

TWENTY-FIVE YEARS UNDER THE CONVENTION ON MIGRATORY SPECIES: MIGRATION CONSERVATION LESSONS FROM EUROPE

BY

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Animal migrations frequently cross international boundaries, and conservation of migratory species requires the collaborative efforts of multiple nations. The Convention on Migratory Species (CMS) has overseen such conservation efforts for over twenty-five years by encouraging member Parties to conclude daughter agreements focused on protecting individual migratory species or groups of migratory species. In the past twenty-five years, CMS members have concluded twenty-six agreements that protect a wide range of migratory species. Many of these agreements provide targeted actions to offer immediate protection for critically endangered or threatened migratory species, but a handful are much broader in scope, providing protection for large classes of migratory species, regardless of endangerment status. This Article examines the structure of the CMS and its daughter agreements to identify key challenges for international migratory species protection, and draws on international environmental policy literature to identify potential strategies for overcoming these problems in future agreements.

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I. INTRODUCTION

Several scholars are calling for the United States to increase and improve its efforts to protect migratory species.¹ At the heart of this call is the idea that migrations are more than the sum of individual migrants; rather, migrations are often “phenomena of abundance,” spectacles of nature with the power to inspire awe, fulfill important ecological purposes, and meet the unique needs of migratory species.²

As many of these scholars have noted, many migratory species are international travelers that do not confine their wanderings to a single jurisdiction.³ This makes protection of migratory species particularly difficult, since effective conservation efforts may require collaboration between entities that have concurrent jurisdiction over species’ breeding, feeding, stopover, and wintering habitats, as well as entities that regulate any commercial activities that pose threats to these migratory species.

The United States has limited experience in cooperating with other countries on migratory species protection. Under bilateral agreements with the United Kingdom, Mexico, and Russia, the United States has agreed to limit takings of certain migratory bird species,⁴ but these agreements

¹ See generally Robert L. Fischman & Jeffrey B. Hyman, *The Legal Challenge of Protecting Animal Migrations as Phenomena of Abundance*, 28 VA. ENVTL. L.J. 173, 175, 177–78 (2010); Jeffrey B. Hyman, Andrea Need & W. William Weeks, *Statutory Reform to Protect Migrations as Phenomena of Abundance* 41 ENVTL. L. 407, 407 (2011); Vicky J. Meretsky, Jonathan W. Atwell & Jeffrey B. Hyman, *Migration and Conservation: Frameworks, Gaps, and Synergies in Science, Law, and Management* 41 ENVTL. L. 447, 520–30 (2011).

² See Fischman & Hyman, *supra* note 1, at 175.

³ See *id.* at 179 (explaining that migration protection often involves inter-jurisdictional challenges); Hyman, Need & Weeks, *supra* note 1, at 423–25 (highlighting the threats that migratory species face in light of their long-distance movements); Meretsky, Atwell & Hyman, *supra* note 1, at 460 (describing long-distance migrant birds “whose annual movements traverse continents, making journeys of many hundreds or thousands of kilometers”).

⁴ The requirements of these agreements are implemented by the United States under the Migratory Bird Treaty Act, 16 U.S.C. §§ 703–712 (2006). The Secretary of the Interior is

probably will not prompt the kind of comprehensive and collaborative conservation effort required to protect and maintain abundant migrations. The agreements also fall far short of protecting migrations as phenomena of abundance.

Outside the United States, however, 115 countries have ratified the Convention on Migratory Species (CMS), an international treaty devoted to protecting and maintaining migratory species' populations, ranges, and habitats.⁵ These countries have twenty-five years' worth of experience in international negotiation and implementation of migratory species conservation agreements. An examination of the CMS and its daughter agreements shows that, while international migratory species protection is always challenging, predictable patterns can identify protection efforts that are most likely to succeed. The circumstances of a migration, the nature of the threats to the migration, and the motivations and resources of the parties involved all play a role in determining the effectiveness of a migratory species conservation agreement.

This Article examines the CMS and its daughter agreements to identify lessons for cross-boundary efforts to protect migrations as phenomena of abundance. Part II describes the basic structure and function of the CMS and assesses its suitability as a vehicle for protecting abundant migrations. Part III describes two CMS daughter agreements in greater detail to illustrate the range of CMS agreements and conservation approaches. Part IV identifies common difficulties in migratory species protection and draws on past strategies under the CMS to identify possible strategies to address these problems.

II. THE CONVENTION ON MIGRATORY SPECIES AND ITS DAUGHTER AGREEMENTS

The CMS is an international environmental agreement that encourages nations to take action to conserve migratory species.⁶ The primary function

empowered to proscribe regulations regarding the taking of protected species in order to implement these treaties. *Id.* § 704.

⁵ See generally Convention on the Conservation of Migratory Species of Wild Animals, June 23, 1979, 19 I.L.M. 15, 1651 U.N.T.S. 28,395; CONVENTION ON MIGRATORY SPECIES, PARTIES TO THE CONVENTION ON THE CONSERVATION OF MIGRATORY SPECIES OF WILD ANIMALS AND ITS AGREEMENTS (2011), available at http://www.cms.int/about/Partylist_eng.pdf.

⁶ The CMS defines "migratory species" as "the entire population or any geographically separate part of the population of any species . . . a significant proportion of whose members cyclically and predictably cross one or more national jurisdictional boundaries . . ." Convention on the Conservation of Migratory Species of Wild Animals, *supra* note 5, art. I(1). This definition establishes clear legal boundaries that define eligibility for protection based on a species' crossing of international borders and is highly inclusive, including species like the gorilla which regularly range across national boundaries and can benefit significantly from international protection. See Agreement on the Conservation of Gorillas and Their Habitats, Rep. of the Meeting to Negotiate an Agreement on the Conservation of Gorillas and Their Habitats Under the Convention on Migratory Species, Oct. 22–24, 2007, Annex 2, U.N. Doc. UNEP/CMS/GOR1/Report [hereinafter Gorilla MOU], available at http://www.cms.int/bodies/meetings/regional/gorillas/pdf_docs/Gorilla_Agmt_Fin_E.pdf.

of the CMS is to encourage both Parties and non-member states to conclude daughter agreements that will protect specific migratory species or groups of migratory species.⁷ Negotiated in 1979, 115 countries have ratified the CMS, and over thirty non-Parties participate in one or more daughter agreements under the CMS.⁸ The CMS and its daughter agreements have been important in stabilizing population levels of migratory species such as the Wadden Sea Seal (*Phoca vitulina vitulina* and *Helichoerus grypus*)⁹ and the Bukhara Deer (*Cervus elaphus bactrianus*),¹⁰ as well as directing resources toward reducing threats and conserving habitat for a wide range of other migratory species.

The CMS is not the only international agreement that addresses conservation of migratory species. Numerous other multilateral and bilateral agreements seek to conserve migratory species, regulate the management and use of migratory species stocks, or protect migratory species habitat.¹¹ Most of these agreements focus on particular types of migratory species: commercially valuable fish, marine mammals, and birds.¹² The CMS is unique among these agreements because it is not limited in either scope or

⁷ Under CMS article V, “[e]ach AGREEMENT . . . should be open to accession by all Range States of that species, whether or not they are Parties to this Convention.” Convention on the Conservation of Migratory Species of Wild Animals, *supra* note 5, art. V(2); *see also* discussion *infra* Part II.A.

⁸ *See* CONVENTION ON MIGRATORY SPECIES, *supra* note 5; CONVENTION ON MIGRATORY SPECIES, NATIONAL PARTICIPATION IN THE CONVENTION ON THE CONSERVATION OF MIGRATORY SPECIES OF WILD ANIMALS AND ITS AGREEMENTS (2011), *available at* http://www.cms.int/about/all_countries_eng.pdf.

⁹ *See* discussion *infra* Part III.A; *see also* Convention on Migratory Species, Agreement on the Conservation of Seals in the Wadden Sea, http://www.cms.int/species/wadden_seals/sea_bkrd.htm (last visited March 17, 2011).

¹⁰ *See* Memorandum of Understanding Concerning Conservation and Restoration of the Bukhara Deer (*Cervus elaphus bactrianus*), May 16, 2002, B7 p. 979:55/K, *available at* http://www.cms.int/species/bukhara_deer/pdf/mou_e.pdf; Convention on Migratory Species, MOU Bukhara Deer, http://www.cms.int/species/bukhara_deer/bukhara_deer_intro.htm (last visited Mar. 15, 2011).

¹¹ *See* Inter-American Convention for the Protection and Conservation of Sea Turtles, Dec. 1, 1996, 2164 U.N.T.S. 29, *available at* <http://www.iacseaturtle.org/English/download/Texto%20CIT%20ENG.pdf> (“The objective of the Convention is to promote the protection, conservation, and recovery of sea turtle populations”); Convention on the Conservation and Management of Highly Migratory Fish Stocks in the Western and Central Pacific Ocean, Sep. 5, 2000, 40 I.L.M. 278, *available at* <http://www.wcpfc.int/system/files/documents/convention-texts/text.pdf> (“The objective of this Convention is to ensure, through effective management, the long-term conservation and sustainable use of highly migratory fish stocks in the western and central Pacific Ocean in accordance with the 1982 Convention and the Agreement.”); Migratory Bird Treaty Act, 16 U.S.C. § 703 (2006) (enforcing obligations for the protection and conservation of migratory birds pursuant to international treaties with the U.K., Japan, Russia, and Mexico).

¹² *See* Migratory Bird Treaty Act, 16 U.S.C. § 703 (2006); Convention on the Conservation and Management of Highly Migratory Fish Stocks in the Western and Central Pacific Ocean, *supra* note 11; Inter-American Convention for the Protection and Conservation of Sea Turtles, *supra* note 11.

geography; the CMS includes terrestrial, aquatic, and avian species and is worldwide in its coverage.¹³

This Part describes the CMS, with particular focus on how the CMS has balanced the need to protect endangered migratory species with the need to protect migratory species as phenomena of abundance.¹⁴ Part II.A describes the basic structure and function of the CMS. Part II.B examines the way the CMS balances the need to maximize participation by key Range States¹⁵ with the need to maximize the stringency and effectiveness of daughter agreements. Another conflict, addressed in Part II.C, is the tension between protecting endangered species and the need to prevent non-endangered migratory species from becoming endangered. Part II.D examines a related concept in greater detail—the need to protect migratory species as a phenomenon of abundance.

A. CMS Structure and Function

The CMS identifies two overlapping categories of migratory species. Species that are endangered¹⁶ are listed in Appendix I of the CMS, and all CMS Parties must provide certain protections to these species.¹⁷ Parties must prohibit most takings of Appendix I species,¹⁸ and “shall endeavor”¹⁹ to

¹³ See Convention on Migratory Species, Introduction to the Convention on Migratory Species, <http://www.cms.int/about/intro.htm> (last visited Mar. 15, 2011).

¹⁴ See discussion *infra* Part II.D.

¹⁵ Range States are defined as “any State . . . that exercises jurisdiction over any part of the range of that migratory species, or a State, flag vessels of which are engaged outside national jurisdictional limits in taking that migratory species.” Convention on the Conservation of Migratory Species of Wild Animals, *supra* note 5, art. I(1)(h).

¹⁶ Endangered species are “in danger of extinction throughout all or a significant portion of its range.” *Id.* art. I(1)(e).

¹⁷ *Id.* arts. II, III(1).

¹⁸ *Id.* art. III(5). Exceptions are allowed only where,

- a) the taking is for scientific purposes;
- b) the taking is for the purpose of enhancing the propagation or survival of the affected species;
- c) the taking is to accommodate the needs of traditional subsistence users of such species; or
- d) extraordinary circumstances so require;

provided that such exceptions are precise as to content and limited in space and time. Such taking should not operate to the disadvantage of the species.

Id.

¹⁹ The use of terms like “shall endeavor” and “where feasible and appropriate” suggests that these provisions may lack the binding force of the requirement to prohibit takings. Indeed, it is not always clear what “shall endeavor” means in the context of the CMS, although an Australian court has ruled that the term binds Australia to take the identified action. *Commonwealth v. Tasmania*, (1983) 158 C.L.R. 1 (Austl.). The Convention does not, however, define the term “feasible and appropriate,” providing Parties with little guidance about the extent of their obligations toward endangered species. See Richard Caddell, *International Law and the Protection of Migratory Wildlife: An Appraisal of Twenty-Five Years of the Bonn Convention*, 16 COLO. J. INT’L ENVTL. L. & POL’Y 113, 116–17 (2005).

conserve and restore habitats, remove or minimize barriers, and prevent or control for factors that might further endanger these species, such as the introduction of invasive species.²⁰

Species that have “unfavourable conservation status” and “which require international agreements for their conservation and management” are listed in Appendix II of the CMS.²¹ Parties are urged to conclude daughter agreements to restore these species to favorable conservation status,²² but they are not bound to prohibit all takes. “Unfavourable” conservation status is based on four factors: population viability, long-term availability of adequate migratory range, long-term availability of adequate habitat, and the extent of population distribution and abundance.²³ Based on these factors, many migratory species are eligible for protection under CMS daughter agreements.²⁴

The scope and coverage of daughter agreements is guided to a large extent by the motivations and interests of the Parties. While the CMS Scientific Council²⁵ recommends species for listing in the Appendices, the Parties have sole authority to determine which species will be the subject of daughter agreements. The only guidance provided by the CMS is that Parties should “give priority to those species in an unfavourable conservation status.”²⁶ Similarly, the Range States to a daughter agreement are in the driver’s seat in determining the nature of the agreement, including whether the agreement will be binding or informal, what kind of protections will be encouraged or required, and the stringency of those protections.²⁷ The CMS

²⁰ Convention on the Conservation of Migratory Species of Wild Animals, *supra* note 5, art. III(4).

²¹ *Id.* art. IV(1)–(2). Appendix I and Appendix II are not mutually exclusive; many Appendix I species—or separate populations of Appendix I species—are also listed in Appendix II. Since most endangered species will by default have an “unfavourable conservation status,” most Appendix I species will also qualify for Appendix II listing, provided their range or migratory behavior requires international cooperation. *See also id.* art. III.

