

## EXTENDING WETLANDS PROTECTION UNDER THE RAMSAR TREATY'S WISE USE OBLIGATION

Beth L. Kruchek\*

### I. INTRODUCTION

The United States has an obligation under the Convention on Wetlands of International Importance Especially as Waterfowl Habitat (Ramsar Convention)<sup>1</sup> to promote the protection of wetland habitats within its borders. However, compliance with this international treaty is problematic since it remains unclear what specifically constitutes a “wetland” under domestic law. The current federal definition of a wetland is a source of controversy between legal and ecological scholars.<sup>2</sup> While academics have debated this topic in U.S. domestic literature, few sources have extended this issue to the realm of international law. The purpose of this Note is to analyze the current debate regarding the scope of the wetland definition from the perspective of the United States’ participation in the Ramsar Convention.

#### A. Difficulty in Establishing a Wetland Definition

Among the most important ecosystems on Earth,<sup>3</sup> wetlands make ecological contributions to the global environment by improving water quality, recharging aquifers, and functioning as storm buffers.<sup>4</sup> Wetlands also supply food

---

\* J.D. Candidate, University of Arizona James E. Rogers College of Law, 2003; Master of Science in Biological Sciences, University of Cincinnati, 1999; Bachelor of Science in Biology, University of Dayton, 1995; Bachelor of Arts in Spanish, University of Dayton, 1995. I would like to thank Emily Snow and Cathleen Dooley for their attentive edits as well as my family and friends for their continuous encouragement. Special thanks to my husband, Michael DeLong, for his unending support throughout all of my academic endeavors.

1. Convention on Wetlands of International Importance Especially as Waterfowl Habitat, *opened for signature* Feb. 2, 1971, T.I.A.S. No. 11084, 996 U.N.T.S. 245 [hereinafter Ramsar Convention].

2. See Alyson C. Flournoy, *Beyond the Balance of Nature: Environmental Law Faces the New Ecology: Preserving Dynamic Systems: Wetlands, Ecology and Law*, 7 DUKE ENVTL. L. & POL’Y F. 105 (1996); Jon Kusler, *Wetlands Delineation: An Issue of Science or Politics?*, 34 ENV’T 7 (1992).

3. William J. Mitsch & James G. Gosselink, *Wetlands* 3 (2d ed. 1993).

4. See NATURAL RESEARCH COUNCIL, *WETLANDS: CHARACTERISTICS AND BOUNDARIES* 34-35 (1995); Richard P. Novitzki, *Hydrologic Characteristics of Wisconsin’s Wetlands and Their Influence on Floods, Stream Flow, and Sediment*, in *WETLAND FUNCTIONS AND VALUES: THE STATE OF OUR UNDERSTANDING* 377-86 (Phillip E.

and habitat for a diversity of local and migratory animals.<sup>5</sup> Furthermore, these habitats provide global climatic stability by maintaining acceptable levels of available nitrogen, atmospheric sulfur, and carbon dioxide.<sup>6</sup>

Although wetlands provide ecological and economic benefits, defining wetlands, both in terms of legal jurisdiction and by ecological classification, has proven problematic.<sup>7</sup> As a result of periodic inundation by water, wetlands fall along a transitional zone between permanently wet aquatic ecosystems and dry terrestrial habitats.<sup>8</sup> As a result, wetland boundaries may expand or contract over time.<sup>9</sup> Consequently, wetlands are difficult to identify, which makes finding a definition that embraces both legal precision and accurate reflection of ecological parameters challenging.<sup>10</sup>

Despite this difficulty, legal measures to aid in the conservation of wetland habitat and sustainable use need to be ecologically sound in order for results to endure.<sup>11</sup> Establishing a precise definition of wetlands remains essential so that all relevant parties are informed of their rights and obligations.<sup>12</sup> Furthermore, consistency at the international level is needed to protect species conservation along political boundaries. Migratory species such as fish and waterfowl rely on the maintenance of wetland habitats along their migration routes.<sup>13</sup> As they migrate, they become subject to the jurisdiction of various

---

Greeson et al. eds., 1979); see also Hisashi Ogawa & James W. Male, *Simulating the Flood Mitigation Role of Wetlands*, 112 J. WATER RESOURCE PLAN. & MGMT. 114, 126 (1986).

5. See Bruce D.J. Batt et al., *The Use of Prairie Potholes by North American Ducks*, in NORTHERN PRAIRIE WETLANDS 206-08 (Arnold G. van der Valk ed., 1989).

6. Eville Gorham, *Northern Peatlands: Role in the Carbon Cycle and Probable Responses to Climatic Warming*, 1 ECOLOGICAL APPLICATIONS 182, 182 (1991); see D.M. Whitney et al., *The Cycles of Nitrogen and Phosphorus*, in THE ECOLOGY OF A SALT MARSH 163-81 (Lawrence R. Pomeroy & Richard G. Weigert eds., 1981). For a detailed list of wetland attributes, see The Ramsar Convention Bureau, *Background Papers on Wetland Values and Functions*, [http://www.ramsar.org/values\\_intro\\_e.htm](http://www.ramsar.org/values_intro_e.htm) (last visited May 1, 2003).

7. See MITSCH & GOSSELINK, *supra* note 3, at 23-24.

8. Frederick W. Cabbage et al., *Federal Legislation and Wetland Protection in Georgia: Legal Foundations, Classification Schemes, and Industry Implications*, 33 FOREST ECOLOGY & MGMT. 271, 277 (1990).

9. Donald M. Kent, *Definition, Classification, and U.S. Regulation*, in APPLIED WETLANDS SCIENCE AND TECHNOLOGY 2 (Donald M. Kent ed., 2d ed. 2001).

10. See generally Margaret N. Strand, *What is a Wetland and Why are We Still Asking?*, 13 PRACT. REAL EST. LAW. 59 (1997).

11. Sustainable use is generally defined as "the attempt to meet economic objectives in ways that do not degrade the underlying environmental support system." GARY K. MEFFE & C. RONALD CARROLL, *PRINCIPLES OF CONSERVATION BIOLOGY* 564 (1994).

12. See CLAIRE SHINE & CYRILLE DE KLEMM, *WETLANDS, WATER AND THE LAW: USING LAW TO ADVANCE WETLAND CONSERVATION AND WISE USE* 87-89 (1999).

13. See, e.g., A.J. Crivelli et al., *Effects on Fisheries and Waterbirds of Raising Water Levels at Kerkini Reservoir, a Ramsar Site in Northern Greece*, 19 ENVTL. MGMT.

nations.<sup>14</sup> If only one of these nations fail to take adequate conservation measures, it undermines the efforts of other nations involved.<sup>15</sup>

### **B. Introduction of the Issue: The Federal Wetland Definition and Ramsar's Wise Use Obligation**

The year 2002 marked the fifteenth anniversary of the ratification of the Ramsar Convention in the United States.<sup>16</sup> This event signals a timely opportunity to analyze the effects of this international treaty on the practical aspects of environmental law in the United States. The Note focuses on whether the current U.S. wetland definition complies with the wise use obligation set forth in the Ramsar Convention. This Note explores how the limited federal definition of a wetland does not comply with Ramsar's wise use obligation because it fails to protect the integrity of the wetland ecosystem. The first section of this Note provides background information on the Ramsar Convention, including the goals of Ramsar and the obligations the treaty requires of contracting countries. In addition, it describes U.S. federal wetland protection legislation, including the definition of wetlands and the procedures by which jurisdiction over wetlands are established. The second part of this Note explains how the federal definition fails to meet the Ramsar criteria by discussing ecological case studies that have found the definition inadequate to maintain the ecological character of a wetland habitat. This Note concludes by discussing remedies to the deficiency between the ecological definition and jurisdictional definition, which would bring the United States into compliance with the Ramsar Convention.

## **II. BACKGROUND**

### **A. History and Obligations of the Ramsar Convention**

The Convention on Wetlands of International Importance Especially as Waterfowl Habitat, the Ramsar Convention, is an international treaty that provides a framework for international cooperation regarding the conservation of wetland

---

431, 438-40 (1995); Susan M. Haig et al., *Avian Movements and Wetland Connectivity in Landscape Conservation*, 12 CONSERVATION BIOLOGY 749, 750-51 (1998).

14. E.g., SHINE & KLEMM, *supra* note 12, at 30; see also Brad L. Bacon, *Enforcement Mechanisms in International Wildlife Agreements and the United States: Wading Through the Murk*, 12 GEO. INT'L ENVTL. L. REV. 331, 341 (1999).

15. SHINE & KLEMM, *supra* note 12, at 30.

16. The United States became a member on December 18, 1986, when the U.S. Senate ratified and President Reagan signed the Instruments of Ratification. U.S. FISH AND WILDLIFE SERVICE, WETLANDS OF INTERNATIONAL IMPORTANCE: UNITED STATES PARTICIPATION IN THE "RAMSAR" CONVENTION 2 (1993).

habitats.<sup>17</sup> The Ramsar Convention served as the first global nature conservation convention, and it remains the only global convention to address the specific requirements of a single type of ecosystem.<sup>18</sup>

International action for wetland protection began in the 1960s when the International Union for Conservation of Nature (IUCN) established the Project MAR<sup>19</sup> for the conservation and management of wetlands.<sup>20</sup> Under this project, an international conference convened in November 1962.<sup>21</sup> The representatives at this conference created several resolutions including Recommendation IX, which included a list of wetlands of international importance; the document concluded by recommending that the identified wetlands form a foundation for an international convention on wetlands.<sup>22</sup> After eight years of conferences, technical meetings, and behind-the-scenes discussions, a convention text developed that was widely accepted in the political climate of the time.<sup>23</sup> This final draft served as the basis for the negotiations at the International Conference on the Conservation of Wetlands and Waterfowl in Ramsar, Iran.<sup>24</sup> The Conference concluded on February 2, 1971 with the adoption of the Ramsar Convention.<sup>25</sup>

The major objectives of the Ramsar Convention are to prevent the loss of wetlands and to ensure their conservation.<sup>26</sup> To meet these objectives, the Convention places four primary obligations on its member countries. First, each member must designate at least one wetland for the List of Wetlands of International Importance (the Ramsar List).<sup>27</sup> In conjunction with this provision, each member must promote the conservation of each wetland listed on the Ramsar List.<sup>28</sup> Second, all member countries must include wetland conservation

---

17. *Id.*

18. VEIT KOESTER, THE RAMSAR CONVENTION ON THE CONSERVATION OF WETLANDS: A LEGAL ANALYSIS OF THE ADOPTION AND IMPLEMENTATION OF THE CONVENTION IN DENMARK 3 (IFF Co. trans., Ramsar Convention Bureau, IUCN 1989).

19. MAR stands for the first three letters of the word used in four languages to refer to wetland habitat: marsh, marisma, marais, and maramma. SHINE & KLEMM, *supra* note 12, at 27 n.88.

20. *Id.* at 27.

21. GEOFFREY V.T. MATTHEWS, THE RAMSAR CONVENTION ON WETLANDS: ITS HISTORY AND DEVELOPMENT (1993), [http://ramsar.org/lib\\_hist\\_1.htm](http://ramsar.org/lib_hist_1.htm).

22. *Id.* at [http://ramsar.org/lib\\_hist\\_2.htm](http://ramsar.org/lib_hist_2.htm).

23. *Id.* at [http://ramsar.org/lib\\_hist\\_1.htm](http://ramsar.org/lib_hist_1.htm).

