Court rulings, and their impact on intrastate isolated wetlands. Part II will provide an overview of private nature reserves, in the context of RNSCs in Colombia, along with their advantages and disadvantages. Part III will examine the feasibility of adopting the concept of private nature reserves in the United States as an additional private wetland protection tool. Finally, Part IV will conclude that adopting a network of private nature reserves, by establishing an independent program or integrating it into the system of publicly protected areas, can be a promising tool to protect wetlands, particularly economically and ecologically valuable intrastate isolated wetlands, which may no longer fall within the jurisdiction of the CWA.

²⁷ *Id.*

²⁸ See Jeffrey A. Langholz & Wolf Krug, *New Forms of Biodiversity Governance: Non-State Actors and the Private Protected Area Action Plan*, 7 J. INT'L WILDLIFE L. & POL'Y 9, 15 (2004).

²⁹ ENVTL. LAW INST., BUILDING MODELS FOR SUCCESS, *supra* note 24, at 20.

³⁰ *E.g., id.*; Byron Swift et al., *Private Lands Conservation in Latin America: The Need for Enhanced Legal Tools and Incentives*, 19 J. ENVTL. L. & LITIG. 85, 92-93, 139.

³¹ See Langholz & Krug, *supra* note 28, at 9-10.

³² See *id.*

³³ See ENVTL. LAW INST., BUILDING MODELS FOR SUCCESS, *supra* note 24, at 20-21.

³⁴ Royal C. Gardner, *Rehabilitating Nature: A Comparative Review of Legal Mechanisms that Encourage Wetland Restoration Efforts*, 52 CATH. U. L. REV. 573, 622 n.17 (2003) [hereinafter *Rehabilitating Nature*] (stating that a 2001 National Research Council report concluded that despite progress in the last twenty years, the Section 404 compensatory mitigation program was not meeting no net loss for wetland functions).

II. REGULATORY BACKGROUND: JURISDICTIONAL ISSUES UNDER THE SECTION 404 PROGRAM

In 1972, Congress vested the Corps with the authority to issue permits for activities involving the discharge of dredge and fill material into “waters of the United States.”³⁵ In doing so, however, the Corps must follow regulations established by the Environmental Protection Agency (EPA).³⁶ The interpretation of the term “waters of the United States,” for jurisdictional purposes, has proven very controversial and the Supreme Court has played a pivotal role in helping define the scope of the Corps’ geographic jurisdiction under Section 404.³⁷

The Corps defined “waters of the United States” to include wetlands.³⁸ Specifically, the Corps broadly defined this term as including: all waters which are, have been or “may be susceptible to use in interstate or foreign commerce”; interstate wetlands; and “all other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation, or destruction of which could affect interstate or foreign commerce.”³⁹ This broad definition set the course for challenges to the Corps’ jurisdictional reach and to the Supreme Court’s involvement in helping redefine the regulatory scope of Section 404.⁴⁰

The Supreme Court first considered the Corps’ jurisdiction over wetlands under Section 404 in *U.S. v. Riverside Bayview Homes*.⁴¹ In a unanimous decision, the Court held that wetlands fell well within the Corps regulatory authority and that the Corps definition of “waters of the United States,” which included wetlands adjacent to navigable waters and their tributaries, was reasonable.⁴² Deferring to the Corps’ “ecological judgment,” the Court recognized that adjacent wetlands play an integral role in protecting and improving the quality of navigable waters, even when they “do not actually inundate [those] wetlands” because they “may still tend to drain into those waters.”⁴³ However, the court indicated in a footnote that its opinion only

³⁵ Clean Water Act § 404, 33 U.S.C. § 1344 (2006).

³⁶ These are known as the 404(b)(1) guidelines. 40 C.F.R. § 230.1-230.98 (2012); ROYAL C. GARDNER, LAWYERS, SWAMPS, AND MONEY, *supra* note 7, at 75.

³⁷ See COPELAND, *supra* note 10, at 2, 8-11.

³⁸ ROYAL C. GARDNER, LAWYERS, SWAMPS, AND MONEY, *supra* note 7, at 38-39.

³⁹ 33 C.F.R. § 328.3(a)(1)-(3) (2012). See ROYAL C. GARDNER, LAWYERS, SWAMPS, AND MONEY, *supra* note 7, at 38-39. *see also* Welsh, *supra* note 8, at 215.

⁴⁰ ROYAL C. GARDNER, LAWYERS, SWAMPS, AND MONEY, *supra* note 7, at 39.

⁴¹ *United States v. Riverside Bayview Homes*, 474 U.S. 121 (1985); Mark Latham, *Rapanos v. United States: Significant Nexus or Significant Confusion? The Failure of the Supreme Court to Clearly Define the Scope of Federal Wetland Jurisdiction*, in *THE SUPREME COURT AND THE CLEAN WATER ACT: FIVE ESSAYS 7* (L. Kinvin Wroth ed., 2007).

⁴² *Riverside Bayview Homes*, 474 U.S. at 139.

⁴³ *Id.* at 134.

applied to adjacent wetlands, leaving unresolved the issue of whether Corps jurisdiction extended to wetlands not adjacent to navigable waters, or isolated wetlands.⁴⁴

The Court addressed that issue in *Solid Waste Agency of Northern Cook County v. U.S. Army Corps of Engineers (SWANCC)*.⁴⁵ In a 5-4 ruling, the Court held the Corps had exceeded its jurisdictional authority under Section 404, when it exercised jurisdiction over an intrastate, isolated man-made pond, based on the Migratory Bird Rule (MBR).⁴⁶ The MBR, promulgated shortly after *Riverside Bayview*, authorized the Corps to exercise jurisdiction over intrastate, isolated waters that “are or would be used as habitat by other migratory birds” crossing state lines.⁴⁷ Limiting its decision to the reasonableness of the rule, the Court did not reach the constitutional issue of whether under the Commerce Clause, the Corps could exercise jurisdiction over intrastate isolated wetlands.⁴⁸ However, the Court noted that an attempt to use such authority to reach intrastate isolated wetlands would raise “significant constitutional questions,”⁴⁹ essentially calling into question federal jurisdiction under the Commerce Clause.

Although the Court unequivocally stated the Corps could not use the MBR as the only basis for exercising jurisdiction over intrastate isolated wetlands,⁵⁰ it failed to clarify the scope of Section 404 over “wetlands adjacent to nonnavigable tributaries of traditional navigable waters.”⁵¹ This created a great deal of confusion and inconsistent rulings regarding the extent to which *SWANCC* restricted the scope of federal jurisdiction.⁵² Some courts interpreted *SWANCC* narrowly, limiting its application to the MBR.⁵³ Other courts interpreted *SWANCC* broadly, restricting federal jurisdiction to traditional navigable waters and adjacent wetlands.⁵⁴

⁴⁴ *Id.* at 131 n.8.

⁴⁵ *Solid Waste Agency of Northern Cook County v. U.S. Army Corps of Eng'rs*, 531 U.S. at 159.

⁴⁶ *Id.* at 174.

⁴⁷ *Id.* at 164 (citing Final Rule for Regulatory Programs of the Corps of Engineers, 51 Fed. Reg. 41,206, 41,217 (1987)). See ROYAL C. GARDNER, LAWYERS, SWAMPS, AND MONEY, *supra* note 7, at 44.

⁴⁸ ROYAL C. GARDNER, LAWYERS, SWAMPS, AND MONEY, *supra* note 7, at 46; Welsh, *supra* note 8, at 217.

⁴⁹ *SWANCC*, 531 U.S. at 173-74.

⁵⁰ *Id.* at 171-74. See Advance Notice of Proposed Rulemaking on the Clean Water Act Regulatory Definition of “Waters of the United States,” 68 Fed. Reg. 1,991, 1,996 (Jan. 15, 2003).

⁵¹ ROYAL C. GARDNER, LAWYERS, SWAMPS, AND MONEY, *supra* note 7, at 48. See also KUSLER, *supra* note 23, at 5; Latham, *supra* note 41, at 10.

⁵² KUSLER, *supra* note 23, at 8-11; Latham, *supra* note 41, at 11 (reporting that from 2001 to 2004 there had been “at least [thirty-one] decisions interpreting *SWANCC*” and that out of those thirty-one decisions, only three took a broad view of *SWANCC*).

⁵³ See KUSLER, *supra* note 23, at 8-11 (summarizing lower court decisions and interpretations of *SWANCC*).

⁵⁴ *Id.*

Courts were not the only ones confused by *SWANCC*. Corps district offices also differed in their interpretation of the decision.⁵⁵ The Corps and the EPA responded to the decision with an Advance Notice of Proposed Rulemaking and a joint memorandum,⁵⁶ which did not result in new regulation.⁵⁷ The memorandum interpreted the *SWANCC* holding narrowly, as precluding jurisdiction based on the MBR, but permitting jurisdiction over certain isolated waters⁵⁸ “where factors other than the presence of migratory birds may exist.”⁵⁹

While the extent of the impact of the *SWANCC* decision on the Corp’s regulatory authority continues to be debated,⁶⁰ the decision generated deep concerns about its long-term implications for wetlands.⁶¹ It has been estimated that as much as sixty percent of U.S. wetlands may no longer be within the scope of Section 404,⁶² which includes “isolated, non-navigable, intrastate vernal pools, playa lakes, and pocosins.”⁶³ Additionally, critics point out that the absence of clear federal guidance over isolated wetlands has left courts to make such jurisdictional determinations on an inconsistent, ad-hoc basis.⁶⁴

⁵⁵ *Id.* at 8.

⁵⁶ 68 Fed. Reg. 1,991, 1,995 (2003).

⁵⁷ See Press Release, U.S. EPA, EPA and Army Corps Issue Wetlands Decision (Dec. 16, 2003), available at <http://yosemite.epa.gov/opa/admpress.nsf/b1ab9f485b098972852562e7004dc686/540f28acf38d7f9b85256dfe00714ab0?OpenDocument> (announcing that the EPA and the Corps “would not issue a new rule on federal regulatory jurisdiction over isolated wetlands”).

⁵⁸ Welsh, *supra* note 8, at 216.

⁵⁹ 68 Fed. Reg. 1,991, 1,997-98. Such factors include: “the use of water by interstate or foreign travelers for recreational or other purposes, the presence of fish or shellfish that could be taken and sold in interstate commerce, the use of the water for industrial purposes by industries in interstate commerce.” *Id.* at 1,994; 33 C.F.R. § 328.3(a)(3) (2012).

⁶⁰ See COPELAND, *supra* note 10, at 8.

⁶¹ See *id.* at 9.

⁶² KUSLER, *supra* note 23, at 7; ROYAL C. GARDNER, LAWYERS, SWAMPS, AND MONEY, *supra* note 7, at 47.

⁶³ 68 Fed. Reg. 1,991, 1,996.

