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Wetland and Conservation Banking in Transmission Corridor Rights-of-Way: Policy and Opportunities

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PRODUCT DESCRIPTION

Electric transmission line rights-of-way (ROWs) encompass millions of acres. Some of these lands include aquatic resources and land suitable for threatened or endangered species habitat. Wetland mitigation banking and habitat conservation banking provide legally recognized ways to offset permitted impacts to aquatic resources and wildlife by providing compensatory mitigation "credits" generated by conservation activities. Because ROW corridor lands traverse a variety of aquatic resources and habitats, and are already under active management, they provide potential locations for wetland mitigation banks and conservation banks. This report investigates whether transmission ROWs are a realistic prospect for banking and the generation of mitigation credits.

Results & Findings

Federal and state agencies have recently defined and specified procedures for reviewing and approving wetland mitigation banks and conservation banks, and defined the content of banking instruments. The suitability of ROW lands for banking will vary based on the presence or absence of lands suitable for aquatic resource compensation and if the habitat within the ROW can support threatened or endangered species. It will also depend on whether the watershed or habitat conservation "service area" within which the ROW lands are located offers sufficient demand for compensatory mitigation to make wetland or conservation banking economically viable. This report examines the factors that may be of particular concern to ROW owners and managers in establishing a wetland mitigation bank or conservation bank, including long term protection of the site, consistency with the electric transmission ROW operations, and cooperation with underlying landowners.

Qualitatively, it would appear that transmission corridor ROWs offer potentially important locations for wetland mitigation banks and conservation banks. They are already under active management; require attention to real estate and easement status; manage liability and other issues; and occupy substantial areas of land. ROW holders may benefit from partnerships with other organizations that have experience in establishing wetland or conservation banks or joint conservation/wetland mitigation banks. The existence of multi-site umbrella banks where managers have already secured banking instrument approvals may offer a way to include transmission corridor ROWs in wetland mitigation banking operations that already have an approved relationship with regulatory agencies. Since building and development are less likely to occur on ROW lands, they offer fewer conflicts than many other potential sites for compensatory mitigation and conservation. In urbanized areas, where compensatory mitigation may be particularly necessary, transmission corridor ROWs include some of the few areas of open land available for mitigation. Potential obstacles to banking include whether the ROW operator has **authority** (particularly on easement lands) to manage ROW lands for wetland and habitat benefits; and **credit definition** issues relating to whether ROW lands already protected from certain uses and encroachments can generate sufficient additional credits through management. Other obstacles may include **site protection** issues dealing with the ability of the ROW holder to

guarantee long term aquatic or habitat function, particularly if there is an underlying fee simple landowner; **financial assurance** issues related to guaranteeing performance; and management of **liability** for the credits.

Challenges & Objective(s)

Managers, regulators, and policymakers working on electricity transmission planning, including environmental permitting and mitigation, will benefit from this report. Transmission organizations will benefit by gaining increased understanding of regulations and guidelines. The report will assist them in the identification of opportunities to generate mitigation within ROW corridors for their own operations, and mitigation credits for potential use by others. Additional work is necessary to determine management opportunities, and which types of partnerships and other arrangements offer the greatest potential for realizing banking within this sector.

Applications, Values & Use

Regulators expect that reliance on both wetland mitigation banking and conservation banking will increase in the future. The 2008 compensatory wetland mitigation rule specifies a federal regulatory preference for wetland mitigation banking over other forms of compensatory mitigation for aquatic resources. ROW managers and environmental staff could benefit by taking into account opportunities for banking within their own managed lands as part of a portfolio of compensatory mitigation.

EPRI Perspective

Electric utilities principally manage electric transmission line rights-of-way to control vegetation. However, it is not uncommon for utilities to also manage for other uses, such as hunting. Incorporating wetland mitigation banking and conservation banking to increase biodiversity and to secure compensatory mitigation "credits" for internal use or sale would be a natural extension of current uses. A subsequent EPRI report (1015598), will explore challenges associated with establishing banks within electric transmission line rights-of-way.

Approach

The goal of the study was to examine the current framework for wetland banking and conservation banking, and to examine whether transmission ROWs offer a realistic prospect for establishment of banks and generation of valuable mitigation credits. The report relies on substantial research by the Environmental Law Institute and others on bank siting and locations, trends, and the development of the regulatory process governing both forms of banking.

Keywords

Electric transmission line rights-of-way
Wetlands
Wetland mitigation banking
Conservation banking

ABSTRACT

Wetland mitigation banking and conservation banking are important ways to offset permitted impacts to aquatic resources and wildlife. Federal and state agencies have defined procedures for reviewing and approving these banks and the content of banking instruments. Electric power transmission corridor rights-of-way (ROWs) occupy large land areas and offer potential locations for wetland mitigation banks and conservation banks. These corridor lands traverse a variety of aquatic resource lands and habitats and are already under active management, which includes attention to real estate and easement status, addressing environmental requirements, management of liability and other issues. The suitability of ROW lands for banking will vary based on the presence or absence of lands suitable for aquatic resource compensation, whether the habitat within the ROW can support threatened or endangered species, and whether the watershed or habitat conservation "service area" within which the ROW lands are located offers sufficient demand for mitigation to make wetland or conservation banking economically viable. The status and management of adjacent lands may also affect the viability of a banking proposal. However, issues related to authorized uses of ROW easements and the need to provide long term assurance of the protection of bank lands will require further examination if banking is to succeed on these lands.

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Introduction

Utility transmission corridors occupy a great deal of land in the United States. Many of the lands within transmission line rights-of-way (ROWs) include wetlands or former wetlands and lands suitable for wildlife and plant habitat. Because these are managed lands, they may offer opportunities for producing environmental benefits to offset anticipated losses to wetlands and to protected species caused by other lawful activities.

Federal and state programs that regulate the destruction of aquatic resources, including wetlands, and programs requiring protection of listed threatened or endangered species, often impose conditions that, among other things, require conservation of equivalent wetlands or habitats to offset the losses. Some of the demand for this "compensatory mitigation" is now being met by "wetland mitigation banks" or "conservation banks." Under these banking scenarios, restoration and conservation activities generate mitigation "credits" that can be sold and used to offset permitted losses incurred on other sites. The development of wetland mitigation banks (over 400 of which are in existence) and conservation banks (over 70 in existence) creates a market opportunity for entities engaged in land management to generate income and realize a public benefit by conducting restoration and conservation activities and selling the credits.

Utilities may consider establishing such banks on ROW lands. The activities conducted by wetland and conservation banks operating within ROWs might generate mitigation credits that can be used to offset the ROW managers' own anticipated compensatory mitigation requirements elsewhere in their operations, or sold to others for use in mitigating impacts of unrelated activities. This study examines the current framework for wetland banking and conservation banking, and offers a threshold examination of whether transmission ROWs offer a realistic prospect for establishment of banks and generation of valuable credits.

Wetland Mitigation Banking

Wetlands in the United States are largely regulated through §404 of the federal Clean Water Act (CWA), although state and local laws and policies can also play a significant role. Wetland mitigation banking is a means of providing compensation for the loss of wetland functions and values when a federal or state permit allows discharges into regulated waters. Wetland mitigation banking, like other forms of wetland compensatory mitigation, is now subject to a federal rule, published April 10, 2008, and effective June 9, 2008, that prescribes the conditions under which banking may occur and conditions with which wetland mitigation banks must comply (U.S. Dept. of Defense and U.S. EPA 2008).

Federal Policy and Legal Requirements for Wetland Mitigation Banking[1]

Overview and Federal Regulatory Roles

Section 404 of the CWA (33 U.S.C. § 1344) prohibits the discharge of any dredged or fill material into "waters of the United States"[2] including wetlands, without a permit. Congress created the §404 program in 1972 and divided authority and administration of the program between the U.S. Army Corps of Engineers (Corps) and the U.S. Environmental Protection Agency (EPA). The Corps plays the lead role in day-to-day operation of the §404 program through its authority to require and issue permits for the discharge of dredged or fill material into wetlands and other waters. Permit processing is carried out by the Corps' 38 district offices (see Figure 1-1). The Corps also conducts or verifies jurisdictional determinations and shares enforcement responsibilities with EPA (33 C.F.R. § 325.9).

EPA is responsible for developing the environmental criteria used by the Corps to evaluate permit applications, known as the §404(b)(1) Guidelines. EPA also maintains a review and comment role in the issuance of §404 permits; determines the geographic scope of jurisdiction and the applicability of exemptions; and shares enforcement responsibilities with the Corps (33 U.S.C. § 1344). Finally, EPA has the authority to veto permit decisions under §404(c) and the authority to elevate permit decisions to a higher level of management review by the Department of the Army under §404(q) (33 U.S.C. §§ 1344 (c), (q)).

[1] Portions of this section are adapted from Bean et al. 2008.

[2] "'[W]aters of the United States' means (1) All waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide; (2) All interstate waters including interstate wetlands; (3) All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation or destruction of which could affect interstate or foreign commerce including any such waters: (i) Which are or could be used by interstate or foreign travelers for recreational or other purposes; or (ii) From which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or (iii) Which are used or could be used for industrial purpose by industries in interstate commerce; (4) All impoundments of waters otherwise defined as waters of the United States under the definition; (5) Tributaries of waters identified in paragraphs (a) (1) through (4) of this section; (6) The territorial seas; (7) Wetlands adjacent to waters (other than waters that are themselves wetlands) identified in paragraphs (a) (1) through (6) of this section." 33 C.F.R. § 328.3.