²² *Id.* arts. IV(3)–(4), V(1).

²³ Conservation status is considered unfavorable when any one of the following conditions is not met:

- (1) [P]opulation dynamics data indicate that the migratory species is maintaining itself on a long-term basis as a viable component of its ecosystems;
- (2) the range of the migratory species is neither currently being reduced, nor is likely to be reduced, on a long-term basis;
- (3) there is, and will be in the foreseeable future, sufficient habitat to maintain the population of the migratory species on a long-term basis; and
- (4) the distribution and abundance of the migratory species approach historic coverage and levels to the extent that potentially suitable ecosystems exist and to the extent consistent with wise wildlife management.

Id. art. I(1)(C).

²⁴ Appendix II of the CMS lists over 250 species, subspecies, and entire taxa, all of which are eligible for protection under CMS daughter agreements. *See id.* Appendix II.

²⁵ *See infra* Part I.A.

²⁶ Convention on the Conservation of Migratory Species of Wild Animals, *supra* note 5, art. IV(3).

²⁷ *See id.* arts. V, VI.

provides limited guidance by only identifying important elements that should be part of agreements.²⁸ The details of the agreements, however, are entirely up to the Parties.²⁹

Initially, most CMS Parties were from Europe and North Africa and the CMS focused primarily on European migratory species.³⁰ Over time, the geographic scope of CMS activities expanded to include several species that migrate through Africa, Central Asia, and the Middle East.³¹ Between 2007 and 2010, ten new daughter agreements were adopted under the CMS.³² Several of these agreements focus on species that migrate through developing countries, including Pacific island states and countries in South America.³³

The purpose of the CMS is not limited to creating new agreements. The CMS also includes a Scientific Council that oversees and coordinates migratory species research, identifies migratory species in need of protection, and recommends conservation actions.³⁴ The CMS Secretariat

²⁸ *Id.*

²⁹ *See id.*

³⁰ *See* CONVENTION ON MIGRATORY SPECIES, AGREEMENT SUMMARY SHEETS 5–9 (2011), available at http://www.cms.int/pdf/en/summary_sheets/AgmtSumSheet_engl.pdf; CONVENTION ON MIGRATORY SPECIES, *supra* note 5 (indicating original parties with CMS Party No. 001).

³¹ *See generally* CONVENTION ON MIGRATORY SPECIES, LIST OF RANGE STATES OF MIGRATORY SPECIES INCLUDED IN THE CMS APPENDICES (2011), available at http://www.cms.int/pdf/en/CMS_Range_States_by_Species.pdf.

³² CONVENTION ON MIGRATORY SPECIES, *supra* note 30, at 8, 15, 26, 28–34.

³³ *See* Memorandum of Understanding on the Conservation and Management of Dugongs (*Dugong dugon*) and Their Habitats Throughout Their Range, Rep. of the Technical Workshops and Meeting to Sign the Dugongs Memorandum of Understanding, 3d Sess., Oct. 28–31, 2007, Annex 8, U.N. Doc. UNEP/CMS/DUGONG/Report, available at http://www.cms.int/species/dugong/pdf/Annex_08_Dugong_MoU.pdf; *see also* Memorandum of Understanding for the Conservation of Cetaceans and Their Habitats in the Pacific Islands Region, Sept. 15, 2006, U.N. Doc. UNEP/CMS/PIC-1/Inf/3 [hereinafter Pacific Islands Cetaceans MOU], available at http://www.cms.int/bodies/meetings/regional/pacific_cet/pdf/Inf_03_PacificCetaceans_MoU&AP.pdf; Memorandum of Understanding on the Conservation of Southern South American Migratory Grassland Bird Species and Their Habitats, Aug. 26, 2007, U.N. Doc. UNEP/CMS/GRB1/Inf.2 [hereinafter Grassland Birds MOU], available at http://www.cms.int/species/Grassland_birds/MoU_Grassland_birds_with_sigs_with_Bolivia_E.pdf; Memorandum of Understanding Concerning the Conservation of Migratory Birds of Prey in Africa and Eurasia, Oct. 22, 2008, U.N. Doc. UNEP/CMS/AEBOP/2/6, available at http://www.cms.int/bodies/meetings/regional/birdsofprey/Doc_06_MoU_BOP_FinalText_Ea.pdf; Memorandum of Understanding the Conservation of High Andean Flamingos and Their Habitats, Dec. 4, 2008, B7 p. 979:55/X, available at http://www.cms.int/species/flamingos/MoU_Andean_Flamings_english.pdf; Memorandum of Understanding on the Conservation of Migratory Sharks, Rep. of the Meeting, 3d Sess., Feb. 10–12, 2010, Annex 4, U.N. Doc. UNEP/CMS/MS3/REPORT, available at http://www.cms.int/species/sharks/MoU/Migratory_Shark_MoU_Eng.pdf; Memorandum of Understanding Between the Argentine Republic and the Republic of Chile on the Conservation of the South Andean Huemul, Arg.-Chile, Dec. 4, 2010, available at http://www.cms.int/species/Huemul/MoU/MoU_Huemul_E.pdf.

³⁴ The CMS decision-making body, the Conference of the Parties (COP), is required to establish a Scientific Council that will provide scientific advice. *See* Convention on the Conservation of Migratory Species of Wild Animals, *supra* note 5, art. VIII(1). Individual Parties and the COP are both authorized to appoint qualified experts to the Scientific Council. *Id.* art. VIII(2). For a description of the Scientific Council's duties and links to Council documents, see

coordinates CMS meetings and activities, distributes resources for conservation projects, and maintains institutional memory about migratory species needs, conservation approaches, successes and failures.³⁵

B. Balancing the Competing Needs for Participation and Stringency

Participation by key states is important to all international environmental agreements. Effective migratory species conservation requires participation by Parties with jurisdiction over key habitat (e.g., stopover sites, food sources) or barriers to migration. The importance of participation is driven to some extent by the needs of individual species. Some migratory species rely on habitat under the jurisdiction of more than one country.³⁶ For these species, an effective agreement requires participation by multiple nations to ensure that sufficient habitat is protected. Depending on the species's geographical range, its vulnerability to threats, and its habitat and food requirements, a large number of Parties may be needed for a conservation effort to be successful.

However, including more participants to an agreement tends to increase the difficulty of imposing stringent requirements on members.³⁷ This problem arises from the basic nature of international negotiations: each country is a sovereign that cannot be compelled to enter into international agreements. Moreover, different countries may vary in their willingness to commit to different actions. To conclude an agreement among different nations, treaty negotiators must generally either limit the types of actions required so that all countries will accept the treaty terms, or limit the number of participants so that participating countries will accept more difficult terms.

The CMS balances the interests of different nations with a framework convention approach, in which the CMS itself establishes shared goals and values, and the actual work of the CMS is implemented in subsequent agreements between smaller groups of Parties.³⁸ The CMS encourages widespread participation by imposing very few substantive obligations on its members. Countries must commit to prohibiting takes of Appendix I species, but even this provision has exceptions.³⁹ Unlike some international environmental treaties, the CMS does not include stringent monitoring,

Convention on Migratory Species, CMS - Scientific Council, http://www.cms.int/bodies/ScC_mainpage.htm (last visited Mar. 16, 2011).

³⁵ Convention on the Conservation of Migratory Species of Wild Animals, *supra* note 5, art. IX.

³⁶ See *id.* preamble, art. I(1)(a).

³⁷ See SCOTT BARRETT, ENVIRONMENT AND STATECRAFT: THE STRATEGY OF ENVIRONMENTAL TREATY-MAKING 292 (2003) ("Countries can reach a consensus around a weak agreement, or they can negotiate a more potent but incomplete agreement.").

³⁸ This approach is a useful negotiation technique in cases where parties can agree on general principles but disagree about specific provisions. See Scott Barrett, *On the Theory and Diplomacy of Environmental Treaty-Making*, 11 ENVTL. & RESOURCE ECON. 317, 320 (1998).

³⁹ See *supra* note 18.

compliance, or enforcement mechanisms.⁴⁰ Instead, the CMS urges Parties to conclude daughter agreements and provides guidance about the provisions that should be included.⁴¹

These daughter agreements, in turn, may contain stringent requirements to the degree that Parties are willing to be bound by them. While it would be preferable from a conservation standpoint for all Parties to be bound to stringent conservation requirements, the CMS approach is a pragmatic way to balance the need for Range State participation with the need for rigorous and binding protections. The lack of stringent requirements encourages all Parties to participate in negotiations and share information while promoting species-specific agreements in which willing parties may agree to more stringent provisions.

The CMS includes another layer of flexibility by encouraging three different types of daughter agreements: AGREEMENTS, Memoranda of Understanding, and informal action plans. AGREEMENTS⁴² under the CMS are formal treaties between two or more parties, and the provisions of each AGREEMENT are legally binding under international law.⁴³ Seven AGREEMENTS have been concluded since the CMS went into effect.⁴⁴

The CMS also encourages Parties to enter into nonbinding agreements that include formal Memoranda of Understanding (MOUs) and informal action plans.⁴⁵ These less formal agreements provide immediate, short-term protections for migrants, often including critically endangered species.⁴⁶ The first two MOUs provide protection for Siberian Cranes (*Grus leucogeranus*)

⁴⁰ The CMS makes no provision for monitoring, compliance, or enforcement. See generally Convention on the Conservation of Migratory Species of Wild Animals, *supra* note 5. In contrast, multilateral agreements such as the Montreal Protocol on Substances that Deplete the Ozone Layer, the U.N. Framework Convention on Climate Change, the U.N. Convention to Combat Desertification, and the Basel Convention on Transboundary Movement of Hazardous Wastes and Their Disposal all include noncompliance procedures. Günther Handl, *Compliance Control Mechanisms and International Environmental Obligations*, 5 TUL. J. INT'L & COMP. L. 29, 33–34 (1997).

⁴¹ Guidelines for Agreements include provisions stating that Agreements should include participation by States throughout a specie's range; include more than one migratory species when possible; coordinate conservation plans; coordinate exchange of information; conserve and restore habitat; maintain suitable networks of habitats; eliminate or minimize obstacles to migration; prevent release of harmful substances into migratory habitat; control takings; and educate the public about the Agreement. Convention on the Conservation of Migratory Species of Wild Animals, *supra* note 5, art. V.

⁴² The CMS text distinguishes between legally binding AGREEMENTS and nonbinding daughter agreements such as MOUs and action plans. See *id.* arts. I(1)(j), IV–V. This Article does the same.

⁴³ CONVENTION ON MIGRATORY SPECIES, 25 YEARS OF JOURNEYS: A SPECIAL REPORT TO MARK THE SILVER ANNIVERSARY OF THE BONN CONVENTION ON MIGRATORY SPECIES (1979–2004), at 4 (2004), available at http://www.cms.int/news/PRESS/nwPR2004/25th_Anniversary/CMS_Bulletin_25th_Ann_en.pdf.

⁴⁴ See CONVENTION ON MIGRATORY SPECIES, *supra* note 30, at 5–15.

⁴⁵ Caddell, *supra* note 19, at 119–20.

⁴⁶ The CMS instructs Parties to “take action to avoid any migratory species becoming endangered.” Convention on the Conservation of Migratory Species of Wild Animals, *supra* note 5, art. II(2); see also *infra* notes 53–55, 78–81 and accompanying text.

and Slender-billed Curlews (*Numenius tenuirostris*), both listed as “critically endangered” on the IUCN red list.⁴⁷ MOUs and action plans can be replaced with long-term, formal AGREEMENTS at the Parties’ discretion.⁴⁸ Most MOUs and action plans have not been replaced by formal AGREEMENTS, however, and many Parties appear to prefer to enter into less formal agreements. Since 2000, CMS Parties have entered into only two AGREEMENTS but have concluded sixteen MOUs.⁴⁹

While MOUs are not legally binding, this does not mean that they are ineffective. MOUs can be politically binding,⁵⁰ and may be useful tools to encourage participation among Parties that have national sovereignty or domestic concerns about being bound to the terms of a treaty. They can also be effective in situations where coordination is more important than coercion—for example, where the necessary conservation activities do not interfere with economic activities, but where coordination of research and monitoring is necessary.

While these different instruments provide a much-needed degree of flexibility for protecting migratory species in the international context, they also invite problems. When species protection requires the imposition of new laws and regulations, a nonbinding MOU may not ensure that domestic regulations meet the provisions of the agreement. MOUs can also reduce certainty about whether parties will continue to fully participate in the future, and allow parties to avoid committing resources to the CMS and its daughter agreements. Additionally, lack of funding is a significant problem that severely constrains the ability of the CMS to protect migratory species.⁵¹

⁴⁷ Int’l Union for Conservation of Nature & Natural Resources, The IUCN Red List of Threatened Species: *Grus leucogeranus*, <http://www.iucnredlist.org/apps/redlist/details/143772/0> (last visited Mar. 13, 2011) (listing the Siberian Crane); Int’l Union for Conservation of Nature and Natural Resources, The IUCN Red List of Threatened Species: *Numenius tenuirostris*, <http://www.iucnredlist.org/apps/redlist/details/143992/0> (last visited Mar. 13, 2011) (listing the slender-billed curlew); see also CONVENTION ON MIGRATORY SPECIES, CMS FAMILY GUIDE SPECIES 15–16 (2009) [hereinafter CMS FAMILY GUIDE SPECIES], available at http://www.cms.int/publications/pdf/CMS_Family_Guide/CMS_Family_Guide_Internet/Species.pdf. The MOUs covering the Siberian Crane and the Slender-billed Curlew were the first two entered into under the CMS. See generally CONVENTION ON MIGRATORY SPECIES, CMS FAMILY GUIDE AGREEMENTS AND MOUs 8–25 (2009), available at http://www.cms.int/publications/pdf/CMS_Family_Guide/CMS_Family_Guide_Internet/agreements_mou.pdf.