24. SHINE & KLEMM, *supra* note 12, at 28.

25. *Id.* The Convention went into effect on December 21, 1975, after the accession of its seventh country, Greece. *Id.*; U.S. FISH AND WILDLIFE SERVICE, *supra* note 16, at 2. For a link to the counties currently participating in the Ramsar Convention, including the wetland sites designated by each Member State, see [http://www.ramsar.org/index\\_list.htm](http://www.ramsar.org/index_list.htm) (last visited May 1, 2003).

26. U.S. FISH AND WILDLIFE SERVICE, *supra* note 16, at 2.

27. Ramsar Convention, *supra* note 1, art. 2.

28. *Id.* art. 3(1).

considerations in their natural resources planning processes and promote the wise use of the wetlands within their territory.<sup>29</sup> Third, the Ramsar Convention requires member states to establish nature reserves on wetlands within their borders.<sup>30</sup> Members are also expected to exchange information with one another about wetlands, to promote training in the field of wetland research, and to manage wetlands for the benefit of waterfowl.<sup>31</sup> Fourth, members must cooperate internationally, especially with regard to transboundary wetlands, shared water systems, shared species, and development projects affecting wetlands.<sup>32</sup>

Although the Convention provides fairly specific obligations for the protection of wetlands, the Convention defines wetlands rather broadly as “areas of marsh, fen, peatland or water, whether natural or artificial, permanent or temporary, with water that is static or flowing, fresh, brackish or salt, including areas of marine water depth of which at low tide does not exceed six meters.”<sup>33</sup> This definition captures a wide variety of wetland habitats including rivers, lakes, ponds, marshes, coastal areas, estuaries, bogs, and coral reefs.<sup>34</sup> Furthermore, this definition explicitly includes man-made wetlands such as canals, reservoirs, and aquaculture ponds.<sup>35</sup>

Because of its breadth, countries can adapt or modify this definition to fit their particular biogeographic conditions and develop more detailed classification systems as a basis for domestic legislation.<sup>36</sup> In addition, the Convention itself does not specify any particular measure for implementing the definition; member states, therefore, have discretion to choose the method.<sup>37</sup> As a result, many countries have developed more detailed classification systems as a basis for national wetland legislation and management programs than the Ramsar Convention required.<sup>38</sup> If a member state narrows the scope of the definition,

---

29. *Id.* art. 3(2).

30. *Id.* art. 4(1).

31. *Id.* art. 4(3)-(5).

32. *Id.* art. 5.

33. *Id.* art. 1(1).

34. W.E. Burhenne & D. Navid, *Preface* to KOESTER, *supra* note 18, at xi.

35. SHINE & KLEMM, *supra* note 12, at 4.

36. *Id.*

37. *See* KOESTER, *supra* note 18, at 21.

38. SHINE & KLEMM, *supra* note 12, at 88. Although over 50 separate definitions of wetlands are currently in use, Ramsar's definition is the broadest since it encompasses habitats as diverse as mangrove swamps, peat bogs, water meadows, coastal beaches, coastal waters, tidal flats, mountain lakes, and tropical river systems. The Director-General of IUCN has quipped that this very broad definition suggests that “only two Conventions are really needed to cover the conservation of all the habitats in the world—the Ramsar Convention dealing with any land that can be generally termed ‘wet’, and a Drylands Convention dealing with everything else . . . .” Michael Bowman, *The Ramsar Convention Comes of Age*, 42 NETH. INT'L L. REV. 1, § 3 (1995), [http://www.ramsar.org/key\\_law\\_bowman](http://www.ramsar.org/key_law_bowman).

policymakers should take appropriate measures to ensure compliance with the Ramsar obligation.<sup>39</sup>

## **B. Overview of United States Federal Wetland Legislation**

The primary basis for the U.S. federal regulation of wetland habitats derives from the Federal Water Pollution Control Act, commonly known as the Clean Water Act.<sup>40</sup> Section 404(a) of this Act grants the Army Corps of Engineers authority to control the discharge of dredged or fill material over the “waters of the United States.”<sup>41</sup> Although originally construed to grant the Corps authority over U.S. navigable waters, the courts have interpreted this legislation to encompass adjacent wetland habitats.<sup>42</sup>

The Corps has defined wetlands as “any area inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions.”<sup>43</sup> This definition encompasses most lakes, rivers, streams, impoundments, sloughs, prairie potholes, wet meadows, and ponds that have interstate or foreign commerce connections.<sup>44</sup> Thus, most wetland areas fall into the domain of federal regulatory oversight.<sup>45</sup>

The Federal Manual for Identifying and Delineating Jurisdictional Wetlands dictates the procedure for determining a jurisdictional wetland.<sup>46</sup> From this Manual stem three delineation criteria: (1) hydric soil, (2) hydrologic conditions associated with flooding, and (3) hydrophytic vegetation.<sup>47</sup> Hydric soil is a soil that is saturated, flooded, or ponded long enough during the growing season to develop anaerobic conditions.<sup>48</sup> Hydrology exists when the habitat is

---

39. SHINE & KLEMM, *supra* note 12, at 88.

40. Mark A. Chertok, *Federal Regulation of Wetlands*, SE98 A.L.I.-A.B.A. 715, 719 (2000).

41. Federal Water Pollution Control Act, 33 U.S.C. § 1344 (2000).

42. *See* United States v. Riverside Bayview Homes, Inc., 474 U.S. 121, 131 (1985).

43. Definition of Waters of the United States, 33 C.F.R. § 328.3(b) (2002).

44. JOHN GRIMSON LYON, PRACTICAL HANDBOOK FOR WETLAND IDENTIFICATION AND DELINEATION 13 (1993).

45. *See id.* However, the Corps’ jurisdiction over wetland habitats is limited to those wetlands that are adjacent to U.S. navigable waters. This jurisdiction does not extend to seasonal ponds and wetlands that lie entirely within one state’s borders and are not adjacent to any navigable streams. *Solid Waste Agency of N. Cook County v. U.S. Army Corps of Eng’rs*, 531 U.S. 159, 171-72 (2001).

46. LYON, *supra* note 44, at 15.

47. ENVIRONMENTAL LABORATORY, CORPS OF ENGINEERS WETLAND DELINEATION MANUAL § 26(b) (1987), available at <http://www.wetlands.com/regs/tlpge02e.htm> (last visited May 1, 2003).

48. Carl E. Tammi, *Wetland Identification and Delineation*, in APPLIED WETLANDS SCIENCE AND TECHNOLOGY, *supra* note 9, at 39. Hydric soils can be identified by

flooded for a specified percentage of the growing season.<sup>49</sup> Factors relevant to determining the presence of hydrophytic vegetation include whether more than fifty percent of the dominant species are obligate wetland plants, facultative wetland plants, or facultative plants.<sup>50</sup> An area is considered a jurisdictional wetland only if all three criteria are met.<sup>51</sup>

### III. ANALYSIS

#### **A. The Wise Use Concept of the Ramsar Convention**

The wise use concept<sup>52</sup> first appeared at the Third Meeting of the Conference of the Contracting Parties held in Regina, Canada, in 1987 as “the sustainable utilization of wetlands for [the] benefit of humankind in a way compatible with the maintenance of the natural properties of the ecosystem.”<sup>53</sup> The conference noted that sustainable utilization includes “human use of a wetland so that it may yield the greatest continuous benefit to present generations while maintaining its potential to meet the needs and aspirations of future generations.”<sup>54</sup> The conference defined natural properties of the wetland ecosystem as “those physical, biological or chemical components, such as soil,

---

comparing the color of the soil at relevant depths to established soil color charts. Chertok, *supra* note 40, at 724.

49. Indicators for this characteristic include (a) water observed on the area for seven or more consecutive days during the growing-season, (b) soil is waterlogged, (c) water marks present on trees or other upright objects, (d) drift lines are present (small piles of debris oriented in the direction of water movement), (e) debris lodged in trees or piled against other objects, and (f) thin layer of sediments deposited on leaves or other objects. Cabbage et al., *supra* note 8, at 283-84.

50. The Fish and Wildlife Service has compiled a national Wetland Plant List, which characterizes species based on whether their presence reflects wetland conditions. Chertok, *supra* note 40, at 724. Obligate species are found in wetlands more than 99% of the time. Facultative wetland species occur in wetlands between 67% and 99% of the time. Facultative plants have 33% to 67% chance of occurring in either wetlands or nearby uplands. *Id.* at 724 n.39.

51. LYON, *supra* note 44, at 15. *But see* Cabbage et al., *supra* note 8, at 284 (noting that an ongoing debate exists among the various regulatory agencies as to whether wetlands must possess all three delineating characteristics).

52. The Ramsar Convention Bureau specifically notes that the wise use principle inscribed in Article 3.1 of the Convention evolved completely independently from the “so-called wise use movement” that has emerged in North America in recent years. The Ramsar Convention Bureau, *The Wise Use Resource Centre*, [http://www.ramsar.org/wurc\\_index.htm](http://www.ramsar.org/wurc_index.htm) (last visited May 1, 2003).

53. Third Meeting of the Conference of the Contracting Parties, Regina, Canada, *Recommendation 3.3 on Wise Use of Wetlands*, Annex to the Regina Recommendations (May 27-June 5, 1987), [http://www.ramsar.org/key\\_rec\\_3.3.htm](http://www.ramsar.org/key_rec_3.3.htm).

54. *Id.*

water, plants, animals and nutrients, and the interactions between them.”<sup>55</sup> Essentially, the wise use concept provides that individuals may utilize the natural productivity and biodiversity at a site as long as the basic ecological functioning of the wetland is not disturbed.<sup>56</sup>

In the Convention’s first years, attention focused mainly upon the designation of sites on to the Ramsar List.<sup>57</sup> Nevertheless, in recent years the essential need to integrate conservation and development has garnered recognition throughout the world in light of the growing realization that conservation of listed sites cannot take place in a vacuum; sites remain affected by decisions taken outside their boundaries.<sup>58</sup> As a result, member states have made wise use a priority and the wise use concept has now achieved recognition as a fundamental part of wetland conservation and the implementation of sound wetland management strategies.<sup>59</sup>

### **B. Development of the Wise Use Concept to Promote Ecological Integrity**

Recommendation VII of the initial MAR Conference in 1962, one of the earliest provisions of the Ramsar Convention, called for a link between environment and development by providing that “those bodies responsible for wetland reserves establish management plans based on ecological studies and experience.”<sup>60</sup> This ecological component was later imported to the Ramsar Convention in 1971 through Article 3.1, which called upon the member states to “formulate and implement their planning so as to promote the conservation of the wetlands included in the List, and as far as possible the wise use of wetlands in

---

55. *Id.* The Conference did not formally adopt these definitions, but simply recommended that Member States do so. CYRILLE DE KLEMM & ISABELLE CRÉTEAUX, *THE LEGAL DEVELOPMENT OF THE RAMSAR CONVENTION ON WETLANDS OF INTERNATIONAL IMPORTANCE ESPECIALLY AS WATERFOWL HABITAT* (2 FEBRUARY 1971) ch. II, § 1 (1995), [http://www.ramsar.org/lib\\_legal\\_e\\_2.htm](http://www.ramsar.org/lib_legal_e_2.htm) (last visited May 1, 2003).