⁶⁴ See COPELAND, *supra* note 10, at 9 (citing U.S. GOV’T ACCOUNTABILITY OFFICE, GAO-04-297, CORPS OF ENGINEERS NEEDS TO EVALUATE ITS DISTRICT OFFICE PRACTICES IN DETERMINING JURISDICTION (2004); *Inconsistent Regulation of Wetlands and Other Waters: Hearing Before the H. Subcomm. On Water, Resources and Environment of the H. Comm. On Transportation and Infrastructure*, 108th Cong. (2004)). However, in May 2011 the EPA and the Corps published for comments a *Draft Guidance on Identifying Waters Protected by the Clean Water Act*, which may provide more jurisdictional certainty. EPA and Army Corps of Engineers Guidance Regarding Identification of Waters Protected by the Clean Water Act, 76 Fed. Reg. 24,479-02, 24,479-80 (notice of availability and request for comments May 2, 2011). According to the agencies, “under this proposed guidance the number of waters identified as protected by the [CWA] will increase compared to current practice,” although it will not extend federal jurisdiction over waters not traditionally covered under the CWA. *Id.* at 24,479; *Clean Water Act Definition of “Waters of the United States,”* EPA, <http://water.epa.gov/lawsregs/guidance/wetlands/CWAwaters.cfm> (last updated Aug. 9, 2012). As of September 2012, the guidance had been finalized and undergoing interagency review. *Id.* For the draft guidance see *Draft Guidance on Identifying Waters Protected by the Clean Water Act* (Apr. 2011), EPA, http://water.epa.gov/lawsregs/guidance/wetlands/upload/wous_guidance_4-2011.pdf [hereinafter

Rapanos v. U.S. exacerbated confusion over the jurisdictional reach of Section 404, further undermining the Corps' wetland protection authority.⁶⁵ In a plurality decision, the Court refused to defer to the Corps' finding of jurisdiction over wetlands adjacent to non-navigable tributaries of traditional waters.⁶⁶ The Court held that Corps jurisdiction should be limited to "relatively permanent, standing or continuously flowing bodies of water . . . such as 'streams [,] . . . oceans, rivers, [and] lakes.'"⁶⁷ Additionally, it stated that the Corps' jurisdiction should only extend to wetlands "with a continuous surface connection to bodies that are 'waters of the United States' in their own right, so that there is no clear demarcation between 'waters' and wetlands [that] are 'adjacent to' such waters."⁶⁸ Justice Kennedy in a concurring opinion proposed a different test, known as the "significant nexus test."⁶⁹ Under this test, a wetland is jurisdictional if "either alone or in combination with similarly situated lands in the region significantly affect the chemical, physical, and biological integrity" of navigable waters.⁷⁰

The Court's decision left it up to lower courts and the agencies to determine which test to apply to ascertain federal jurisdiction. In an initial attempt to clarify jurisdictional determinations, the Corps and the EPA issued guidance⁷¹ dividing the waters and wetlands that would be subject to federal jurisdiction into different categories.⁷² The guidance, however, is complex and its application is bound to vary from Corps district to district.⁷³

The full impact of the Supreme Court decisions on the Corps geographic jurisdiction is still not entirely known.⁷⁴ However, it is clear that they increased uncertainty over wetland protection, since courts continue to make jurisdictional determinations on an ad-hoc basis, and responsibility is gradually being left up

New Guidance].

⁶⁵ *Rapanos v. United States*, 547 U.S. at 715.

⁶⁶ *Id.* at 757.

⁶⁷ *Id.* at 739.

⁶⁸ *Id.* at 742.

⁶⁹ In *SWANCC*, the Court stated that to be navigable there must be a significant nexus between waters navigable in fact and "a water or wetland." *Rapanos*, 547 U.S. at 759 (citing *Solid Waste Agency of Northern Cook County v. U.S. Army Corps of Eng'rs*, 531 U.S. at 167, 172).

⁷⁰ *Id.* at 780.

⁷¹ EPA & U.S. ARMY CORPS OF ENG'RS, *Clean Water Act Jurisdiction Following the U.S. Supreme Court's Decision in Rapanos v. U.S. & Carabell v. U.S.* (Dec. 2, 2008) [hereinafter *Post-Rapanos Guidance*], available at http://water.epa.gov/lawsregs/guidance/wetlands/upload/2008_12_3_wetlands_CWA_Jurisdiction_Following_Rapanos120208.pdf.

⁷² See ROYAL C. GARDNER, LAWYERS, SWAMPS, AND MONEY, *supra* note 7, at 52-53; EPA & U.S. ARMY CORPS OF ENG'RS, *Post-Rapanos Guidance*, *supra* note 71, at 1.

⁷³ See COPELAND, *supra* note 10, at 11. However, once the agencies finalize review of the *New Guidance*, it will supersede existing guidance and may increase the number of waters protected under the CWA. 76 Fed. Reg. 24,479-02, 24,480 (May 2, 2011).

⁷⁴ See COPELAND, *supra* note 10, at 10.

to state and local governments.⁷⁵ This is a worrisome prospect given the current budget crisis many states face. Therefore, this jurisdictional uncertainty reinforces the need for additional private land conservation mechanisms like RNSCs, to help protect isolated wetlands instead of waiting until the federal government fills the gaps left by these rulings.

III. PRIVATE NATURE RESERVES IN THE CONTEXT OF THE NATURE RESERVES OF CIVIL SOCIETY (RNSCs) IN COLOMBIA

A. Background

The Colombian government adopted RNSCs, which are mechanisms to incentivize biodiversity and natural resources conservation in private lands.⁷⁶ Individual landowners, NGOs, corporations, or indigenous communities can establish these reserves.⁷⁷ RNSCs can protect remnants of rapidly disappearing ecosystems, like wetlands,⁷⁸ or other habitat for endangered or threatened species.⁷⁹

Under this initiative, landowners voluntarily designate part or all of their property as a nature reserve with an aim towards long-term integrated management, under sustainable use principles, to guarantee the “conservation, preservation, rehabilitation or restoration” of a particular ecosystem.⁸⁰

⁷⁵ *Id.* at 11.

⁷⁶ PNN, REGISTRO DE RESERVAS NATURALES DE LA SOCIEDAD CIVIL Y DE ORGANIZACIONES ARTICULADORAS DE CONSERVACIÓN PRIVADA ANTE PARQUES NACIONALES NATURALES DE COLOMBIA (n.d.) [hereinafter REGISTRO DE RESERVAS] (Colom.), available at <http://www.parquesnacionales.gov.co/PNN/portel/libreria/pdf/PlegableRNSC.pdf>. RNSCs are the only category of privately protected areas recognized under the Colombian National Protected Areas System. *Id.*; L. 99/93, diciembre 22, 1993, DIARIO OFICIAL [D.O.] (Colom.), available at <http://www.alcaldiabogota.gov.co/sisjur/normas/Norma1.jsp?i=297> (law defining RNSCs).

⁷⁷ GRUPO COLOMBIANO INTERINSTITUCIONAL DE HERRAMIENTAS DE CONSERVACIÓN PRIVADA- G5, MECANISMOS DE CONSERVACIÓN PRIVADA: UNA OPCIÓN VIABLE EN COLOMBIA 30 (2010) [hereinafter GRUPO COLOMBIANO INTERINSTITUCIONAL] (Colom.), available at http://www.cedaf.org.do/Eventos/LandTrust/Colombia_Herramientas_CTPG-5.pdf.

⁷⁸ See generally WORLD WILD FUND FOR NATURE (WWF), MANAGING RIVERS WISELY: LA COCHA CASE STUDY [hereinafter MANAGING RIVERS WISELY] (outlining the creation of a private nature reserve, including benefits and lessons learned), available at <http://awsassets.panda.org/downloads/mrwlacochacasestudy.pdf>.

⁷⁹ For example, the Yellow-eared Parrots Bird Reserve was established to protect the rapidly disappearing habitat for the endangered yellow-eared parrot. *Las Aves Loro Orejamarillo*, PNN, <http://www.parquesnacionales.gov.co/PNN/portel/libreria/php/decide.php?patron=03.10090> (last updated Oct. 2, 2012) (Colom.).

⁸⁰ L. 96/99, art. 2, octubre 15, 1999, DIARIO OFICIAL [D.O.] (Colomb.), available at http://www.parquesnacionales.gov.co/PNN/portel/libreria/pdf/Decreto_1996_151099_RNSC_pnn.pdf (Colom.) (decree establishing procedures for registering RNSCs and landowners' rights and duties regarding RNSCs); L. 2372/10, art. 17, julio 1, 2010, DIARIO OFICIAL [D.O.] (Colom.), available at <http://www.parquesnacionales.gov.co/PNN/portel/libreria/pdf/Decreto2372de1dejuliode2010.pdf> (decree regulating the National Protected Areas System and establishing

Landowners undertake to manage their property sustainably so that ecosystem goods and services can be generated.⁸¹ Thus, RNSCs are not restricted to conservation activities.⁸² Landowners can benefit from the ecosystems they protect through the creation of sustainable production systems, ecotourism, environmental education, and permanent habitation.⁸³ In exchange, landowners are eligible to receive economic incentives from local and regional governments, such as property tax exemptions, income tax deductions for ecotourism activities, and technical assistance to manage the reserves.⁸⁴

Landowners can designate their properties as RNSCs in two ways, formally and informally.⁸⁵ Formal designation requires landowners to request designation directly from the national government, through the Unidad Administrativa Especial del Sistema de Parques Nacionales Naturales (UAESPNN) [Special Administrative Unit of the National Natural Parks System].⁸⁶ To obtain formal designation, the government must deem the property ecologically valuable.⁸⁷ Landowners must also meet technical requirements such as submitting a detailed description of the property and its ecological importance and a management plan.⁸⁸ Furthermore, landowners must zone⁸⁹ the property, describe the potential uses of the proposed reserve, and comply with certain land use restrictions.⁹⁰

management categories and general procedures associated with it). While the Decree does not mention a particular period of duration for these reserves, its language suggests that they are voluntary conservation mechanisms aimed towards long-term management. E-mail from Natalia Julieta Galvis Avellaneda, Coordinator, PNN Legal Department, to author (Feb. 18, 2011, 15:18 EST) (on file with author).

⁸¹ L. 96/99, at art. 2; L. 2372/10, at art. 17.

⁸² Unlike many private nature reserves in Latin America, which are strictly conservationist, RNSCs in Colombia allow landowners to undertake sustainable land uses in their property besides conservation. See GRUPO COLOMBIANO INTERINSTITUCIONAL, *supra* note 77, at 32, 35; ENVTL. LAW INST., BUILDING MODELS FOR SUCCESS, *supra* note 24, at 20 (noting that private nature reserves in South America are limited to conservation purposes). The study, however, does not discuss RNSCs in Colombia.

⁸³ *Reservas Naturales de la Sociedad Civil*, *supra* note 25.

⁸⁴ These incentives are only offered at the local and regional levels, because they have not yet been implemented at the national level. PNN, REGISTRO DE RESERVAS, *supra* note 76. As a result, economic incentives have not been reaching all eligible reserve landowners. GRUPO COLOMBIANO INTERINSTITUCIONAL, *supra* note 77, at 35.

⁸⁵ GRUPO COLOMBIANO INTERINSTITUCIONAL, *supra* note 77, at 32.

⁸⁶ L. 96/99, at arts. 5, 6-8; L. 2372/10, at art. 18; *Reservas Naturales de la Sociedad Civil*, *supra* note 25.

⁸⁷ This is determined through a visit to the property by the Ministry of the Environment or an environmental authority with jurisdiction in the area. L. 96/99, at art. 7.

⁸⁸ *Id.* at art. 6.