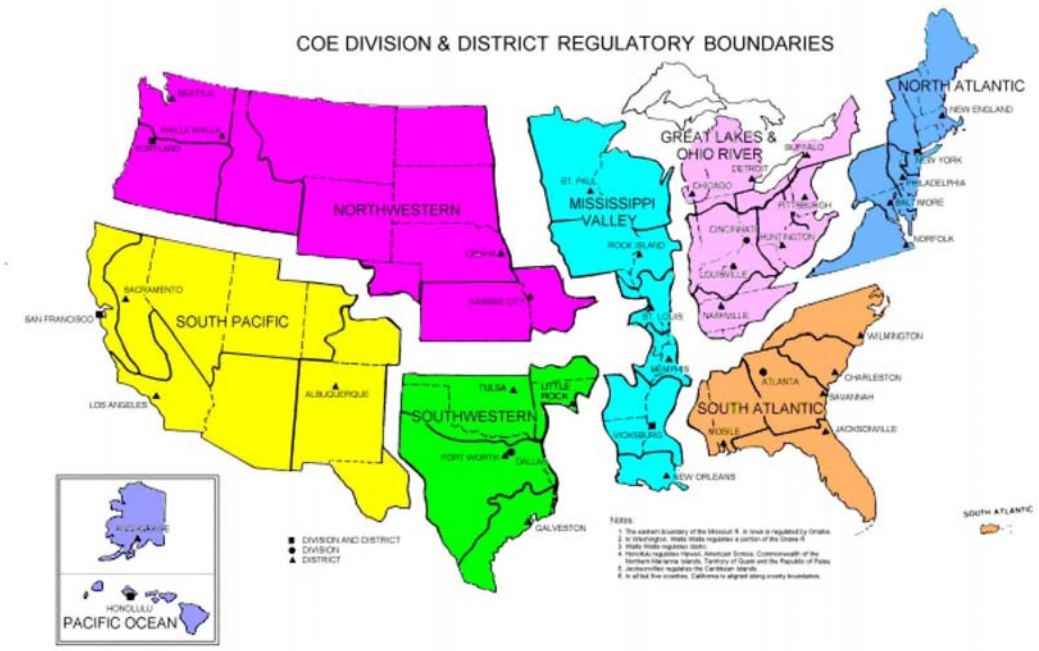

Figure 1-1
Corps of Engineers Regions & District Offices (USACE)

Federal Compensatory Mitigation Policy

Administration of the §404 program is guided by two national goals: (1) the 1972 CWA's purpose, "to restore and maintain the chemical, physical, and biological integrity of the Nation's waters"(33 U.S.C. § 1251(a)); and (2) the national goal, set in 1989, of achieving a "no overall net loss" of wetland acres and functions.[3] The national no net loss policy has been reinforced in subsequent federal wetland compensatory mitigation policy (U.S. EPA and U.S. Dept. of the Army 1990, U.S. Dept. of Defense and U.S. EPA 2008).

The §404(b)(1) Guidelines (40 C.F.R. § 230 et seq.), issued in 1980, and a Memorandum of Agreement issued by EPA and the Corps in 1990 (U.S. EPA and U.S. Dept. of the Army 1990, also referred to as the "Mitigation MOA") lay out a three-part mitigation sequence that the Corps must follow in an effort to meet the national aquatic resource goals. One of the central concepts of federal mitigation policy is that no discharges of dredged or fill material shall be permitted if there is a practicable alternative to the proposed discharge that would have less adverse impact on the aquatic environment, so long as that alternative does not have other significant adverse

[3] The national goal of achieving no net loss of wetland acres and functions was first expressed in the report, "Protecting America's Wetlands: An Action Agenda the Final Report of the National Wetlands Policy Forum." 1988. Washington, DC: The Conservation Fund. The report recommended that "the nation establish a national wetlands protection policy to achieve no overall net loss of the nation's remaining wetlands base, as defined by acreage and function, and to restore and create wetlands, where feasible, to increase the quality and quantity of the nation's wetlands resource base." On June 6, 1989, President George H.W. Bush officially articulated no net loss as a national policy goal in a speech to Ducks Unlimited.

environmental consequences (40 C.F.R. § 230.10(a)). In other words, impacts to aquatic resources must be avoided to the maximum extent practicable.

After the Corps has determined that "potential impacts have been avoided to the maximum extent practicable," the remaining unavoidable impacts must be minimized "to the extent appropriate and practicable…" Finally, permittees are required to compensate for all remaining unavoidable impacts (U.S. EPA and U.S. Dept. of the Army 1990, § II.C). The three-part mitigation sequence (avoid, minimize, compensate) is the heart of the federal §404 regulatory program. Although technically the term "mitigation" refers to all three steps of the three-part sequencing process, it is often used to describe the third step only.

Satisfying the Third Step: Compensation

Once the Corps has determined that the permittee has avoided and minimized the proposed impacts to the maximum extent practicable, the agency determines the amount of compensatory mitigation that the permittee must provide. Federal policy has established preferences for the methods of compensation that may be used, the location and type of the compensation, and the most appropriate compensatory mitigation mechanism. In all instances, however, the permit applicant is responsible for proposing the compensatory mitigation options (U.S. Dept. of Defense and U.S. EPA 2008, §332.3(a)(1)).

Compensatory Mitigation Method

Federal policy allows compensatory mitigation to be met through four different methods: restoration, enhancement, establishment, and in certain circumstances preservation. Federal regulations have stated that restoration "should generally be the first option considered because the likelihood of success is greater (U.S. Dept. of Defense and U.S. EPA 2008, §332.3(a)(2))." Because these methods differ in their ability to replace aquatic resource acres and functions, the Corps often requires a greater amount of compensatory mitigation where a permittee is relying on or purchasing credits based on preservation and enhancement.

Definitions for Compensatory Mitigation Methods

Enhancement "means the manipulation of the physical, chemical, or biological characteristics of an aquatic resource to heighten, intensify, or improve a specific aquatic resource function(s). Enhancement results in the gain of selected aquatic resource function(s), but may also lead to a decline in other aquatic resource function(s). Enhancement does not result in a gain in aquatic resource area."

Establishment (creation) "means the manipulation of the physical, chemical, or biological characteristics present to develop an aquatic resource that did not previously exist at an upland site. Establishment results in a gain in aquatic resource area and functions."

Preservation "means the removal of a threat to, or preventing the decline of, aquatic resources by an action in or near those aquatic resources…Preservation does not result in a gain of aquatic resource area or functions."

Restoration "means the manipulation of the physical, chemical, or biological characteristics of a site with the goal of returning natural/historic functions to a former or degraded aquatic resource. For the purpose of tracking net gains in aquatic resource area, restoration is divided into two categories: reestablishment and rehabilitation."

Re-establishment "means the manipulation of the physical, chemical, or biological characteristics of a site with the goal of returning natural/historic functions to a former aquatic resource. Re-establishment results in rebuilding a former aquatic resource and results in a gain in aquatic resource area and functions."

Rehabilitation "means the manipulation of the physical, chemical, or biological characteristics of a site with the goal of repairing natural/historic functions to a degraded aquatic resource. Rehabilitation results in a gain in aquatic resource function, but does not result in a gain in aquatic resource area."

Source: U.S. Dept. of Defense and U.S. EPA 2008, 33 C.F.R. §332.2.

Location of the Compensatory Mitigation and Mitigation Mechanisms

Compensatory mitigation projects may be sited on public or private lands (U.S. Dept. of Defense and U.S. EPA 2008, §332.3(a)(3)). Federal regulations have also established a preference for compensatory mitigation being completed "within the same watershed as the impact site" (U.S. Dept. of Defense and U.S. EPA 2008, §332.3(b)(1)).

Currently, there are three primary mechanisms supported by EPA and the Corps for permittees to meet their compensatory mitigation obligations. These are: performing project-specific or "permittee-responsible" mitigation, purchasing credits from a mitigation bank, or making a payment to an approved "in-lieu fee" mitigation sponsor (U.S. Dept. of Defense and U.S. EPA 2008). Mitigation banking and in-lieu fee mitigation are often referred to as "third party" mitigation, since the liability for meeting the compensatory mitigation requirements is transferred to a third party.

A "credit," for purposes of measuring compensatory mitigation, means "a unit of measure (e.g., a functional or areal measure or other suitable metric) representing the accrual or attainment of aquatic functions at a compensatory mitigation site. The measure of aquatic function is based on the resources restored, established, enhanced, or preserved"(U.S. Dept. of Defense and U.S. EPA 2008).

Definitions of the Three Compensatory Mitigation Mechanisms

In-lieu fee program "means a program involving the restoration, establishment,

enhancement, and/or preservation of aquatic resources through funds paid to a governmental or non-profit natural resources management entity to satisfy compensatory mitigation requirements for [Corps of Engineers] permits. Similar to a mitigation bank, an in-lieu fee program sells compensatory mitigation credits to permittees whose obligation to provide compensatory mitigation is then transferred to the in-lieu program sponsor…"

Mitigation bank "means a site, or suite of sites, where resources (e.g., wetlands, streams, riparian areas) are restored, established, enhanced, and/or preserved for the purpose of providing compensatory mitigation for impacts authorized by [Corps of Engineers] permits. In general, a mitigation bank sells compensatory mitigation credits to permittees whose obligation to provide compensatory mitigation is then transferred to the mitigation bank sponsor…"

Permittee-responsible mitigation "means an aquatic resource restoration, establishment, enhancement, and/or preservation activity undertaken by the permittee (or an authorized agent or contractor) to provide compensatory mitigation for which the permittee retains full responsibility."

Source: U.S. Dept. of Defense and U.S. EPA 2008, 33 C.F.R. §332.2.

Regulations issued by EPA and the Corps in 2008 established a new compensatory mitigation hierarchy for the Corps to use when making decisions about how applicants for permits should satisfy their compensatory mitigation obligations, as follows:

1) **Credits from a wetland mitigation bank** should be considered first if the "permitted impacts are located within the service area of an approved mitigation bank, and the bank has the appropriate number and resource type of credits available (U.S. Dept. of Defense and U.S. EPA 2008, §332.3(b)(2));"
2) **Credits from an in-lieu fee program** should be considered next if the "permitted impacts are located within the service area of an approved in-lieu fee program, and the sponsor has the appropriate number and resource type of credits available (U.S. Dept. of Defense and U.S. EPA 2008, §332.3(b)(3)) …";
3) **Permittee-responsible mitigation under a watershed approach** (the watershed approach will be discussed further below) should be the next option if permitted impacts are not in the service area of an approved mitigation bank or in-lieu fee program, or if those options to not have the appropriate number and type of credits available (U.S. Dept. of Defense and U.S. EPA 2008, §332.3(b)(4));

4) **Permittee-responsible mitigation through on-site and in-kind mitigation** should be the next option in cases where a watershed approach is not practicable (U.S. Dept. of Defense and U.S. EPA 2008, §332.3(b)(5));
5) Finally, if none of these approaches is an option, the compensatory mitigation obligation can be met by the **permittee through off-site and/or out-of-kind mitigation** if practicable and if it has a greater likelihood of offsetting impacts or is determined to be environmentally preferable (U.S. Dept. of Defense and U.S. EPA 2008, §332.3(b)(6)).