56. Michael Smart, *The Ramsar Convention: Its Role in Conservation and Wise Use of Wetland Biodiversity*, in *WETLANDS, BIODIVERSITY AND THE RAMSAR CONVENTION: THE ROLE OF THE CONVENTION ON WETLANDS IN THE CONSERVATION AND WISE USE OF BIODIVERSITY* (A.J. Hails ed., 1996), [http://www.ramsar.org/lib\\_bio\\_3.htm](http://www.ramsar.org/lib_bio_3.htm) [hereinafter *WETLANDS, BIODIVERSITY AND THE RAMSAR CONVENTION*].

57. Michael Smart & Kees J. Canters, *Ramsar Participation and Wise Use*, 20 *LANDSCAPE & URB. PLAN.* 269, 270 (1991).

58. See Fifth Meeting of the Conference of the Contracting Parties, Kushiro, Japan, *Resolution 5.6 on Wise Use of Wetlands: Additional Guidance for the Implementation of the Wise Use Concept*, Annex § 1 (June 9-16, 1993), [http://www.ramsar.org/key\\_add\\_guide.htm](http://www.ramsar.org/key_add_guide.htm).

59. E. Maltby, *Wetland Management Goals: Wise Use and Conservation*, 20 *LANDSCAPE & URB. PLAN.* 9, 12 (1991).

60. MATTHEWS, *supra* note 21, [http://ramsar.org/lib\\_hist\\_4.htm](http://ramsar.org/lib_hist_4.htm).



their territory.”<sup>61</sup> However, the concept of wise use was never defined in the original text.<sup>62</sup> Thus, wise use existed as an obscure obligation, which the treaty failed to articulate for its members.<sup>63</sup>

In order to clarify the meaning of wise use, the First meeting of the Conference of the Contracting Parties, organized in Cagliari, Italy in November 1980, approved Recommendation 1.5, which provided, “wise use of wetlands involves maintenance of their ecological character, as a basis not only for nature conservation, but for sustainable development.”<sup>64</sup> However, not until the Third meeting of the conference in Regina, Canada in June 1987, did the parties adopt a definition of wise use and a set of guidelines on implementation of the wise use concept in domestic laws.<sup>65</sup> Furthermore, the members established a Wise Use Working Group, whose tasks were “to examine the ways in which the criteria and guidelines for identifying wetlands of international importance might be elaborated, and the wise use provisions of the Convention applied, in order to improve the worldwide application of the Convention.”<sup>66</sup> This Working Group produced a report on criteria and proposed a more detailed draft of guidelines on wise use.<sup>67</sup> The Fourth meeting of the conference at Montreux, Switzerland in July 1990, adopted the “Guidelines for Implementation of the Wise Use Concept of the Convention” contained in the Working Group’s report.<sup>68</sup>

---

61. Ramsar Convention, *supra* note 1, art. 3.1.

62. The duty was to neither secure nor guarantee wise use but only to promote it, and then only as far as possible. Bowman, *supra* note 38, § 5.

63. In regard to the original wise use component, Michael Bowman states, “[i]t is legitimate to speculate whether it would have been possible to frame a treaty obligation in more vague or vacuous terms, and it is indeed debatable whether such words should be regarded as having created any legal obligation at all . . . .” *Id.*

64. First Meeting of the Conference of the Contracting Parties, Cagliari, Italy, *Recommendation 1.5: National Wetland Inventories* (Nov. 24-29, 1980), [http://www.ramsar.org/key\\_rec\\_1.5.htm](http://www.ramsar.org/key_rec_1.5.htm).

65. Third Meeting of the Conference of the Contracting Parties, Regina, Canada, *Recommendation 3.1: Criteria for Identifying Wetlands of International Importance and Guidelines for Their Use* (May 27-June 5, 1987), [http://www.ramsar.org/key\\_rec\\_3.1.htm](http://www.ramsar.org/key_rec_3.1.htm).

66. *Id.*

67. Hervé Lethier, *In Pursuit of the Wise Use of Wetlands*, in *TOWARDS THE WISE USE OF WETLANDS: REPORT OF THE RAMSAR CONVENTION WISE USE PROJECT* (T.J. Davis ed., 1993), [http://www.ramsar.org/lib\\_wise\\_2.htm](http://www.ramsar.org/lib_wise_2.htm) [hereinafter *TOWARDS THE WISE USE OF WETLANDS*].

68. Fourth Meeting of the Conference of the Contracting Parties, Montreux, Switzerland, *Recommendation 4.10: Guidelines for the Implementation of the Wise Use Concept* (June 27-July 4, 1990), [http://www.ramsar.org/key\\_wiseuse.htm](http://www.ramsar.org/key_wiseuse.htm). “These wise use guidelines call for the establishment of national wetland policies covering all problems and activities related to wetlands, including institutional and organizational arrangements, legislative and government policies, increasing knowledge and awareness of wetlands and a review of wetland priorities in a national context.” Lethier, *supra* note 67.

After the Montreux conference, the Netherlands commissioned the Ramsar Bureau to carry out a three-year project designed to study the wise use of wetlands from ongoing experiments in developing countries.<sup>69</sup> These countries were selected so as to ensure the widest possible geographical representation in different socio-economic contexts.<sup>70</sup> Ultimately, more than forty countries took part in the evaluation of the case studies.<sup>71</sup> In addition, several countries complemented the project with case studies drawn from their own experience.<sup>72</sup> These case studies detail the most efficient methods of reaching sustainable utilization of wetland resources while simultaneously respecting the natural functions of the ecosystems.<sup>73</sup>

### **C. Case Studies to Establish the Elements Required to Meet the Wise Use Obligation**

The wise use concept combines conservation of an ecosystem's natural values and resources with its sustainable utilization.<sup>74</sup> This concept also demonstrates the need for assessment measures regarding the state of the ecosystem, which should be followed by the implementation of wise use principles.<sup>75</sup> Many rural economies in Africa and Southeast Asia depend on the utilization of wetlands.<sup>76</sup> Accordingly, precluding all activity from every wetland system serves neither practicable nor desirable ends; policymakers need to develop and promote mechanisms for sustainable utilization of wetlands along with the conservation wetland resources.

Recent case studies demonstrate several approaches of developing sustainable management for local wetlands. For example, the Manu biosphere reserve in Peru utilizes a river basin approach, which comprises the entire Manu river basin and part of the Madre de Dios River basin.<sup>77</sup> The total area of the reserve is 1,881,200 hectares, most of which constitutes the Manu National Park.<sup>78</sup>

---

69. Lethier, *supra* note 67.

70. *Id.*

71. *Id.*

72. These countries include Australia, Canada, Denmark, France, Germany, Hungary, the Netherlands, United States, and the Commission of the European Communities. *Id.*

73. See Patrick J. Dugan, *Distilling Lessons from the Case Studies*, in TOWARDS THE WISE USE OF WETLANDS, *supra* note 67, [http://www.ramsar.org/lib\\_wise\\_21.htm](http://www.ramsar.org/lib_wise_21.htm).

74. Wise use will generally require identification of wetland functions and values, integration of compatible uses where possible, separation of incompatible uses, zoning and environmental planning, catchment management, and appropriate employment/social/economic strategies to relieve the ecosystem of damaging human pressures. Maltby, *supra* note 59, at 13.

75. Dugan, *supra* note 73.

76. G.E. Hollis et al., *Wise Use of Wetlands*, 24 NATURE & RESOURCES 2, 8 (1988).

77. *Id.* at 10.

78. *Id.*

This area also includes a 257,000-hectare area as a buffer zone.<sup>79</sup> Because the Manu reserve encompasses the entire river basin, this plan guarantees the maintenance of good water quality in the river and protects the biological and genetic diversity of the area.<sup>80</sup> Similarly, the local management plan of Panbros lagoon in Ghana has also advocated extending the wetland regulations to adjacent areas.<sup>81</sup> The proposed regulations are single function rules in which control could be exercised over the water level in the lagoon for the benefit of salt extraction, fish production, and wildlife.<sup>82</sup> Furthermore, by expanding this water level management plan to include the reservoir surrounding the lagoon, supplies of rice and fish would permanently increase.<sup>83</sup> This proposal would protect the ecology of the local species as well as develop the economy of the villages surrounding the lagoon.<sup>84</sup> Therefore, extending the regulations to a greater area of the watershed to obtain wise use of the lagoon would also protect the ecological integrity of the site.

While the above examples demonstrate the amount of land needed to maintain ecological integrity in an undeveloped ecosystem, the Wadden Sea provides an excellent example of a wise use plan required to recover the ecological function of a watershed impacted by three developed nations.<sup>85</sup> The Wadden Sea is a marine wetland area that borders on Denmark, Germany, and the Netherlands.<sup>86</sup> Although traditionally used for farming, fishing, and hunting, the Wadden Sea is adjacent to one of the most populated and industrialized areas of Europe.<sup>87</sup> As a result, an increase in recreational and commercial activities has had a “substantial impact on the ecosystems of both the Wadden Sea and its adjacent areas.”<sup>88</sup>

In order to protect the Wadden Sea, the quality of the ecosystem needs significant improvement so that its natural potential can be restored and maintained.<sup>89</sup> Until recently, the policies regarding the Wadden Sea have primarily focused on the conservation of “actual values” of parts of the ecosystem such as protecting seals and birds.<sup>90</sup> These policies, however, do not sustain the value of the whole system.<sup>91</sup> Therefore, as part of the recovery management plan,

---

79. *Id.*

80. *Id.*

81. *Id.* at 11.

82. *Id.*

83. *Id.*

84. *Id.*

85. Jens A. Enemark, *Wise Use of the Wadden Sea*, in TOWARDS THE WISE USE OF WETLANDS, *supra* note 67, [http://www.ramsar.org/lib\\_wise\\_5.htm](http://www.ramsar.org/lib_wise_5.htm).

86. *Id.*

87. *Id.*

88. *Id.*

89. *Id.*

90. *Id.*

91. *Id.*

the responsible authorities in these three countries have made a large part of the Wadden Sea a protected area, nature reserve, or national park.<sup>92</sup> To protect sensitive areas for birds and seals, these authorities also established zones where recreational activities such as jet-skiing and boating are forbidden.<sup>93</sup> Buffer zones adjacent to the wetland habitat were also created in order to better regulate activities that occur outside the Wadden Sea but still impact the ecosystem.<sup>94</sup> Researchers hope that these measures will restore the natural properties of the Wadden Sea.<sup>95</sup> This restoration would promote the biological integrity needed to comply with the wise use concept of the Ramsar Convention.

The above case studies provide insight into the area needed to maintain natural functions of wetland ecosystems. In each of these studies, researchers used differing approaches to determine the amount of land needed for sustainable utilization and the wise use objective. However, each study ultimately concluded that wetland areas require not only the traditional wetland, but also a large amount of the watershed as well as a buffer habitat.<sup>96</sup> These results verify that the components that support a wetland often originate outside its boundary, thus requiring appropriate conservation measures beyond the border of the wetland.<sup>97</sup>

#### **D. Scientific Studies Demonstrating the Disparity Between Jurisdictional and Ecological Wetlands**

For the past few decades, results of ecological studies have suggested that the jurisdictional wetland of the United States may fail to protect certain wetland species. Recent studies have shown that some wetland dependant animals have specific needs that can only be met in the adjacent upland habitat. For example, ecologists have long understood that both reptile and amphibian species use the upland habitat to complete their life cycles and maintain viable populations.<sup>98</sup> Mud snakes, although an aquatic reptilian species, first lay their

---

92. *Id.* In addition, there have also been restrictions of fishing, hunting, and use of fertilizers and pesticides. *Id.*

93. *Id.*

94. *Id.*

95. *See id.*

96. *Id.*; Hollis, *supra* note 76, at 10-11.