⁸⁹ Zoning must at least include a conservation zone and any of the following optional areas: a buffer and special management zone, a sustainable production systems zone, or an intensive use and infrastructure zone. *Id.* at art. 4.

⁹⁰ Destructive land uses, such as industrial timber exploitation, are prohibited within these reserves. However, sustainable timber production for domestic use is allowed. L. 96/99, at arts. 1, 3. Other prohibited land uses include: land clearing and burning activities, hunting, fishing, extraction

Once the UAESPNN designates the land as a nature reserve, landowners must implement a management plan and submit periodic reports to environmental authorities.⁹¹ The government in turn will monitor compliance with the plan and objectives of the reserve.⁹² Second, landowners can informally designate their land and join a legally authorized, non-governmental articulating organization,⁹³ such as the Asociación Red Colombiana de Reservas Naturales de la Sociedad Civil (RESNATUR) [Colombian Network of Nature Reserves of Civil Society].⁹⁴ These organizations, also known as networks, bring together those reserves not registered with the UAESPNN.⁹⁵

One of the differences between these two designation options is that under formal designation, landowners must submit proof of clear land title to register their property with the UAESPNN, whereas the informal designation does not require such proof.⁹⁶ Informally designated reserves are not within the UAESPNN, but are registered with RESNATUR or another authorized organization.⁹⁷ Additionally, under informal designation, the organization or

of flora and fauna, cattle ranching and/or agricultural activities, and the use and application of agrochemicals. MANUELA RUIZ REYES, ET AL., GUÍA PARA LA ELABORACIÓN DE PLANES DE MANEJO DE RESERVAS NATURALES DE LA SOCIEDAD CIVIL 60 (2009) (Colom.), available at http://www.parquesnacionales.gov.co/PNN/portel/libreria/pdf/GuaokPM_1_.pdf.

⁹¹ See L. 96/99, at art. 15.

⁹² See *id.*

⁹³ Resolution 0207 of 2007, of the Unidad Administrativa Especial del Sistema de Parques Nacionales Naturales [Special Administrative Unit of the National Natural Parks System] (UAESPNN) (Colom.), which created the registration process for these organizations, describes them as non-profit, non-governmental organizations whose objectives are to work with private landowners on biodiversity conservation and sustainable use of natural resources. L. 0207/2007, art.1, agosto 29, 2007, DIARIO OFICIAL [D.O.] (Colom.), available at http://www.parquesnacionales.gov.co/PNN/portel/libreria/pdf/Res_0207_290807_pnn.pdf; PNN, REGISTRO DE RESERVAS, *supra* note 76; GRUPO COLOMBIANO INTERINSTITUCIONAL, *supra* note 77, at 31.

⁹⁴ L. 0207/2007, at arts. 1, 3. Established in 1991, RESNATUR, a non-profit NGO, is the oldest articulating organization of private nature reserves in Colombia, spearheading the process of formalizing private nature reserves as a conservation mechanism under the SINAP. GRUPO COLOMBIANO INTERINSTITUCIONAL, *supra* note 77, at 31. RESNATUR is composed of NGOs, landowners, farmers, agricultural cooperatives, and community organizations. ENRIQUE BUCHER, GONZALO CASTRO & VINIO FLORIS, INTER-AMERICAN DEVELOPMENT BANK, FRESHWATER ECOSYSTEM CONSERVATION: TOWARDS A COMPREHENSIVE WATER RESOURCES MANAGEMENT STRATEGY 15 (1995), available at <http://idbdocs.iadb.org/wsdocs/getdocument.aspx?docnum=1481784>. Its goal is to create a consolidated network of nature reserves for conservation, sustainable production, and social interaction. *Id.* The network seeks to link “isolated fragments of forest cover,” which are dispersed in reserves across the country, to create biodiversity corridors. *Id.* Sustainable production systems and habitat restoration activities are to be carried around the corridors. *Id.*

⁹⁵ GRUPO COLOMBIANO INTERINSTITUCIONAL, *supra* note 77, at 32-33.

⁹⁶ *Id.* at 31.

⁹⁷ This is significant considering that most RNSCs belong to small landowners who do not yet hold clear land title, but may be in possession of the land. *Id.* at 31-32. Thus, articulating organizations are key for achieving conservation goals at the regional and national levels. *Id.*

network overseeing the reserves determines the ecological value of the land, not a government official.⁹⁸ However, nothing in the existing laws precludes a formally designated reserve from joining a network such as RESNATUR, whose projects can help supplement a landowner's conservation efforts.⁹⁹

Because RNSCs are based on voluntary agreements between landowners and the government, landowners can terminate them at any time.¹⁰⁰ Additionally, the government can remove RNSCs status for, among other things, failure to comply with the goals and intended uses of the reserve, failure to adopt preventive measures or suspend activities adversely affecting the ecosystem the landowner committed to protect, or for the natural or manmade disappearance of the ecosystem.¹⁰¹ RNSCs status can also be terminated by judicial decision.¹⁰²

RNSCs have effectively protected wetlands in Colombia. A network of private nature reserves established around La Cocha Lagoon, a Wetland of International Importance under the Ramsar Convention, provides a remarkable example.¹⁰³ La Cocha, located on the Guamués River in the Amazon basin, is the largest wetland system in the Colombian Andes.¹⁰⁴ In 1994, RESNATUR along with the World Wild Fund for Nature (WWF) helped create a network of private nature reserves to stop environmental threats to the lagoon from deforestation and charcoal production.¹⁰⁵ Peasants and indigenous communities own these reserves, which serve as buffer areas to the lagoon and now cover around ten percent of the lagoon's total area.¹⁰⁶ More than 387 participating

⁹⁸ For a detailed description of the designation processes see *id.* at 32-35.

⁹⁹ PNN, REGISTRO DE RESERVAS, *supra* note 76. There are currently 275 reserves registered with the UAESPNN and as of December 2010, there were 239 reserves registered with RESNATUR. *Reservas Naturales Registradas Años 2001-2011*, PNN, http://www.parquesnacionales.gov.co/PNN/portel/libreria/xls/BasededatosRNSC2001_2011.xls (Colom.) (save and open Excel file) (last visited Oct. 15, 2012); Adriana Mayorquín, Sandra Valenzuela & J. Orlando Rangel Ch., *Evaluación de la Efectividad de Manejo en Reservas Naturales de la Sociedad Civil: Una Propuesta [Assessing Management Effectiveness in Natural Reserves of Civil Society: a Methodological Proposal]*, 32 CALDASIA 381, 382 (2010) (Colom.), available at http://www.scielo.unal.edu.co/scielo.php?pid=S0366-52322010000200010&script=sci_arttext.

¹⁰⁰ L. 96/99, at art. 17, octubre 15, 1999, DIARIO OFICIAL [D.O.] (Colomb.).

¹⁰¹ *Id.*

¹⁰² *Id.*

¹⁰³ Under the Convention on Wetlands of International Importance especially as Waterfowl Habitat, or commonly known as the Ramsar Convention, contracting parties commit to designate at least "[a] suitable wetland[]within [their] territory for inclusion in a List of Wetlands of International Importance." Convention on Wetlands of International Importance Especially as Waterfowl Habitat, Feb. 2, 1971, art. 2, T.I.A.S. No. 11084, 996 U.N.T.S. 246. These sites are known as Ramsar sites. *Id.* For more information about the designation process see *The Criteria for Identifying Wetlands of International Importance*, RAMSAR CONVENTION (Jan. 8, 1999), http://www.ramsar.org/cda/en/ramsar-about-sites-criteria-for/main/ramsar/1-36-55^20740_4000_0__.

¹⁰⁴ WORLD WILD FUND FOR NATURE (WWF), MANAGING RIVERS WISELY, *supra* note 78, at 1.

¹⁰⁵ *Id.* at 3, 5.

¹⁰⁶ *Id.* at 3.

families have switched from charcoal production to sustainable production systems within their reserves.¹⁰⁷ Additionally, a citizens group formed by the partners of the nature reserves network project, named the Lake Defence Committee, spearheaded the Ramsar designation in 2001 to successfully halt construction of a “major dam system” in the area.¹⁰⁸

This example highlights the significant role that landowners can play in wetland protection efforts and the potential of private nature reserves as a wetland conservation mechanism.

B. Benefits and Drawbacks of Private Nature Reserves in the Context of RNSCs

1. Benefits

Private nature reserves offer a great deal of ecological, economic, and social benefits. One of the key ecological features of private nature reserves is their ability to protect biodiversity.¹⁰⁹ Private nature reserve systems aim to attain “landscape-scale conservation objectives.”¹¹⁰ Consequently, they are designed based on “core and buffer” principles.¹¹¹ For example, under this approach, private nature reserves are commonly established adjacent to protected, “core areas,”¹¹² which prohibit many human uses.¹¹³ These areas usually contain representative ecosystems, biodiversity hot spots, and sufficient habitat capable of sustaining self-propagating indigenous species.¹¹⁴ Buffer zones, which allow sustainable land uses, surround these core areas, and connect to other protected areas through biological corridors.¹¹⁵ Buffer zones provide “extended habitat for

¹⁰⁷ *Id.* WWF notes that forty percent of food needs can be met within these reserves. *Id.*

¹⁰⁸ The Ramsar designation was crucial to the government’s decision to deny the environmental permit required for the construction of the dam. *Id.* The dam, Guamués Multipurpose Project (PMG), would have divested water from the Amazon basin to the Pacific Andes, resulting in permanent inundation of 3,000 hectares of páramo ecosystem. *Id.* at 2.

¹⁰⁹ Langholz & Krug, *supra* note 28, at 13.

¹¹⁰ See Robert B. Keiter, *Biodiversity Conservation and the Intermixed Ownership Problem: From Nature Reserves to Collaborative Processes*, 38 IDAHO L. REV. 301, 304 (2002).

¹¹¹ See Bradley C. Karkkainen, *Biodiversity and Land*, 83 CORNELL L. REV. 1, 14, 100 (1997); E.g., Jeffrey Langholz, *Ecotourism Impact on Independently Owned Nature Reserves in Latin America and Sub-Saharan Africa*, in THE ECOTOURISM EQUATION: MEASURING THE IMPACTS 60 (Elizabeth Malek-Zadeh, ed., 1996).

¹¹² It has been reported that almost half of private nature reserves in Latin America and Africa are adjacent to national parks or protected areas. Langholz & Krug, *supra* note 28, at 15.

¹¹³ See Keiter, *supra* note 110, at 306 (noting that public lands “are not used for residential or agricultural” uses, though other activities may occur).