⁴⁸ Caddell, *supra* note 19, at 119–20.

⁴⁹ Since 2000, MOUs have been concluded for West African elephants, aquatic warblers, raptors, Bukhara Deer, Pacific cetaceans, dugongs, Andean Flamingos, grassland birds of Southern South America, Great Bustards, African marine turtles, Southeast Asian marine turtles, Mediterranean Monk Seals, Ruddy-headed Geese, Saiga Antelope, sharks, Siberian Cranes, Slender-billed Curlews, and West African aquatic mammals. CONVENTION ON MIGRATORY SPECIES, *supra* note 30.

⁵⁰ See Clare Shine, *Selected Agreements Concluded Pursuant to the Convention on the Conservation of Migratory Species of Wild Animals*, in COMMITMENT AND COMPLIANCE: THE ROLE OF NON-BINDING NORMS IN THE INTERNATIONAL LEGAL SYSTEM 196, 220–21 (Dinah Shelton ed., 2000).

⁵¹ See *infra* Part IV.B.5.

C. Balancing the Need to Protect Endangered Migrants with the Need to Prevent Migratory Species Endangerment

A recurring source of tension in the CMS is the need to protect endangered migratory species and the need to protect and maintain abundant migratory species so that they do not become endangered.⁵² Two of the CMS's "Fundamental Principles" address this tension directly. The first Principle "acknowledge[s] the importance of migratory species being conserved . . . paying special attention to migratory species the conservation status of which is unfavourable,"⁵³ while the second Principle acknowledges "the need to take action to avoid any migratory species becoming endangered."⁵⁴

The initial CMS negotiations reflected this tension when Parties needed to determine whether the treaty would adopt the "shared resource" concept.⁵⁵ At that time, the shared resource concept challenged the traditional principle that nation-states have the exclusive right to exploit natural resources within their own borders.⁵⁶ The shared resource concept suggested that nations' sovereign right to exploit migratory animals is limited because nations share these animals.⁵⁷

Delegations promoting the shared resource concept—including the African delegation—wanted the CMS to focus on the interjurisdictional nature of migration.⁵⁸ According to this view, the purpose of the treaty would be to establish international norms and guidelines for the use, management, and conservation of migratory species.⁵⁹ Other delegations, however, wanted to limit the CMS to focus exclusively on endangered species, avoiding the question of how migratory species should be appropriately shared as a resource among nations.⁶⁰ Still others wanted to exclude migratory species that were the subject of other international agreements, such as marine species or Arctic species.⁶¹

⁵² See *infra* text accompanying notes 55–64.

⁵³ Convention on the Conservation of Migratory Species of Wild Animals, *supra* note 5, art. II(1).

⁵⁴ *Id.* art. II(2).

⁵⁵ See CONVENTION ON MIGRATORY SPECIES, *supra* note 43, at 19.

⁵⁶ At the time the CMS was negotiated, the notion of migratory animals as a resource shared among nations was a new and controversial legal concept. *Id.* at 19. Shared resources posed a challenge to the traditional principle of state sovereignty; nations may exploit resources within their borders, provided that this exploitation causes no harm to other nations. The shared resource concept places limitations on nations' sovereign right to exploit resources—such as migratory animals—which do not live exclusively within the borders of any single nation. See Cyril de Klemm, *Migratory Species in International Law*, 29 NAT. RESOURCES J. 935, 949–54 (1989).

⁵⁷ Klemm, *supra* note 56.

⁵⁸ See CONVENTION ON MIGRATORY SPECIES, *supra* note 43, at 19.

⁵⁹ *Id.*

⁶⁰ *Id.*

⁶¹ *Id.* (explaining some States' position that marine species should be excluded because of potential conflicts with ongoing UNCLOS negotiations and because conservation regimes were already underway in the Antarctic).

Ultimately, the text of the CMS strikes a balance between the more inclusive shared resource view and the narrower focus on endangered migratory species. The Preamble to the CMS recognizes that “wild animals in their innumerable forms are an irreplaceable part of the earth’s natural system which must be conserved for the good of mankind,”⁶² and the CMS applies to all migratory species that cross national boundaries, whether or not they are endangered.⁶³ Parties are free to conclude agreements on any migratory species, although they “shall endeavour” to conclude AGREEMENTS on species with unfavorable conservation status.⁶⁴

Despite this aspirational language, however, the daughter agreements under the CMS have focused primarily on endangered species.⁶⁵ The CMS text provides minimal guidance about which species should be conserved, although it encourages Parties to conclude daughter agreements to protect Appendix II species with unfavorable conservation status.⁶⁶ In theory, this could mean that the CMS daughter agreements would focus on species that face current or future threats but not imminent risk of extinction. In practice, however, the majority of CMS daughter agreements have focused on species that are endangered or have recently experienced sharp declines in population.⁶⁷

⁶² Convention on the Conservation of Migratory Species of Wild Animals, *supra* note 5, Preamble. The Preamble continues:

AWARE that each generation of man holds the resources of the earth for future generations and has an obligation to ensure that this legacy is conserved and, where utilized, is used wisely;
CONSCIOUS of the ever-growing value of wild animals from environmental, ecological, genetic, scientific, aesthetic, recreational, cultural, educational, social and economic points of view;
CONCERNED particularly with those species of wild animals that migrate across or outside national jurisdictional boundaries;
RECOGNIZING that the States are and must be the protectors of the migratory species of wild animals that live within or pass through their national jurisdictional boundaries;
CONVINCED that conservation and effective management of migratory species of wild animals require the concerted action of all States within the national jurisdictional boundaries of which such species spend any part of their life cycle.

Id.

⁶³ The CMS defines migratory species as “the entire population or any geographically separate part of the population of any species or lower taxon of wild animals, a significant proportion of whose members cyclically and predictably cross one or more national jurisdictional boundaries.” *Id.* art. I(1)(a).

⁶⁴ *Id.* art. IV(3).

⁶⁵ See *infra* note 67 and accompanying text.

⁶⁶ Convention on the Conservation of Migratory Species of Wild Animals, *supra* note 5, art. IV(1).

⁶⁷ All seven of the CMS AGREEMENTS and at least eleven of the CMS MOUs protect species that are endangered, vulnerable, or have experienced declines. See generally CMS FAMILY GUIDE SPECIES, *supra* note 47, at 2–24 (identifying Saiga Antelope, Mediterranean Monk Seals, Siberian Cranes, Slender-billed Curlews, marine turtles, African elephants, Bukhara Deer, dugongs, Lesser Kestrels, and sharks as either critically endangered or vulnerable). While the African-Eurasian Waterbird Agreement (AEWA) includes species categorized as “least

Two types of daughter agreements have been concluded under the CMS. A majority of the agreements focus on one or two critically endangered species.⁶⁸ However, a minority of agreements seek to protect larger classes of migratory species, typically either birds or marine mammals.⁶⁹ The migratory species in these agreements are usually selected because they have similar conservation needs and face similar threats.⁷⁰ The species covered by these agreements may have widely varying conservation statuses, with some species facing extinction and others with robust populations.⁷¹

concern," it also includes critically endangered species such as the Sociable Lapwing. *Id.* at 18–20. All of the species protected under the Agreement on the Conservation of Albatrosses and Petrels (ACAP) are listed as "Endangered," "Critically Endangered," or "Vulnerable." See AGREEMENT ON THE CONSERVATION OF ALBATROSSES & PETRELS, ALBATROSS AND PETREL SPECIES TO WHICH THE ACAP AGREEMENT APPLIES (2009), available at <http://www.acap.aq/acap-species/download-document/1190-a-list-of-acap-species>; see also Int'l Union for Conservation of Nature & Natural Resources, Red List Search, <http://www.iucnredlist.org/apps/redlist/search> (using search terms "albatross" and "petrel," yields the birds listed in the ACAP species list) (last visited March 17, 2011). The Agreement on the Conservation of Cetaceans of the Black Sea, Mediterranean Sea and Contiguous Atlantic Area (ACCOBAMS) includes the Short-beaked Common Dolphin, which has faced sharp population declines in portions of the Agreement area. Giuseppe Notarbartolo di Sciara, *Cetacean Species Occurring in the Mediterranean and Black Seas*, in PERMANENT SECRETARIAT OF ACCOBAMS, CETACEANS OF THE MEDITERRANEAN AND BLACK SEAS: STATE OF KNOWLEDGE AND CONSERVATION STRATEGIES, at 3.1, 3.6 (Giuseppe Notarbartolo di Sciara ed., 2001), available at http://www.accobams.org/images/stories/PDF/cetaceans%20of%20the%20mediterranean%20and%20black%20seas_%20state%20of%20knowledge%20and%20conservation%20strategies.pdf. The Agreement on the Conservation of Small Cetaceans of the Baltic, North East Atlantic, Irish and North Seas (ASCOBANS) includes protection of the Harbor Porpoise, whose Baltic Sea populations are believed to have dropped to 600 individuals. See Convention on Migratory Species, *supra* note 30, at 8–9. The Eurobats Agreement includes several bat species that are considered to be in decline, at risk, or are listed as endangered or vulnerable in the IUCN Red List. See EUROBATS, OCCURRENCE AND RED LIST CATEGORIES OF BATS IN EUROBATS RANGE STATES, available at http://www.eurobats.org/about/species_distr_range_rev2007.pdf. The Agreement on the Conservation of Gorillas and Their Habitats protects the mountain gorilla, which is listed by the IUCN Red List as critically endangered. CMS FAMILY GUIDE SPECIES, *supra* note 47, at 1. The Agreement on the Conservation of Seals in the Wadden Sea was concluded in response to a sharp decline in harbor seal populations. See Convention on Migratory Species, *supra* note 9.

⁶⁸ See, e.g., Memorandum of Understanding Concerning Conservation Measures for the Eastern Atlantic Populations of the Mediterranean Monk Seal (*Monachus monachus*), Oct. 18, 2007, B7 p. 979:55/S, available at http://www.cms.int/species/monk_seal/Monk_Seal_MoU_with_signatures_En.pdf (protecting a single species of seal). But see Gorilla MOU, *supra* note 6, at art. I (protecting "all species" of gorillas).

⁶⁹ Such agreements and memoranda of understanding have been concluded for African-Eurasian waterbirds; albatrosses and petrels; small cetaceans in the Baltic, North-East Atlantic, Irish and North Seas; raptors; Pacific cetaceans; and grassland birds of Southern South America. See CONVENTION ON MIGRATORY SPECIES, *supra* note 30, at 2–3.

⁷⁰ See, e.g., Pacific Island Cetacean MOU, *supra* note 33 (protecting all species of cetaceans using similar habitats and subjected to similar threats in the Pacific Islands Region); Grassland Birds MOU, *supra* note 33 (protecting several avian species using similar grassland habitat throughout Southern South America).

⁷¹ CONVENTION ON MIGRATORY SPECIES, *supra* note 30, at 27, 34 (listing agreements for the Ruddy-headed Goose (*Chloephaga rubidiceps*) and the Mediterranean Monk Seal). The Ruddy-headed Goose is an International Union for Conservation of Nature (IUCN) Species of Least Concern. Int'l Union for Conservation of Nature & Natural Res., *Chloephaga rubidiceps*,

D. Using the CMS to Protect Migration as a Phenomenon of Abundance

In 2009, Professors Robert Fischman and Jeffrey Hyman proposed that greater efforts should be made to protect migratory species as phenomena of abundance.⁷² Fischman and Hyman argue that the dominant focus on endangered species promotes an “emergency room” approach to biodiversity conservation.⁷³ Drawing on a growing body of literature that promotes an inclusive approach to biodiversity, they argue that abundant migrations are an important aspect of biodiversity.⁷⁴

Fischman and Hyman propose a “Migration Protection Model” (MPM) that would devote resources to maintaining and restoring migrations at high levels of abundance.⁷⁵ An approach to migratory species conservation based on the MPM would resolve at least some of the tension between protecting endangered species and preventing other migratory species from becoming endangered. The MPM identifies different threshold levels of population abundance and applies different conservation regimes to migrations based on these levels.⁷⁶

Under the MPM, any migration that falls below an upper benchmark abundance level⁷⁷ would be eligible for some basic protections designed to maintain the migration and prevent further declines in key habitat.⁷⁸ Any migration that falls below ecological viability⁷⁹ would be eligible for a more protective conservation regime that seeks to restore population abundance.⁸⁰ By dividing conservation regimes in this way, the MPM recognizes that some

<http://www.iucnredlist.org/apps/redlist/details/141463/0> (last visited April 2, 2011). The Mediterranean Monk Seal is Critically Endangered under IUCN standards. Int’l Union for Conservation of Nature & Natural Res., *Monachus monachus*, <http://www.iucnredlist.org/apps/redlist/details/13653/0> (last visited April 2, 2011).

⁷² See generally Fischman & Hyman, *supra* note 1, at 175.

⁷³ *Id.* at 175.

⁷⁴ *Id.* at 175–76 (citing NAT’L RESEARCH COUNCIL, PERSPECTIVES ON BIODIVERSITY: VALUING ITS ROLE IN AN EVERCHANGING WORLD 20–21 (1999), TIMOTHY J. FARNHAM, SAVING NATURE’S LEGACY: ORIGINS OF THE IDEA OF BIOLOGICAL DIVERSITY 3 (2007), DAVID B. LINDENMAYER & JERRY F. FRANKLIN, CONSERVING FOREST BIODIVERSITY: A COMPREHENSIVE MULTISCALED APPROACH 6–7 (2002), and Reed F. Noss, *Indicators for Monitoring Biodiversity: A Hierarchical Approach*, 4 CONSERVATION BIOLOGY 355, 356 (1990)).

⁷⁵ *Id.* at 229.