97. *Cf.* Eighth Meeting of the Conference of the Contracting Parties, Valencia, Spain, *Resolution VIII.1: Guidelines for the Allocation and Management of Water for Maintaining the Ecological Functions of Wetlands*, ¶ 2 (Nov. 18-26, 2002), [http://www.ramsar.org/key\\_res\\_viii\\_01\\_e.htm](http://www.ramsar.org/key_res_viii_01_e.htm) (noting that because of the interconnectedness of the hydrological cycle, impacts on wetlands can be caused by human activities both within the wetland boundaries as well as among the wider catchment).

98. *See* Raymond D. Semlitsch, *Biological Delineation of Terrestrial Buffer Zones for Pond-Breeding Salamanders*, 12 CONSERVATION BIOLOGY 1113, 1114 (1998).

eggs in a nest in upland habitats.<sup>99</sup> Newts<sup>100</sup> and salamanders<sup>101</sup> also use the upland habitat for seasonal migration. Furthermore, freshwater turtles<sup>102</sup> and adult leopard frogs<sup>103</sup> utilize the upland as a refuge to avoid predators and heavy rains.

In addition, ecologists have long recognized that land adjacent to areas managed for waterfowl play a major role in the entire management scheme.<sup>104</sup> Black ducks nest in areas immediately adjacent to wetlands, including up to 1.2 kilometers from the edge of the wetland.<sup>105</sup> In addition, Gadwells and Canadian geese typically nest in drier shoreline areas within 30.5 meters of the water's edge.<sup>106</sup> Furthermore, species such as wood ducks, great blue herons, pileated woodpeckers, and ospreys require large trees for nesting.<sup>107</sup> These studies indicate that species diversity, abundance, and breeding numbers were negatively correlated to loss of upland habitat.<sup>108</sup> Preliminary ecological conclusions derived from these studies infer that the U.S. wetland definition failed to protect habitats needed by these wetland species.

Most recently, wetland scientists have determined that federal U.S. wetland protection laws fail to consider the total terrestrial needs of wetland species when delineating wetland habitats. A recent case study involved freshwater turtles in a South Carolina bay and their dependence on the upland

---

99. Raymond D. Semlitsch, *Annual Emergence of Juvenile Mud Snakes (Faranicia abacura) at Aquatic Habitats*, 1988 COPEIA 243, 244.

100. D.E. Gill, *The Metapopulation Ecology of the Red-Spotted Newt, Notophthalmus viridescens (Rafinesque)*, 48 ECOLOGICAL MONOGRAPHS 145, 149 (1978).

101. Raymond D. Semlitsch, *Terrestrial Activities and Summer Home Range of the Mole Salamander (Ambystoma tadpoideum)*, 59 CANADIAN J. ZOOLOGY 315, 320-21 (1981).

102. D.H. Bennett et al., *Terrestrial Activity in Aquatic Turtles*, 51 ECOLOGY 738, 740 (1970).

103. J.W. Dole, *Summer Movements of Adult Leopard Frogs, Rana pipiens (Schreber), in Northern Michigan*, 46 ECOLOGY 236, 253 (1965).

104. Robert Buchsbaum, *Coastal Marsh Management*, in APPLIED WETLANDS SCIENCE AND TECHNOLOGY, *supra* note 9, at 342 (citing R.E. KIRBY, U.S. FISH AND WILDLIFE SERV. BIOLOGICAL REP., AMERICAN BLACK DUCK BREEDING HABITAT ENHANCEMENT IN THE NORTHEASTERN UNITED STATES: A REVIEW AND SYNTHESIS 88(4) (1988)).

105. Ideal nesting habitat for black ducks includes an area that is heavily vegetated on at least one side in order to provide a refuge from predators. *Id.*

106. *Id.* (citing R.M. DEGRAAF & D.D. RUDIS, U.S. DEP'T. OF AGRIC. & FOREST SERV., NEW ENGLAND WILDLIFE: HABITAT, NATURAL HISTORY AND DISTRIBUTION Technical Rep. NE-108 (1986)).

107. A.J. Castelle et al., *Wetland and Stream Buffer Size Requirements—A Review*, 23 J. ENVTL. QUALITY 878, 880 (1994).

108. *Cf. id.* at 880 (citing D.A. Milligan, *The Ecology of Avian Use of Urban Freshwater Wetlands in King County, Washington* (1985) (unpublished M.S. thesis, University of Washington, Seattle)).

habitat.<sup>109</sup> These turtles spend the majority of their lives in the federally protected wetland habitat.<sup>110</sup> However, the turtles emigrate to the unprotected upland habitat in order to nest and hibernate underground.<sup>111</sup> Hence, freshwater turtles require both the jurisdictional wetland and the adjacent upland habitat for the successful completion of their life cycles.<sup>112</sup> The study indicated that protecting 100% of the nest and hibernating sites required at least a 275-meter buffer zone from the jurisdictional wetland boundary.<sup>113</sup> Because the federal wetlands definition protects only the jurisdictional wetland, and does not encompass a buffer zone, it fails to protect these animals during an integral part of their life cycle.

Moreover, a recent case study demonstrates the inability of wetland laws to adequately protect small mammal species.<sup>114</sup> The rice rat is a small rodent that primarily inhabits coastal marsh wetlands.<sup>115</sup> However, high tides caused by seasonal storms constantly inundate these habitats with water.<sup>116</sup> During coastal floods, these mammals seek refuge from the high tide in the upland habitat.<sup>117</sup> Because these floods occur periodically, upland habitats are crucial for the survival of this species in tidally influenced ecosystems.<sup>118</sup> These mammals also use the upland vegetation as a food source during the winter months.<sup>119</sup> Therefore, these mammals depend on the adjacent, unprotected habitat for their survival.<sup>120</sup>

In addition to failing to protect certain wetland species, the U.S. wetland definition also fails to protect the ecosystem from the negative effects of losing these animals. For example, small mammals play a vital role in the food chain. As primary consumers,<sup>121</sup> their diet includes fruit and seeds from the wetland and

---

109. See Vincent J. Burke & J. Whitfield Gibbons, *Terrestrial Buffer Zones and Wetland Conservation: A Case Study of Freshwater Turtles in a Carolina Bay*, 9 CONSERVATION BIOLOGY 1365 (1995).

110. *See id.* at 1367-68.

111. *Id.* at 1367.

112. *See id.*

113. *Id.* at 1365, 1368.

114. Beth L. Kruchek, *Function of Upland Habitat in Tidal Saltmarsh for the Small Mammal *Oryzomys palustris** (1999) (unpublished M.S. thesis, University of Cincinnati) (on file with the University of Cincinnati Library).

115. James L. Wolfe, *Oryzomys palustris*, 176 MAMMALIAN SPECIES 1, 2 (1982).

116. James L. Wolfe, *Environmental Influences in the Distribution of Rice Rats (*Oryzomys palustris*) in Coastal Marshes*, 53 FLA. SCIENTIST 81, 81 (1990).

117. Kruchek, *supra* note 114, at 26.

118. *Id.* at 27.

119. *Id.* at 28.

120. *Id.* at 34.

121. The food chain begins at the level of producers. These producers, usually plants, have the ability to create their own food through photosynthesis. Primary consumers feed from these plants or their products such as seeds, leaves, and flowers. Secondary

upland plants.<sup>122</sup> By consuming these plants, small mammals aid in the dispersal of these seeds and help to maintain the vegetative composition of the wetlands.<sup>123</sup> In turn, these mammals serve as prey for migratory birds, barn owls, and hawks who consume these animals as part of their diet.<sup>124</sup> The presence of these mammals also influence the distribution of avian species that inhabit wetland areas.<sup>125</sup> Therefore, the loss of this single species affects the community structure as well as the biological integrity of the wetland.

Moreover, the current wetland definition may exclude entire ecosystems from federal protection. Riparian<sup>126</sup> areas often display functional characteristics similar to wetlands, but they may not receive protection under the Clean Water Act unless the area meets the three delineation criteria set forth in the 1987 Federal Manual.<sup>127</sup> In many instances, the wetland indicators are not available for non-marsh habitat.<sup>128</sup> It has been noted that “[p]lants did not evolve to become indicator species; this designation is a human attempt to use plants to designate wetlands.”<sup>129</sup> Because these classifications were made to delineate traditional marsh habitat, this method does not adequately protect other habitats with wetland characteristics.

Results from a case study reveal that the wetland delineation process does not protect certain riparian habitat or its functional value. The Piedmont region of South Carolina consists of approximately 80,000 hectares of bottomland forest.<sup>130</sup> Because this area provides a natural connection to woodland habitats, this bottomland habitat functions as a wildlife corridor by providing a protective passage for migratory animals.<sup>131</sup> Although the study site contains hydrology consistent with the Army Corps’ wetland definition, only a small portion of the

---

consumers, in turn, feed on the primary consumers. *See generally* NEIL A. CAMPBELL, BIOLOGY 1145-48 (4th ed. 1996).

122. W. Bradley Kincaid & Guy N. Cameron, *Dietary Variation in Three Sympatric Rodents on the Texas Coastal Prairie*, 63 J. MAMMALOGY 668, 670 (1982).

123. *Cf.* CHARLES J. KREBS, ECOLOGY 319 (4th ed. 1994).

124. *See* Wolfe, *supra* note 115, at 2-3. These predators may also include other wetland species such as snakes and raccoons prey. *Id.*

125. William Post, *The Influence of Rice Rats Oryzomys palustris on the Habitat Use of the Seaside Sparrow Ammospiza maritima*, 9 BEHAV. ECOLOGY & SOCIOBIOLOGY 35, 39(1981).

126. Riparian is defined as: referring to the streamside; the land bordering streams. GERALD A. COLE, TEXTBOOK OF LIMNOLOGY 374 (3d ed. 1988).

127. D.D. Hook et al., *Hydrologic and Wetland Characteristics of a Piedmont Bottom in South Carolina*, 77 WATER, AIR & SOIL POLLUTION 293, 293 (1994).

128. R.W. Tiner, *The Concept of a Hydrophyte for Wetland Identification*, 41 BIOSCIENCE 236, 241 (1991).

129. *Id.*

130. Hook et al., *supra* note 127, at 293. Bottomlands are floodplains that are adjacent to streams that receive frequent overbank flooding and support vegetation typically adapted to live in saturated soil. *See id.*

131. *Id.* at 317.

area had hydric soil characteristics.<sup>132</sup> In addition, the vegetation requirements were not met; therefore, only a small area of the forest constituted a jurisdictional wetland.<sup>133</sup> Conclusions from the case study indicate that if only the jurisdictional wetland area of the habitat remain protected, the corridor area would not be sufficient to connect the adjacent woodlands.<sup>134</sup> Thus, adhering to the limited federal wetland definition greatly reduces the value of the bottomland both as a natural habitat and as a wildlife corridor.

Finally, the adjacent upland habitat provides distinct services that help to maintain the biological integrity of the adjacent wetland habitat. One such service includes the modernization of water temperature.<sup>135</sup> Forested uplands adjacent to wetlands provide cover, thereby helping to maintain cooler water temperatures in summer and warmer water temperatures in winter.<sup>136</sup> Without this coverage, aquatic resources suffer exposure to higher levels of light, temperature, and invasive species.<sup>137</sup> In addition, the upland protects the wetlands from the impact of humans by limiting their direct access and by reducing the noise, light, odor, and debris from nearby human developments.<sup>138</sup> Without this protection, these disruptions often lead to a reduction in wetland and stream function.<sup>139</sup>

The case studies above demonstrate the importance of the interconnection between terrestrial and aquatic habitat in the maintenance of wetland viability. Thus, for each of these case studies, the Army Corps of Engineers' definition of a wetland falls short ecologically because it fails to protect the habitat needed by these animals. Because the U.S. definition of a wetland does not espouse the ecological integrity of the habitat, the United States has failed to meet its wise use obligation under the Ramsar Convention.