This hierarchy of preference increases the likelihood of demand for mitigation credits from banking, thus making banking a more favorable investment and land management opportunity than was the case previously. It also makes it more likely that utilities seeking to compensate for their own permitted wetland losses will need to examine banking to meet compensatory wetland mitigation requirements to a greater extent than previously when many Corps districts favored on-site, in-kind, permittee-responsible mitigation.

Credit Determination

Wetland mitigation banking depends upon the ability of bank sponsors to generate "credits" that are recognized by the Corps and approved for offsetting impacts at permitted sites. If a bank cannot generate credits, or its credits are not readily comparable to the aquatic resource losses to be offset, it is not a feasible enterprise. The new rules attempt to regularize credit determinations. The "principal units for credits or debits are acres, linear feet, functional assessment units, or other suitable metrics of particular resource types" (U.S. Dept. of Defense and U.S. EPA 2008, §332.8(o)(1)). The agencies encourage the use of a functional assessment methodology, such as the hydrogeomorphic approach or index of biological integrity, to help ensure comparability between the units of loss at the impact site and the units of compensation at the compensation site. The number of credits generated by a bank reflects the "difference between pre- and post-compensatory mitigation project site conditions (U.S. Dept. of Defense and U.S. EPA 2008, §332.8(o)(3))."

Credits are used to offset wetland impacts at a mitigation ratio that equals, or frequently exceeds, 1:1 (acres of compensation to acres of impact) (U.S. Dept. of Defense and U.S. EPA 2008, §332.3(f)). Credits provided by preservation must be used at a higher ratio to compensate for wetland losses (U.S. Dept. of Defense and U.S. EPA 2008, §332.8(o)(6)).

History of Wetland Mitigation Banking Policy Development

Federal Policy Evolution

In the mid-1980s, a series of influential studies were released that questioned the ecological and administrative effectiveness of permittee-responsible mitigation (Eliot 1985, Race 1985, Erwin 1990). The findings encouraged the support of new approaches to compensatory mitigation that might better address these perceived deficiencies. Wetland mitigation banking evolved as a way to consolidate compensatory mitigation into larger parcels; as the thinking goes, banks (and in-lieu fee programs) consolidate resources, provide a level of financial planning and scientific expertise that is not possible with most permittee-responsible projects, and reduces temporal

losses of functions and uncertainty over project success (U.S. Dept. of Defense and U.S. EPA 2008, §332.3(a)(1)).

The U.S. Fish and Wildlife Service (USFWS or Service) released guidance on wetland mitigation banking in 1983 (U.S. Fish and Wildlife Service 1983). EPA and the Corps first addressed wetland mitigation banking in the 1990 MOA: "Mitigation banking may be an acceptable form of compensatory mitigation under specific criteria designed to ensure an environmentally successful bank (U.S. EPA and U.S. Dept. of the Army 1990, § II.C)." Although the MOA did state that banks approved by EPA and the Corps could be used to meet the compensatory mitigation requirements of the program, it did not elaborate further on the procedures for establishing or overseeing banks. The 1990 Mitigation MOA did state, however, that additional guidance on mitigation banking would be forthcoming (U.S. EPA and U.S. Dept. of the Army 1990, § II.C).

EPA and the Corps issued interim guidance on wetland mitigation banking in 1993 and final banking guidance in 1995. The 1995 Banking Guidance set forth recommendations for the establishment, use, and operation of wetland mitigation banks that could be used to satisfy the compensatory mitigation requirements of the §404 program. Additional federal guidance guiding mitigation banking was issued in the intervening years, and in April 2008, EPA and the Corps issued a final rule on compensatory mitigation that establishes wetland mitigation banking as the preferred option for permittees to satisfy their compensatory mitigation obligations (U.S. Dept. of Defense and U.S. EPA 2008, §332.3(b)). The rule replaces the 1995 Banking Guidance as well as additional guidance documents that had been issued by both EPA and the Corps. For the full spectrum of federal policy on wetland mitigation banking, see Appendix A.

Corps District Policies

Although §404 of the CWA provides the Secretary of the Army with the authority to issue or deny permits, the responsibility for doing so has been delegated to the Chief of Engineers (U.S. Army Corps of Engineers n.d.). Because the Corps is "a highly decentralized organization," most of the authority for administering the regulatory program has, in turn, been delegated to the agency's 38 district offices (33 CFR Part 320.1 (a) (1)).

The Corps' direction on administering the §404 program derives from the Department of the Army regulations (33 CFR 320-331). The regulations have evolved over time to reflect new authorities and developing case law. The regulations are supplemented by the federal guidance issued by the Corps and interagency guidance issued in conjunction with the other sister wetland agencies. In addition, individual Corps districts issue their own guidance on the program, including guidance specifically pertaining to wetland mitigation banking. In many instances, the district-specific guidance is modeled after national guidance and is developed in response to a request from Headquarters.

At least 32 of the Corps' 38 districts have issued general guidance or standard operating procedures on compensatory mitigation. Seventeen districts have issued guidance specifically on mitigation banking and 10 of these have issued the mitigation banking guidance in conjunction with other federal and/or state agencies. Appendix B in Bean et. al. (2008) provides a bibliography of Corps district banking guidance. All of the district guidance cited there predates

the 2008 Compensatory Mitigation Rule, but much of it will still be used where consistent with the Rule. The Sacramento District of the Corps and other federal and state cooperating agencies have issued an updated wetland banking template for use in California since the rule was finalized (Sacramento District, Corps of Engineers et al 2008).

Number and Distribution of Wetland Mitigation Banks

The first wetland mitigation banks emerged in the mid-1980s and primarily were consolidated mitigation projects developed to address the future anticipated impacts of public agencies, such as state departments of transportation. Although wetland mitigation banking continued to grow over the following 15 years, it was not until the 1995 Banking Guidance was issued that the practice became widespread; since that time wetland banking has been largely dominated by private sector-sponsored banks. Presumably, prior to the issuance of the 1995 Guidance, existing federal policy on banking did not provide the private sector with enough assurances to encourage major investments in the development of the market.

In 1992, the Environmental Law Institute (ELI) documented 46 approved mitigation banks and 64 proposed banks (Environmental Law Institute 1993). These banks could be found in 18 states (see Figure 1-2). In 2001, ELI documented 219 approved mitigation banks in the country (see Figure 1-3), which could be found in 29 states; of these 219 approved banks, 197 were active and 22 had sold all of their credits. At the time, there were also 95 banks seeking or awaiting approval by the Corps (Environmental Law Institute 2002). The total number of approved banks represented a 376 percent increase over the number of banks identified in 1992. By September 2005, the Corps districts reported that there were 405 Corps-approved mitigation banks in the country (see Figure 1-4). Of these 405 approved banks, 330 were active and 75 were sold out (Wilkinson and Thompson 2006). This represented an 85 percent increase in the number of approved banks in four years and a 780 percent increase in the number of banks in thirteen years. In 2005, there were approved banks in 31 states. The districts also reported an additional 169 proposed wetland mitigation banks awaiting approval (Wilkinson & Thompson 2006). ELI also identified 33 active "umbrella banking agreements" with 9 more pending. These agreements provide authority for a single entity to operate a regional banking program with multiple sites (Wilkinson & Thompson 2006). These include agreements such as those between the Corps and with Minnesota and North Carolina that recognize state programs for banking at multiple sites as satisfying federal compensatory mitigation requirements.

Figure 1-2
Number of Approved Mitigation Banks in Each State in 1992 (Wilkinson & Thompson 2006)

Figure 1-3
Number of Approved Mitigation Banks in Each State in 2001 (Wilkinson & Thompson 2006)

Figure 1-4
Number of Approved Mitigation Banks in Each State in 2005 (Wilkinson & Thompson 2006)

Despite the fact that the mitigation banking industry has grown significantly in recent decades, permittee-responsible mitigation – the do-it-yourself approach – has been and remains the dominant mechanism for meeting compensatory mitigation requirements. As of 2003 (the most recent year for which data are available), approximately 60 percent of all required compensatory mitigation nationwide was satisfied by permittee-responsible mitigation (Wilkinson and Thompson 2006). The newer preferences for mitigation banking and in-lieu fee mitigation established by the 2008 compensatory mitigation rule may change this predominance, and will certainly do so in watersheds where banks are available.

State Wetland Mitigation Banking Policy

Many states in the U.S. have wetland programs with regulatory provisions that complement the §404 program. New Jersey and Michigan have been approved to assume administration of the §404 program itself, while many other states operate regulatory programs in parallel with the federally-administered §404 program.

Some of these state programs create additional regulatory requirements over and above §404 and some have wetland regulatory thresholds that are more stringent than §404. Some of these programs require mitigation for impacts not covered by §404. A comprehensive survey of state wetland programs completed in 2007 found that at least 27 states have some statutory, regulatory or policy guidance in place addressing wetland mitigation banking: 20 states have statutes authorizing state wetland mitigation banking programs or authorizing a state to purchase credits from a wetland mitigation bank; at least 16 have wetland mitigation banking regulations; and at least 18 have developed guidance on wetland mitigation banking often in coordination with the Corps or an interagency mitigation bank review team (Bean et al. 2008. Appendix C, E).