⁷⁶ *Id.*

⁷⁷ *Id.* at 230. The MPM does not specify how this benchmark should be established, but suggests that historic abundance or current carrying capacity might be suitable: “The benchmark may be the maximum population abundance recorded or estimated, an estimate of current carrying capacity, or a range of abundances reflecting the historic or ‘natural’ range of variability in the population’s size.” *Id.*

⁷⁸ *Id.* These protections would balance the needs of the migration with economic and other social needs; some activities that harm migrants or their habitats might be allowed, provided these activities do not pose major threats to ecological viability.

⁷⁹ Here “ecological viability” is defined as the population needed to “protect[] the ‘phenomenon of migration’ and the ecological role it serves.” *Id.* at 193.

⁸⁰ *Id.* at 195–96.

portion of resources should be devoted to preventing abundant migrations from becoming endangered.

One of the key differences between the MPM and the CMS approach is that the MPM focuses on protecting migration itself, rather than simply protecting the migratory species.⁸¹ By the time a species becomes endangered, migration may no longer be ecologically viable because it needs a large number of participants to be sustainable.⁸² By focusing on migration itself, the MPM provides a more protective standard. It also explicitly recognizes that migration is an important aspect of biodiversity. This focuses attention on the role of migration within an ecosystem, and recognizes that species endangerment is not the only threat. The loss of migration phenomena may also directly affect biodiversity.⁸³

The CMS and the MPM share a basic framework. Both create categories of migratory species and apply different conservation regimes to each group of species, with the most stringent protections triggered automatically for species identified as “endangered.”⁸⁴ The two approaches categorize migratory species in different ways, however. In the MPM, migrations are categorized by population abundance, with a more stringent level of protection triggered when the migration falls below a critical threshold of population abundance.⁸⁵ The CMS, in contrast, categorizes migratory species by conservation status, with one Appendix reserved for endangered species and another for species with unfavourable conservation status.⁸⁶

Unlike the MPM approach, under the CMS there is no clear demarcation between the two categories of species; a species can be listed on both Appendices.⁸⁷ As a result, both Appendix I and Appendix II species are eligible for essentially the same conservation regime; the chief difference is that Appendix I species are automatically protected by laws limiting takings.⁸⁸ As one would expect, many CMS agreements focus heavily on

⁸¹ *Id.* at 176.

⁸² *See id.* at 196–97, 230.

⁸³ *See id.* at 175–76 (explaining that migration itself is a part of a broader definition of biodiversity that seeks to avoid “exclud[ing] some of the most emotionally resonant and ecologically important spectacles of nature”).

⁸⁴ Convention on the Conservation of Migratory Species of Wild Animals, *supra* note 5, art. III(4); Fischman & Hyman, *supra* note 1, at 231–32.

⁸⁵ Fischman & Hyman, *supra* note 1, at 230.

⁸⁶ Convention on the Conservation of Migratory Species of Wild Animals, *supra* note 5, arts. III(1), IV(1).

⁸⁷ *Id.* art. IV(2).

⁸⁸ *Id.* art. III(5); *see also* Caddell, *supra* note 19, at 117–18 (explaining that most of the protections afforded Appendix I species under the CMS have limited obligatory strength because they require Parties only to “endeavor” to provide the protections). In contrast, Parties “shall prohibit the taking” of Appendix I species, subject to clearly defined exceptions. Convention on the Conservation of Migratory Species of Wild Animals, *supra* note 5, art. III(5). Parties’ affirmative duties under the CMS are limited, at least in part, by the nature of international environmental law—there is an inherent tradeoff between participation levels and stringency of international environmental agreements that often limits the degree to which a treaty can compel nations to commit to stringent protections. *See* discussion *infra* Part IV.B.1.

protecting endangered migrants or halting dramatic drops in migratory species populations.⁸⁹ Only a handful of agreements focus on entire classes of migratory species.⁹⁰

Another difference is that the MPM focuses on protecting migrations, while the CMS focuses on protecting migratory species.⁹¹ This is significant because it takes many individuals to sustain a migration; as a result, a migration may become “endangered”—that is, no longer ecologically viable—long before the species itself faces extinction.⁹² The CMS approach, in contrast, applies the most stringent protections against takings when the species itself faces extinction, at which point the migration could have diminished or disappeared entirely.⁹³

The CMS also differs from the MPM because it does not include guidelines that prioritize conservation actions.⁹⁴ The CMS Scientific Council is responsible for setting the research agenda, recommending additions to the Appendices, and recommending measures to be included in agreements.⁹⁵ The CMS does not provide any suggestions, however, about how actions and resources should be prioritized between different species, habitats, and activities. Instead, the Parties themselves prioritize actions and resources. As a result, a series of agreements, MOUs, and action plans center almost exclusively on endangered and charismatic⁹⁶

⁸⁹ CONVENTION ON MIGRATORY SPECIES, CONVENTION OF MIGRATORY SPECIES 11–16, 19–20, 24 (2008), available at http://www.cms.int/publications/pdf/Convention_brochure.pdf.

⁹⁰ See *supra* note 69 and accompanying text.

⁹¹ Convention on the Conservation of Migratory Species of Wild Animals, *supra* note 5, arts. I(1)(A), II(2) (defining the key term “migratory *species*”—central to the Convention—and noting that a fundamental principle of the Convention is to “take action to avoid any migratory *species* becoming endangered” (emphasis added)); cf. Fishman & Hyman, *supra* note 1, at 229 (distinguishing the MPM approach from a “single species approach,” like that in the CMS, considering MPM is not strictly a “multiple species approach” but rather, a flexible means to protect migration as a form of abundance).

⁹² See Fishman & Hyman, *supra* note 1, at 194–95, 230–31. In the MPM, the most stringent protections are triggered when population abundance falls below the “lower critical threshold[, which] protects the abundance necessary to maintain the migratory population’s functional role in the landscape and ecosystem, in addition to the individual and social behaviors of migrants.” *Id.* at 230.

⁹³ Convention on the Conservation of Migratory Species of Wild Animals, *supra* note 5, art. III; see, e.g., Grant Harris et al., *Global Decline in Aggregated Migrations of Large Terrestrial Mammals*, 7 ENDANGERED SPECIES RES. 55, 68–69 (2009) (describing terrestrial migrations worldwide that have become extinct as population levels have declined).

⁹⁴ The MPM prioritizes conserving migrations based on population abundance and ecological value of species’ habitats. See Fishman & Hyman, *supra* note 1, at 231.

⁹⁵ See *supra* note 34 and accompanying text.

⁹⁶ Scholars sometimes identify “charismatic megafauna” as “relatively large animal species, typically mammals or birds, that have symbolic value. . . . Because many of these species are endangered, their plight receives great media attention, and . . . the appeal of these ‘flagship’ species remains high.” DONALD G. KAUFMAN & CECILIA M. FRANZ, BIOSPHERE 2000: PROTECTING OUR GLOBAL ENVIRONMENT 342 (3d ed. 2000). Several CMS species would arguably fall into this category, including the Mountain Gorilla, the African elephant, the Siberian Crane, and cetaceans such as dolphins, porpoises, and whales. See generally CMS FAMILY GUIDE SPECIES, *supra* note 47.

migratory species—that is, the species for which Parties are most motivated to take conservation action.⁹⁷

Despite these differences, the CMS is not an unreasonable mechanism for protecting migrations as phenomena of abundance, and in fact, there are several indications that as the CMS matures, Parties will make additional efforts to protect and restore abundant migrations. The goal of each CMS AGREEMENT is “to restore the migratory species concerned to a favourable conservation status or to maintain it in such a status.”⁹⁸ Favorable conservation status requires population distribution and abundance at historic levels, “to the extent that potentially suitable ecosystems exist and to the extent consistent with wise wildlife management.”⁹⁹ This means that the goals of AGREEMENTS are generally consistent with the MPM’s objective of protecting migrations as phenomena of abundance.¹⁰⁰

The experience of the CMS and its daughter agreements suggest that the MPM approach to migratory species conservation could be viable in the United States and beyond. In fact, at least one CMS daughter agreement, the Africa-Eurasian Waterbird Agreement (AEWA), is similar enough to the MPM to provide a useful illustration of how the MPM might work internationally.¹⁰¹ Although the AEWA focuses on migratory species, rather than on the phenomenon of migration, it nonetheless shares key features with the MPM. Like the MPM, the AEWA identifies different categories of migratory species, based in part on population abundance, and provides different conservation regimes to each category.¹⁰² Both the AEWA and the MPM include provisions that protect endangered species from further decline, as well as maintain current levels of abundance for non-endangered species.¹⁰³

The AEWA has developed innovative ways to meet the needs of both endangered and abundant migratory waterbirds. In its signature “Wings over Wetlands” project, the AEWA has adopted a “flyway approach” that seeks to protect ecologically valuable habitat along the entire Africa-Eurasian

⁹⁷ CMS FAMILY GUIDE SPECIES, *supra* note 47; *see also supra* notes 68–70 and accompanying text.

⁹⁸ Convention on the Conservation of Migratory Species of Wild, *supra* note 5, art. V(1).

⁹⁹ *Id.* art. I(1)(C)(4).

¹⁰⁰ The upper benchmark for the MPM—below which conservation measures would be applied—might be “the maximum population abundance recorded or estimated, an estimate of current carrying capacity, or a range of abundances reflecting the historic or ‘natural’ range of variability in the population’s size.” Fischman & Hyman, *supra* note 1, at 230. This is comparable to the CMS requirement that the goal of AGREEMENTS include restoring species to historic levels, consistent with ecosystem availability and wise wildlife management. Convention on the Conservation of Migratory Species of Wild, *supra* note 5, art. I(1)(C)(4).

¹⁰¹ *See infra* Part III.B (discussing the AEWA).

¹⁰² *See infra* text accompanying notes 138–41.

¹⁰³ One of the Fundamental Principles of the AEWA is that “Parties shall take co-ordinated measures to maintain migratory waterbird species in a favourable conservation status or to restore them to such a status.” Agreement on the Conservation of African-Eurasian Migratory Waterbirds, art. II(1), 4th Sess., Sept. 2008, 2365 U.N.T.S. I-42632.

migratory corridor.¹⁰⁴ The project has developed web-based tools to prioritize habitat conservation actions based on the ecological value to multiple waterbird species.¹⁰⁵ Perhaps most important, the AEWA has become a focal point for research, funding, education, and conservation actions that support migrations throughout the entire Africa-Eurasian corridor.¹⁰⁶ While the AEWA is one example of how the MPM might be implemented, it highlights the potential of the MPM approach and shows that when attention is shifted away from endangered species, it becomes possible to conserve important habitat at large scales to benefit a broad range of migratory species.

III. AGREEMENTS UNDER THE CMS

Seven AGREEMENTS and nineteen MOUs have been concluded under the CMS.¹⁰⁷ An examination of these agreements shows both the potential and the limitations of the CMS approach. These migratory species protection agreements involve over 140 nations, including nations that are not Parties to the CMS.¹⁰⁸ CMS daughter agreements have directed attention, scientific research, conservation legislation, and habitat acquisition toward the needs of migratory species.¹⁰⁹ The range of agreements shows that the CMS is potentially useful both at preventing extinction of migratory species and at maintaining existing abundant migrations. They also show, however, that migration protection is a significant challenge, and that even under the best of circumstances, successful migration protection requires a significant amount of scientific information, Party motivation, and access to financial resources.¹¹⁰

This Part summarizes two agreements for the purpose of illustrating the range of approaches that have been taken under CMS daughter agreements.

¹⁰⁴ See *Wings Over Wetland (WOW)* UNEP-GEF African-Eurasian Flyways Project, *Flyway Conservation at Work Across Africa and Eurasia*, WOW Project Newsletter, 2010, at 7, available at http://wow.wetlands.org/Portals/1/documents/communication/wow_project_newsletter_2010.pdf.

¹⁰⁵ *Id.* at 15–19. A “major achievement of the WOW project” has been the development of the Critical Site Network Tool, a web-based platform that combines several databases on migratory bird routes and allows decision makers to access spatial data, on a flyway scale, about critical sites for migratory waterbirds. *Id.* at 15. The Critical Site Network tool is available at www.wingsoverwetlands.org/csntool.

¹⁰⁶ *Id.* at 7–8, 11, 13, 29, 31, 36–37, 45, 49, 51, 55.

¹⁰⁷ CONVENTION ON MIGRATORY SPECIES, *supra* note 30, at 2–3 (listing the Agreements, Memoranda of Understanding, and the signatories of CMS).

¹⁰⁸ *Id.* at 5–34; see also CONVENTION ON MIGRATORY SPECIES, COUNTRIES PARTICIPATING IN CMS/MOU THAT ARE NOT YET PARTIES TO CMS (2011), available at http://www.cms.int/about/Nonparties_participating_in_CMS_Agreements_MoU.pdf.

¹⁰⁹ United Nations Env'tl. Programme, Involving Non-Parties in CMS Subsidiary Agreements and MOUs, <http://www.unep.org/dec/onlineManual/Compliance/NegotiatingMEAs/CountryParticipation/Resource/tabid/602/Default.aspx> (last visited Mar. 17, 2011).

¹¹⁰ See discussion *infra* Part IV.B.

The Wadden Sea Seal Agreement¹¹¹ is an example of a successful AGREEMENT concluded under relatively auspicious circumstances: the threat to the seal was clearly identified and understood; the Range States are few in number and all highly motivated and capable of providing stringent protections; and the sea seal population has improved significantly.¹¹² The African-Eurasian Waterbird Agreement (AEWA), in contrast, addresses 255 bird species, 118 Range States, and 63 Parties.¹¹³ While the AEWA has had mixed success in restoring bird populations, it shows the approaches that are available when dealing with many different species and a large number of Range States.