#### IV. IMPLICATIONS

##### **A. Enforceability of the Ramsar Treaty Against the United States**

The United States is in violation of the wise use obligation of the Ramsar Convention. Because U.S. policymakers failed to gather and consider scientific

---

132. *Id.* at 318.

133. *Id.* at 311.

134. *Id.* at 317-18.

135. Castelle et al., *supra* note 107, at 880.

136. *See, e.g., id.* (citing J.R. Brazier & G.W. Brown, FOREST RESEARCH LAB, UNIV. OF OR., BUFFER STRIPS FOR STEAM TEMPERATURE CONTROL Res. Pap. 15 (1973)).

137. *See id.* (citing R.L. Beschta et al., *Stream Temperatures and Aquatic Habitat: Fisheries and Forestry Interactions*, in STREAMSIDE MANAGEMENT: FORESTRY AND FISHERY INTERACTIONS 157 (E.O. Salo & T.W. Cundy eds., 1986)).

138. *Id.* at 880-81.

139. *Id.* at 881. Uplands that extend 15 to 30 meters from the wetland have generally been found to maintain the natural characteristics of aquatic resources. *Id.*



evidence, a critical breakdown in communication with scientific and political communities has occurred. Consequently, the current wetland definition fails to protect the animals that use the wetland, and, therefore, the legislation does not protect the ecological character of the habitat. As a result, the United States may be subject to penalty for breach of the Ramsar Convention.<sup>140</sup>

Nevertheless, the Ramsar treaty has received criticism for its lack of compliance and enforcement provisions.<sup>141</sup> Because conservation treaties involve many countries, they reflect the compromises necessary to accommodate widely disparate political systems and priorities.<sup>142</sup> International treaties, therefore, generally prove weaker than national laws because no country can be bound without its consent.<sup>143</sup> Moreover, no effective legal method for enforcing international treaties exists.<sup>144</sup> Recourse to international arbitration or to the International Court of Justice at The Hague requires agreement from the member state accused of a transgression.<sup>145</sup> However, rulings from this Court remain difficult to enforce.<sup>146</sup>

Furthermore, the recommendations and resolutions passed by the member states at the Conferences are “soft law.”<sup>147</sup> Consequently, although these publications explain, amplify, or supplement the provisions of the Convention, the members may ignore the recommendations.<sup>148</sup> Thus, countries have a moral compulsion, rather than a legal obligation to uphold the Convention.<sup>149</sup> While these recommendations and resolutions may achieve a binding effect over time, a member state can disregard the recommendations of the Convention.<sup>150</sup> For this reason, the commitment to promote wise use will likely remain rhetorical or operationally ineffective unless each country translates this broad concept into detailed legislation.<sup>151</sup>

As a consequence, the United States has retained its own long-standing wetland definition that remains enshrined in legislation and wetland policy. The United States has one of the most complex yet limited wetland definitions of any contracting party to the Ramsar Convention. Because the Ramsar Convention

---

140. See Bacon, *supra* note 14, at 333.

141. *Id.* at 359-60; Cherly Jamieson, *An Analysis of Municipal Wetland Laws and Their Relationship to the Convention of Wetlands of International Importance Especially as Waterfowl Habitat (Ramsar)*, 4 PACE ENVTL. L. REV. 177, 210-16 (1986).

142. See EDITH BROWN WEISS ET AL., INTERNATIONAL ENVIRONMENTAL LAW AND POLICY 182-83 (1998).

143. See *id.* at 181-82, 182 n.5.

144. *Id.* at 221-23.

145. *Id.* at 213.

146. See *id.* at 215, 221-23.

147. KOESTER, *supra* note 18, at 8.

148. *Id.* at 8 n.7.

149. Bacon, *supra* note 14, at 361.

150. WEISS ET AL., *supra* note 142, at 190.

151. SHINE & KLEMM, *supra* note 12, at 42.

lacks a means necessary for enforcing its obligations, the definition will likely not be changed in an effort to accommodate either scientists or environmentalists. Nevertheless, other solutions exist making it possible for the United States to temporarily maintain its limited definition while simultaneously complying with the wise use obligation of the Ramsar Convention.

## **B. Available Options for the United States to Meet the Wise Use Obligation**

Convention treaties tend to be aspirational and create broad obligations without reference to possible constraints or obstacles to implementation.<sup>152</sup> In response, the Regina Conference established a Working Group on Criteria and Wise Use charged with examining how to apply the wise use provisions of the Ramsar Convention.<sup>153</sup> This Working Group established guidelines that provided member states three actions to help implement the wise use concept into their national policies: (1) establishment of national wetland policies and review of the laws of the member state; (2) priority actions at a national level; and (3) priority actions at specific wetland sites.<sup>154</sup>

### 1. National Wetland Policies and Review of United States Law

Wetlands are seldom explicitly covered at a national level.<sup>155</sup> Development of an exclusive or “stand alone” wetland policy statement can focus actions on specific wetland problems.<sup>156</sup> Resolution VII.6 of the Ramsar Guidelines recommends that member states create unique wetland policies.<sup>157</sup> This action would recognize wetlands as distinct ecosystems that require specific approaches to their management and conservation.<sup>158</sup>

A National Wetland Policy would provide a framework to determine what actions are required and what end result is expected.<sup>159</sup> This Policy should, as far as possible, address a wide range of problems and activities related to

---

152. *Id.* at 59.

153. Smart & Canters, *supra* note 57, at 270.

154. *Id.*

155. Seventh Meeting of the Conference of the Contracting Parties at San José, Costa Rica, *Resolution VII.6: National Wetland Policies: Guidelines for Developing and Implementing National Wetland Policies*, Annex ¶ 41 (May 10-18, 1999), [http://www.ramsar.org/key\\_res\\_vii.06e.htm](http://www.ramsar.org/key_res_vii.06e.htm) [hereinafter *Resolution VII.6*].

156. *Id.*

157. *Id.* ¶ 9.

158. *Id.* Annex ¶ 41.

159. *Id.* Annex ¶ 52.

wetlands within a national context.<sup>160</sup> The major items for developing such wetland policies should include a national inventory of wetlands, identification of the benefits and values of these wetlands, definition of the priorities for each site in accordance with the needs and socio-economic conditions of the country, proper assessment of the environmental impacts prior to approving development projects, continuing evaluation during the execution of projects, and use of development funds for projects that permit conservation and sustainable utilization of wetland resources.<sup>161</sup>

As part of this long-term policy development process, Resolution VII.7 of the Ramsar Guidelines also calls for parties to review existing legislation and policies to ensure compatibility with the wise use obligation.<sup>162</sup> This review process should cover statutes, customs, and case law applicable to wetland conservation and wise use activities.<sup>163</sup> Every review should involve two basic objectives: (1) to identify legal and institutional measures that constrain wise use and (2) support the development of positive legal and institutional measures for wetland conservation and wise use.<sup>164</sup> When identifying possible constraints, the Working Group cited several of the most common obstacles to wise use: the lack of institutional mechanisms to encourage involvement of both public and private sectors at local, regional and national levels; insufficient coordination among public agencies; policies that discourage conservation and wise use objectives; inadequate policy research programs; and lack of cooperative arrangements with neighboring countries for joint management of shared wetlands or wetland species.<sup>165</sup> Once these constraints are identified, policymakers should modify or repeal any provisions and procedures that are incompatible with wise use. Although it may not be desirable or even feasible to propose specific wetland policies, a member state could make much progress simply by finding the weaknesses of its wetland related legislation.

---

160. This “policy” should be a clearly published statement by a national or sub-national government, often with measurable goals, timelines, and commitments plus budgets for action. *Id.* Annex ¶ 45.

161. Hollis, *supra* note 76, at 8.

162. Seventh Meeting of the Conference of the Contracting Parties, San José, Costa Rica, *Resolution VII.7: Laws and Institutions Concerning Wetlands: Guidelines for Reviewing Laws and Institutions to Promote the Conservation and Wise Use of Wetlands*, Annex ¶ 2 (May 10-18, 1999), [http://www.ramsar.org/key\\_res\\_vii.07e.htm](http://www.ramsar.org/key_res_vii.07e.htm) [hereinafter *Resolution VII.7*].

163. SHINE & KLEMM, *supra* note 12, at 59.

164. *Resolution VII.7*, *supra* note 162, Annex ¶ 3.

165. For a detailed discussion of these constraints and the forms they may take, see SHINE AND KLEMM, *supra* note 12, at 61-70.

a. The United States Participation in the National Wetlands Forum

The United States has complied with the first of Ramsar's two recommendations through the advancement of the National Wetlands Policy Forum in 1987. Convened at the request of the U.S. Environmental Protection Agency (EPA), this Forum investigated the issue of wetlands management in the United States.<sup>166</sup> Governor Kean of New Jersey led the investigation, which consisted of representatives from the government and the private sector.<sup>167</sup> The Forum's final report observed that "[t]he United States urgently needs a better system for protecting and managing its wetlands."<sup>168</sup> The report recommended as an immediate goal "to achieve no overall net loss of the nation's remaining wetland base" in order to meet the long-term goal of increasing the quantity and quality of the nation's wetlands.<sup>169</sup> The EPA reciprocated by announcing a new wetlands policy that adopted the Forum's stated goal.<sup>170</sup> As a result of the National Wetlands Policy Forum, President George H. Bush embraced this "no net loss" concept as a national goal, which became a cornerstone of wetland conservation in the United States in the early 1990s.<sup>171</sup>

---

166. MITSCH & GOSSELINK, *supra* note 3, at 567-68.

167. Sam Kalen, *Commerce to Conservation: The Call for a National Water Policy and the Evolution of Federal Jurisdiction over Wetlands*, 69 N. DAK. L. REV. 873, 910 (1994). This group was composed of 20 members and included a variety of professional backgrounds: three governors, a state legislator, state and local agency heads, the chief executive officers of environmental groups and businesses, farmers, ranchers, and academic experts. MITSCH & GOSSELINK, *supra* note 3, at 568.

168. John M. DeGrove, *The Final Report of the National Wetlands Policy Forum, Protecting America's Wetlands: Summary and Overview*, C431 A.L.I.-A.B.A. 905, 908 (1989).

169. *Id.* at 909. The Forum set forth an eight-point program to meet the goal of improving the management of the nation's wetlands: (1) establishing a goal to guide all wetlands protection and management programs; (2) emphasizing the importance of planning for wetland protection and management; (3) increasing incentives for the wise management and protection of wetlands in private ownership; (4) modifying wetlands regulatory programs to provide more effective protection while reducing the unnecessary frustration and delays imposed on wetlands owners; (5) providing improved government leadership for the nation's wetlands protection efforts by reducing wetland alterations from government programs and accelerating the rate at which the government acquires the most valuable wetlands for permanent protection; (6) improving the quality and quantity of information available to wetland managers, landowners, researchers, and the general public on the subject; (7) expanding efforts for wetlands restoration and creation in order to enhance and increase the wetland inventory; and (8) ensuring adequate funding and resources necessary to implement an effective wetland protection and management program. C.C. Harness III, *The Future of Freshwater Wetlands*, 3 S.C. LAW. 33, 35-36 (1991).