At least eleven states have active wetland mitigation banking programs operating and recognized within the context of state regulation of wetlands. These include Arkansas, California, Florida, Michigan, Minnesota, New Jersey, North Carolina, Oregon, Virginia, Washington, and Wisconsin. In addition to having laws, regulations, or policies that address wetland mitigation banking, these states support banking through programmatic commitments of staff and funding. The ways in which state policies interact with the federal wetland mitigation banking process varies from state to state. Minnesota has a particularly robust wetland mitigation banking program under state law; and a study showed that from 1994-2002 94 banks were in operation, although coordination with the Corps' §404 program has been described as "halting and complex" (Robertson 2008).

It is feasible to have a bank established to meet state requirements alone, but this is less and less common as bankers seek to be able to meet both federal and state mitigation needs with the credits they generate.

Local Mitigation Policy

Because wetland mitigation banking has been designed to meet federal or state regulatory requirements for permits, local policies have not yet played a significant role in the establishment and utilization of banks. Many local governments have at least some wetland regulatory requirements (Kusler 2003). Some of these requirements, such as those protecting critical areas in Washington state and Maryland, wetlands regulated by local boards in Massachusetts, or by county governments in King County, Washington and DuPage County, Illinois, may lead some permittees to the use of wetland banks to compensate for wetland losses. Local requirements may limit where the compensation may be provided (Robertson 2008). The banks themselves are, however, most likely to be designed to meet federal and/or state regulatory requirements.

The Process for Establishing Federally-Approved Wetland Mitigation Banks

The 2008 Compensatory Mitigation Rule sets out a detailed process for establishing wetland mitigation banks. Key elements of the process are summarized below.

Site Selection

All mitigation banks must have an approved instrument signed by the bank sponsor (U.S. Dept. of Defense and U.S. EPA 2008, §332.8(a)). The bank sponsor is defined as the "public or private entity responsible for establishing, and in most circumstances, operating a mitigation bank" (U.S. Dept. of Defense and U.S. EPA 2008, §332.2(a)).

The first step in establishing a bank is to identify an appropriate site. The Corps has a stated preference for banks that are designed to be "self-sustaining over time" (U.S. Dept. of Defense and U.S. EPA 2008, §332.2(a)(2)). In other words, the agency disfavors banks that need "active engineering features," such as pumps, to maintain hydrologic function (U.S. Dept. of Defense and U.S. EPA 2008, §332.7(b)). The agency does, however, recognize that sites will require some active management to ensure their "long-term viability and sustainability," such as

maintaining fire-dependent communities and controlling non-native invasive species (U.S. Dept. of Defense and U.S. EPA 2008, §332.8(a)(2)).

In addition, the 2008 Compensatory Mitigation Rule encourages the Corps and the Inter-Agency Review Team (IRT, see below) to use a "watershed approach" in reviewing proposed mitigation banks and in-lieu fee programs (U.S. Dept. of Defense and U.S. EPA 2008, §332.8(b)(3)). The rule defines the watershed approach as "an analytical process for making compensatory mitigation decisions…[that] involves consideration of watershed needs, and how locations and types of compensatory mitigation projects address those needs." Under the watershed approach, a landscape perspective is used "to identify the types and locations of compensatory mitigation projects that will benefit the watershed and offset losses of aquatic resource functions and services caused by activities authorized by [Corps] permits" (U.S. Dept. of Defense and U.S. EPA 2008, §332.2). (For more on the watershed approach, see Box: The Watershed Approach).

The rule also recognizes a type of mitigation banking that uses a single banking instrument to guide the establishment and operation of multiple bank sites – the "umbrella bank." Under the umbrella banking scenario, when additional mitigation sites are added to the bank, they are reviewed as modifications to the approved banking instrument (U.S. Dept. of Defense and U.S. EPA 2008, §332.8(h)).

The service area for a bank is a watershed, ecoregion, or other geographic area within which the bank is authorized to provide compensatory mitigation for impacts to aquatic resources. The service area must be sized appropriately so that the types of mitigation generated by the bank will effectively address compensation needs across the service area. The compensatory mitigation rule suggests that in urban areas a U.S. Geological Survey 8-digit hydrologic unit code (HUC) watershed or smaller watershed might be an appropriate scale, while in rural areas a larger service area might be considered (U.S. Dept. of Defense and U.S. EPA 2008, §332.8(d)(6)(ii)(A)).

Some states and Corps districts have established pre-determined service areas specifying HUC watersheds (Va. Code § 62.1-44.15:5E; Virginia Dept. of Envtl. Quality 2002). The Corps' Wilmington District uses an 8-digit HUC in North Carolina (Wilmington District, Corps of Engineers). Minnesota state law allows local municipalities, counties, and watershed districts to set their own geographic limitations on where compensatory mitigation must be performed, effectively allowing them to define or constrain service areas for wetland mitigation banks operating under the state Wetlands Conservation Act; at least 89 local jurisdictions had done so by 2003 (Robertson 2008).

The Watershed Approach

The 2008 Compensatory Mitigation rule encourages the Corps and the IRT to use a "watershed approach" in reviewing proposed banks. If bank sponsors can demonstrate that they have used such an approach in identifying bank sites and designing banks, they are likely to fare well in the bank review process. Although the agencies are likely to issue additional guidance on the watershed approach in coming years, the rule states that if an approved watershed plan does not exist in an area (the rule defines what constitutes an approved watershed plan at §332.2), that "the watershed approach should be based on information provided by the project sponsor or available from other sources." (U.S. Dept. of Defense and U.S. EPA 2008, §332.8(c)(1)-(3))

The rule states lists the "considerations" that should be taken into account when locating and designing compensatory mitigation projects, including "habitat loss or conversion trends, sources of watershed impairment, and current development trends, as well as the requirements of other regulatory and non-regulatory programs that affect the watershed," as well as other locational factors. The rule also lists the type of information that should be analyzed when taking a watershed approach, including "current trends in habitat loss or conversion; cumulative impacts of past development activities, current development trends, the presence and needs of sensitive species; site conditions that favor or hinder the success of compensatory mitigation projects; and chronic environmental problems such as flooding or poor water quality." (U.S. Dept. of Defense and U.S. EPA 2008, §332.8(c)(1)-(3))

Submittal and Review Procedures

The process for wetland mitigation bank establishment and management is overseen by an Interagency Review Team (IRT). The IRT generally is composed of representatives from EPA, the Corps, the U.S. Fish and Wildlife Service, NOAA Fisheries, and the Natural Resources Conservation Service. Other federal, state, local and tribal representatives may serve on the IRT, as appropriate. State, local, or tribal agencies are likely to serve on the IRT in regions where these groups play a significant role in wetland regulation (U.S. Dept. of Defense and U.S. EPA 2008, §332.8(b)(2)). In virtually all cases, the Corps serves as the Chair of the IRT (U.S. Dept. of Defense and U.S. EPA 2008, §332.8(b)(1)).

The first official step in securing bank approval is to submit a draft prospectus to the Corps district. In most cases, however, the agency recommends informal consultation in advance of seeing the draft prospectus. Often refereed to as a pre-application consultation, the Corps will likely request information from the prospective bank sponsor on how the site was selected, the aquatic resource types that are likely to be available at the site, and other such considerations.

The proposed bank sponsor may submit a draft prospectus to the Corps and IRT for comment (U.S. Dept. of Defense and U.S. EPA 2008, §332.8(a)(3)), but it is not until a complete prospectus is submitted that the official review process begins. The Corps must adhere to a defined timeline for each step in the process – from submission of a draft **prospectu**s to when the bank is approved and the sponsor can sell credits. This timetable ensures that the proposed bank sponsor will receive feedback from the Corps and IRT within specific timeframes. (See Compensatory Mitigation Rule Timeline).

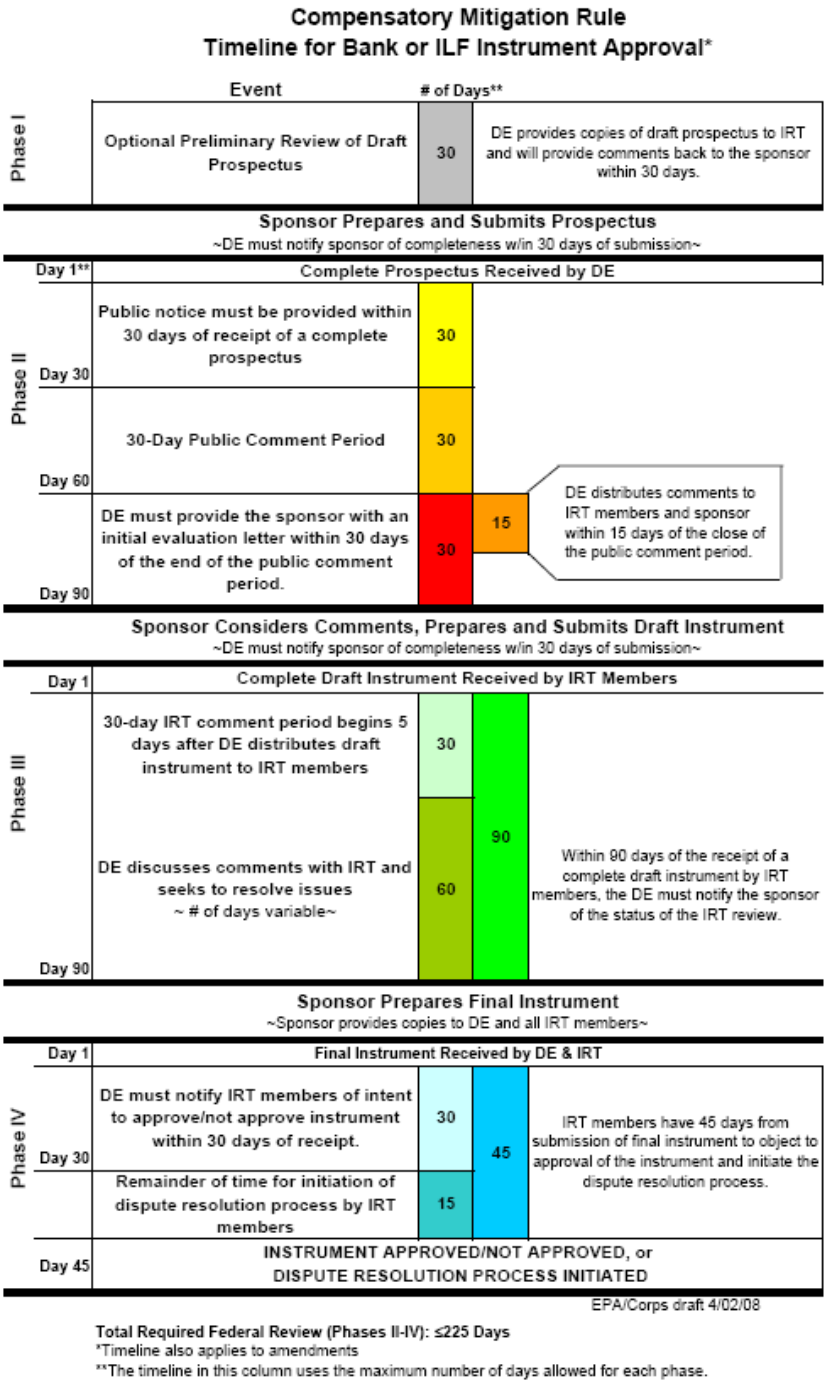

Figure 1-5
Timeline for Bank or ILF Instrument Approval (USACE/EPA)