A. The Wadden Sea Seal Agreement

In 1988, seals in the Wadden Sea declined to perilously low populations due to mass deaths from the phocine distemper virus.¹¹⁴ In 1990, the governments of Germany, Denmark, and the Netherlands concluded the first agreement under the CMS.¹¹⁵ The Agreement rests on the conceptual foundation that Wadden sea seals are indicators of the sea's ecological conditions and should be protected because they are an irreplaceable component of the Wadden Sea ecosystem.¹¹⁶ The Agreement covers only the Common Seal (*Phoca vitulina vitulina*), although later action plans have been extended to include breeding stocks of Gray Seals (*Halichoerus grypus*) in the Wadden Sea.¹¹⁷

The goal of the Agreement is to achieve and maintain a "favorable conservation status for the seal population."¹¹⁸ The Agreement establishes a conservation regime that requires Parties to develop a joint management plan, coordinate research and monitoring, create a network of protected areas, identify pollution-related risks to the seals, designate responsible authorities, and spread public awareness of the seal problem.¹¹⁹ Parties are required to enact restrictions on takings of seals and must meet common standards on national warden systems to police illegal takings.¹²⁰ They are required to assess the habitat needs of the seals and install reserves and

¹¹¹ Agreement on the Conservation of Seals in the Wadden Sea, Oct. 16, 1990, *available at* http://www.cms.int/species/wadden_seals/sea_text.htm.

¹¹² Convention on Migratory Species, *supra* note 9.

¹¹³ African-Eurasian Migratory Waterbird Agreement, Introduction, <http://www.unep-aewa.org/about/introduction.htm> (last visited Mar. 16, 2011).

¹¹⁴ See Convention on Migratory Species, *supra* note 9.

¹¹⁵ Agreement on the Conservation of Seals in the Wadden Sea, *supra* note 111, art. XVIII.

¹¹⁶ *Id.* preamble.

¹¹⁷ Convention on Migratory Species, *supra* note 9.

¹¹⁸ Agreement on the Conservation of Seals in the Wadden Sea, *supra* note 111, art. III.

¹¹⁹ *Id.* arts. IV, V, VII, VIII.

¹²⁰ COMMON WADDEN SEA SECRETARIAT, CONSERVATION AND MANAGEMENT PLAN FOR THE WADDEN SEAL POPULATION 2002–2006, at 5, 8 (2001), *available at* <http://www.waddensea-secretariat.org/tgc/TGC-Esbjerg01/SMP.pdf>.

protected areas as needed to meet seals' breeding and foraging needs.¹²¹ They also must coordinate efforts to regulate activities that disturb seals, such as recreational excursions into seal habitat during whelping and lactation periods and dumping of dredged materials into seal habitat.¹²² Coordination of research and monitoring activities is also required.¹²³

The Wadden Sea Seal Agreement is an example of one of the more effective daughter agreements. The Agreement has only three Parties, all of which border the Wadden Sea.¹²⁴ Because the Agreement is small, the Parties have been able to commit to several binding activities.¹²⁵ Their close proximity to each other also allows each state to observe other states' compliance measures and limits any individual nation's incentive to avoid taking action. Also, the three countries share a cultural norm of environmental protection and possess sufficient administrative and financial resources to implement the Agreement.¹²⁶

The Agreement has increased the seal populations significantly. Common seal populations, estimated at less than 5000 in 1989, have more than quadrupled since the Agreement was concluded.¹²⁷ Despite another outbreak of phocine distemper in 2002, the 2009 harbor seal population was over 20,000¹²⁸—which is within the historical range for the seal population.¹²⁹

¹²¹ *Id.* at 1–4.

¹²² *Id.* at 3–4.

¹²³ *Id.* at 5–6. Monitoring Parties' implementation of required provisions is more complex in the context of international treaties than monitoring agencies' implementation of statutes under domestic law. It can be difficult to determine, for example, when a nation has discharged its duties to coordinate with other nations or to acquire additional habitat. Even when a nation's required duties are clearly defined, nations are often reluctant to commit to binding actions, leading to many environmental treaties that contain weakly worded language, instructing nations, for example, to “endeavor” to take actions “to the degree feasible and appropriate.” And even where language is forceful and binding, many agreements lack effective compliance mechanisms to hold nations accountable to their commitments. Caddell, *supra* note 19, at 142–43 (identifying similar problems with the Bonn Convention).

¹²⁴ The three countries that are Parties to the Wadden Sea Seal Agreement are Denmark, Germany, and the Netherlands. Agreement on the Conservation of Seals in the Wadden Sea, *supra* note 111, art. XVIII.

¹²⁵ *See infra* Part IV.A, IV.B.1, 2.

¹²⁶ The Parties all participate in a trilateral cooperation on the Wadden Sea generally; this trilateral cooperative effort receives significant political support from all three countries, and its activities are coordinated by its own Secretariat. *See generally* Common Wadden Sea Secretariat, Trilateral Wadden Sea Cooperation-CWSS Homepage, <http://www.waddensea-secretariat.org> (last visited Mar. 13, 2011) (explaining that the Parties to the Wadden Sea Agreement share common goals and providing an overview of the organization of the trilateral cooperation).

¹²⁷ Trilateral Seal Expert Grp., Aerial Surveys of Harbour Seals in the Wadden Sea in 2009: Growth of the Harbour Seal Population Slowing Down?, <http://www.waddensea-secretariat.org/news/news/Seals/Annual-reports/seals2009.html> (last visited Mar. 13, 2011).

¹²⁸ *Id.* *see* Convention on Migratory Species, *supra* note 9.

¹²⁹ In 1900, the seal population is estimated at between 19,000–38,000 individuals. Trilateral Seal Expert Grp., *supra* note 127.

B. The African-Eurasian Waterbird Agreement

The African-Eurasian Waterbird Agreement (AEWA) differs from the Wadden Sea Seal Agreement in a few fundamental ways. Unlike the Wadden Sea Seal Agreement, which focuses on a single species, the AEWA covers all migratory waterbirds in the Agreement Area, which stretches from the northern reaches of Canada and the Russian Federation to the southernmost tip of Africa.¹³⁰ With sixty-three Parties, AEWA is the largest Agreement to be concluded under the CMS.¹³¹ The AEWA also rests on a different conceptual foundation than the Wadden Sea Seal Agreement: its Preamble hints at the shared resource concept,¹³² and the 2009–2017 Strategic Plan explicitly states that the AEWA relies on the shared resource concept.¹³³

These conceptual foundations are reflected in the provisions of the Agreement, which seeks to “maintain or to restore migratory waterbird species and their populations at a favorable conservation status throughout their flyways,” regardless of population abundance or endangerment status.¹³⁴ Under one of the provisions protecting all migratory waterbirds, Parties can only use the birds in a way that is sustainable and ecologically viable.¹³⁵ The Preamble also anticipates future threats to waterbird migrations, noting that waterbirds are dependent on rapidly degrading wetlands corridors.¹³⁶

The conservation regime of the AEWA resembles the MPM in several ways. It divides species into three main categories and several subcategories, based on population abundance and risk of population decline.¹³⁷ Column A species, which are most at risk, are subject to the basic

¹³⁰ Not all of the countries within the Agreement Area are Parties. See African-Eurasian Migratory Waterbird Agreement, *supra* note 113; African-Eurasian Migratory Waterbird Agreement, AEWA Interactive Map, http://www.unep-aewa.org/map/map_large.htm (last visited Mar. 15, 2011).

¹³¹ CONVENTION ON MIGRATORY SPECIES, *supra* note 5, at 1–6.

¹³² Agreement on the Conservation of African-Eurasian Migratory Waterbirds, *supra* note 103, preamble (stating that migratory birds “should be conserved for the benefit of present and future generations” and noting that any takings should be “conducted on a sustainable basis”).

¹³³ AFRICAN-EURASIAN MIGRATORY WATERBIRD AGREEMENT, AEWA STRATEGIC PLAN 2009–2017, at 5 (2008), available at http://www.unep-aewa.org/documents/strategic_plan/strategic_plan_2009-2017.pdf (“Waterbirds are a shared resource, and their conservation requires a shared responsibility towards sustainable management of the different species, their populations and their flyways. This long-term vision reflects the philosophy of AEWA that waterbird conservation and people should go hand in hand, thus contributing to the conservation of global biodiversity.”).

¹³⁴ *Id.*

¹³⁵ Agreement on the Conservation of African-Eurasian Migratory Waterbirds, *supra* note 103, art. III(2)(b).

¹³⁶ *Id.* preamble.

¹³⁷ See Agreement on the Conservation of African-Eurasian Migratory Waterbirds Res. 2.1, Amendments to the Annexes to the Agreement, App. I tbl.1, available at http://www.cms.int/species/aewa/pdf/AEWA_population_list.pdf.

conservation regime for endangered species under the CMS.¹³⁸ The AEWA further instructs Parties to develop and implement single species action plans for endangered Column A species, and to endeavor to establish and maintain wetlands and other habitats for endangered migratory bird species.¹³⁹ Parties are also required to implement restrictions on hunting and to endeavor to minimize other human disturbances of endangered migratory bird species.¹⁴⁰ AEWA's general conservation measures include sustainable use, coordinated efforts to maintain or re-establish a network of suitable habitats throughout each species's range, investigation and remediation of problems, prohibition on introduction of non-native waterbirds, and coordinated research, monitoring, education, and implementation.¹⁴¹

Compliance under the AEWA differs significantly from the Wadden Sea Seal Agreement. AEWA's large number of Parties limits the Agreement's ability to impose stringent requirements on all Parties.¹⁴² Moreover, with sixty-three Parties on three continents, monitoring and enforcing compliance poses logistical challenges and would require resources that might be better spent assisting developing country Parties in Africa and Asia with compliance.¹⁴³ For these reasons, AEWA's approach to implementation focuses on a strategic plan with goals, objectives, targets, and indicators.¹⁴⁴ Individual nations, the AEWA Secretariat, conservation NGOs, and other actors cooperate to achieve the goals and objectives identified in the Strategic Plan.¹⁴⁵ Some objectives focus specifically on endangered species, while others apply to migratory birds generally.¹⁴⁶ Objectives include a wide range of coordinated legal reforms, restrictions on hunting activities and land uses in waterbird habitats, and coordination on education, training,

¹³⁸ Agreement on the Conservation of African-Eurasian Migratory Waterbirds, *supra* note 103, art. III(2)(a). Under the CMS, Parties are required to prohibit takings of endangered species, subject to exceptions that include takings for scientific purposes, to enhance species survival, to accommodate traditional subsistence users, or under other limited and extraordinary circumstances. Convention on the Conservation of Migratory Species of Wild Animals, *supra* note 5, art. III(5). Parties are also encouraged to conserve and restore habitat, prevent or minimize the effects of adverse activities, and prevent factors that are likely to further endanger the species to the extent feasible. *Id.* art. III(4).

¹³⁹ Agreement on the Conservation of African-Eurasian Migratory Waterbirds, *supra* note 103, Annex 3 §§ 2.2, 3.2.

¹⁴⁰ *Id.* Annex 3 §§ 4.1, 4.3.

¹⁴¹ *Id.* art. III(2). While AEWA article III(1) instructs Parties to "giv[e] special attention to endangered species as well as to those with an unfavourable conservation status," most of AEWA's conservation measures apply to all migratory waterbirds, regardless of conservation status. *Id.* art. III(1).

¹⁴² See discussion *supra* Part II.B.

¹⁴³ See African-Eurasian Migratory Waterbird Agreement, *supra* note 113; African-Eurasian Migratory Waterbird Agreement, *supra* note 130 (showing Parties are distributed across three continents); see *infra* Part IV.B.4 (discussing difficulties of implementation and enforcement, particularly with developing countries).

¹⁴⁴ See AFRICAN-EURASIAN MIGRATORY WATERBIRD AGREEMENT, *supra* note 133, at 5–9.

¹⁴⁵ See *id.* at 11–22.

¹⁴⁶ See *id.* at 7–9 (outlining objectives regarding conservation, sustainability, communication, education, and capacity in relation to waterbird species, including focus on threatened species).

research, and monitoring activities.¹⁴⁷ The AEWA Secretariat coordinates activities, shares information, tracks waterbird populations, provides technical information, updates and publishes AEWA action plans, and develops the AEWA Strategic Plan.¹⁴⁸

The AEWA faces challenges. Only sixty-three of the AEWA's 118 Range States are Parties to the Agreement.¹⁴⁹ Moreover, many of those sixty-three countries have limited capacity to implement and enforce the protective legislation required for highly endangered species.¹⁵⁰ In addition, the Agreement requires a significant amount of information to be effective, including both extensive information about the migratory behaviors and needs of all 255 covered species¹⁵¹ as well as information-sharing tools that are useful to Parties.¹⁵²

Despite these challenges, the AEWA has achieved some significant successes. One of the AEWA's largest and most ambitious projects, Wings over Wetlands, launched a flyway-scale conservation initiative that includes Africa, Europe, the Middle East, Central Asia, Greenland and the Canadian Archipelago.¹⁵³ The four-year Wings over Wetlands project produced AEWA's Critical Site Network Tool, a web-based resource that provides information about migratory waterbirds' routes and habitat needs, and allows decision-makers to prioritize habitat conservation efforts that meets migrants' needs.¹⁵⁴ The Wings over Wetlands project also established eleven demonstration projects that conserve important migratory waterbird habitat

¹⁴⁷ See *id.*

¹⁴⁸ Agreement on the Conservation of African-Eurasian Migratory Waterbirds, *supra* note 103, art. VIII.

¹⁴⁹ African-Eurasian Migratory Waterbird Agreement, *supra* note 113.