¹¹⁴ *Id.*

¹¹⁵ See *id.* There are various definitions of the term “biological corridors,” focusing on the different functions they perform. Daniel K. Rosenberg, Barry R. Noon, and E. Charles Meslow, *Biological Corridors: Form, Function, and Efficacy*, 47 BIOSCIENCE 677, 678 (1997), available at <http://gis.fs.fed.us/psw/publications/rosenberg/rosenberg2.PDF>. For instance, the functional

some species” and limit “adverse spillover effects on the core” of the protected area.¹¹⁶

Because of their ability to protect biodiversity, private nature reserves are described as “biological islands,” commonly used to protect the remnants of rapidly disappearing ecosystems, like wetlands,¹¹⁷ and endangered or threatened species.¹¹⁸ Additionally, private nature reserves play a significant role in the creation of biological corridors, linking isolated fragments of fragile ecosystems for species and genetic resources¹¹⁹ protection.¹²⁰ Even small reserves can provide important ecological advantages, like serving as habitat for migratory birds.¹²¹ Because wetlands are among the most biodiverse ecosystems on earth,¹²² their conservation is paramount. Thus, private nature reserves can help to achieve this goal. The ability of private nature reserves to protect biodiversity can be particularly important in the case of isolated wetlands in the United States that contain features such as prairie potholes, which serve as resting areas for migratory birds,¹²³ and vernal pools, which play a critical role as spawning areas for amphibians.¹²⁴

Private nature reserves also protect habitat threatened by development or left underrepresented by a country’s system of publicly owned lands, such as protected areas or parks.¹²⁵ As a result, they can serve as a temporary conservation mechanism for threatened ecosystems, and stop habitat

definition provides that they are “continuous, narrow patches of vegetation” facilitating “movement among habitat patches, thereby preventing isolation of populations.” *Id.* They have also been defined in terms of their shape as “[n]arrow strips of land’ differing ‘from the matrix [the environment in which habitat and linear patches are embedded] on either side . . . [and] are usually attached to a patch of somewhat similar vegetations.’” *Id.*

¹¹⁶ Karkkainen, *supra* note 111, at 13.

¹¹⁷ *E.g.*, In Mexico, NGOs like The Nature Conservancy helped establish a private nature reserve in a portion of Cuatro Ciénagas, or Four Marshes, one of the most important wetlands in Mexico. Andrew Wolman, *Review of Conservation Payment Initiatives in Latin America: Conservation Concessions, Conservation Incentive Agreements and Permit Retirement Schemes*, 28 WM. & MARY ENVTL. L. & POL’Y REV. 859, 864 (2004). Similarly, in Brazil, Conservation International helped set a private nature reserve in a portion of El Pantanal. *Id.* El Pantanal is considered the largest freshwater wetland complex in the world. KIRSTEN SCHUYT & LUKE BRANDER, WWF, *THE ECONOMIC VALUES OF THE WORLD’S WETLANDS* 12 (2004).

¹¹⁸ Langholz & Krug, *supra* note 28, at 13.

¹¹⁹ Article 2 of the Convention on Biological Diversity defines “genetic resources” as “genetic material of actual or potential value.” Convention on Biological Diversity, art. 2, June 5, 1992, 1760 U.N.T.S. 79. It further defines “genetic material” as “any material of plant, animal, microbial or other origin containing functional units of heredity.” *Id.*

¹²⁰ PNN, REGISTRO DE RESERVAS, *supra* note 76; BUCHER, ET AL., *supra* note 94, at 15.

¹²¹ For instance, La Ensenada Wildlife Refuge in Costa Rica, a 390-hectare private nature reserve, provides temporary habitat to the Jabiru Stork (*Jabiru mycteria*), an endangered migratory bird. Langholz & Krug, *supra* note 28, at 15.

¹²² BARBIER ET AL., *supra* note 1, at ix.

¹²³ ENVTL. PROTECTION AGENCY (EPA), *ECONOMIC BENEFITS OF WETLANDS*, *supra* note 5.

¹²⁴ *Vernal Pools*, *supra* note 21.

¹²⁵ Langholz & Krug, *supra* note 28, at 13.

fragmentation until governments undertake permanent conservation measures.¹²⁶

In the United States, private nature reserves would be instrumental to help protect fragile ecosystems, like wetlands, which are currently underrepresented in the federally owned lands system, which includes protected areas.¹²⁷ More importantly, private nature reserves, like RNSCs, would afford protection to wetlands no longer falling within the CWA's jurisdiction. Therefore, private nature reserves could provide temporary protection until the federal government passes wetland protection legislation to fill in the gaps left by *SWANCC* and *Rapanos*.

Finally, private nature reserves can effectively serve as buffer zones to protected areas.¹²⁸ For instance, while some RNSCs adjacent to protected areas require landowners to undertake conservation measures, they also allow sustainable uses and production systems.¹²⁹ Examples of RNSCs that serve as buffer zones include: the nature reserves around La Cocha Ramsar Site, mentioned earlier, and La Planada, a nature reserve adjacent to a government forest reserve and a proposed United Nations Biosphere Reserve.¹³⁰ In the United States, private nature reserves could also serve as buffer zones to protected areas, such as the Everglades National Park, and fragile ecosystems, like the North Dakota prairie potholes. Because federal and state governments have not adequately protected these wetland complexes, which are under significant pressure from agricultural activities and urbanization, private nature reserves could provide effective protection, helping mitigate these pressures.¹³¹

Private nature reserves, like the RNSCs, also offer a number of economic incentives. From the landowner's perspective, the flexible management structure of private nature reserves, which allows sustainable activities like ecotourism, production systems, and wildlife utilization, make them potentially profitable.¹³² This flexibility captures "the economic value of biodiversity," making "conservation a financially competitive land use" for landowners.¹³³ Additionally, landowners may receive property tax exemptions, income tax

¹²⁶ *Id.*

¹²⁷ Keiter, *supra* note 110, at 307-09.

¹²⁸ Langholz, *supra* note 111, at 10-12.

¹²⁹ PNN, REGISTRO DE RESERVAS, *supra* note 76.

¹³⁰ Langholz & Krug, *supra* note 28, at 15; WORLD WILD FUND FOR NATURE (WWF), MANAGING RIVERS WISELY, *supra* note 78, at 1-5. UNESCO designates Biosphere Reserves under its Man and the Biosphere Programme (MAB), which seeks to create a world network of protected sites representing the main ecosystems of the planet to protect genetic resources and to conduct monitoring, research, and training. *FAQ-Biosphere Reserves*, U. K. NAT'L COMM'N FOR UNESCO, <http://www.unesco.org.uk/uploads/biopshere%20reserves%20faq.pdf> (last visited Oct. 15, 2012).

¹³¹ *Threats to the Everglades*, FLA. MUSEUM OF NAT. HIST., <http://www.flmnh.ufl.edu/fish/southflorida/everglades/threats.html> (last visited Oct. 15, 2012).

¹³² Langholz & Krug, *supra* note 28, at 16.

¹³³ *Id.*

deductions, and economic assistance to manage their reserves.¹³⁴ Therefore, private nature reserves allow landowners to derive significant economic benefits from the very ecosystems they protect. From the government's perspective, private nature reserves may also result in cost savings.¹³⁵ Because the land remains in private hands, the government does not have to purchase it or undertake its management.¹³⁶ Given the current state and federal fiscal crisis in the United States, private nature reserves would be a very cost-effective wetland protection tool.

Finally, private nature reserves offer social benefits. By actively and voluntarily protecting wetlands, landowners become part of the decision-making process over resources in their lands, instead of feeling left out of the process, as is often the case with command and control regulation.¹³⁷ Private nature reserves can also help dissuade landowners' aversion towards government regulation, since operating a private nature reserve rewards landowners for their conservation efforts.¹³⁸ This incentive-based approach can also encourage environmentally conscious landowners, who may not otherwise have the means, to engage in conservation activities.¹³⁹ Lastly, private nature reserves can help create environmental awareness and encourage collective conservation efforts among landowners,¹⁴⁰ helping facilitate information exchanges and strengthening conservation efforts.¹⁴¹

2. Drawbacks

While private nature reserves offer numerous ecological, economic, and social benefits, they are not without drawbacks. Therefore, conservationists should not view private nature reserves as a replacement to existing wetland protection mechanisms,¹⁴² but as an additional tool to incentivize private wetland conservation.

From an ecological perspective, one of the main concerns with private nature reserves is their lack of permanence.¹⁴³ While some reserves in South America

¹³⁴ PNN, REGISTRO DE RESERVAS, *supra* note 76.

¹³⁵ Langholz & Krug, *supra* note 28, at 16.

¹³⁶ *Id.*

¹³⁷ *Id.* at 17.

¹³⁸ *See id.* at 16-17.

¹³⁹ *See* ECONOMIST, *supra* note 24 (reporting that many reserve owners in Costa Rica are not motivated by financial gain but by concerns over biodiversity threats).

¹⁴⁰ BUCHER, ET AL., *supra* note 94, at 15.

¹⁴¹ *Id.* at 16.

¹⁴² Langholz & Krug, *supra* note 28, at 24 (quoting IUCN World Parks Congress, Vth IUCN World Parks Congress, Durban, S. Afr., Sept. 8-17, 2003, *Emerging Issues*, 276 (Mar. 25, 2005), available at <https://cmsdata.iucn.org/downloads/emergingen.pdf>).

¹⁴³ *See id.* at 15.

and Africa require long-term or perpetual duration, many do not.¹⁴⁴ For instance, although RNSCs in Colombia aim towards long-term conservation, landowners ultimately decide the duration period¹⁴⁵ and can terminate RNSCs status at any time.¹⁴⁶ Even so, private nature reserves offer temporary protection until government regulators implement solutions that are more permanent.¹⁴⁷ This is a preferable alternative to having no protection at all. Furthermore, flexibility in their duration makes private nature reserves appealing to landowners and sets them apart from other private conservation tools, like easements, which may require a perpetual commitment.¹⁴⁸

Additionally, governments may still limit designation of private nature reserves to land that they consider biologically important and to a rigid conception of conservation like Colombia and RNSCs.¹⁴⁹ This view of conservation is more analogous to preservation.¹⁵⁰ For instance, despite the fact that RNSCs allow sustainable production systems, which in effect contribute to conservation, the government does not recognize them as doing so.¹⁵¹ This strict requirement can discourage landowner participation.¹⁵² Similarly, the lengthy and cumbersome designation process of RNSCs can dissuade landowner involvement, since it involves multiple administrative actors.¹⁵³ For example, ProAves, a leading conservation NGO in Colombia, has warned that this lengthy process “is effectively hampering [biodiversity] conservation work in [the

¹⁴⁴ ENVTL. LAW INST., BUILDING MODELS FOR SUCCESS, *supra* note 24, at 17-18. For instance, in Brazil, private nature reserves require perpetual management and conservation. *Id.*

¹⁴⁵ L. 2372/10, at art. 17; Email from Galvis Avellaneda to author, *supra* note 80; E-mail from Luis Fernando Macías Gómez, Founding Partner, Macías Gómez & Asociados S.A., and President, Colombian Institute for Environmental Law, to author (Feb. 4, 2011, 10:14 EST) (on file with author).

¹⁴⁶ L. 96/99, at art. 17.

¹⁴⁷ See, e.g., Michael J. Bean, *Overcoming Unintended Consequences of Endangered Species Regulation*, 38 IDAHO L. REV. 409, 420 (2002) [hereinafter *Overcoming Unintended Consequences of Endangered Species Regulation*]. In the United States, voluntary conservation programs under the Endangered Species Act (ESA), such as Safe Harbor Agreements, also present the same issue. *Id.*

¹⁴⁸ Jean Hocker, *Introduction to Conservation Easements*, in THE CONSERVATION EASEMENT HANDBOOK 21 (Elizabeth Byers & Karin Marchetti Ponte eds., 2005); Nathan Paulich, *Increasing Private Conservation Through Incentive Mechanisms*, 3 STAN. J. ANIMAL L. & POL’Y 106, 143 (2010); Welsh, *supra* note 8, at 225.