The prospectus must include the following eight elements:

1. The objectives of the proposed mitigation bank;

2. A description of how the mitigation bank will be established and operated;
3. The proposed service area for the bank;
4. The general need for and technical feasibility of the proposed mitigation bank;
5. The proposed ownership arrangements and long-term management strategy for the bank site(s);
6. The qualifications of the sponsor to successfully complete the mitigation project proposed;
7. The ecological suitability of the site to achieve the objectives of the proposed mitigation bank, including the physical, chemical, and biological characteristics of the bank site and how that site will support the planned types of aquatic resources and functions; and
8. Assurance of sufficient water rights to support the long-term sustainability of the mitigation bank (U.S. Dept. of Defense and U.S. EPA 2008, §332.8(d)(2)).

The Corps must provide notice to the public after receiving a complete prospectus (U.S. Dept. of Defense and U.S. EPA 2008, §332.8(d)(4)). The agency is responsible for reviewing the public comments and providing the proposed bank sponsor with a written indication of whether or not the sponsor may proceed with the preparation of the draft instrument. If the Corps district engineer determines that the proposed mitigation bank does not have potential for providing appropriate compensatory mitigation for Corps permits, the district engineer must advise the sponsor of the reasons for that determination (U.S. Dept. of Defense and U.S. EPA 2008, §332.8(d)(5)).

The next step in the approval process is the development and submission to the Corps of the **draft banking instrument**, which the Corps distributes to the IRT (U.S. Dept. of Defense and U.S. EPA 2008, §§332.8(d)(6),(7)). Submission of the complete, draft banking instrument begins the formal IRT review process, which includes thirty days for IRT members to comment on the draft, and review by the Corps. The draft instrument must include the following seven elements:

1. A description of the proposed geographic service area of the mitigation bank or in-lieu fee program;
2. Accounting procedures;
3. A provision stating that legal responsibility for providing the compensatory mitigation lies with the sponsor once a permittee secures credits from the sponsor;
4. Default and closure provisions;
5. Reporting protocols;
6. A mitigation plan; and
7. A credit release schedule, which is tied to achievement of specific milestones. The district engineer may also require any other information deemed necessary. (U.S. Dept. of Defense and U.S. EPA 2008, §332.8(d)(6)).

The Corps is responsible for working with the bank sponsor and the IRT to resolve any issues with the proposed banking instrument. Although the Corps is encouraged to resolve issues using a "consensus based approach"(U.S. Dept. of Defense and U.S. EPA 2008, §332.8(d)(7)), the Corps has the ultimate authority over the approval of the bank instrument (U.S. Dept. of Defense and U.S. EPA 2008, §332.8(b)(4)). At the end of the IRT review period, the Corps must inform

the sponsor whether or not the draft instrument is "generally acceptable and what changes, if any, are needed (U.S. Dept. of Defense and U.S. EPA 2008, §332.8(d)(7))."

Finally, the bank sponsor may submit to the Corps the final banking instrument. The submittal must include supporting documentation that explains how the final instrument addresses all of the comments provided by the IRT (U.S. Dept. of Defense and U.S. EPA 2008, §332.8(d)(8)). The Corps district engineer must then notify the IRT members whether the engineer intends to approve the instrument; and there is a process for objection and dispute resolution. The bank sponsor may begin to sell credits once the final banking instrument and mitigation plan are approved, the mitigation bank site has been secured, and the financial assurances have been established (U.S. Dept. of Defense and U.S. EPA 2008, §332.8(m)). The bank must implement the approved mitigation plan "no later than the first full growing season after the date of the first credit transaction" (U.S. Dept. of Defense and U.S. EPA 2008, §332.8(m)).

Contents of the Mitigation Plan

The mitigation plan is the plan that outlines the legal, financial, and design elements of the proposed bank. It is a central component of the proposed and final banking instrument and must include the following 12 elements:

1. A description of the bank objectives, including the resource types and amounts that will be provided, the method of compensation, and a description of how the bank will support the needs of the watershed;
2. A description of the factors considered during the site selection process, including how site selection took watershed needs into consideration;
3. A description of the real estate and/or legal arrangements that will be used to ensure the long-term protection of the site;
4. A description of the baseline ecological characteristics of the proposed compensatory mitigation project site;
5. A description of the number of credits the bank anticipates providing;
6. A detailed mitigation work plan including such details as the construction methods that will be used and the timing of construction;
7. A description and schedule of maintenance activities that will be carried out at the bank;
8. A description of the ecologically-based performance standards that will be used to determine whether the bank is achieving its objectives;
9. A description of parameters to be monitored at the bank, which should elucidate whether or not the project is on track to meet its performance standards and if adaptive management is needed, as well as a schedule for providing monitoring reports to the Corps;
10. A long-term management plan, which describes how the compensatory mitigation project will be managed after the performance standards have been met;
11. An adaptive management plan, which outlines how the bank sponsor will address unforeseen changes in site conditions or other components of the compensatory mitigation project; and

12. A description of financial assurances that the sponsor will provide and a justification of how assurances are sufficient to ensure a high level of confidence that the compensatory mitigation project will be successfully completed, in accordance with its performance standards (U.S. Dept. of Defense and U.S. EPA 2008, §332.4(c)(2)-(c)(14)).

Conservation Banking

Conservation banking is the process of preserving, enhancing, or restoring wildlife habitat or habitat for rare species to compensate for future impacts to these habitats or species that depend on them (Bean et al. 2008). Development of conservation banking policies originated at the state level as opposed to the federal level, but conservation banking has subsequently become a part of the federal response to mitigating adverse impacts to threatened and endangered species under the federal Endangered Species Act (ESA).

In 1995, California became the first state to develop and implement a conservation banking policy. Today, the state's policy is still in effect, with California having the majority of the conservation banks in the nation. The first federal guidance document for conservation banks was released in 2003 by the U.S. Fish and Wildlife Service. However, prior to this date, the USFWS allowed purchase of credits from state conservation banks to meet regulatory requirements of the ESA (Bean et al. 2008). Currently, no other federal agency has regulations, policy, or guidance relating to conservation banking.

Conservation banking usually is designed to aid in the recovery of federally or state-listed threatened or endangered species. It plays a role in mitigating the impact of the approved incidental take of species under § 10 of the ESA, and in avoiding jeopardy to species under § 7 of the ESA. Both a habitat conservation plan (HCP) under § 10 and a no-jeopardy determination under § 7 may involve affirmative conservation and preservation measures such as those performed by a conservation bank.

U.S. Fish and Wildlife Service Guidance

Federal wetland mitigation banking and conservation banking guidance are similar in terms of processes but different in goals. Specifically, federal wetlands mitigation policy focuses on restoring and enhancing wetlands, while conservation banking guidance focuses on preserving species as a primary goal (Mead 2008).

Siting

Banks must be established to address the conservation needs of one or more listed species. The USFWS Guidance specifically calls for siting "banks in appropriate areas that can reduce the threat of fragmentation and provide management measures that address other threats that a species might encounter (U.S. Fish and Wildlife Service 2003, § II.B.1)." Thus, conservation banks should be established as large unfragmented habitat areas or as habitat corridors connecting smaller parcels of habitats (Mead 2008). The service area of a bank should be in areas outlined in recovery plans as "recovery units (U.S. Fish and Wildlife Service 2003, § II.C.2)." If there is no recovery plan for the species for which the bank is established, then the

bank service area should be based on comparable considerations to those that would be in a recovery plan (U.S. Fish and Wildlife Service 2003, § II.C.2).

Credit Recognition

Bank owners must develop management plans to protect and manage species and habitats within the bank service area (U.S. Fish and Wildlife Service 2003, § II.E.1). Banks may implement a variety of conservation tools from "preservation, management, and restoration of degraded habitat" to creation of habitat or connections between separated habitats to installation of buffers around protected areas (Bean et al. 2008). It is important to recognize that preservation is more heavily relied upon in conservation banking (where conservation and recovery of the species is the goal) than in wetland banking (where replacement of aquatic functions and values is the goal) (Mead 2008). Credits are established for the bank by the USFWS based on conservation outcomes, not management actions. Issuing credits is conditioned on the success of a management program in meeting the conservation needs of the species rather than just the implementation of the program (Bean et al. 2008). To purchase credits from the bank, a proponent's project must fall within the service area of the bank (U.S. Fish and Wildlife Service 2003, § II.C.2). The project proponent works with the USFWS to identify the amount of mitigation needed and corresponding credits it will need to purchase (Ruhl et al. 2005).

The USFWS recognizes conservation banking credits as "units representing listed and other at-risk species or habitat for those species on the conservation bank lands. A credit may be equivalent to (1) an acre of habitat for a particular species; (2) the amount of habitat required to support a breeding pair; (3) a wetland unit along with its supporting uplands; or (4) some other measure of habitat or its value to the listed species." (U.S. Fish and Wildlife Service 2006).