170. Kalen, *supra* note 167, at 910.

171. MITSCH & GOSSELINK, *supra* note 3, at 568.

The Forum generated a series of specific recommendations for reducing wetland losses and increasing wetland restoration efforts, including working toward a single regulatory definition of a wetland.<sup>172</sup> The federal environmental regulatory agencies have historically failed to agree upon the procedures by which to determine whether a certain habitat constitutes a wetland.<sup>173</sup> At one time, the various regulatory, research surveys, and other wetlands programs around the country used over fifty different definitions of wetlands.<sup>174</sup> In order to remedy this discrepancy, the Forum encouraged the elimination of inconsistent definitions by recommending delineation methodologies.<sup>175</sup> Federal agencies responded to the Forum's recommendations and generated the Federal Manual for Identifying and Delineating Jurisdictional Wetlands, which detailed a three-prong test for determining a jurisdictional wetland.<sup>176</sup>

b. Reviewing United States Laws and Policies and Amending Legislation to Ensure Wise Use

Although the United States has complied with Resolution VII.6 by establishing a National Wetlands Policy, the next step involves following Resolution VII.7 by reviewing U.S. legislation and practices to ensure that the United States assists in the implementation of the Convention and wise use. Although the Ramsar Convention has developed guidelines for review,<sup>177</sup> the United States had been progressive in this area through the enactment of the 1986 Emergency Wetlands Resources Act.<sup>178</sup> This Act provides reporting mechanisms and legally-backed criteria for reviewing of federal policies that may impact

---

172. DeGrove, *supra* note 168, at 911.

173. The agencies include the Army Corps of Engineers, Environmental Protection Agency, Fish and Wildlife Service, and National Marine Fishery Service. Hope Babcock, *Federal Wetlands Regulatory Policy: Up to its Ears in Alligators*, 8 PACE ENVTL. L. REV. 307, 341 (1991).

174. *Id.*

175. Michael C. Blumm, *The Clinton Wetlands Plan: No Net Gain in Wetlands Protection*, 9 J. LAND USE & ENVTL. L. 203, 207-08 (1994).

176. *Id.* at 207; *see* discussion *infra* Part II.B.

177. These guidelines include a three-part methodology. The first step is to establish a knowledge base of wetland-related legal and institutional measures that directly or indirectly affect wetlands. The next step is to evaluate the knowledge base by assessing the effectiveness of existing wetland related legal and institutional measures in promoting wetland conservation and wise use, as well as analyze how the institutional measures directly or indirectly affect wetlands. The final step is to recommend legal and institutional changes necessary to support wetland conservation and wise use. *Resolution VII.7, supra* note 162, Annex §§ 3.1 to 3.3.

178. Emergency Wetlands Resources Act of 1986, Pub. L. No. 99-645, 100 Stat. 3582 (codified as amended in scattered sections of 16 U.S.C.).

wetlands, which can assist in evaluating current legislation.<sup>179</sup> Authorities are then required to make recommendations for conserving wetland resources based on a comparison of all management alternatives.<sup>180</sup>

Accordingly, the United States must review its current wetland delineation legislation with these established criteria. The reviewing authorities should recommend implementing existing legal and institutional measures more effectively without passing new laws or regulations. Alternatively, authorities should identify areas where policymakers need to either amend current laws or develop new legislation.<sup>181</sup>

Although the idea of rewriting or amending the current legislation appears as a timely and daunting task, the United States need only look to the success of other nations as incentive for this action. For example, Denmark has successfully broadened its legislative protection of wetlands by interpreting and amending existing law.<sup>182</sup> Prior to the country's ratification of the Ramsar Convention, the 1969 Nature Conservation Act served as the country's primary legislation to conserve natural resources.<sup>183</sup> In 1972, Denmark amended this legislation to prohibit changes without a permit to natural lakes above 1000 square meters.<sup>184</sup> In 1978, Denmark further amended its conservation laws to apply to all watercourses above 1000 square meters having a bed wider than 1.5 meters and to marshes and peat bogs.<sup>185</sup> In 1983, Denmark extended its statutory list of protected habitat types to cover salt meadows, coastal marshes, and coastal meadows of three hectares and above.<sup>186</sup> In addition, the Forest Act of 1989 provided that watercourses, lakes, bogs, and marshes, which were not protected by the previous act, could not be cultivated, drained, planted, or altered in any other way if they are located in public forests and certain private forests.<sup>187</sup> The Nature Protection Act of 1992 further extended this protection program by including all salt marshes, fresh meadows, fens, bogs, and moors larger than 0.25 square meters

---

179. These include an analysis of (1) factors responsible for wetland destruction, degradation, protection, and enhancement; (2) federal statutory and regulatory mechanisms that induce wetlands destruction or degradation or protect or enhance wetlands; (3) federal expenditure resulting from wetland destruction or degradation, protection, and enhancement; (4) public and private patterns of wetland ownership; and (5) the environmental and economic impact of eliminating or restricting federal expenditure or financial assistance which encourage wetland destruction or protection. SHINE & KLEMM, *supra* note 12, at 60.

180. *Id.*

181. *E.g.*, Resolution VII.7, *supra* note 162, Annex § 3.2.2.

182. *See* KOESTER, *supra* note 18, at 15-16, 23-25.

183. SHINE & KLEMM, *supra* note 12, at 167 n.12.

184. *Id.* at 167.

185. *Id.*

186. *Id.*

187. *Id.*

in the statutory list of protected habitat types.<sup>188</sup> As a result, the Danish statutes protect all wetland types that fall within its size limitations.<sup>189</sup> Although the country has taken several decades to modify and amend its previous legislation, Denmark has incorporated the broad Ramsar definition into its existing law. For this reason, Danish habitat conservation legislation is considered the most advanced in the world.<sup>190</sup>

The impact of the National Wetlands Policy Forum remains notable since it instigated a new era of wetland conservation and brought the idea of wetland conservation to the eye of the American public.<sup>191</sup> The United States should now continue to follow the Ramsar recommendations and review the legislative results of the Forum, especially the result concerning the effect of the current definition on wetland protection. Although the idea of amending existing legislation seems a mammoth task, such action is required in order for the United States to meet the wise use obligation and to reach its goal of “no net loss” of wetland habitats.

## 2. Priority Actions at the National Level

Creating new legislation by amending or reinterpreting current legislation can prove a long and time-consuming process. Therefore, identifying short-term priority actions for the national level would promote wise use of wetlands while avoiding the delay of administrative action. Member states consistently seeking to promote wise use of wetlands without waiting for the establishment of new wetland policies may wish to identify and take action on the issues which require the most urgent attention.<sup>192</sup> Following this approach, the United States should acknowledge that its wetland definition is too limited to promote wise use. Therefore, the U.S. should promote using buffer habitats and/or implement stricter environmental impact statements to thoroughly consider the effects of its current wetland legislation.

---

188. Hans Skotte Moller, *Conservation, Management and Restoration of Wetlands* 25 ENVTL. POL. & L. 111, 112 (1995).

189. About nine percent of Denmark is covered by protected habitat types. SHINE & KLEMM, *supra* note 12, at 167.

190. *Id.*

191. *Contra* Kalen, *supra* note 167, at 909 (stating “there is no comprehensive national wetlands policy or program, but rather a patchwork of various regulatory and market incentive programs . . . .”); see Lance D. Wood, *The Forum's Proposal to Delegate §404 to the States: A Bad Deal for Wetlands*, SA83 A.L.I.-A.B.A. 299, 302 (1996) (arguing that the environmental organizations participating in the National Wetlands Policy Forum compromised with developers to support the delegation of the § 404 program to the states).

192. See Smart & Canters, *supra* note 57, at 271.

a. Establishment of Buffer Habitats as a National Priority

A buffer habitat consists of a vegetated zone located between protected natural areas and adjacent land areas subjected to human alteration.<sup>193</sup> These habitats convey advantages to reserves by increasing available habitat area and decreasing potential exposure to adverse impacts.<sup>194</sup> Buffers can protect wetlands against human activity, which can bring noise as well as domestic animals that often compete with native wildlife.<sup>195</sup> In addition, buffer habitats have the reputation of enhancing the wildlife value of a wetland. Many wildlife species in the wetlands depend upon the surrounding upland for cover, nesting, foraging, and migration.<sup>196</sup> Buffers also function as wildlife corridors by providing suitable migratory habitat to wetland species.<sup>197</sup> Thus, buffer habitats help to maintain the ecological integrity of the wetland by insulating it from human developments as well as promoting habitat diversity.<sup>198</sup>

Accordingly, ecological models for reserve designs advocate using buffer zones to protect wildlife refuges.<sup>199</sup> These models recognize that the administrative boundary of a protected habitat is usually designated by political or legal, rather than ecological considerations.<sup>200</sup> This artificial boundary typically creates a “generated edge” for wildlife that results from greater protection within a reserve and lesser protection outside of the reserve.<sup>201</sup> In areas where little or no development has occurred outside of the wildlife reserve, this generated edge may occur outside of the reserve boundary.<sup>202</sup> These external areas constitute buffer zones that increase the effectiveness of the reserve protection.<sup>203</sup>

When applying the reserve model to a wetland habitat, the administrative boundary of a wetland is the delineation line created from the Clean Water Act. In areas where the upland habitat remains undisturbed, wetland animals may extend their use and create a generated edge in this habitat. In order to protect this upland habitat from future developments, wetland managers should establish a buffer zone to encompass this generated edge. As a result, a number of state laws extend protection to upland buffers around protected wetland habitat.

---

193. Castelle et al., *supra* note 107, at 878.

194. *See id.* at 880-81.

195. *Id.*

196. *See* discussion *infra* Part III.D.

197. Castelle et al., *supra* note 107, at 880.

198. *See id.*

199. Semlitsch, *supra* note 98, at 1117-18.

200. MEFFE & CARROLL, *supra* note 11, at 293-94.

201. Christine M. Schonewald-Cox & Jonathon W. Bayless, *The Boundary Model: A Geographical Analysis of Design and Conservation of Nature Reserves*, 38 *BIOLOGICAL CONSERVATION* 305, 307 (1986).

202. *Id.* at 308.

203. *Id.* at 309.



For example, Maryland's Nontidal Wetlands Protection Act,<sup>204</sup> enacted in 1989, serves as an example of a state responding to the federal government's inadequate regulation of nontidal wetlands.<sup>205</sup> Although the State program uses the same definition and wetland delineation methodology as the Federal program, Maryland's law provides broader protection than the Federal Section 404 program in several respects.<sup>206</sup> First, the Nontidal Act provides for a 25 foot buffer zone around all wetlands, which may be extended to 100 feet where there are steep slopes, highly erodible soils, or wetlands in need of specialized protection.<sup>207</sup> Maryland's Nontidal Act requires permits for a broader range of activities in wetlands and also regulates activities that occur on upland sites.<sup>208</sup> As a result, Maryland's Nontidal Act guides development away from nontidal wetlands and their buffer areas.<sup>209</sup> Accordingly, Maryland has achieved a remarkable degree of success in stemming wetland loss.<sup>210</sup>

New Jersey has also enacted legislation to enhance wetland protection within its borders. Considered the strongest wetland law in the nation,<sup>211</sup> the Freshwater Wetlands Protection Act (FWPA) of 1987 strives to "preserve the purity and integrity of freshwater wetlands from random, unnecessary or undesirable alteration or disturbance . . . ."<sup>212</sup> The FWPA emulates the Clean Water Act by incorporating the terms, definitions, and conditions for permit approval to those of the federal program.<sup>213</sup> Nevertheless, the FWPA exceeds the

---

204. MD. CODE ANN., ENVIR. §§ 5-901 to 5-911 (1996).

205. See Stephen R. Rubin, Note, *An Analysis of Nontidal Wetland Regulation in Maryland*, 16 VA. ENVTL. L.J. 459, 474-75 (1997).