¹⁴⁹ GRUPO COLOMBIANO INTERINSTITUCIONAL, *supra* note 77, at 35; ENVTL. LAW INST., BUILDING MODELS FOR SUCCESS, *supra* note 24, at 17.

¹⁵⁰ GRUPO COLOMBIANO INTERINSTITUCIONAL, *supra* note 77, at 35.

¹⁵¹ *Id.*

¹⁵² See ENVTL. LAW INST., BUILDING MODELS FOR SUCCESS, *supra* note 24, at 20-21 (arguing that governments in South America should provide more flexibility in the management of private nature reserves, instead of requiring similar management and reporting procedures than in larger public parks).

¹⁵³ *Two More Reserves Join the National Protected Area System*, FUNDACIÓN PROAVES (Sept. 16, 2010), http://www.proaves.org/articulo.php?id_articulo=914 [hereinafter FUNDACIÓN PROAVES].

country].”¹⁵⁴ Similarly, requirements to adopt detailed management plans and submit periodic progress reports (like in larger parks) can be burdensome, treating these reserves as “mini-parks,” because such requirements may not recognize the “voluntary initiative of [] private landowner[s]” or the particular objectives of the reserve.¹⁵⁵

Furthermore, since private nature reserves are relatively novel conservation tools, their ecological effectiveness has yet to be fully determined.¹⁵⁶ For instance, in Colombia, the government and NGOs do not have a streamlined methodology to measure the ecological effectiveness of RNSCs and their contribution to ecosystem conservation.¹⁵⁷ This lack of information can make government monitoring and enforcement difficult.¹⁵⁸ However, a recently proposed methodology to measure the effectiveness of RNSCs, through pilot applications and evaluation of management plans, showed that the evaluated reserves were meeting their ecological objectives.¹⁵⁹

Finally, there is a concern that dependence on private nature reserves for subsistence purposes may create a conflict of interest with a reserve’s ecological objectives.¹⁶⁰ This can be the case with ecotourism reserves, particularly where landowners may have an incentive to overuse and degrade resources by encouraging excessive tourist visits and keeping wildlife in captivity.¹⁶¹ Likewise, degradation of ecosystems within these reserves may result from inadequately built infrastructure such as ingress roads and cabins.¹⁶²

3. Proposed Reforms

Notwithstanding these disadvantages, private nature reserves present an additional flexible option to existing wetland protection initiatives, and reforms can address their shortcomings.

For example, instead of leaving the duration requirement at the discretion of landowners, a minimum duration period would ensure that reserves effectively achieve ecological objectives, such as wetland conservation.¹⁶³ Additionally, instead of limiting private nature reserves to strict conservation activities, regulators could recognize sustainable land uses and activities as contributing to

¹⁵⁴ *Id.*

¹⁵⁵ ENVTL. LAW INST., BUILDING MODELS FOR SUCCESS, *supra* note 24, at 20.

¹⁵⁶ Langholz & Krug, *supra* note 28, at 9; *E.g.*, Brent A. Mitchell, “Who’s Doing the Protecting in Protected Areas?” *A Global Perspective on Protected Area Governance*, 24 THE GEORGE WRIGHT F. 81-83, 88-89 (2007), available at <http://www.georgewright.org/243mitchell.pdf>.

¹⁵⁷ GRUPO COLOMBIANO INTERINSTITUCIONAL, *supra* note 77, at 35.

¹⁵⁸ *See id.*; Langholz & Krug, *supra* note 28, at 9, 27-29.

¹⁵⁹ Mayorquín et al., *supra* note 99, at 386.

¹⁶⁰ Langholz & Krug, *supra* note 28, at 16.

¹⁶¹ *Id.*

¹⁶² *Id.*

¹⁶³ *See* ENVTL. LAW INST., BUILDING MODELS FOR SUCCESS, *supra* note 24, at 19-20.

conservation efforts.¹⁶⁴ This should be done especially in the case of RNSCs, where government rules already allow these uses. Furthermore, private nature reserves should be recognized as producers of ecosystem goods and services, because this is an important ecological attribute and an economic incentive of these reserves.¹⁶⁵

Additionally, regulators could streamline the designation process to reduce unnecessary burdens on applicants.¹⁶⁶ In the case of RNSCs, the Colombian government could minimize intervention of multiple administrative actors to reduce the length of the process.¹⁶⁷ Similarly, instead of treating private nature reserves like small public parks, governments' reporting and management requirements should be more flexible and recognize landowners' voluntary initiative.¹⁶⁸ In this light, RNSCs present a good example of flexible management, whereby the government encourages RNSCs' owners to update management plans every five years, instead of annually.¹⁶⁹

Additionally, regulators could categorize reserves differently depending on their objectives and intended uses.¹⁷⁰ This would allow regulators to better determine proper incentives for landowners.¹⁷¹ Finally, governments should strengthen monitoring procedures by increasing institutional capacity to oversee private nature reserves and ensure that conservation goals are being met.¹⁷² They should also develop uniform information exchange systems and methodologies to measure the ecological and economic effectiveness of private nature reserves.¹⁷³

IV. ADOPTING THE PRIVATE NATURE RESERVE MODEL IN THE UNITED STATES: FEASIBILITY AND OBSTACLES

While the United States has not yet adopted the concept of private nature reserves, several non-regulatory and financial private land conservation incentives at the federal and state levels directly and indirectly contribute to wetland protection efforts. Some of these wetland protection incentives, which share similarities with private nature reserves, can provide a basis for adopting

¹⁶⁴ See *id.* at 20; See also Langholz & Krug, *supra* note 28, at 16.

¹⁶⁵ GRUPO COLOMBIANO INTERINSTITUCIONAL, *supra* note 77, at 35.

¹⁶⁶ ENVTL. LAW INST., BUILDING MODELS FOR SUCCESS, *supra* note 24, at 21.

¹⁶⁷ FUNDACIÓN PROAVES, *supra* note 153.

¹⁶⁸ ENVTL. LAW INST., BUILDING MODELS FOR SUCCESS, *supra* note 24, at 20-21.

¹⁶⁹ RUIZ REYES, ET AL., *supra* note 90, at 69.

¹⁷⁰ See ENVTL. LAW INST., BUILDING MODELS FOR SUCCESS, *supra* note 24, at 21.

¹⁷¹ *Id.*

¹⁷² Langholz & Krug, *supra* note 28, at 25 (quoting IUCN World Parks Congress, *supra* note 142, at 277).

¹⁷³ ENVTL. LAW INST., BUILDING MODELS FOR SUCCESS, *supra* note 24, at 21; *e.g., id.* at 27 (quoting IUCN World Parks Congress, *supra* note 142, at 278).

these reserves as an additional non-regulatory wetland protection mechanism in the United States.

A. *Existing Private Wetland Protection Incentives: the Need for Additional Mechanisms*

Numerous non-regulatory programs to incentivize private wetland protection exist at the federal and state levels. Some of these programs offer economic incentives to landowners in the form of direct and cost-sharing payments or tax deductions.¹⁷⁴ They may also take the form of negative incentives to discourage wetland destruction.¹⁷⁵ Other programs offer non-economic benefits like exemptions to land use restrictions or increased hunting limits.¹⁷⁶ While these programs remain important and have effectively helped protect wetlands, as wetlands continue to disappear, wetland conservation will require additional protection mechanisms.¹⁷⁷ Additionally, many of these programs are narrow in scope and offer limited incentives to landowners. Because most of these programs focus mainly on restoration efforts,¹⁷⁸ there are few incentives for landowners engaging only in wetland conservation activities. Finally, the few existing programs rewarding wetland conservation efforts restrict their scope to agricultural lands or offer limited financial incentives to landowners.

Therefore, given the limitations with existing programs, private nature reserves present an additional and more flexible alternative. All landowners could participate in such an initiative, providing financial incentives and economic assistance for wetland conservation activities, including preservation and wetland restoration.¹⁷⁹ Moreover, this initiative could also allow landowners to derive non-economic benefits from sustainable land uses, from which

¹⁷⁴ Gardner, *Rehabilitating Nature*, *supra* note 34, at 588-89.

¹⁷⁵ *Id.*

¹⁷⁶ *Id.* at 608-09.

¹⁷⁷ See T.E. DAHL, USFWS, STATUS AND TRENDS OF WETLANDS IN THE CONTERMINOUS UNITED STATES 2004 TO 2009 7, 45 (2011), available at <http://www.fws.gov/wetlands/Documents/Status-and-Trends-of-Wetlands-in-the-Conterminous-United-States-2004-to-2009.pdf> (reporting that despite significant progress in wetlands conservation, national wetlands losses are surpassing wetlands gains, calling for additional wetlands conservation work).

¹⁷⁸ The preference for restoration and enhancement over preservation of existing wetlands is due to the fact that wetland preservation alone does not contribute to the overall goal of “no net loss” (in terms of wetlands acreage). GARDNER, LAWYERS, SWAMPS, AND MONEY, *supra* note 7, at 102.

¹⁷⁹ Wetland preservation is defined as “the protection of an existing and well-functioning wetland from prospective future threats” and does not involve alteration of the site.” Gardner, *Rehabilitating Nature*, *supra* note 34, at 575 n.10 (quoting the NAT’L RESEARCH COUNCIL, COMPENSATING FOR WETLAND LOSSES UNDER THE CLEAN WATER ACT 13-14 (2001)). Wetland restoration entails “returning a wetland that has been disturbed or altered by human activity to a previously existing condition.” *Id.* at 575. Restoration may encompass re-establishing and rehabilitating wetlands. *Id.* at 576. Preservation and restoration are forms of compensatory mitigation under the Section 404 program, which also includes creation and enhancement. *Id.* at 575 n.10. See General Compensatory Mitigation Requirements, 33 C.F.R. § 332.2 (2012).

landowners could potentially profit.

1. Economic Incentives

a. Direct and Cost-sharing Payments

At the federal level, several programs use incentives to encourage private wetland conservation. The largest wetland conservation programs offering cost-sharing and direct payments are the Conservation Reserve Program (CRP)¹⁸⁰ and the Wetlands Reserve Program (WRP).¹⁸¹ Both programs restrict their scope to agricultural lands.¹⁸² The CRP offers rental payments to landowners retiring “highly erodible lands and wetlands from agricultural production.”¹⁸³ Under the WRP, the government pays landowners to place perpetual or 30-year easements¹⁸⁴ on previously farmed wetlands and provides technical and financial assistance for restoration measures.¹⁸⁵ The WRP also offers short-term cost-sharing agreements for wetland restoration as an alternative to conservation easements.¹⁸⁶

Other agricultural cost-sharing programs that indirectly¹⁸⁷ help protect wetlands include the Environmental Quality Incentive Program (EQIP)¹⁸⁸ and the Farmland Protection Program (FPP).¹⁸⁹ These are short-term agreements between the federal government and landowners to reach specific conservation goals on private lands in exchange for technical and financial restoration costs.¹⁹⁰ In contrast to the aforementioned programs, a program called “the Swampbuster”¹⁹¹ uses disincentives to discourage wetland destruction.¹⁹² The Swampbuster program makes farmers filling, dredging, or draining wetlands for agricultural production ineligible for federal benefits, such as subsidies or

¹⁸⁰ Conservation Reserve Program, 16 U.S.C. § 3831 [hereinafter CRP].