Banking Agreement Contents

A conservation banking agreement between the bank owner and the USFWS or other participating state or federal regulatory agency also must be developed. The agreement must contain: the management plan, title report, description of the "biological value" of the bank, definition of the service area, number and kind of credits, accounting system to track credits, performance standards, contingency management, ownership, and finance plans. The agreement also must identify "how the bank will be funded, managed, and protected in perpetuity" (U.S. Fish and Wildlife Service 2003, §II. E.1. and II.E.2). Specifically, the guidance requires that all bank owners convey a permanent conservation easement for the lands in the bank area to ensure protection of the resource values in perpetuity. Plans for long-term monitoring also area required (U.S. Fish and Wildlife Service 2003, § II.D.1). To ensure long-term funding for the bank, the guidance recommends a non-wasting endowment fund to ensure permanent financial assurance that bank functions will be carried out (Bean et al. 2008).

State-level Policy

Few states have formal policies towards conservation banking. California was the first state to adopt a state policy on conservation banking in 1995. Its policy was designed not only to meet mitigation requirements under California's state Endangered Species Act, but also requirements

under the California Environmental Quality Act and the California Coastal Act (Bean et al. 2008). California's policy outlines four resource management activities that can be used to generate credits for conservation banks – preservation, restoration, enhancement, or creation; however, most established banks in the state produce credits through preservation. As with federal guidance, the bank area must be protected in perpetuity through a conservation easement or fee title (Bean et al 2008). The 1995 policy did not include specific information on whether in-kind replacement of species habitat would be required if a bank generated credits through restoration, enhancement, or creation rather than preservation. In 1996, California's Department of Fish and Game in coordination with the USFWS issued a supplemental policy that clarifies that in-kind mitigation usually is required (Bean et al. 2008).

No other state has adopted policy on conservation banking; however, Washington State initiated an effort to establish a banking policy. In 2005, the state amended legislation that governs the Washington Wildlife and Recreation Program, a program that funds various preservation activities, to allow program funding to go to mitigation banking projects. Furthermore, the revised legislation specifically states that the goal of the mitigation banking projects will be to support the development of mitigation banking policy and practices in the state. However, to date, no banking policy has been developed by the state (Bean et al. 2008).

2
LEGAL AND REGULATORY OVERVIEW FOR TRANSMISSION CORRIDOR ROWS

Electric utilities generate, transmit, and distribute electricity to millions of public and private customers. Of the over 3,170 electric utilities in the U.S., 239 are investor-owned (U.S. Dept. of Labor 2006), 2,009 are publicly-owned, 912 are consumer-owned rural electric cooperatives, and 10 are federally-owned (U.S. Department of Energy, Energy Information Administration n.d.). Investor-owned electric utilities represent a majority of the generation capacity. Electric utilities own thousands of acres of land in utility ROW corridors across the United States (Baker 1999). This considerable land base and the nature of these facilities can result in positive and negative interactions with wildlife habitat. They also present opportunities for wildlife protection and wetland conservation.

To understand more fully the amount of land covered by electric utility transmission ROW in the U.S., we consulted data on corridor mileage and voltage. Applying simplifying assumptions assigning ROW widths ranging from 50-250 feet based on voltage produced an estimate of 8.67 million total acres of transmission corridor ROW lands (Goodrich-Mahoney pers. comm.). Many of these lands will not be suitable for wetland or conservation banking because they lack aquatic features or valued habitat for protected species. Some lands with suitable features may be located outside any watershed unit where compensatory mitigation will be needed to meet permit requirements, or outside a defined mitigation area for a permitted impact to threatened or endangered species habitat. Thus, although the potential land area involved is large (about equal to the land area of Massachusetts, Connecticut, and Rhode Island), potential opportunities for wetland or conservation banking are limited. Banking is most likely to be feasible where ROW corridors traverse large wetland areas or stream corridors, and where critical habitat has been defined for threatened or endangered species.

Nature of the Property Interest in ROWs

Electric utilities hold property interests in rights-of-way in several forms. Many ROWs are owned outright (in "fee simple") and thus can be used as any property owner can use lands that it owns; this form of ownership presents the greatest amount of flexibility in making decisions about activities on ROW lands.

Other ROW lands (probably the majority) are held as easements on land that is owned by another public or private landowner (Rinebold et al. 2002). An easement grants a limited right to use land for purposes expressly specified by the easement. Because the easement limits the otherwise broad rights of the underlying land owner, the easement is called the "dominant estate" and the underlying land interest the "servient estate."

ROW lands held as easements can be used only for the purposes spelled out in the easement; for transmission corridors these typically include the right to enter upon the land, to erect and maintain structures suitable for electric transmission and related purposes, to inspect, repair and replace such structures, and to remove vegetation or other impediments to the purposes of the easement. The precise terms of the easement govern the allowable uses of the ROW by the easement owner, and thus should be reviewed and evaluated before any novel or unanticipated use is made of the ROW land. Disputes over allowable uses within easements may end up in litigation between the easement owner and the servient estate landowner.

In addition to the easement terms themselves recorded in the land records of the conveyance creating the easement, state laws may also prescribe the content of easements and define certain landowner rights against ROW easement owners. These regulatory rights may include such elements as rights to notice of activities or requirements to minimize disturbances and restore conditions disturbed by use of the easement where consistent with the use of the easement (*e.g.,* Wis. Stat. §182.017(7)). Similarly, some state laws may create statutory requirements or policies for co-location of easements for differing purposes within the same ROW corridor, thus making it possible that transmission corridor easement owners may themselves be subject to further easements (Jenkins 2002).

Some ROW lands, particularly those traversing federal lands or other publicly-owned lands, are held under use permits whose terms are defined by the issuing agency. These are not easements, but rather permits subject to periodic review and renewal, and potentially including adjustments in terms and conditions. Some land-owning agencies have established utility corridors across sensitive public lands within which different utilities must share ROWs. (Jenkins 2002).

Regulatory Framework for Siting and Managing Transmission ROWs

Transmission corridor ROWs are subject to various forms of federal and state regulation. Regulations may include both utility regulations and environmental regulations governing construction and operation (*e.g.,* permitting for activities in waters and wetlands, regulation of pesticide and herbicide use, environmental impact assessment, endangered species regulation). The following briefly summarizes some of the forms of regulation that may apply to ROWs, and that may be relevant to their potential availability for wetland or conservation banking.

Federal Energy Regulatory Commission

States have the primary regulatory authority over siting transmission line corridors within their borders. However, siting of electric utility ROWs on federal lands is regulated by the Federal Energy Regulatory Commission (FERC). Also, the 2005 Energy Policy Act provides additional authority to FERC to regulate siting of transmission lines in areas designated by the Department of Energy (DOE) as National Interest Electric Transmission Corridors (NIETC) (Energy Policy Act 2005). The NIETCs were established based on results of a congestion study performed by the DOE (as required by the 2005 Energy Policy Act) that recommended designating any "geographic area experiencing electric energy transmission capacity constraints or congestion that adversely affects consumers as a national interest electric transmission corridor" (16 USC § 824p(a)).

FERC only has authority over approving the siting of transmission lines in designated NIETCs provided the following terms: if the state regulatory agency with authority for approving such facilities does not issue an approval for the proposed project within a year from the time the application is submitted; or if no state regulatory agency has authority over siting utility lines; or if the project does not qualify to apply for a state permits. FERC also can authorize transmission lines if the state agency with regulatory authority issues a permit or certificate of approval with conditions that prevent the proposed construction from reducing transmission congestion or being economically feasible (16 USC § 824p(b)). It should be noted that if the appropriate state regulatory agency does not approve the application within one year, then the applicant must *choose* whether to go to FERC for approval.

If the land where the ROW is to be sited within the NIETC is not on federal or state land and the permittee cannot gain the rights to the land through a contract or cannot agree on compensation with the landowner, then the permittee may use the right of eminent domain in the appropriate district court or state court (16 USC § 824p(e)).

For projects sited within the NIETC, the DOE is responsible for environmental review(16 USC § 824p(h)). Depending on the location of a proposed ROW, other federal laws also may be applied to the process of siting transmission lines, including the Clean Water Act, the Endangered Species Act, the Migratory Bird Act, and the National Environmental Policy Act (California Energy Commission 2004).

The Energy Policy Act of 2005 also gives FERC the authority to develop enforceable vegetation management standards. The Act gives the North American Electric Reliability Corporation (NERC) oversight over the standards developed by FERC. The Reliability Standards for Vegetation Management were developed to prevent and minimize outages from vegetation on or adjacent to transmission line ROW and to provide reporting requirements (Federal Energy Regulatory Commission 2006 (A)). The standards apply to transmission lines 200kV or greater, or to lower voltage lines that are determined as critical to the energy supply by Regional Reliability Organizations (Federal Energy Regulatory Commission 2006 (A)). Standards require transmission line owners to develop a formal transmission line management program (TLMP) and outline specific requirements of the plan, such as objectives, practices, procedures, and work specifications (Federal Energy Regulatory Commission 2006 (B)). Monitoring and compliance provisions also are included in the standard (Federal Energy Regulatory Commission 2006 (C)(D)).

Other interstate or regional organizations also have an interest in ROW siting and management issues. Independent System Operators (ISO) and Reliability Transmission Organizations (RTO) are responsible "for operating bulk power systems, managing wholesale electricity markets, and overseeing comprehensive planning processes in various regions across both the United States and Canada" (IRC 2007). Focusing on efficiencies, reliability, capacity and access issues, ISO and RTOs play only an advisory role in siting transmission lines.

State Regulatory Framework[4]

Historically, states have had the primary authority over permitting or approving the siting of transmission line corridors. Most states have one primary agency that has authority over siting transmission lines. In many cases, this is a public utility board or commission (Resources Strategies 2001).[5] However, other state agencies may also play a major role. In addition, local permits can be required in addition to state-level approvals or permits (Resources Strategies 2001). Ten states only require approval of transmissions lines that are greater than 200 kilovolts, twelve more states require approval for lines greater than or equal to 100 kilovolts, and seventeen states specifically require approval for lines under 100 kilovolts. Some states do not require state reviews, or they base their review triggers on factors not related to the line voltage (Resources Strategies 2001).