¹⁵⁰ Fifteen of the Contracting Parties to the AEWA are classified by the United Nations as Least Developed Countries (LDCs), which are characterized by extreme poverty. Compare African-Eurasian Migratory Waterbird Agreement, AEWA-63 Contracting Parties, <http://www.unep-aeewa.org/map/parties.htm> (last visited Mar. 16, 2011), with OFFICE OF THE HIGH REPRESENTATIVE FOR THE LEAST DEVELOPED COUNTRIES, LANDLOCKED DEVELOPING COUNTRIES AND SMALL ISLAND DEVELOPING STATES (UN-OHRLLS), THE LEAST DEVELOPED COUNTRIES: THINGS TO KNOW, THINGS TO DO 2 (2009), available at <http://www.unohrlls.org/UserFiles/File/LDC%20Documents/Advocacy%20brochure%20english%20for%20web.pdf> (listing LDC Parties as: Benin, Djibouti, Equatorial Guinea, Ethiopia, Gambia, Guinea, Guinea-Bissou, Madagascar, Mali, Niger, Senegal, Sudan, Tanzania, Togo, and Uganda). LDCs typically possess limited governmental capacity to achieve public policy objectives. See, e.g., OFFICE OF THE HIGH REPRESENTATIVE FOR THE LEAST DEVELOPED COUNTRIES, LANDLOCKED DEVELOPING COUNTRIES AND SMALL ISLAND DEVELOPING STATES, GOVERNANCE FOR THE FUTURE: DEMOCRACY AND DEVELOPMENT IN THE LEAST DEVELOPED COUNTRIES 51–52 (2006), available at <http://www.unohrlls.org/UserFiles/File/Publications/Governancereport.pdf>.

¹⁵¹ Agreement on the Conservation of African-Eurasian Migratory Waterbirds, *supra* note 103, art. VIII, Annex II.

¹⁵² *Id.* arts. III(2), V(1).

¹⁵³ Wings Over Wetland (WOW) UNEP-GEF African-Eurasian Flyways Project, *supra* note 104, at 4.

¹⁵⁴ See *supra* note 106; see also WINGS OVER WETLANDS, THE CRITICAL SITE NETWORK TOOL, available at http://wow.wetlands.org/Portals/1/documents/communication/wow_csn_tool_flyer_june_2010.pdf.

from Estonia to South Africa.¹⁵⁵ The project received \$6,000,000 in funding from the United Nations Global Environmental Facility for its first four years of operation.¹⁵⁶

IV. LESSONS FOR INTERNATIONAL IMPLEMENTATION

This Part identifies useful lessons from the preceding review of the CMS and its daughter agreements. Part IV.A identifies gaps in migratory species protection, first identifying migrations that are not covered by the CMS or other regimes, and then identifying migrations that are not sufficiently protected by these regimes. These un- and under-protected migrations are potential targets for additional resources from the international community. Part IV.B identifies lessons from the CMS experience that could guide future daughter agreements under the CMS, bilateral or multilateral agreements outside the CMS, or revisions to existing agreements.

A. Gaps in Coverage

The cursory overview of international migratory species protection in this Article shows that the CMS, its daughter agreements, and other international regimes have had mixed success in protecting migratory species.¹⁵⁷ Outside the CMS, other international agreements provide some protection for migratory species, but there are often gaps in coverage, and some of these existing agreements are not sufficiently protective of species to prevent rapid population declines.¹⁵⁸ Within the CMS, agreements are split between those that focus on species that face extinction or have recently experienced rapid population declines, and those that include a wide range of endangered and non-endangered migrants.¹⁵⁹

The existing agreements, both inside and outside the CMS, leave gaps in coverage of migratory species. Species that are non-endangered, non-charismatic, or have no commercial value are rarely protected by any agreement. This includes, for example, the migration of the wildebeest (*Connochaetes gnou* and *Connochaetes taurinus*) and zebra (*Equus quagga*)—incredible phenomena of abundance that face threats from poaching and development, but that are not covered under current agreements.¹⁶⁰ There are geographic disparities as well; migratory species

¹⁵⁵ Wings Over Wetland (WOW) UNEP-GEF African-Eurasian Flyways Project, *supra* note 104, at 29–31.

¹⁵⁶ *Id.* at 55.

¹⁵⁷ *See supra* Part III.

¹⁵⁸ See Meretsky, Atwell & Hyman, *supra* note 1, at 514–28 (discussing gaps in migration conservation science, law, and policy).

¹⁵⁹ An analysis of CMS daughter agreements shows that most focus on one or two endangered species. *See* CONVENTION ON MIGRATORY SPECIES, *supra* note 30.

¹⁶⁰ Harris et al., *supra* note 93, at 62–63; Suzanne Serneels & Eric F. Lambin, *Impact of Land-Use Changes on the Wildebeest Migration in the Northern Part of the Serengeti-Mara*

whose range includes part of Europe are more likely to be protected than other species, although this may change as American and Asian countries increase their participation in the CMS. These taxonomic and geographic gaps in coverage are likely starting places for new energy, efforts, and resources aimed at conserving migrations.

Even where agreements provide some level of protection to migratory species, their effectiveness is mixed. The CMS Agreements have had a positive effect on some species, particularly under Agreements that have been in effect for several years. For example, populations have stabilized or increased for Wadden Sea seals,¹⁶¹ Bukhara Deer,¹⁶² and some species of albatrosses and petrels.¹⁶³

For other species, the Agreements and MOUs were enacted too recently to determine whether or not the covered species will benefit significantly from the protections.¹⁶⁴ Several agreements have been concluded since 2007.¹⁶⁵ The effects of these agreements are not yet known, although past experience suggests that agreements that have small numbers of moderately capable and motivated participants will be the most successful.¹⁶⁶ Other Agreements have not yet achieved stable migratory species population levels even after several years. The Agreement on the Conservation of Cetaceans of the Black Sea, Mediterranean Sea and Contiguous Atlantic Area (ACCOBAMS), for example, shows that progress can be slow where there are large numbers of participants and little scientific information on the

Ecosystem, 28 J. BIOGEOGRAPHY 391, 392, 404–05 (2001); *see also* Yisehak Doku et al., *Population Status of Plains Zebra (Equus quagga) in Nechisar Plains, Nechisar National Park, Ethiopia*, 48 TROPICAL ECOLOGY 79, 84–85 (2007); Meretsky, Atwell & Hyman, *supra* note 1, at 463 (describing wildebeest migration as a “phenomena of abundance”).

¹⁶¹ *See supra* Part III.A.

¹⁶² *See* Convention on Migratory Species, *supra* note 10.

¹⁶³ *E.g.*, AGREEMENT ON THE CONSERVATION OF ALBATROSSES AND PETRELS, AMSTERDAM ALBATROSS (*DIOMEDEA AMSTERDAMENSIS*), *available at* <http://www.acap.aq/acap-species/download-document/1180-amsterdam-albatross>; AGREEMENT ON THE CONSERVATION OF ALBATROSSES AND PETRELS, SPECTACLED PETREL (*PROCELLARIA CONSPICILLATA*), *available at* <http://www.acap.aq/acap-species/download-document/1205-spectacled-petrel>. *But see, e.g.*, AGREEMENT ON THE CONSERVATION OF ALBATROSSES AND PETRELS, WANDERING ALBATROSS (*DIOMEDEA EXULANS*), *available at* <http://www.acap.aq/acap-species/download-document/1207-wandering-albatross>.

¹⁶⁴ *See, e.g.*, Press Release, Convention on Migratory Species, CMS on Brink of Five New Species Agreements (Oct. 1, 2007) [hereinafter CMS on Brink of Five New Species Agreements], *available at* http://www.cms.int/news/PRESS/nwPR2007/10_Oct/CMS_five_new_agreements.htm; Press Release, Convention on Migratory Species, New CMS Agreement Signed to Save Sea Cows (Oct. 31, 2007), *available at* http://www.cms.int/news/PRESS/nwPR2007/10_Oct/Dugong_MoU.htm; Press Release, Convention on Migratory Species, Conservation Agreement for Andean Flamingos Signed at CMS Conference of Parties (Dec. 4, 2008), *available at* <http://www.cms.int/press/pressreleases/Flamingo%20PR.pdf>.

¹⁶⁵ *See* CMS on Brink of Five New Species Agreements, *supra* note 164.

¹⁶⁶ *See supra* Part III.A (describing the small number of parties to the Wadden Sea Agreement as a factor in the success of the Agreement in increasing seal populations in the Wadden Sea).

migratory behavior.¹⁶⁷ Similarly, the African turtle MOU demonstrates that progress can be slow where participants lack sufficient resources to devote to organizing MOU activities, scientific research, and implementing conservation actions.¹⁶⁸ Agreements with large numbers of participants, participants that lack capacity to fund and enforce measures, or migratory species whose habits are largely unknown are less likely to succeed (or may take longer before improvements begin to occur).¹⁶⁹

It is noteworthy that many of the agreements that have the greatest potential for protecting migrations as phenomena of abundance under the CMS have been the slowest to achieve success.¹⁷⁰ Agreements that focus on one or two endangered species, such as the Wadden Sea Seal Agreement, tend to be smaller in geographic scope in the number of Range States involved as compared to agreements such as the AEWA that seek to protect broader classes of migrants and are therefore more suitable for protecting abundant migrations.¹⁷¹

Both of these factors, geographic range and number of Range States involved, present barriers to success. Agreements that cover larger geographic areas need to be supported by more research and monitoring about population levels, habitat needs, current conditions, and future

¹⁶⁷ See Agreement on the Conservation of Cetaceans of the Black Sea, Mediterranean Sea and Contiguous Atlantic Area, Oct. 22–25, 2007, Dubrovnik, Croat., *Report of the Third Meeting of the Contracting Parties to ACCOMBAMS*, at 3, 9, 96, available at http://www.accobams.org/index.php?option=com_docman&task=doc_download&gid=45&Itemid=50.

¹⁶⁸ The African Marine Turtles MOU seeks to protect six species of marine turtles along the coastline from Morocco to South Africa. Convention on Migratory Species, Memorandum of Understanding Concerning Conservation Measures for Marine Turtles of the Atlantic Coast of Africa, http://www.cms.int/species/africa_turtle/AFRICAturtle_bkgd.htm (last visited Mar. 15, 2011). The six identified turtle species are thought to have experienced significant declines in recent years due to exploitation and habitat loss. *Id.* This region has 26 Range States, 22 of which have signed the MOU; most of which are developing African nations. Memorandum of Understanding Concerning Conservation Measures for Marine Turtles of the Atlantic Coast of Africa, May 6–9, 2002, Nairobi, Kenya, *Conservation and Management Plan for Marine Turtles of the Atlantic Coast of Africa*, available at http://www.cms.int/species/africa_turtle/pdf/africa_turtles_mou_cp_en.pdf. These signatories developed an Action Plan in 2002 with the primary goal of developing a database on turtle ecology and threats, as well as for monitoring and protecting nesting and feeding sites. See Convention on Migratory Species, *supra*. Funding remains a significant problem for implementing actions under the MOU, although the CMS has funded certain activities, such as a comprehensive review of turtle status in the region. The MOU does not have a Secretariat, although the MOU is overseen by the environmental program of the New Partnership for Africa's Development in Senegal. *Id.*

¹⁶⁹ See *supra* Part III.A–B.

¹⁷⁰ *E.g.*, Convention on Migratory Species, Pacific Cetaceans, http://www.cms.int/species/pacific_cet/pacific_cet_bkrd.htm (last visited Mar. 13, 2011); Convention on Migratory Species, Memorandum of Understanding Concerning Conservation Measures for the Aquatic Warbler, http://www.cms.int/species/aquatic_warbler/aquatic_warbler_bkrd.htm (last visited Apr. 2, 2011); Convention on Migratory Species, Memorandum of Understanding on the Conservation and Management of the Middle-Eastern Population of the Great Bustard, http://www.cms.int/species/otis_tarda/otis_tarda_bkrd.htm [hereinafter Great Bustard MOU] (last visited Mar. 12, 2011).

¹⁷¹ See *supra* Part III.A–B.

threats. Similarly, Agreements that include more Parties are less likely to commit to taking stringent actions.¹⁷² These problems can be compounded for large CMS daughter agreements, such as AEWA, that have high proportions of Least Developed Countries (LDC) Parties with limited capabilities to implement conservation policies.¹⁷³ These factors suggest that protecting migrations as phenomena of abundance on an international scale will be challenging. They also suggest that these Agreements are ideal candidates for additional funding from the international community—both because the phenomena of migration is of interest beyond national borders, and because these agreements are less likely to succeed if they must depend solely on the resources contributed by Range State parties.

B. Lessons for Design and Redesign of Agreements

A survey of the CMS Agreements, MOUs, and action plans reveals that certain challenges occur and recur in migratory species agreements. This Part discusses a few ideas that might be applied to new agreements, or used in redesigning existing agreements.

1. Low Participation

At least ten of the CMS Agreements and MOUs have low rates of participation by Range States.¹⁷⁴ Low rates of participation are problematic for migratory species agreements, since, for example, the efforts of one Range State to preserve wintering habitat may be undermined if another Range State does not make similar efforts to protect breeding habitat. Insufficient participation will be particularly problematic under three circumstances. First, if there is insufficient information about migratory behaviors, lack of participation will make collaboration on research and monitoring more difficult.¹⁷⁵ This can undermine the entire agreement, since adequate scientific information about population abundance, key habitat, and migratory behaviors are all crucial precursors to successful conservation efforts to protect migratory species.¹⁷⁶

Second, low participation will be particularly problematic where species have very specific habitat needs, and these habitats are located exclusively within the jurisdiction of non-participating nations.¹⁷⁷ Conversely,

¹⁷² See *infra* Part IV.B.1.

¹⁷³ See *supra* Part III.B.

¹⁷⁴ EUROBATS, AEWA, ACAP, the Agreement on Gorillas, and MOUs on the slender-billed curlew, aquatic warbler, dugongs, Pacific cetaceans, manatees, and birds of prey all have at least one-third of their Range States as non-participants, although some of these instruments are new. See CONVENTION ON MIGRATORY SPECIES, *supra* note 30, at 6, 10, 14–15, 17, 22, 24, 28, 30–31.

¹⁷⁵ Peter P. Marra, David Hunter & Anne M. Perrault, *Migratory Connectivity and the Conservation of Migratory Animals*, 41 ENVTL. L. 317, 342–43 (2011) (example of how sufficient information can improve current collaboration for research and monitoring).

¹⁷⁶ See *id.*, at 320.