¹⁸¹ Wetland Reserve Program, 16 U.S.C. § 3837 [hereinafter WRP].

¹⁸² Seidemann & Susman, *supra* note 4, at 482.

¹⁸³ *Id.* at 481. The CRP is analogous to an easement, where the landowner retains property rights but has some land use restrictions. *Id.*

¹⁸⁴ The levels of payments farmers receive depend on the duration of the easement. *Id.* For permanent easements, the government will pay 100% of the easement value and up to 100% of restoration costs. COPELAND, *supra* note 10, at 15. For thirty-year easements, the government will pay between fifty and seventy percent of the easement value and up to seventy-five percent of restoration costs. *Id.* See also GARDNER, LAWYERS, SWAMPS, AND MONEY, *supra* note 7, at 10.

¹⁸⁵ COPELAND, *supra* note 10, at 14.

¹⁸⁶ Seidemann & Susman, *supra* note 4, at 483.

¹⁸⁷ *Id.* at 480-81.

¹⁸⁸ Environmental Quality Incentives Program, 16 U.S.C. § 3839aa to aa-9.

¹⁸⁹ Farmland Protection Program, 16 U.S.C. § 3838i.

¹⁹⁰ See Seidemann & Susman, *supra* note 4, at 481-82.

¹⁹¹ Swampbuster Law, 16 U.S.C. §§ 3821-3824.

¹⁹² GARDNER, LAWYERS, SWAMPS, AND MONEY, *supra* note 7, at 100.

loans.¹⁹³

Other incentive programs open to all landowners can indirectly benefit wetlands, such as the Wildlife Habitat Incentive Program (WHIP)¹⁹⁴ and the U.S. Fish and Wildlife Service (FWS) Partners for Fish and Wildlife Program.¹⁹⁵ Under these programs, landowners receive technical and financial assistance, as well as incentive payments for the creation or enhancement of fish and wildlife habitats, including wetlands.¹⁹⁶

While, like RNSCs, these programs offer flexible management alternatives and incentives for wetland conservation, they have a number of limitations. Unlike RNSCs, which are open to all landowners, many of these programs limit their scope to agricultural lands, excluding other landowners from participating.

Even programs like WHIP and Partners for Fish and Wildlife appear to be mainly limited to restoration activities, offering little or no incentives for conservation of high-quality wetlands. Additionally, unlike RNSCs, which offer both economic and non-economic incentives, these programs do not offer both types of incentives.

Other obstacles these programs face include increasing budget constraints at the federal and state levels and budget cuts.¹⁹⁷ Additionally, rising demand and congressional subsidies for bio-fuels would likely discourage enrollment of farmland in the agricultural programs, as farmers find it more profitable to harvest corn for ethanol production.¹⁹⁸ This means that wetlands currently protected under these programs, including isolated wetlands like prairie potholes, could be at risk of losing protection.¹⁹⁹

Therefore, private nature reserves offer a more dependable wetland protection alternative. Because private nature reserves offer enticing economic opportunities for landowners in the form of tax benefits, economic assistance for management, and potentially profitable land uses, landowners would have more incentives to participate and remain enrolled in such a program, instead of turning to other land uses.

¹⁹³ *Id.*

¹⁹⁴ Wildlife Habitat Incentive Program, 16 U.S.C. § 3839bb-1.

¹⁹⁵ Partners for Fish and Wildlife Act, 16 U.S.C. § 3772.

¹⁹⁶ Seidemann & Susman, *supra* note 4, at 480-82.

¹⁹⁷ MEGAN STUBBS, CONG. RESEARCH SERV., R 40692, AGRICULTURAL ISSUES IN THE 111th CONGRESS 15 (2009). In fact, in 2011 Congress passed a continuing resolution requiring mandatory spending cuts for conservation programs for the remainder of FY 2011. *Congress Passes FY 2011 Budget, Cuts Billions from Agriculture*, NAT'L SUSTAINABLE AGRIC. (Sept. 17, 2011), <http://sustainableagriculture.net/blog/congress-passes-final-fy11-cr/>. The resolution proposes a nineteen percent reduction, almost 48,000 acres, for the WRP, and a \$350 million cut for the EQIP, relative to the funding in the 2008 Farm Bill. *Id.*

¹⁹⁸ GARDNER, LAWYERS, SWAMPS, AND MONEY, *supra* note 7, at 196.

¹⁹⁹ VIRGINIA H. DALE, KEITH L. KLINE, JOHN WIENS & JOSEPH FARGIONE, ECOLOGICAL SOC'Y OF AM., BIOFUELS: IMPLICATIONS FOR LAND USE AND BIODIVERSITY 4 (2010), *available at* http://www.esa.org/biofuelsreports/files/ESA%20Biofuels%20Report_VH%20Dale%20et%20al.pdf.

b. Tax Deductions and Credits

In addition to direct payments and cost-sharing agreements, federal and state governments offer wetland protection incentives in the form of tax exemptions and tax credits for wetland restoration expenditures.²⁰⁰ However, these incentives are limited and may not be adequate for all landowners.²⁰¹

Under federal tax law,²⁰² property owners donating conservation easements to charitable organizations, which may be used for wetland conservation, are eligible to receive charitable income, estate, and gift tax deductions.²⁰³ Landowners may also receive state and local tax benefits.²⁰⁴ While conservation easements are flexible, voluntary mechanisms like RNSCs, they offer limited financial incentives.²⁰⁵ The tax benefits for landowners donating an easement may not offset market and transaction costs associated with the donation.²⁰⁶ Market costs would include a reduction in the property's fair market value due to restricted land uses.²⁰⁷ Transaction costs would include legal and appraisal costs.²⁰⁸ Additionally, donating landowners may find tax benefits insufficient to justify foregoing productive uses of their lands. Similarly, not all landowners may be willing to convey an easement.²⁰⁹ Private nature reserves set up like RNSCs, on the other hand, can offer more enticing economic incentives. They also permit flexible, productive land uses to landowners who may not possess the funds to cover the costs associated with donating an easement or who may not want to give up part of their property interests. Thus, private nature reserves would provide an additional wetland conservation alternative to conservation minded landowners, who may not wish to or are unable to donate an easement.

Other existing economic incentives to encourage wetland protection include income tax credits for wetland restoration and sales and use tax exemptions for wetland protection efforts. For instance, the State of Arkansas provides a tax credit of up to \$5,000 a year to taxpayers restoring or creating wetlands in riparian areas.²¹⁰ Arkansas also awards tax credits for wetland conservation in

²⁰⁰ Gardner, *Rehabilitating Nature*, *supra* note 34, at 599.

²⁰¹ See Bean, *Overcoming Unintended Consequences of Endangered Species Regulation*, *supra* note 147, at 420.

²⁰² I.R.C. § 170(h) (West 2012).

²⁰³ Paulich, *supra* note 148, at 144; Stephen Small, *Tax Benefits of Easements Donations*, in THE CONSERVATION EASEMENT HANDBOOK, *supra* note 148, at 80; Welsh, *supra* note 8, at 223.

²⁰⁴ Paulich, *supra* note 148, at 144.

²⁰⁵ E.g., Bean, *Overcoming Unintended Consequences of Endangered Species Regulation*, *supra* note 147, at 420 (contending that Safe Harbor Agreements are a more cost-effective land conservation tool for landowners who find the tax benefits associated with easements insufficient).

²⁰⁶ Paulich, *supra* note 148, at 145.

²⁰⁷ *Id.*

²⁰⁸ *Id.*

²⁰⁹ *Id.*

²¹⁰ Gardner, *Rehabilitating Nature*, *supra* note 34, at 599 (citing ARK. CODE ANN. § 26-51-1505(a), (c)(3)(A)(ii) (West 2012)).

riparian zones to eligible landowners donating property interests.²¹¹ Similarly, the State of Louisiana offers sales and use tax exemptions to non-profit organizations engaging in conservation of wetlands that serve as habitat for migratory waterfowl.²¹² Much like the aforementioned tax benefits at the federal level, these state programs offer limited incentives. While Arkansas' tax credit is not limited to creation or restoration of wetlands, it requires landowners engaged in conservation activities to donate a property interest to be eligible for the incentive.²¹³ Thus, this incentive may not persuade conservation minded landowners who may not want to give away property interests to participate. Likewise, the Louisiana program applies only to non-profit organizations and does not reach individual landowners.²¹⁴ Therefore, private nature reserves could supplement existing state incentives by providing additional economic and non-economic incentives for both landowners and organizations engaging in wetland conservation. Additionally, private nature reserves programs run like RNSCs would reward landowners undertaking conservation of high-quality wetlands without requiring them to give away property interests.

2. Non-economic Incentives

Besides providing financial incentives for private wetland protection, federal and state governments have also implemented programs granting non-economic incentives, such as land use regulation exemptions and allowing wildlife management areas in private property. While these programs do not specifically target wetlands, by encouraging restoration and enhancement of wildlife habitat they can indirectly protect wetlands. However, these programs offer limited incentives to landowners.

At the federal level, the FWS adopted a Safe Harbor policy²¹⁵ to encourage private restoration and management of habitat for species listed under the Endangered Species Act (ESA).²¹⁶ Section nine of the ESA prohibits the "take"²¹⁷ of any listed species.²¹⁸ Regulations broadly define "take" to encompass "significant habitat modification or degradation" which results in the actual killing or injury of a listed species,²¹⁹ such as destroying a wetland upon

²¹¹ ARK. CODE ANN. § 26-51-1505(b).

²¹² Gardner, *Rehabilitating Nature*, *supra* note 34, at 600 (citing LA. REV. STAT. ANN. § 47:305.43(A) (West 2011)).

²¹³ ARK. CODE ANN. § 26-51-1505(b)(5)(A).

²¹⁴ LA. REV. STAT. ANN. § 47:305.43(A).

²¹⁵ Announcement of Final Safe Harbor Policy, 64 Fed. Reg. 32,717 (June 17, 1999) (codified at 50 C.F.R. §§ 17.22(c), 17.32(c) (2012)).

²¹⁶ Endangered Species Act, 16 U.S.C. §§ 1531-1544 (2006).

²¹⁷ "Take" means to "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct." *Id.* § 1532(19).

²¹⁸ *Id.* § 1538(a)(1).

²¹⁹ 50 C.F.R. § 17.3. *See* Babbitt v. Sweet Home Chapter of Communities for a Great Or., 515

which the species depends for food. This purely prohibitive provision places significant land use restrictions on landowners.²²⁰ Prior to the Safe Harbor policy, landowners had no incentive to engage in activities beneficial to listed species, because if such actions increase the number of listed species on their lands, they may incur additional liability.²²¹

As a result, the FWS adopted the Safe Harbor policy, under which landowners voluntarily agree to engage in activities beneficial to listed species, such as habitat restoration and implementation of a management plan.²²² In exchange, the government promises not to impose further land use restrictions, even if the number of listed species on the landowner's property increases because of these activities.²²³ The agreement does not affect existing restrictions under the ESA, known as "baseline responsibilities."²²⁴ Thus, the government grants an "enhancement survival" permit²²⁵ authorizing a future take of species covered under the agreement, as long as the landowner does not violate "baseline responsibilities."²²⁶

This program is perhaps the most analogous to RNSCs in that it is a voluntary agreement between landowners and the government to protect an ecosystem. Like RNSCs, this policy requires landowners to implement conservation measures through a management plan, and it imposes certain land use restrictions. However, unlike RNSCs, this program limits its scope to activities benefiting listed species. Consequently, like most conservation programs under the ESA,²²⁷ the policy does not promote proactive conservation of valuable species and ecosystems not yet listed, but which may warrant protection.²²⁸ Moreover, the Safe Harbor policy does not offer any economic incentives to participating landowners, significantly narrowing its appeal.