In addition to utility-related decisions about transmission ROWs, state environmental reviews and permitting may affect particular aspect of corridor siting, construction and management.

To provide a more complete picture of how electric transmission ROW are regulated, descriptions of state ROW siting authorities are provided for three states (New Jersey, Michigan, and Washington) from different regions of the U.S.

New Jersey

New Jersey's Board of Public Utilities (BPU) has the authority to regulate all public utility services relating to distribution and transmission of electricity and gas (N.J. STAT. ANN. § 48:2-13(d)). It also has the primary authority over approving the installation of electric transmission utility lines within the state. A utility must petition the BPU for permission to build a transmission line. A public utility usually petitions the BPU for approval when its lines will cross more than one municipality, or if a company cannot obtain local approval (Resources Strategies 2001). In reviewing projects, the BPU considers both need and land use practices (Resources Strategies 2001). Public utilities also must obtain consent from a municipality before installing any pole (including connecting wires and cables) for electricity on a public ROW (this includes a public street or area) (N.J. STAT. ANN. § 48:3-17(a)).

The New Jersey Department of Environmental Protection also has authority over transmission line construction. Specifically, if a utility wishes to build any infrastructure in freshwater wetlands, floodplains, tidelands, or coastal areas, it must obtain the appropriate permit.[6] In addition, major construction within the Highlands Preservation Area requires either a Highlands

[4] Parts of this section are adapted from Environmental Law Institute 2007b.

[5] According to a 2001 Edison Electric Institute survey, 78 percent of states report that one main state agency is responsible for permitting/ approving the siting of transmission lines. State utility boards or commissions account for most of these (Resource Strategies 2001).

[6] Freshwater wetlands permit (N.J. Admin. Code § 13:9B-3); stream encroachment permit (N.J. Admin. Code § 7:1C-1.5(a)(iii) Table 1; 7:13-1.3(e)(2)(vii)); license, lease, or grant from the state for development in tidelands (N.J. Stat. Ann. § 12:3-12.1); coastal areas permit (N.J. Stat. Ann. § 13:19-5(b)(4), -6).

Applicability Determination or Highlands Preservation Area Approval from the DEP (N.J. Admin. Code § 7:38-2.2(a)), and linear development in the Pinelands National Reserve requires a permit from the Pinelands Commission (N.J. Admin. Code § 7:50-1.6(c)(4)).

Michigan

The Michigan Public Service Commission (MPSC) regulates all investor-owned electric power (Michigan Public Service Commission 2008);[7] however, the MPSC does not have authority over municipally-owned electric or renewable resource power production facilities (MICH. COMP. LAWS § 460.6(1)). The 1995 Electric Transmission Line Certification Act (MICH. COMP. LAWS §§ 460.561 - 460.575) requires electric utilities with over 50,000 customers, affiliated transmission companies,[8] and independent transmission companies[9] to submit an application for a certificate and a construction plan[10] to the MPSC before building any major transmission lines.[11] Applications for transmission line projects that are not considered major must be submitted to the MPSC as well (MICH. COMP. LAWS § 460.569(1)). All certificates granted by the MPSC supersede any conflicting local ordinance, law, regulation, or policy that prohibits the placement or construction of a transmission wire (MICH. COMP. LAWS § 460.570(3)).

[7] The 2000 Customer Choice and Electricity Reliability Act requires that the MPSC allow investor-owned electric utility customers and large rural cooperative customers to select alternative electricity providers, which the MPSC licenses. Thus, supply and generation of electricity in Michigan has been opened to competitive suppliers while transmission and distribution businesses still operate under a regulated monopoly structure.

[8] An affiliated transmission company is any "person, partnership, corporation, association, or other legal entity, or its successors or assigns, which has fully satisfied the requirements to join a regional transmission organization as determined by the federal energy regulatory commission [FERC], is engaged in this state in the transmission of electricity using facilities it owns that were transferred to the entity by an electric utility that was engaged in the generation, transmission, and distribution of electricity in this state on December 31, 2000, and is not independent of an electric utility or an affiliated of the utility, generating or distributing electricity to retail customers in this state." MICH. COMP. LAWS § 460.562(a).

[9] An independent transmission company is any "person, partnership, corporation, association, or other legal entity, or its successors or assigns, engaged in this state in the transmission of electricity using facilities it owns that have been divested to the entity by an electric utility that was engaged in the generation, transmission, and distribution of electricity in this state on December 31, 2000, and is not independent of an electric utility or an affiliated of the utility, generating or distributing electricity to retail customers in this state." MICH. COMP. LAWS § 460.562(f).

[10] Construction plans must include the location and size of all major transmission lines, the location of the proposed line, a description of why the route was selected, alternate possible routes, and information regarding any zoning ordinance that may regulate or prohibit construction or the location of the proposed route. MICH. COMP. LAWS § 460.564(1)(a).

[11] Major transmission lines must be 5 or more miles in length and transfer 345 kilovolts of voltage or more. MICH. COMP. LAWS § 460.562(g). The Michigan Public Service Commission also has jurisdiction over any transmission of electricity within and between counties and sets rates. MICH. COMP. LAWS § 460.551.

The MPSC also has authority over any attachment[12] to a regulated public utility that is used to transmit light, heat, or power.[13] All attaching parties must get appropriate authorization before placing attachments in public or private ROWs (MICH. COMP. LAWS § 460.6(g)(3)). State law also authorizes the legislative authorities of cities or incorporated villages to pass a resolution (or submit a petition and vote by qualified electors) to authorize that city or village to own, operate, and construct infrastructure to provide electricity to its inhabitants, and to light streets and other public places within its jurisdiction (MICH. COMP. LAWS §§ 123.91, 123.92, 123.93).

The Michigan Department of Environmental Quality (MDEQ) requires an inland land and stream permit for a utility that crosses watercourses if the utility meets specific criteria.[14] MDEQ prohibits many activities in wetlands unless specifically permitted (MICH. COMP. LAWS § 324.30304(c)); however, it does not require a permit for maintenance, repair, and operation of electric transmission and distribution lines if conducted in a way to minimize adverse effects to wetlands (MICH. COMP. LAWS § 324.30305(2)(m)).

Washington

In Washington, the Washington Utility and Transportation Commission regulates private, investor-owned utility companies with regard to rates and service, but it does not have authority over siting electric transmission lines (WAS. REV. CODE § 80.1.040(3)). The Washington State Energy Facility Site Evaluation Council (EFSEC) is the body responsible for coordinating the evaluation and approval of construction for all major electrical transmission facilities and energy facilities (WAS. REV. CODE § 80.50.020(7) (15)).[15] It has authority over construction, reconstruction, or modification of electrical transmission facilities when: (1) facilities are located within a designated National Interest Electric Transmission Corridor; (2) an applicant chooses to obtain certification for facilities of at least 150 kilovolts in a new corridor or in more than one jurisdiction that has land use plans or zoning ordinances; or (3) an applicant chooses to obtain

[12] An attachment is "any wire, cable, facility, or apparatus for the transmission of writing, signs, signals, pictures, sounds, or other forms of intelligence or for the transmission of electricity for light, heat, or power, installed by an attaching party upon any pole or in any duct or conduit owned or controlled, in whole or in part, by 1 or more utilities." MICH. COMP. LAWS § 460.6(g)(2)(b).

[13] An attaching party is "any person, firm, corporation, partnership, or cooperatively organized association, other than a utility or a municipality, which seeks to construct attachments upon, along, under, or across public ways or private rights of way." MICH. COMP. LAWS § 460.6(g)(2)(a).

[14] Design criteria include "(i) [a] minimum of 30 inches of cover will be maintained between the top of the cable or pipe and the bed of the stream or other watercourse on buried crossings. (ii) The method of construction proposed is the least disturbing to the environment employable at the given site. (iii) Any necessary backfilling will be of washed gravel. (iv) The diameter of pipe, cable, or encasement does not exceed 20 inches." MICH. ADMIN. RULES § 281.816(1)(g).

[15] Electrical transmission facilities are defined in the definition of associated facilities: "storage, transmission, handling, or other related and supporting facilities connecting an energy plant with the existing energy supply…and new transmission lines constructed to operate at nominal voltages of at least 115,000 volts to connect a thermal power plant or alternative energy facilities to the northwest power grid. However, common carrier railroads or motor vehicles shall not be included." (WAS. REV. CODE § 80.50.020(6)). They are also defined as "electrical power lines and related equipment." (WAS. REV. CODE § 80.50.020(8)).

certification for facilities of least 150 kilovolts that are outside of a NIETC, or in more than one jurisdiction that has land use plans or zoning ordinances (WAS. REV. CODE § 80.50.60(3)). The process for licensing is as follows: the EFSEC reviews the project and conducts all appropriate hearings; writes an administrative order with findings, and if it finds the project should proceed, it makes recommendations to the Governor based on its evaluation of an application; and if a project receives approval from the Governor, then the EFSEC determines the specifications for construction and operation (WAS. REV. CODE § 80.50.040(8))."

The EFSEC is also required by law to develop procedures to determine the site of energy facilities while also considering how that facility site selection will affect natural resources (WAS. REV. CODE § 80.50.010). Regulations state that facility locations and operations must result in "minimal adverse effects on the environment, ecology of the land and its wildlife, and the ecology of state waters and their aquatic life (WAS. REV. CODE § 80.50.010; WAS. ADMIN. CODE § 463-14-020(1))." Furthermore, the EFSEC has the authority to "develop and apply environmental and ecological guidelines in relation to the type, design, location, construction, and operational conditions of certification of energy facilities (WAS. REV. CODE § 80.50.040(2))." Several guidelines relate to fish and wildlife; a utility must demonstrate that there is no net loss of fish and wildlife habitat function (WAS. ADMIN. CODE § 463-62-040(2)(a)), carry out restoration and mitigation procedures (WAS. ADMIN. CODE § 463-62-040(b)(e)), and conduct fish and wildlife surveys throughout the year (WAS. ADMIN. CODE § 463-62-040(2)(f)). The EFSEC also is responsible for preparing and writing the environmental impact statement for all proposed energy facilities (WAS. ADMIN. CODE § 463-47-090).