¹⁷⁷ See *supra* Part II.B.

low participation may not be a significant problem for species whose habitat needs are less specific; for these species, participating nations may be able to protect and restore sufficient habitat to meet these species' needs.¹⁷⁸

Finally, low participation can be a problem where commercial activities have a heavy impact on migrants—for example, where species are directly hunted or are killed as by-catch from commercial fisheries. For these species, protection may require laws regulating the harmful commercial activity.¹⁷⁹ If enough Parties refuse to participate—and thus do not enact and enforce the necessary regulations—the success of any agreement will be undermined.

A useful approach in international environmental law is to minimize the requirements of the agreement, at least in the near term.¹⁸⁰ This approach is taken by the CMS, which avoids placing stringent requirements on Parties to the framework convention, and instead encourages Parties to include stringent requirements in their AGREEMENTS.¹⁸¹ Parties have developed a similar approach by opting to conclude MOUs more often than AGREEMENTS.¹⁸² While MOUs under the CMS may encourage Parties to take stringent actions, MOUs are not legally binding, and countries are free to limit the amount of resources they will devote to implementing MOUs. Minimizing the requirements of an agreement to increase participation may be useful where the key needs are research collaboration or access to particular habitat, since these needs can be met without stringent regulatory requirements. However, where threats to species are known and best addressed through stringent restrictions on behaviors,¹⁸³ an agreement that does not impose requirements on members may be ineffective.

If an effective agreement requires stringent regulations but participation is still low, it may be possible to use side payments or issue

¹⁷⁸ Brent Geese, for example, can breed in tundra, coastal meadows, small grassy islands, and in tundra lakes and rivers; and in non-breeding seasons has been known to graze in estuaries, mudflats, salt marshes, bays, cultivated grasslands, and winter grain fields. See Birdlife Int'l, Brent Goose (*Branta bernicla*), <http://www.birdlife.org/datazone/speciesfactsheet.php?id=386> (last visited March 16, 2011). The needs of this type of migrant will generally be easier to meet when compared with migrants that show high fidelity to particular breeding sites.

¹⁷⁹ See Eric Gilman et al., *Reducing Sea Turtle By-Catch in Pelagic Longline Fisheries*, 7 FISH & FISHERIES 2, 4 (2006) (discussing regulatory controls on the fishing industry as a solution to abate sea turtle by-catch).

¹⁸⁰ Jonathan Baert Wiener, *Global Environmental Regulation: Instrument Choice in Legal Context*, 108 YALE L.J. 677, 696–97 (1999) (discussing how changing the requirements to international environmental agreements could encourage nonparticipants to join multilateral treaties).

¹⁸¹ Convention on the Conservation of Migratory Species of Wild Animals, *supra* note 5, art. V.

¹⁸² See CONVENTION ON MIGRATORY SPECIES, *supra* note 30, at 2–3 (highlighting that seven AGREEMENTS have been signed, compared to nineteen Memoranda of Understanding).

¹⁸³ This is often the case when economic activities conflict with migratory species. For example, commercial fisheries often harm turtles as by-catch. Gilman et al., *supra* note 179, at 3. Fishing practices can be modified to avoid harm to the turtles, but fishers are unlikely to voluntarily adopt these practices, unless they are “convenient and economically viable.” *Id.* at 4. Unless methods are identified that reduce the harm to turtles and provide economic benefits to fishers, regulatory solutions are likely to be the most effective strategy. See *id.*

linkage to induce participation. Side payments are direct or indirect payments in exchange for a country's participation.¹⁸⁴ In common pool resource agreements, for example, a side payment could include a generous allocation of allowed harvest. Side payments can also include direct financial transfers, provision of in-kind resources, such as training or technology transfer, or funding for habitat conservation or restoration.¹⁸⁵ This type of direct side payment can be highly effective at inducing participation, but it works only if countries have varying motivation and resources, and at least one Party is able and willing to make the side payment.¹⁸⁶ Where species are commercially harvested or otherwise provide economic benefits, such as ecotourism, side payments may be a viable option.¹⁸⁷ Where species do not provide economic benefits, side payments are less likely to come from specific Parties; however, non-Party participants, like NGOs, may be motivated and have sufficient funding to provide side payments.¹⁸⁸

A final, albeit slow, way to increase participation is to increase education and awareness about the needs of migratory species. Parties' participation will increase when they better understand the risks of non-action and the benefits of cooperation. Several CMS daughter agreements have made education a major component of their conservation plans. The Eurobats AGREEMENT, for example, has educated member states and the public about bats through events like the "European Bat Night."¹⁸⁹ Such efforts have helped to reduce the public's perception of bats as frightening or disease-bearing, and help the public and member states to learn about bats' positive role in the ecosystem.¹⁹⁰

2. Insufficient Knowledge About Migratory Habitat and Behaviors

Several CMS daughter agreements suffer from a lack of scientific knowledge about a species or its migration. For example, a lack of information about threats to cetaceans in the Black and Mediterranean Seas has left Parties to the Agreement on the Conservation of Cetaceans of the Black Sea, Mediterranean Sea and Contiguous Atlantic Area (ACCOBAMS)

¹⁸⁴ See BARRETT, *supra* note 37, at 336.

¹⁸⁵ *Id.*; see also Frederick W. Mayer, *Managing Domestic Differences in International Negotiations: The Strategic Use of Internal Side-Payments*, 46 INT'L ORG. 793, 806 (1992).

¹⁸⁶ See BARRETT *supra* note 37, at 336–37, 342–43.

¹⁸⁷ See Kathleen A. Miller, *Conservation of Migratory Species in a Changing Climate: Strategic Behavior and Policy Design*, 41 ENVTL. L. 573, 595–96 (2011).

¹⁸⁸ See BARRETT, *supra* note 37, at 79–80 (parties are symmetrical when the species does not provide an economic benefit to either party); see also Miller, *supra* note 187, at 593 (demonstrating a scenario where an NGO might intervene when the parties were unwilling to proceed).

¹⁸⁹ Convention on Migratory Species, Agreement on the Conservation of Populations of European Bats, http://www.cms.int/species/eurobats/bat_bkrd.htm (last visited Mar. 16, 2011).

¹⁹⁰ See UNEP/EUROBATS SECRETARIAT, EUROBATS: THE AGREEMENT ON THE CONSERVATION OF POPULATIONS OF EUROPEAN BATS (UNEP/EUROBATS), available at http://www.eurobats.org/publications/leaflet/EUROBATS_leaflet_English.pdf.

with limited ability to develop policy solutions that adequately address the most pressing threats.¹⁹¹ Lack of scientific information about a species or its migration can also be a problem for species whose movements are elusive or live in remote areas. The notoriously shy Slender-billed Curlew's Siberian nesting sites, for example, remain undiscovered despite efforts funded by the CMS, the AEWA, and the European Union's "LIFE Programme."¹⁹² This problem is compounded for endangered species, whose low population numbers make them even more difficult to find and study.¹⁹³

Effectively protecting a migratory species may require an understanding of the connections between wintering, nesting, and breeding habitats. To illustrate, consider the American Redstart (*Setophaga ruticilla*), a migratory bird that breeds in the eastern United States and winters in Mexico, South America, and Central America.¹⁹⁴ Research shows that redstarts that winter in wetter climates tend to produce more young during the next breeding season.¹⁹⁵ The stability of redstart populations, then, depends upon availability of wet-climate wintering habitat as well as the availability of breeding habitat.¹⁹⁶ Because of these intimate connections between different stages of the migratory journey, effective conservation measures require an understanding of a migrants' particular needs, threats, and causes of population decline.

Multilateral or bilateral environmental agreements that face significant knowledge gaps tend to focus on improving their understanding of the problem before developing particular policy approaches. A classic example is the Montreal Protocol.¹⁹⁷ During initial negotiations on the ozone convention, the scientific basis for the ozone problem was poorly understood, and the Parties failed to agree on a single policy approach to address the problem, although they agreed to coordinate research and atmospheric monitoring.¹⁹⁸ The policy framework of the Montreal Protocol

¹⁹¹ See Giuseppe Notarbartolo di Sciara et al., *Overview of Known or Presumed Impacts of the Different Species of Cetaceans in the Mediterranean and Black Seas*, in PERMANENT SECRETARIAT OF ACCOBAMS, *supra* note 68, at 17.1, 17.4, tbl.17.1 (providing an overview of "known or presumed impacts" to Black and Mediterranean Sea cetaceans and showing that there is insufficient data to determine the significance of many presumed threats).

¹⁹² See Convention on Migratory Species, Memorandum of Understanding Concerning Conservation Measures for the Slender-Billed Curlew, http://www.cms.int/species/sb_curlew/sbc_bkrd.htm (last visited Mar. 16, 2011).

¹⁹³ New technology may help address the problems with studying species. See Marra, Hunter & Perrault, *supra* note 175.

¹⁹⁴ See *id.* at 322.

¹⁹⁵ *Id.* (citing Matthew W. Reudink et al., *Non-Breeding Season Events Influence Sexual Selection in a Long-Distance Migratory Bird*, 276 PROC. ROYAL SOC'Y B 1619, 1623 (2009)).

¹⁹⁶ See *id.*

¹⁹⁷ Montreal Protocol on Substances That Deplete the Ozone Layer, arts. 6, 7, 9, Sept. 16, 1987, 26 I.L.M. 1554.

¹⁹⁸ See Diane M. Doolittle, Comment, *Underestimating Ozone Depletion: The Meandering Road to the Montreal Protocol and Beyond*, 16 ECOLOGY L.Q. 407, 421 (1989).

was not adopted until after the Parties developed a better understanding about the causes and consequences of ozone layer depletion.¹⁹⁹

In the context of migratory species protection, lack of scientific information can similarly limit or delay an adequate policy response.²⁰⁰ Where a species's habits, migratory behaviors, and threats are poorly understood, a multilateral or bilateral agreement needs to focus on increasing and sharing scientific information. In some cases, simply collaborating on research and monitoring will be enough to provide a basis for conservation actions. In other cases, additional funding and resources may be needed. Where scientific research needs are significant, inclusion of local conservation organizations, NGOs, and international institutions can be one way to direct resources toward improved research and monitoring.

3. Stringency of Requirements

A key problem for several daughter agreements is that the requirements are not stringent enough to effectively protect the species.²⁰¹ This is a recurring problem with international environmental law, since nations are only bound to honor obligations that are undertaken voluntarily, but are hesitant to undertake obligations that may become politically or economically burdensome. Despite decades' worth of collaboration and information exchange on international fisheries, for example, many fish populations are declining rapidly, at least in part because of some countries' reluctance to enforce stringent restrictions on their domestic fishing industries.²⁰² It is also a problem for species that are harmed as by-catch from fishing industries, or whose habitats are deteriorating due to disturbance and pollution from agricultural activities or economic development, since these species are best protected by stringent regulations on the industries causing the harm.²⁰³ The stringency problem will generally

¹⁹⁹ See Peter M. Morrisette, *The Evolution of Policy Responses to Stratospheric Ozone Depletion*, 29 NAT. RESOURCES J. 793, 812 (1989).

²⁰⁰ Hyman, Need & Weeks, *supra* note 1.

²⁰¹ Agreements often use language that falls short of placing particular requirements on Parties. The ASCOBANS AGREEMENT, for example, requires Parties to "endeavour to establish an efficient system for reporting and retrieving by-catches" and to "endeavour to establish (a) the prohibition under national law, of the intentional taking and killing of small cetaceans where such regulations are not already in force, and (b) the obligation to release immediately any animals caught alive and in good health." Agreement on the Conservation of Small Cetaceans of the Baltic, North East Atlantic, Irish, and North Seas, Mar. 17, 1992, 1772 U.N.T.S. 217, Annex 3-4, available at http://www.cms.int/species/ascobans/asc_text.htm.

²⁰² See, e.g., Christopher J. Carr & Harry N. Scheiber, *Dealing with a Resource Crisis: Regulatory Regimes for Managing the World's Marine Fisheries*, 21 STAN. ENVTL. L.J. 45, 59-62 (2002) (describing problems with national enforcement of international fishing regulations).

²⁰³ See Giuseppe Notarbartolo di Sciara, *Summary*, in PERMANENT SECRETARIAT OF ACCOBAMS, *supra* note 67, at 1.1, 1.2, 1.3; Giuseppe Notarbartolo di Sciara, *Conservation Problems: Overview*, in PERMANENT SECRETARIAT OF ACCOBAMS, *supra* note 67, at 4.1, 4.3; Giuseppe Notarbartolo di Sciara & Giovanni Bearzi, *Cetacean Direct Killing and Live Capture in the Mediterranean Sea*, in PERMANENT SECRETARIAT OF ACCOBAMS, *supra* note 67, at 5.1, 5.3; Mark Simmonds & Laetitia Nunny, *Cetacean Habitat Loss and Degradation in the Mediterranean*

be more difficult to overcome when stringent regulations impose significant economic burdens on the affected industries, and easier to overcome when solutions are readily available or low-cost.²⁰⁴

Stringency of requirements can be addressed in several ways. In agreements on common pool resources, countries may submit to increased stringency where more strict measures are needed to protect the resource itself, and where monitoring activities are sufficient to ensure that all countries are complying with the enhanced requirements.²⁰⁵ In other instances, the availability of funding to help industries meet the cost of compliance may be helpful.

A final way to encourage more stringent agreements is to reduce the amount of uncertainty about threats to migratory species and solutions to address those threats. Participants will be more likely to submit to stringent requirements when they are reasonably certain that doing so will have the intended results. Similarly, more information about the benefits of migration and migratory species may also encourage countries to take on more stringent regulations. This suggests that more research and information about ecosystem service benefits of migration will be helpful. Increased information about benefits of migration can also encourage the use of side payments as a strategy to induce more stringent participation.