At the state level, California adopted a policy that allows enhancement of

U.S. 687, 697, 690-91 (1995).

²²⁰ Michael J. Bean, *Landowner Incentives for Endangered Species Conservation: Safe Harbor Agreements and Candidate Conservation Agreements with Assurances*, SK 056 A.L.I. & A.B.A. PROC. 169, 173-74 (2005) [hereinafter *Landowner Incentives for Species Conservation*].

²²¹ *Id.* at 174.

²²² Gardner, *Rehabilitating Nature*, *supra* note 34, at 609. Examples of how this policy has been used for wetland restoration include the Safe Harbor Agreement to benefit the Koloa and Nene, Hawaiian waterfowl, through enhancement of palustrine emergent marshes. *Id.* at 609-10.

²²³ Announcement of Final Safe Harbor Policy, 64 Fed. Reg. at 32, 722 (1999); Gardner, *Rehabilitating Nature*, *supra* note 34, at 609.

²²⁴ Bean, *Landowner Incentives for Species Conservation*, *supra* note 220, at 174.

²²⁵ *Id.* See 16 U.S.C. § 1539(a)(1)(A) (2006).

²²⁶ Bean, *Landowner Incentives for Species Conservation*, *supra* note 220, at 174.

²²⁷ Michael J. Bean, *New Landowner Incentive Tools for Encouraging Conservation Efforts under The Endangered Species Act*, SM 013 A.L.I.- A.B.A. PROC. 103 (2006). Other private conservation programs under the ESA include: Habitat Conservation Plans, triggered by threats to listed species, and Candidate Conservation Agreements, available only to protect candidate species. *Id.*; Karkkainen, *supra* note 111, at 101.

²²⁸ See Karkkainen, *supra* note 111, at 102.

wildlife habitat on private lands.²²⁹ Landowners willing to enroll in this program receive a hunting license and additional hunting limits than those imposed during regular seasons, as long as this does not adversely affect the species population.²³⁰ Before receiving the license, participating landowners must submit with their application a management plan and management objectives for the property.²³¹ While the scope of this program seems limited to game species like elk, antelopes, and deer,²³² California could modify it to include wetland conservation activities.²³³ Although this program is similar to RNSCs in that it allows landowners to derive benefits from the ecosystems they protect and manage, its scope is significantly narrower, as it applies to actions benefiting game species.

While many programs directly and indirectly incentivize private wetland conservation, these programs have limitations, which evidence the need for more incentives or programs. Therefore, private nature reserves, like RNSCs, would be a promising wetland protection mechanism to address some of the gaps in the aforementioned programs.

B. Feasibility and Obstacles

While the private nature reserve model has not yet been adopted in the United States, the concept is not foreign.²³⁴ As mentioned in the preceding section, there is a wide array of private land conservation incentives in place, which can provide the basis for establishing private nature reserves as a wetland protection tool. Additionally, an extensive network of publicly owned nature reserves exists in the United States, which could both support and benefit from the creation of a system of private reserves, like the RNSCs in Colombia.

To work effectively, the United States would need to create private nature reserves under a cooperative federalism framework. For instance, the states would develop the designation criteria for nature reserves and would implement incentive programs. The federal government would in turn set the minimum criteria for states to develop private nature reserve networks, and provide oversight and financial assistance. Additionally, private nature reserves would

²²⁹ Gardner, *Rehabilitating Nature*, *supra* note 34, at 607 (citing CAL. FISH & GAME CODE § 3400 (West 2012) and CAL. CODE REGS. tit. 14, § 601 (2012)).

²³⁰ Gardner, *Rehabilitating Nature*, *supra* note 34, at 608.

²³¹ *Id.* at 607-08.

²³² *Id.* at 608.

²³³ *Id.*

²³⁴ Indeed, commentators have called for the creation of a system of federal nature reserves in the United States, under a “core and buffer” approach, allowing private ownership and compatible economic activities on the buffer areas surrounding the core or protected area. Karkkainen, *supra* note 111, at 13, 98; Keiter *supra* note 110, at 304-05; *See infra* Part II.B.1. This is essentially how the national system of protected areas, which includes RNSCs, is designed in Colombia. Langholz, *supra* note 111, at 60-61; *See infra* Part II.A.

work best if open to all landowners, NGOs, communities, and businesses.

Landowners could then establish private nature reserves in several ways, including: through federal-state partnerships; under the authority of existing statutes such as the CWA, the ESA, or the Coastal Zone Management Act (CZMA),²³⁵ and as independent cooperative management programs under the FWS, like the FWS Partners for Wildlife Program. Alternatively, the United States could integrate private nature reserves as a separate category of protected areas, into the network of public national parks, wilderness refuges, or wilderness areas. The United States could more feasibly implement private nature reserves through independent legislation or as part of the existing network of public protected areas.

The CWA could conceivably provide a basis for the United States to implement private nature reserves under a state-federal partnership. For example, Wetland Program Development Grants, established under the authority of Section 104(b)(3),²³⁶ provide eligible states, tribes, and local governments with financial assistance to enhance existing wetland protection programs or create new initiatives.²³⁷ The EPA gives priority to projects addressing three key areas including: development of a comprehensive monitoring assessment program, improvement of the effectiveness of compensatory mitigation, and refinement of vulnerable wetlands and aquatic resources protection.²³⁸

Applying this model to private nature reserves, states could obtain financial assistance to create a network of private nature reserves, either as part of existing wetland protection programs or as a new program. However, to receive funding the reserves would likely need to meet the aforementioned criteria. While a system of private nature reserves would address two of the aforementioned priority areas (monitoring and protection), it would not address compensatory mitigation. Unlike compensatory mitigation, which seeks to offset impacts to wetlands after a wetland has been destroyed,²³⁹ private nature reserves seek to encourage proactive wetland conservation measures before a wetland is degraded or destroyed.

²³⁵ Coastal Zone Management Act, 16 U.S.C. §§ 1451-1466 (2006).

²³⁶ Research, Investigations, Training, and Information, 33 U.S.C. § 1254(b)(3) (2006). Section 1254, or 104, authorizes the EPA to “make grants to State water pollution control agencies, interstate agencies, other public or nonprofit private . . . organizations” to promote “the coordination and acceleration of research, investigations, experiments, training, demonstrations, surveys, and studies relating to the causes, effects, extent, preventions, reduction, and elimination of pollution.” *Id.* § (a)(1).

²³⁷ *State, Tribal, and Local Initiatives*, EPA, http://water.epa.gov/type/wetlands/initiative_index.cfm#general (last updated Aug. 29, 2012). See *Wetland Program Development Grant Highlights*, EPA, <http://www.epa.gov/owow/keep/wetlands/initiative/wpdghighlights/> (last updated May 19, 2011), for more information about Wetland Program Development Grants.

²³⁸ *Wetlands Program Development Grants*, EPA, http://water.epa.gov/grants_funding/wetlands/grantguidelines/index.cfm (last updated Aug. 31, 2012).

²³⁹ GARDNER, LAWYERS, SWAMPS, AND MONEY, *supra* note 7, at 101.

Another option under the CWA is the Clean Water State Revolving Fund (CWSRF), which provides “seed money” to states to finance projects improving water quality.²⁴⁰ States have used the CWSRF to fund wetland protection projects and comprehensive coastal management plans, including wetland restoration for habitat purposes.²⁴¹ Since wetlands can play a significant role in water quality enhancement and help control non-point source pollution, over thirty states have used their CWSRF to fund wetland “preservation, restoration, and creation projects.”²⁴² Specifically, California has used its CWSRF to help fund projects protecting vernal pool wetlands in the Central Valley region.²⁴³

Therefore, states could use their CWSRF to help fund the creation and management of private nature reserves, as a wetland protection tool. They could include private nature reserves as part of a comprehensive coastal management plan or as part of a city’s non-point source pollution project. States could also use their CWSRF to provide financial assistance to reserve owners to undertake conservation activities. Under this option, however, landowners would need to tailor their nature reserves to the protection and management of wetlands to control non-point source pollution.

The ESA would provide another alternative to help create a network of private nature reserves. In fact, state and federal governments have already adopted a variety of innovative private land conservation programs under its authority.²⁴⁴ Specifically, landowners could establish private nature reserves pursuant to Section 6(c), which authorizes the FWS to “enter into a cooperative agreement . . . with any State which establishes and maintains an adequate and active program for the conservation of endangered . . . and threatened species.”²⁴⁵ Considering that more than one third of all listed species in the United States live in wetlands, most of which are not federally owned, and an additional twenty percent depend on wetlands at some point in their lives,²⁴⁶ private nature reserves would fit well within the scope of this provision as a federal-state wetland protection mechanism.

Additionally, Section 10 (a)(1)(A), which authorizes otherwise prohibited acts

²⁴⁰ Grants to States for Establishment of Revolving Funds, 33 U.S.C. §§ 1381, 1383 (2006).

²⁴¹ See EPA, WETLAND PROTECTION USING THE CLEAN WATER STATE REVOLVING FUND, available at http://water.epa.gov/type/wetlands/upload/2004_10_25_wetlands_state_rev_fund.pdf (last visited Oct. 15, 2012).

²⁴² *Id.* States using their Clean Water State Revolving Fund (CWSRF) for wetland protection projects include: New York, California, and Ohio, among others. *Id.*

²⁴³ *Id.*

²⁴⁴ *Endangered Species Program: For Landowners – Landowner Tools*, USFWS, <http://www.fws.gov/endangered/landowners/landowner-tools.html> (last updated Feb. 16, 2012). Innovative land conservation programs under the ESA include: Safe Harbor Agreements, Candidate Conservation Agreements, Conservation Banking, and Habitat Conservation Plans. *Id.*

²⁴⁵ Endangered Species Act, 16 U.S.C. § 1535(c)(1) (2006).

²⁴⁶ ECONOMIC BENEFITS OF WETLANDS, *supra* note 5.

to “enhance the propagation or survival of” listed species,²⁴⁷ could provide a basis for the creation of private nature reserves. This section provides the legal basis for Safe Harbor Agreements,²⁴⁸ which some states have also adopted.²⁴⁹

However, the ESA poses some limitations. Implementing private nature reserves under the ESA would restrict the scope of a reserve’s activities to benefiting listed species or species that are candidates for listing. This restriction would limit one of the main attributes of private nature reserves, promoting proactive conservation of ecosystems and species before they become endangered or threatened. Additionally, to work under the ESA as a wetland conservation tool, landowners would have to tailor their reserves specifically to wetland conservation activities for habitat purposes. Another potential drawback to creating private nature reserves under the ESA would be the type of incentives available to landowners. Under the ESA, private land conservation programs, like Safe Harbor Agreements, only offer non-economic incentives. To work effectively under the ESA, private nature reserves would need to benefit from economic and non-economic incentives alike. Otherwise, private nature reserves would not offer significant advantages beyond those provided by existing private land conservation mechanisms.