206. Adam D. Snyder, *Overview of the State of Maryland Wetlands and Waterways Protection Program*, SF92 A.L.I.-A.B.A. 213, 215 (2001).

207. Rubin, *supra* note 205, at 477.

208. *Id.* at 475-76. The Nontidal Act regulates the following activities within most nontidal wetlands or within a 25-foot buffer around such wetlands: (1) removal of materials; (2) changing of drainage, sedimentation, flow, or flood retention characteristics; (3) disturbing the water level; (4) discharging material, filling, driving piles, or placing obstructions; (5) altering topography; and (6) altering the wetland's character by destruction or removal of plants. Richard H. McNeer, *Nontidal Wetlands Protection in Maryland and Virginia*, 51 MD. L. REV. 105, 126 (1992).

209. See McNeer, *supra* note 208, at 149.

210. Rubin, *supra* note 205, at 503. However, Rubin argues that Maryland's Nontidal Wetlands Protection Act has not met its overriding goal of "no net overall loss in nontidal function." *Id.* at 492-93.

211. Laurance S. Torok et al., *Environmental Auditing: Review and Comparison of Wetland Impacts and Mitigation Requirements Between New Jersey, USA, Freshwater Wetlands Protection Act and Section 404 of the Clean Water Act*, 20 ENVTL. MGMT. 741 (1996).

212. N.J. STAT. ANN. § 13:9B-2 (2001).

213. Susan D. Lockwood, *State Options for Wetland Protection*, SA83 A.L.I.-A.B.A. 251, 260 (1996). However, New Jersey uses the 1989 EPA Manual for delineating wetlands, which is often more protective than the 1987 Army Corps Manual currently being used by the Federal agencies. *Id.* at 257.

federal standards by protecting buffers of up to 150 feet from the wetland boundary.<sup>214</sup> In addition, the Act requires that the State's Department of Environmental Protection classify wetlands into categories of either exceptional, intermediate, or ordinary resource values; the size of the buffer zone varies according to each category.<sup>215</sup> The Act further specifies that wetlands adjacent to trout production waters or endangered and threatened species habitats receive the maximum buffer.<sup>216</sup>

Similar to Maryland's Nontidal Act, New Jersey designed the FWPA to reach beyond the regulation of dredge and fill material to include all other activities in wetlands.<sup>217</sup> Furthermore, the Act establishes a presumption that there exists a practical alternative to the project that would not impact wetlands.<sup>218</sup> To rebut this presumption, a potential developer must conduct a series of tests addressing redesign, reconfiguration, and the availability of alternative sites in the region.<sup>219</sup> For wetlands featuring endangered or threatened species habitat or waters of high quality, a developer must demonstrate compelling public need or extraordinary hardship.<sup>220</sup>

A recent study reveals that the FWPA has succeeded its objective of exceeding federal protections.<sup>221</sup> This study compared the impact to wetlands in New Jersey resulting from both the federal and state laws and concluded that a seventy-five percent reduction in the acreage of wetland disturbance and fill permitted by FWPA compared to the amount previously authorized under the Clean Water Act.<sup>222</sup> Although the state program regulated more activities than the federal program, the FWPA has resulted in a sixty-seven percent reduction in wetland impacts when compared to the CWA.<sup>223</sup> The results of this study demonstrates that the stringent measures enacted under FWPA have significantly slowed the rate of wetlands losses in New Jersey.<sup>224</sup>

As illustrated by the wetland protection successes of Maryland and New Jersey, advancing legislation to create buffer areas around critical wetland habitats

---

214. *Id.* at 260.

215. *Id.* at 258.

216. *Id.* at 260.

217. These regulated activities include: (1) the removal, excavation, disturbance, or dredging of soil, sand, gravel, or aggregate material of any kind; (2) the drainage or disturbance of the water level or water table; (3) the dumping, discharging, or filling with any materials; (4) the dumping of pilings; (5) the placing of obstructions; and (6) the destruction of plant life that would alter the character of the freshwater wetland, including the cutting of tress. N.J. STAT. ANN. § 13:B-3 (2001).

218. § 13:9B-10(a).

219. § 13:9B-10(b).

220. § 13:9B-10(c).

221. Torok et al., *supra* note 211, at 741.

222. *Id.* at 750.

223. *Id.* at 741, 750-51. However, freshwater wetlands continue to be lost in New Jersey despite this stringent law. *Id.*

224. *Id.* at 750.

exists as a straightforward way to correct the inadequacies of the current federal definition. Such a remedy would not require rewriting the current wetland delineation rules or amending the current laws. However, regulation of activities in the buffer zone currently rests with state law and not in the CWA. Approximately thirty-six states either have no statutory protection for wetlands or lack the funding to implement their existing programs.<sup>225</sup> Therefore, this responsibility falls to the federal government as a member of the Ramsar Convention to protect against unwise use of wetlands.

b. Enhancing Environmental Impact Assessment Requirements to Achieve Wise Use

Environmental impact assessment (EIA) seeks to ensure the adequate and early collection of information on the likely environmental consequences of development projects, possible alternatives, and measures to mitigate harm.<sup>226</sup> EIAs usually serve as a prerequisite for administrative decision-making on whether to undertake or authorize particular categories of construction, development, or other activities.<sup>227</sup> The use of an EIA would demonstrate the consequences on the surrounding environment of development of the wetland or the adjacent upland habitat. An EIA would also consider alternatives to the development to determine if the destruction of the habitat remains balanced by the benefits that the proposed action would bring to society.

Although the Ramsar Convention predates the development of EIAs, the Ramsar guidelines have adopted several recommendations requiring EIAs at both the planning and building stages.<sup>228</sup> Resolution VII.16 encourages contracting parties to ensure that any project with the potential of negatively impacting wetlands in their territories adopt rigorous impact assessment procedures.<sup>229</sup> Additionally, these assessment procedures should identify “the true values of the wetland ecosystems in terms of the many functions, values and benefits they

---

225. *United States Supreme Court Narrows Federal Wetlands Jurisdiction*, ENVTL. L. ADVISORY (Goodwin Procter, LLP), Apr. 2001, at 4, <http://www.goodwinprocter.com/pubpa.asp?paID=38>.

226. SHINE & KLEMM, *supra* note 12, at 221.

227. *Id.*

228. The 1990 guidelines specified that environmental considerations should be integrated from the outset when proposed developments may destroy important wetland values at particular sites. In addition, the 1993 Additional Guidance recommends that EIA should also cover the long-term and cumulative effects on proposed activities, projects, plans and programs as well as interactions near the catchment level. *Id.*

229. Seventh Meeting of the Conference of the Contracting Parties, San José, Costa Rica, *Resolution VII.16 on Impact Assessment: The Ramsar Convention and Impact Assessment: Strategic, Environmental and Social*, ¶ 10 (May 10-18, 1999), [http://www.ramsar.org/key\\_res\\_vii.16e.htm](http://www.ramsar.org/key_res_vii.16e.htm).

provide,” in order to allow the inclusion of environmental, economic, and social values in decision-making and management processes.<sup>230</sup>

The United States federal government currently requires EIAs under the National Environmental Policy Act of 1969 (NEPA).<sup>231</sup> NEPA provides that a federal agency must prepare an environmental impact statement whenever it recommends legislation or undertakes “major Federal actions significantly affecting the quality to the human environment.”<sup>232</sup> Although extensive litigation over what constitutes “major,” “federal,” and “significant,” has occurred, virtually any water development project undertaken by a federal agency will serve as a major federal action requiring an EIA.<sup>233</sup>

Although the U.S. currently has legislation in place to promote EIAs, it only restricts individual projects and does not extend to strategic assessment. NEPA only requires substantive and procedural requirements that apply to large projects; no specific criteria or guidance exist on the standards for fragile wetland ecosystems.<sup>234</sup> Requiring an EIA for a wider range of proposed development or smaller scale development than normally required by law would allow the current legislation to meet the recommendations of the Ramsar Convention.<sup>235</sup>

Spain serves as a prime example of the scope and strength that an EIA requires in order to have a positive effect on protecting the environment. First, Spain requires an evaluation of the ecological effects of proposed activities within a wetland and its buffer zone.<sup>236</sup> Spain also has a strict EIA requirement for any type of development regardless of its projected location. Article One of Royal Decree 1302 provides that all proposed projects listed in Annex 1<sup>237</sup> must undergo an EIA before approval.<sup>238</sup> Moreover, Royal Decree 1131 requires the inclusion of both a description of the project and a study of technically feasible alternatives to a proposed project in the EIA.<sup>239</sup> This includes listing and prioritizing the expected impacts on the environment for both the proposed and alternative

---

230. *Id.* ¶ 11.

231. National Environmental Policy Act of 1969, 42 U.S.C. § 4332(2)(C) (2001).

232. JOSEPH L. SAX ET AL., *LEGAL CONTROL OF WATER RESOURCES* 582-83 (3d ed. 2000).

233. *Id.* at 582. At least one court has held that the issuance of a Section 404 permit is a major federal action. *Beaufort-Jasper County Water Auth. v. U.S. Army Corps of Eng'rs*, 22 *Env't Rep. Cas. (BNA)* 1410, 1416 (D.S.C. 1984).

234. SHINE & KLEMM, *supra* note 12, at 222.

235. *Id.* at 187.

236. *Id.* at 223.

237. These include oil refineries, thermal centers, steel foundries, asbestos production or treatment plants, chemical plants, highway/railroad/airport construction, commercial ports and yacht harbors, toxic waste treatment or storage sites, large dams, first replanting of natural areas, and open pit mining. George M. Silvers, *The Natural Environment in Spain: A Study of Environmental History, Legislation, and Attitudes*, 5 *TUL. ENVTL. L.J.* 285, 299-300 (1991).

238. *Id.* at 299.

239. *Id.* at 300.

project.<sup>240</sup> Thus, the developer must justify the necessity of the development before the Spanish government will consent to the project.<sup>241</sup>

In addition to neglecting the small and less economically feasible projects, the current NEPA requirements fail to consider the loss of wetland values resulting from such developments. For activities in which an EIA is required under NEPA, two kinds of evaluations are involved: (1) the determination of the ecological value; and (2) the comparison of the economic value of the habitat compared to the economic value of some proposed activity that would destroy or modify it.<sup>242</sup> However, quantifying wetlands values proves difficult because wetlands remain multiple-value systems since many attributes of the wetland may be valued.<sup>243</sup> In addition, the most valuable products of wetlands include public amenities that have no commercial value.<sup>244</sup> Hence, an adequate comparison of the economic value of the habitat compared to the economic gains of some proposed activity remains incomplete.