4. Capacity to Implement and Enforce

Some agreements have sufficient participation, information, and stringency, but may be ineffective because key countries lack sufficient regulatory capacity to implement and enforce the appropriate conservation measures.²⁰⁶ This is particularly a problem for agreements where a majority of participants are developing countries or LDCs, who not only have limited implementation and enforcement capacity, but who also have other pressing social and economic development issues that may be higher priorities than migratory species protection. The African marine turtle MOU illustrates this problem. The MOU has nearly universal participation by Range States, and most have enacted conservation legislation to protect the species in

Sea, in PERMANENT SECRETARIAT OF ACCOBAMS, *supra* note 67, at 7.1, 7.16; Giovanni Bearzi, *Interactions Between Cetaceans and Fisheries in the Mediterranean Sea*, in PERMANENT SECRETARIAT OF ACCOBAMS, *supra* note 67, at 9.1, 9.8; Léa David, *Disturbance to Mediterranean Cetaceans Caused by Vehicle Traffic*, in PERMANENT SECRETARIAT OF ACCOBAMS, *supra* note 67, at 11.1, 11.15; Pierre-Christian Beaubrun, *Disturbance to Mediterranean Cetaceans Caused by Whale Watching*, in PERMANENT SECRETARIAT OF ACCOBAMS, *supra* note 67, at 12.1, 12.17; Giuseppe Notarbartolo di Sciara & Alexei Birkun, Jr., *Conservation Needs and Strategies*, in PERMANENT SECRETARIAT OF ACCOBAMS, *supra* note 67, at 18.1, 18.3, 18.13.

²⁰⁴ Michael E. Porter & Claas van der Linde, *Toward a New Conception of the Environmental-Competitiveness Relationship*, 9 J. ECON. PERSP. 97, 109–09 (1995).

²⁰⁵ See ELINOR OSTROM, GOVERNING THE COMMONS: THE EVOLUTION OF INSTITUTIONS FOR COLLECTIVE ACTION 17–18 (1990).

²⁰⁶ See *supra* note 150.

question.²⁰⁷ Unfortunately, however, many have limited ability to enforce the existing regulations and to collaborate to ensure that enforcement is consistent across national boundaries.²⁰⁸

Countries' capacity to implement regulations tends to improve over time as economic development increases.²⁰⁹ In cases where species are not critically endangered, improving capacity slowly over time may be sufficient. Where the risks are particularly large and where species are on the brink of extinction, however, technical assistance, increased funding, and participation by NGOs can help to improve national capacity to implement and enforce agreements.

5. Funding

Funding is a problem for virtually all international environmental agreements, and the CMS and its daughter agreements are no exception. The problem is most acute where the gaps in scientific knowledge are greatest,²¹⁰ where the necessary conservation actions impose the greatest costs, and

²⁰⁷ See First Meeting of the Signatory States to the Memorandum of Understanding Concerning Conservation Measures for Marine Turtles of the Atlantic Coast of Africa, Nairobi, Kenya, May 6–9, 2002, Conservation and Management Plan for Marine Turtles of the Atlantic Coast of Africa, *available at* http://www.cms.int/wrd/en/NBO_Declaration_eng.doc; CONVENTION ON MIGRATORY SPECIES, *supra* note 30, at 18.

²⁰⁸ See CONVENTION ON MIGRATORY SPECIES, *supra* note 30, at 11–15 (showing that most participants have enacted stringent protective legislation, but that other aspects of the Plan have not been fully implemented).

²⁰⁹ See, e.g., Barry R. Weingast, *The Economic Role of Political Institutions: Market-Preserving Federalism and Economic Development*, 11 J.L. ECON. & ORG. 1, 6 (1995).

²¹⁰ Adequate scientific knowledge is a necessary precursor to an effective policy response. See *supra* Part IV.B.2; see also John McCormick, *The Role of Environmental NGOs in International Regimes*, in THE GLOBAL ENVIRONMENT: INSTITUTIONS, LAW, AND POLICY 83 (Regina S. Axelrod et al. eds., 2d ed. 2005). Where scientific uncertainty is high, a CMS daughter agreement will face the costs of obtaining the information needed to adequately protect and maintain the migratory species in question. The connection between scientific gaps and funding gaps is illustrated by the MOU for the Conservation of Cetaceans and Their Habitat in the Pacific Island Region. The most recent Action Plan under the MOU shows that significant information gaps persist; many locations in the region have not been surveyed for presence of cetaceans. See CONVENTION ON MIGRATORY SPECIES, MOU FOR THE CONSERVATION OF CETACEANS AND THEIR HABITAT IN THE PACIFIC ISLAND REGION: WHALE AND DOLPHIN ACTION PLAN 2009-2012, at 1–2, *available at* http://www.cms.int/species/pacific_cet/actionplan_2009_2012.pdf. Several of the MOU's priority action items will require Parties or involved NGOs to undertake additional research, including baseline research on whale population structure, abundance, distribution, and threats; the development and testing of mitigation techniques to reduce by-catch and depredation; and the development of appropriate guidelines to minimize the effect of fishing, ecotourism, and development activities on cetaceans. See *id.* at 10–13. To meet the high information needs of the MOU, Parties to the agreement rely heavily on outside organizations, including the South Pacific Regional Environment Programme (SPREP) to assist with scientific research. See *generally id.* (showing that almost all of the research initiatives will be led by SPREP, and the plan itself was based on a plan formulated by SPREP). Many of the Parties to the MOU are small island developing states with few resources to devote to information gathering. See CONVENTION ON MIGRATORY SPECIES, *supra* note 30, at 24 (listing Range States and signatories to the MOU).

where the key Range States are unable or unmotivated to devote significant resources to conserving the migratory species.²¹¹ Conversely, the problem is least acute where scientific needs are not significant, where similar measures can be taken to address multiple species at once, or where the species is highly charismatic and can attract funding from other sources.²¹²

CMS daughter agreements address the funding problem in several ways. The CMS partners with other international environmental agreements, such as the Convention on Biodiversity²¹³ and the Ramsar Convention on Wetlands of International Importance,²¹⁴ to exchange information, coordinate conservation efforts, and take advantage of related funding streams.²¹⁵ Other agreements have acquired funding from outside sources to offset the economic burdens imposed by the conservation actions.²¹⁶ The CMS also

²¹¹ The Agreement on African marine turtles suffers from a lack of funding because most of the signatories to these agreements are LDCs with limited resources. *See* CONVENTION ON MIGRATORY SPECIES, *supra* note 30, at 18 (listing signatories to the agreement); U.N. Office of the High Representative for Least Developed Countries, Landlocked Developing Countries and Small Island Developing States, Least Developed Countries: Country Profiles, <http://www.unohrrls.org/en/ldc/related/62/> (last visited Mar. 11, 2011) (listing all LDCs).

²¹² *See supra* note 96; *see also* Rachel Nuwer, *Conservation's Elephant in the Room: Media Focus on Charismatic, Sexy Animals Loses Sight of the Bigger Picture*, SCIENCELINE, Mar. 10, 2011, <http://scienceline.org/2011/03/conservation%E2%80%99s-elephant-in-the-room/> (last visited Mar. 12, 2011) (arguing that the public is more interested in research on and conservation of "charismatic megafauna," but that scientists can use those creatures to draw attention to less glitzy keystone species in the same habitat). This is particularly true for the agreement on mountain gorillas, which is funded through Party contributions as well as donations from outside organizations. *See* Gorilla MOU, *supra* note 6, art. IV.

²¹³ *See* U.N. Env't Programme, Great Ape Survival Project (GRASP): Partners, <http://www.unep.org/grasp/Partners/biodiversity.asp> (last visited Mar. 12, 2011) (explaining how both conventions have worked together with the GRASP to increase protection of great apes).

²¹⁴ *See id.* (showing cooperation with both conventions and GRASP); Convention on Wetlands Res. VIII.37: International Cooperation on Conservation of Migratory Waterbirds and Their Habitats in the Asia-Pacific Region, 8th Meeting, Valencia, Spain, Nov. 18–26, 2002, http://www.ramsar.org/cda/en/ramsar-documents-resol-resolution-viii-37/main/ramsar/1-31-107%5E21326_4000_0__ (last visited Mar 12, 2011) ("[T]he Convention's Strategic Plan 1997–2002, [was] intended . . . [to increase] 'Ramsar's contribution to international cooperation on shared wetland species, notably through cooperative arrangements with the Convention on Migratory Species, flyway agreements, networks and other mechanisms dealing with migratory species.'").

²¹⁵ *See* Convention on Migratory Species, A Guide to the Complementarities Between the Convention on Migratory Species and the Convention on Biological Diversity 4, 37, U.N. Doc. UNEP/CBD/COP/5/INF/28 (May 10, 2000), *available at* http://www.cms.int/pdf/CBD_INF_28.pdf (describing how the Convention on Biodiversity's financial mechanism has been used to fund CMS projects); *see also* Memorandum of Understanding between the Bureau of the Convention on Wetlands of International Importance Especially as Waterfowl Habitat (Ramsar Convention) and the Secretariat of the Convention on the Conservation of Migratory Species of Wild Animals (Bonn Convention or CMS) (Feb. 18, 1997), http://www.ramsar.org/cda/en/ramsar-memorandum-of-21281/main/ramsar/1%5E21281_4000_0__ (last visited Mar. 12, 2011) (describing cooperation between the two conventions to achieve goals).

²¹⁶ For example, the Convention on Migratory Species receives outside assistance from the European Agricultural and Rural Development Fund, which has helped farmers in the European Union to adopt farming practices that minimize harms to the Great Bustard. *See* Great Bustard MOU, *supra* note 170.

allows countries that are not CMS members to participate in agreements;²¹⁷ this allows countries like the United States—not a member of the CMS—to provide resources to the Shark Action Plan.²¹⁸

Some funding comes directly from Parties. When countries enter into a formal CMS AGREEMENT, they make a legally binding commitment to provide funding for the AGREEMENT.²¹⁹ Alternatively, the flexible approach that encourages participation also jeopardizes funding because the countries may not commit funds under MOUs, they may fail to deliver funds as promised, or they may provide funding in good economic times but not in economic downturns.

Insufficient funding is likely to remain a key problem for migratory species conservation agreements. Parties can address funding gaps by using and expanding on the strategies described above, as well as remaining alert to the possibility of new funding streams. As MOUs achieve successes, some Parties might be willing to conclude formal AGREEMENTS that would provide a stable source of funding.

The international environmental community can play an important role by identifying the types of agreements that are most likely to suffer from lack of funding, and targeting funding and other resources at those agreements. Agreements such as the African turtle MOU, for example, face significant scientific knowledge gaps and include a high percentage of LDC Parties. The international community can mobilize resources to meet these needs by providing direct funding as well as research and capacity-building assistance.

6. Assessing Tradeoffs in Agreement Design

As the above discussions illustrate, the tools that can be used to improve one aspect of agreement design can often undermine other aspects of agreement design. For example, participation can be increased when stringency is decreased, however, this can undermine the agreement's effectiveness and reduce the availability of resources. The effectiveness of new or amended agreements can be improved by carefully examining the ecological, economic, and social circumstances of the migration so that the tradeoffs between different design elements can be weighed. This examination might start by identifying which of the needs identified above—participation, information, stringency, capacity, and funding—is most pressing in order to move forward with a conservation plan.

²¹⁷ See Convention on the Conservation of Migratory Species of Wild Animals, *supra* note 5, art. V(2).

²¹⁸ See Press Release, Convention on Migratory Species, “Elastic Elasmobranchs”—50 Shark Range States Opt for Flexible CMS Agreement in Rome (Dec. 9, 2008), http://www.cms.int/news/PRESS/nwPR2008/12_Dec/nw101208_sharks_rome.htm (last visited March 12, 2011) (explaining the United States' leadership role in the action plan); CONVENTION ON MIGRATORY SPECIES, *supra* note 5, at 6 (showing that the United States has not signed the CMS).

²¹⁹ See Convention on the Conservation of Migratory Species of Wild Animals, *supra* note 5, art. VII(4) (requiring that each Party contribute to the CMS budget).

If basic scientific information is needed, for example, stringency may not be a pressing issue and participation may not be crucial, but the agreement will need participation by enough participants to muster the resources needed to engage in preliminary research. The charisma and endangerment status of the species may also be relevant here; species that are both highly charismatic and critically endangered will be able to muster greater resources from the NGO community, relieving the burden on participating states—but these NGOs must be invited to participate in the agreement. If basic scientific research is sufficient, but additional monitoring information is needed, participation by key Range States will be necessary, and the ecological nature of the migration will dictate whether all Range States are needed, or whether a smaller group of parties with jurisdiction over crucial habitat will suffice.

7. Addressing Intractable Tradeoffs Through Agreement Design

The most difficult tradeoffs will occur when the nature of the migration, its threats, and its solutions require a stringent agreement, a large number of Range States, and a high rate of participation. This will be even more difficult when the species in question does not directly provide any economic benefits that might motivate parties to take action to preserve the sustainability of benefits, or allow one party to make side payments to more reluctant holdouts. With more inherent tradeoffs, the agreement is more likely to have low participation, ineffective measures, and little impact on improving population abundance.

When the circumstances of the migration suggest that the tradeoffs may become intractable, it may be possible to identify elements of the problem that can be manipulated. For example, an agreement can focus on one or more migrants, or geographic parameters can limit the number of participants required. Other elements that can be manipulated include the amount of certainty about the costs of failing to protect the migration, certainty about the benefits of protecting the migration, the level of education and concern from the international community, and the capacity of key states to implement and enforce conservation actions. A seemingly intractable agreement might get new life from new information about a species' needs that helps to reduce the costs of imposing new regulations. Alternately, parties might be motivated to take more stringent action when they are better informed about a species; an example of this is found in the Eurobats agreement, which took steps through its European Bat Night to change peoples' negative opinions about bats and motivate them to protect these bats.

V. CONCLUSION

Migrations need greater international protection if they are to be maintained as phenomenon of abundance. The United States has an excellent opportunity to play a leading role in this effort, if it so chooses, by

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providing leadership and resources for greater collaborative efforts, particularly in the Americas, where countries have demonstrated increasing interest in convening agreements under the CMS. The resources that the United States could bring to bear to such efforts are tremendous and could overcome many of the recurring problems in international migratory species protection, such as low participation, lack of scientific knowledge, limited implementation capacity, and low levels of funding.