The CZMA could also provide a basis for the creation of a network of private nature reserves through a federal-state partnership.²⁵⁰ Under the CZMA, the federal government provides funding to states for the development and implementation of Coastal Zone Management Plans (CZMPs) through land and water use programs.²⁵¹ States have flexibility in deciding how their CZMPs will control land and water uses.²⁵² Furthermore, the Coastal Zone Enhancement Grant²⁵³ provides funding to states improving their CZMPs in one of eight areas of coastal concern, including coastal wetland protection.²⁵⁴ Therefore, states could create private nature reserves within their CZMPs as land and water use programs to protect coastal wetlands. Additionally, states could obtain funding from the Coastal Enhancement Program²⁵⁵ to establish private nature reserves as

²⁴⁷ 16 U.S.C. §1539(a)(1)(A).

²⁴⁸ E.g., Bean, *Overcoming Unintended Consequences of Endangered Species Regulation*, *supra* note 147, at 417.

²⁴⁹ For example, the State of California adopted the Safe Harbor Agreement Program Act. *See* CAL. FISH & GAME CODE § 2089.2 (West 2012).

²⁵⁰ Coastal Zone Management Act, 16 U.S.C. § 1451-1466.

²⁵¹ Kristen M. Fletcher, *Managing Coastal Development*, in OCEAN AND COASTAL LAW AND POLICY 149-50 (Donald C. Baur, Tim Eichenberg & Michael Sutton eds., 2007).

²⁵² Sylvia Quast & Michael A. Mantell, *Role of the States*, in OCEAN AND COASTAL LAW AND POLICY, *supra* note 251, at 68.

²⁵³ Coastal Zone Enhancement Grant, 16 U.S.C. § 1456b.

²⁵⁴ DONNA R. CHRISTIE & RICHARD G. HILDRETH, COASTAL AND OCEAN MANAGEMENT LAW 61-62 (3d ed., 2007).

²⁵⁵ The Coastal Zone Enhancement Program was created under Section 309 (1456b) of the CZMA. *Coastal Zone Enhancement Program*, NAT’L OCEANIC AND ATMOSPHERIC ADMIN.,

coastal wetland protection mechanisms. However, creating private nature reserves under the CZMA, would limit their scope to coastal wetlands or wetlands affecting coastal resources.

A plausible alternative would be to establish private nature reserves as an independent cooperative management program under the administration of the FWS. The FWS already oversees similar programs like the FWS' Partners for Wildlife Program and the North American Waterfowl Management Plan.²⁵⁶ This would be a more feasible and flexible option, and would avoid the jurisdictional and structural restrictions of direct regulatory statutes like the CWA and the ESA. Furthermore, the federal government may more easily and cost-effectively create independent programs than it could alter existing programs or legislation to integrate new initiatives.²⁵⁷ Additionally, some of the most successful private land conservation programs, like the Partners for Wildlife Program, have been adopted independently as partnerships between agencies, NGOs, and private landowners.²⁵⁸

Under this option, interested parties could tailor a private nature reserve system to specifically address wetland conservation, instead of focusing only on endangered or threatened species, like the Partners for Wildlife Program must as mandated by statute. The flexible management structure and potentially profitable conservation-based land uses of private nature reserves offer considerable advantages to landowners, beyond those offered by existing programs.

Finally, the United States could create private nature reserves as a separate category of protected areas under the public protected areas system. This system encompasses national parks, national wildlife refuges, and wilderness areas.²⁵⁹ The Forest Service, the Bureau of Land Management, the FWS, and the National Park Service manage these lands.²⁶⁰ While these public lands have use and management restrictions, their regulations generally allow for multiple land uses.²⁶¹ The National Wildlife Refuge System Improvement Act, which "calls for the U.S. Fish and Wildlife Service's National Wildlife Refuge System to be

<http://coastalmanagement.noaa.gov/enhanc.html> (last updated July 7, 2011). See 16 U.S.C. § 1456b.

²⁵⁶ Robert P. Davison, Alessandra Falcucci, Luigi Maiorano & J. Micheal Scott, *The National Wildlife Refuge System*, in 1 THE ENDANGERED SPECIES ACT AT THIRTY: RENEWING THE CONSERVATION PROMISE 98 (Dale D. Goble, J. Michael Scott & Frank Davis eds., 2006). See *Division of Bird Habitat Conservation*, USFWS, <http://www.fws.gov/birdhabitat/NAWMP/index.shtm> (last updated Dec. 1, 2009), for information on the North American Waterfowl Management Plan.

²⁵⁷ Davison et al., *supra* note 256, at 99.

²⁵⁸ *Id.* at 98.

²⁵⁹ Keiter, *supra* note 110, at 302.

²⁶⁰ Karkkainen, *supra* note 111, at 14-15.

²⁶¹ J. Michael Scott et al., *Nature Reserves: Do they Capture the Full Range of America's Biological Diversity?*, 11 ECOLOGICAL APPLICATIONS 999, 999 (2001), available at <http://noss.cos.ucf.edu/papers/Scott%20et%20al%202001.pdf>.

representative of the nation[’s ecosystems,” could serve as a legal basis for adopting a system of private nature reserves.²⁶²

Annexing private nature reserves to the public lands system would offer significant benefits. First, private nature reserves would offer an alternative mechanism to federal acquisition of private lands,²⁶³ and serve as a cost-effective wetland conservation measure for the federal government. Not only would a private nature reserves system increase the amount of federally protected land, but it would also reduce the costs associated with the acquisition and management of those lands.²⁶⁴ This would in turn help defuse tensions between landowners and the federal government, incentivizing private wetland conservation.²⁶⁵

Additionally, adopting private nature reserves in this manner would offer significant ecological advantages. Private nature reserves, especially reserves adjacent to protected areas, could serve as buffer zones and provide greater ecologic connectivity for species and help avoid further habitat fragmentation.²⁶⁶ Since multiple land uses are already allowed within some of these public protected areas,²⁶⁷ the sustainable land uses allowed in private nature reserves would not significantly depart from this model. Finally, public protected areas do not fully represent “ecologically important landscapes” in the United States.²⁶⁸ For instance, some of the most fragile and valuable ecosystems in the United States, like wetlands, are found mostly in private lands.²⁶⁹ Therefore, annexing private nature reserves to public protected areas could protect non-federally owned wetlands, some of which may no longer fall within the CWA’s jurisdiction.

Moreover, under this option, landowners could request private nature reserve status from a designated land use agency. The designated agency could annex private lands to any of the existing publicly owned nature reserves depending on their intended uses and objectives as private reserves. However, to work effectively, the government would need to overhaul the existing public protected areas system.²⁷⁰ The federal government would have to increase its institutional capacity to manage and monitor private nature reserves.²⁷¹ Additionally, the

²⁶² *Id.* at 1006 (quoting the National Wildlife Refuge System Improvement Act of 1997, Pub. L. No. 105-57, 111 Stat. 1252).

²⁶³ Langholz & Krug, *supra* note 28, at 16.

²⁶⁴ *Id.* at 6-7.

²⁶⁵ *Id.* at 7.

²⁶⁶ *Id.* at 10, 13, 14, 17, 19.

²⁶⁷ Karkkainen, *supra* note 111, at 24.

²⁶⁸ Keiter, *supra* note 110, at 307-08.

²⁶⁹ *Id.* at 307.

²⁷⁰ *Id.* at 302.

²⁷¹ Langholz & Krug, *supra* note 28, at 25 (quoting IUCN World Parks Congress, *supra* note 142, at 275).

United States should develop the designation and criteria selection process through a federal-state partnership.²⁷² Similarly, state and federal policies should provide economic and non-economic incentives to participating landowners.²⁷³

Economic incentives could include: tax credits and exemptions, financial assistance for wetland conservation, and payments for ecosystem services.²⁷⁴ Non-economic incentives could include: allowing sustainable economic land uses such as ecotourism, bird watching and hunting of wetland dependent birds; research and environmental education; and sustainable production systems. Finally, reserve designers should implement “core and buffer” principles²⁷⁵ and “landscape-scale conservation” objectives to achieve conservation objective.²⁷⁶

Thus, while the United States could choose from a variety of alternatives to adopt private nature reserves, creating an independent program or annexing private lands into the publicly owned lands system would be the most feasible alternatives to the jurisdictional and structural limitations posed by direct regulatory statutes.

V. CONCLUSION

Although the United States employs a wide array of wetland protection mechanisms, ranging from traditional regulation to agricultural payments and private land conservation incentives, stemming the continuous loss of wetland functions requires additional tools. Furthermore, recent Supreme Court decisions, which narrow the federal government’s jurisdiction over isolated wetlands and question its Commerce Clause authority under the CWA, have resulted in uncertainty over wetland protection.

This article proposes the creation of a network of private nature reserves, similar to the RNSCs in Colombia, as an additional private wetland protection mechanism. Private nature reserves offer promising methods to help stem wetland losses in the United States and to overcome the jurisdictional uncertainty created by recent Supreme Court rulings. In particular, private nature reserves can effectively help protect ecologically and economically valuable isolated wetlands, which like vernal pools and prairie potholes, may no longer fall within the protection of the CWA.

Private nature reserves offer significant ecological, economic, and social advantages over existing wetland protection incentives. Not only do private

²⁷² CURTIS FREESE, DAWN MONTAYNE & KORA DABROWSKA, WWF, *NEW DIRECTIONS FOR THE PRAIRIE ECONOMY: CONNECTING CONSERVATION AND RURAL DEVELOPMENT IN THE NORTHERN GREAT PLAINS* 55 (2009) (proposing the creation of a network of private nature reserves in the Great Plains region).

²⁷³ *Id.* at 54.

²⁷⁴ *Id.* at 55.

²⁷⁵ *E.g.*, Karkkainen, *supra* note 111, at 14, 99-104; Keiter, *supra* note 110, at 304-05.

²⁷⁶ Keiter, *supra* note 110, at 306.

nature reserves protect isolated wetlands, but they can also serve as buffer areas to protected wetland complexes. Additionally, private nature reserves would offer enticing economic and non-economic incentives to landowners. Especially appealing to landowners would be the flexible nature of land use requirements in private nature reserves, which would allow them to benefit from the goods and services of the wetlands they would protect.

However, private nature reserves also have their drawbacks and government officials should not view them as an absolute replacement to existing wetland protection tools. Rather, they should supplement existing wetland protection programs. Regulators can overcome the drawbacks associated with private nature reserves through reforms to address shortcomings in the designation process, the required duration periods, and to ensure adequate monitoring and enforcement.

Existing private land conservation programs and laws, which directly and indirectly, contribute to wetland protection, as well as the public protected areas system, would provide a basis for the establishment of private nature reserves in the United States. Adopting private nature reserves through the creation of an independent program or integrating them into the public protected areas system would be the most plausible alternatives for adopting private nature reserves as a wetland protection tool. To work effectively, however, the government would need to increase its institutional capacity to monitor and manage private nature reserves. Additionally, government at the federal and state levels must cooperate to develop a functioning network of private nature reserves. The development of guidelines for the designation of reserves, as well as for the implementation of incentives would also require effective federal-state partnerships. Finally, designers should implement “core and buffer” design principles and “landscape-scale conservation” objectives to ensure that established private nature reserves achieve their conservation objectives.