Establishing a method of quantifying the wetland functions of the wetland ecosystem in question exists as one remedy to this deficit. Among the many suggestions,<sup>245</sup> the most feasible method to implement remains the hydrogeomorphic (HGM) assessment. The HGM assessment has a three-part methodology designed to measure the capacity of wetlands to perform ecosystem functions.<sup>246</sup> This approach first identifies five broad groups<sup>247</sup> of wetlands on a national level based on similarities in function from their landscape setting, water source, or hydrodynamics.<sup>248</sup> Each of these groups is then divided into regional

---

240. *Id.*

241. *See id.*

242. MITSCH & GOSSELINK, *supra* note 3, at 527. Specifically, Section 102 of NEPA requires that all federal agencies provide a detailed summary on (i) the environmental impact of the proposed action, (ii) any adverse environmental effects that cannot be avoided should the proposal be implemented, (iii) alternatives to the proposed action, (iv) the relationship between short-term uses of man's environment and the maintenance and enhancement of long-term productivity, and (v) any irreversible and irretrievable commitments of resources that would be involved in the proposed action should be implemented. 42 U.S.C. § 4332 (2)(C).

243. *See* MITSCH & GOSSELINK, *supra* note 3, at 527-28.

244. *Id.* at 528.

245. For a description of various methods to quantify wetland functions, see *id.* at 533-40. *See generally* R. Costanza et al., *Valuation and Management of Wetland Ecosystems*, 1 *ECOLOGICAL ECON.* 335 (1989); R. Kerry Turner, *Economics and Wetland Management*, 20 *AMBIO* 59, 63 (1991).

246. The National Action Plan to Implement the Hydrogeomorphic Approach to Assessing Wetland Functions, 62 *Fed. Reg.* 33607 (June 20, 1997), available at <http://www.epa.gov/owow/wetlands/science/hgm.html>.

247. These include riverine, depressionnal, slope, mineral soil flats, organic soil flats, estuarine fringe, and lucustrine fringe. Mark Brinson, *The HGM Approach Explained*, *NAT'L WETLANDS NEWSL.*, Nov./Dec. 1995, at 10.

248. NATURAL RESEARCH COUNCIL, *supra* note 4, at 220-21.

subgroups based on landscape positions and ecosystem types; the functions that each class of wetlands performs are then identified.<sup>249</sup> Finally, reference wetlands establish a relationship between the initial groups, subgroups, and the wetland functions.<sup>250</sup> Thus, the HGM approach provides a rapid yet in-depth assessment of the wetland functions in a given area.

The HGM approach was initially designed to satisfy the need for better information on wetland functions within the requirements of the Clean Water Act.<sup>251</sup> Nevertheless, the essential purpose of wetland functions remains the same, thus making the already established HGM approach an ideal and quick remedy to quantify the wetland functional values for the EIA. By initiating these valuations on a wetland as well as the surrounding upland, researchers will understand what functions of the ecosystem will be lost if the area were destroyed. This more thorough analysis will provide the needed information to help the United States meet its wise use obligation.

### 3. Priority Actions at Specific Wetland Sites

Avoiding destruction or degradation of important wetland values at particular wetland sites at a national level may require direct action. These actions have an almost immediate impact and can prevent loss of wetland functions through early intervention.

The case study of Lake Thompson watershed in South Dakota serves as one example of placing priorities at certain wetland sites.<sup>252</sup> Spanning approximately 192,000 hectares, the Lake Thompson Watershed is located in the southeastern portion of the state of South Dakota.<sup>253</sup> This region is characterized by small landscape depressions left behind as glaciers receded from this part of the continent.<sup>254</sup> These depressions or potholes, collect rainfall and snowmelt, forming small shallow lakes and wetlands.<sup>255</sup> These water habitats provide flood control and “play a vital role in the maintenance of nearly all forms of prairie wildlife.”<sup>256</sup> However, despite their obvious importance, millions of hectares of prairie pothole wetlands have been drained for agricultural purposes.<sup>257</sup> In some

---

249. *Id.* at 221.

250. *Id.*

251. Brinson, *supra* note 247, at 7.

252. Thomas E. Dahl, *Wetland Drainage and Restoration Potential in the Lake Thompson Watershed, South Dakota, USA*, in TOWARDS THE WISE USE OF WETLANDS, *supra* note 67, [http://www.ramsar.org/lib\\_wise\\_18.htm](http://www.ramsar.org/lib_wise_18.htm).

253. *Id.*

254. NATURAL RESEARCH COUNCIL, *supra* note 4, at 278.

255. *Id.* at 279.

256. Dahl, *supra* note 252.

257. *Id.*

areas, extensive drainage has eliminated the vast majority of pothole wetlands.<sup>258</sup> The result has increased flooding resulting in damage to crops, property, and road systems.<sup>259</sup>

In an effort to alleviate the flooding problem, the Governor of South Dakota requested that a wetland preservation and restoration committee, initially composed of the U.S. Fish and Wildlife Service, South Dakota Game, Fish and Parks, and the National Wildlife Federation, develop and implement a wetland restoration plan for the Lake Thompson Watershed.<sup>260</sup> This group established several priority actions for the Lake Thompson watershed: (1) restore approximately 4,000 hectares of wetland within the watershed; (2) restore drained wetlands on public lands as a first priority; (3) identify sites for water management; (4) acquire land wherever available in the watershed to restore wetlands; (5) develop conservation practices on private lands throughout the watershed; and (6) identify and protect remaining wetlands from drainage by offering a package involving perpetual easements, grassland easements, and leases.<sup>261</sup>

Because these actions were only recently implemented, scientists remain uncertain about how many hectares of wetlands this initiative has restored, created, or rehabilitated. Nevertheless, researchers believe that these wetland restoration, rehabilitation, and creation efforts will ultimately achieve wise use of the Lake Thompson Watershed.<sup>262</sup> In addition, the restoration plan has noted some subtle achievements through the collaborative efforts of government and non-government organizations.<sup>263</sup> Public and private parties contributed a mix of expertise and funding to accomplish the project.<sup>264</sup> Also, local government organizations and private citizens involved in the planning process are now more attuned to the restoration and rehabilitation efforts.<sup>265</sup> Ultimately, recognition of the consequences of unwise use of wetlands by scientific and government communities as well as the general public is itself a great achievement.<sup>266</sup>

While this case study demonstrates how implementing priority actions can promote wise use in a South Dakota watershed, interested parties may also employ this approach to protect other threatened sites. Caddo Lake and the Cypress Valley watershed near Austin, Texas may benefit from this action. In 1993, approximately 3,300 hectares of Caddo Lake and the surrounding watershed

---

258. *Id.*

259. *Id.*

260. *Id.*

261. *Id.*

262. *Id.* However, while the objective may be restoration of the original habitat conditions and values, in reality this may amount to only partial rehabilitation of original functional values or creation of a different sort of system. *Id.*

263. *See id.*

264. *Id.*

265. *Id.*

266. *Id.*

were designated a Ramsar site.<sup>267</sup> Caddo Lake was chosen for Ramsar designation because it functions as a migratory corridor for waterfowl while providing habitat to a diversity of threatened or endangered species.<sup>268</sup> However, despite the protection it receives as a Ramsar site, this ecosystem is becoming increasingly scarce as a result of activities such as timber harvesting, channelization, and other land-use activities that occur in the wetland and upland habitats.<sup>269</sup> The commercial activities near the wetland borders increase the levels of heavy metals such as mercury and lead found at the site.<sup>270</sup> These activities, in turn, alter the hydrologic conditions in ways that preclude the growth of the Southern Baldcypress, the dominant species in the swamp.<sup>271</sup>

The Cypress Valley watershed would benefit from the establishment of priority actions to expand the wetland protection to the uplands and reduce the negative effects resulting from commercial use. Some suggested priority actions include: (1) identify the specific activities that are unwise uses of the wetland habitat; (2) reduce or terminate these harmful activities in the wetlands and their adjacent upland habitats; (3) determine through ad-hoc scientific analysis the minimum buffers for commercial activity needed to maintain the ecosystem functions; and (4) acquire these buffer habitats through the use of leases and conservation easements. Following the analysis of the Lake Thompson case study, implementing priority actions at this particular watershed would allow for the collaboration of scientists, government agencies, and local communities. This action would not only protect the wetland functions of the Cypress Valley watershed, but would also result in the public evaluation of the current wetland legislation and implementation of corrective actions into public policy. This action, combined with the increase in our scientific understanding of the ecology of this habitat, offers hope for future wetland protection and management.

---

267. Dwight K. Shellman, Jr. & Roy G. Darville, *Case Study 4: United States of America: Caddo Lake*, in WETLANDS, BIODIVERSITY AND THE RAMSAR CONVENTION, *supra* note 56, [http://www.ramsar.org/lib\\_bio\\_8.htm#cs4](http://www.ramsar.org/lib_bio_8.htm#cs4) (last visited May 1, 2003).

268. It is estimated that 48% of the state's amphibian species are found in this ecosystem as well as 53 species of reptiles. As many as 261 bird species may use the Caddo Lake wetlands and adjacent upland habitat some time during the year. In addition, the Caddo Lake wetlands provide habitat to over 50 of the 181 mammalian species known to live in Texas, including the endangered Florida panther (*Felis concolor*). *Id.*

269. *Id.*

270. *Id.*

271. *Id.*



## V. CONCLUSION

Nearly thirty years from its implementation, the goals of the Ramsar Convention remain ambitious. While the Convention has served as a catalyst for international recognition of wetlands as economical and ecological components of functioning ecosystems, much work remains. The achievement of wise use is highly complex and will require new policies at all levels of implementation to address this sensitive political issue.

The United States is not in compliance with the Ramsar Convention since the current legislation fails to meet the wise use obligation of this international treaty. Ultimately, the United States needs to implement into public policy new approaches for the protection of wise use. This Note first suggests a review of current laws and policies to determine how the legislation impedes the wise use of wetlands. Although this may not lead to new legislation immediately, this review will identify and make publicly aware the problems with the current policies.

In the interim, the United States should promote shorter-term options until Congress can implement the wise use concept into public policy. First, the federal government could follow Maryland and New Jersey's initiatives and establish mandatory buffer habitats to surround the wetland areas. The federal government could also complement this action with stricter regulations for activities in wetlands and their uplands as well as a presumption against development. Second, the United States could establish more stringent environmental impact statements for activities that would impact wetland habitats or their adjacent upland areas. In this manner, Congress could extend requirements for an environmental impact statement to include all activities and not just those that are termed "significant." Congress could also restructure the procedures for determining the "cost" of the proposed activities on wetland habitat in order to incorporate the loss of functions for any wetlands destroyed.

Finally, the United States should implement priority actions at particular wetland sites. The case studies described displayed noteworthy results in the success of collaboration of federal, state, and local governments as well as scientific and non-governmental organizations. Such methods allow for community involvement by local citizens who may have a personal stake in the management of this local wetland. Implementing priority actions at particular wetland sites may also provide a manner of "testing" new and innovative approaches to wetland management that have the potential for nationwide implementation.

In the last twenty years, the legal protection provided for wetlands by the federal government has increased substantially. In addition, ecologists are beginning to recognize this discrepancy between a jurisdictional and ecological wetland. However, scientific understanding of wetland dynamics will not affect public policy "when forced through a mold of pre-existing bureaucratic

institutions.<sup>272</sup> Cooperation among lawmakers and wetland scientists remains crucial for efficient protection and conservation of wetland habitats. The United States needs to ultimately restructure its political framework to incorporate scientific understanding into public policy. This final step is imperative to achieve the wise use of wetlands.



---

272. Myron L. Scott, *Two Models for International Environmental Cooperation: A Review of the Ramsar Convention on the Conservation of Wetlands by Veit Koester; and Saving the Mediterranean: The Politics of International Environmental Cooperation by Peter M. Hass*, 22 ENVTL. L. 349, 354 (1992).