Counties and municipalities may work with the EFSEC when a proposed energy facility will be located within their jurisdictions (WAS. REV. CODE § 80.50.175(3)), but only if they have comprehensive plans and land use and zoning polices in place at the time the application is submitted to the EFSEC (WAS. REV. CODE § 80.50.175(3)). If an energy facility is not in compliance with local land use laws and the two parties can find no resolution, then the state can preempt these local policies through an arbitration process (MRSC 2006).

Utilities wishing to site transmission lines in Washington must comply with several other laws. The Department of Ecology administers the Shoreline Management Act, and local governments plan and administer Shoreline Master Programs. All utility production and processing facilities, including transmission facilities in tidelands or those that will impact shorelines ecological function, will not be allowed to be placed in shoreline areas unless there is no feasible alternative location (Was. Admin. Code § 173-26-241(2)(1)). The Department of Fish and Wildlife's Hydraulic Code Rules require that utility line projects incorporate mitigation procedures to ensure no net loss of "productive fish and shellfish habitat" where projects involve using, diverting, or obstructing fresh and salt waters or beds of the State (Was. Admin. Code § 220-110-310, -010).

In each state, utility regulatory agencies and environmental agencies play some role in determining where ROW will be sited and what permits are needed. Where these ROW corridors impinge on aquatic resources, wetlands, tidelands, and certain habitats, additional approvals, permits, and mitigation may be required.

3
TYPES OF ROW IMPACTS ON WILDLIFE HABITAT AND WETLANDS

Electric transmission corridor ROWs are responsible for a variety of impacts. This means that ROW owners and managers may have existing expertise in the kinds of activities that are relevant to mitigation and conservation banking. In addition, it is most likely to be those ROW areas where threatened and endangered species habitat has been identified, and those ROW areas that include aquatic resources or areas suitable for restoration of aquatic resources, that offer the greatest potential for banking.

Current ROW Impacts

To fully understand the impacts from ROW on wildlife and wetlands, access to data on the locations of ROWs and their impacts on specific species and habitats is needed. Although this information is not easily obtained, some surveys of these impacts by state or region illustrate the impacts that can occur. Understanding impacts is important because it also indicates opportunities for rehabilitation and conservation, and gives some sense of potential demand for compensatory mitigation.

Maryland's Department of Natural Resources quantified permanent and temporary impacts to wetlands from construction of ROW from 1991 to 1993. Maryland found that permitted permanent impacts to non-tidal wetlands totaled 73.9 acres and permitted temporary impacts to non-tidal wetlands totaled 93.6 acres (Patty et al. 1999).

California has roughly 40,000 miles of ROW that cover approximately 0.75 to 1.5 million acres across the state (California Energy Commission 2004). It is among the most ecologically diverse states in the country with 309 federally endangered or threatened species (second in number in the U.S. behind Hawaii) (California Energy Commission 2004). The state also has important remaining wetlands, but only a fraction of what it once had – with only 300,000 acres of wetlands in the Central Valley and less than 5 percent of its original coastal wetlands (Environmental Law Institute 2007a). Utility line construction and maintenance of transmission ROWs create the potential for a wide range of impacts on many species, critical habitat, and wetlands (See Figure 3-1).

At the same time, the most recent data available show that in 2005, California had 61 wetland mitigation banks either approved or awaiting approval (Wilkinson & Thompson 2006, App. B), and 30 USFWS-approved conservation banks (Fox & Nino-Murcia 2005). This suggests both a regulatory and policy climate hospitable to banking and a potentially large area within transmission corridor ROWs that may traverse aquatic resources or habitats potentially suitable for wetland or conservation banking.

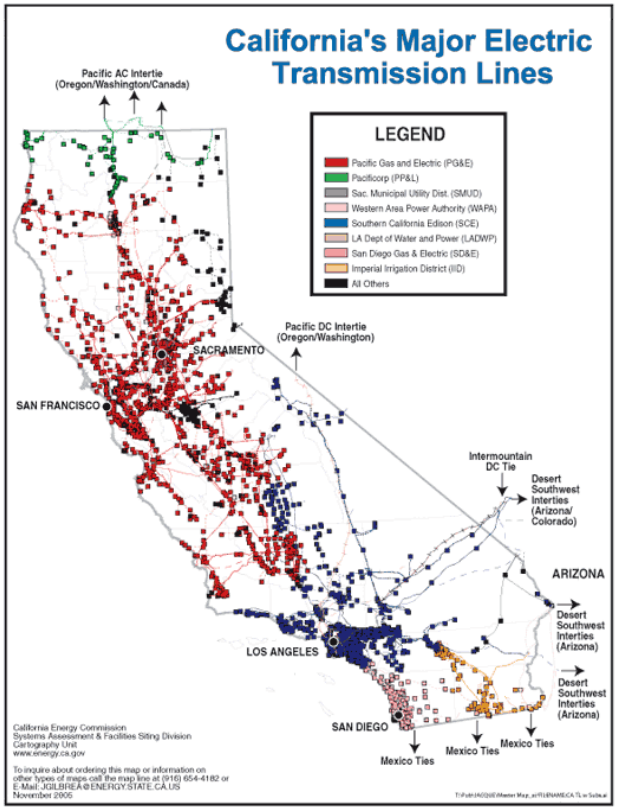

Figure 3-1
Major Electric Transmission Lines in California

(California Energy Commission 2005)

Georgia is a rapidly growing state with an extensive network of 17,000 miles of transmission lines (Grillo 2005), which will need to be expanded in the future to accommodate anticipated population growth (Electric Power Research Institute 2006). Depending on where they are located, existing lines and new construction have the potential to affect the state's 71 federally threatened or endangered species. In addition, 20 percent of the state is still covered by wetlands today, and it contains one-third of the remaining salt marsh along the U.S. Atlantic Coast (Environmental Law Institute 2005), important habitat that also could be affected by utility construction. The most recent data available show that in 2005, Georgia had 74 wetland mitigation banks either approved or awaiting approval (Wilkinson & Thompson 2006, App. B)

Planned ROW Impacts

Planned and anticipated ROWs have led to some analysis of potential impacts on habitat and wetlands. The development of these new ROWs will likely generate both internal demand for compensatory mitigation by ROW owners and opportunities for fulfilling that compensatory demand through banking. Several of these projected ROW corridors are discussed here to provide context.

Mid-Atlantic National Interest Electric Transmission Corridor

The Mid-Atlantic NIETC is anticipated to serve all of Delaware, Maryland, and New Jersey, as well as significant portions of New York, Pennsylvania, Virginia, and West Virginia, and limited areas in Ohio and Washington, D.C. (U.S. Dept. of Energy 2007d). The designation of this area by the DOE does not mean that utilities will build in these areas, but the designation facilitates power line siting in these areas. If a state public utility commission or board does not approve an application within a year from the date it was submitted, then the applicant can take it to FERC for action. Opponents to the corridors claim that one year is not enough time for all relevant state agencies, including natural resource and environmental protection agencies to review, conduct studies, and comment on the application (U.S. Dept. of Energy 2007b, New Jersey Dept. of Environmental Protection 2007). This creates the possibility that impacts not fully identified in the initial process may need to be identified and addressed subsequently.

Potential impacts to species and habitats in this designated corridor have been documented in various comments submitted to the DOE during the public comment period (U.S. Dept. of Energy 2007b).[16] Because the "corridors" are actually large areas rather than strict ROW corridors, there is potential for significant ecological impacts, as well as a significant range of potential mitigation activities. Numerous species of conservation concern are located within the Mid-Atlantic NIETC, including at least 499 federally protected or at-risk species such as federally endangered wood turtle, the peregrine falcon, the Virginia big-eared Bat, and the Indiana bat (U.S. Dept. of Energy 2007b, U.S. Fish and Wildlife Service 2008). Federal conservation lands also are included within the corridor, including 39 National Wildlife Refuges (U.S. Dept. of Energy 2007a);[17] all or part of 4 National Forests; more than one million acres in the Pinelands National Reserve; more than 3 million acres in the federally-recognized Highlands Region of Pennsylvania, New York, New Jersey, and Connecticut; and many other lands on federal and state property (U.S. Dept. of Energy 2007a).

Southwest National Interest Electric Transmission Corridor

The Southwest NIETC is located in Arizona and California (U.S. Dept. of Energy 2007d). As with the Mid-Atlantic NIECTC, if ROWs are sited within the Southwest Corridor, endangered and threatened species and critical habitats could be affected as well as important areas such as National Wildlife Refuges, National Forests, and National Parks. For example, the Wilderness Society identified that the designated corridor covers almost 50 million acres of federal, state, and private lands; 2 million acres of National Wildlife Refuges; and 3 million acres of National Park, Bureau of Land Management, and Forest Service Lands as well as the California Desert Conservation Area (U.S. Dept. of Energy 2007c). The Southwest NIETC also includes critical

[16] Comments were submitted by a range of government agencies and representatives and non-governmental organizations (e.g., EPRI, Commonwealth of Virginia, state environmental and utility-related agencies, the Wilderness Society, Environmental Defense, and the Southern Environmental Law Center).

[17] For example: the Canaan Valley National Wildlife Refuge and the Spruce Knob / Seneca Rocks National Recreation Area in West Virginia; Patuxent National Research Refuge in Maryland; Cape May National Wildlife Refuge in New Jersey; and Oyster Bay National Wildlife Refuge in New York.

and important habitat for federally endangered and threatened species including bighorn sheep and the desert tortoise (U.S. Dept. of Energy 2007c).

Western Regional Corridor

The Energy Policy Act of 2005 also requires the Secretaries of Agriculture, Commerce, Defense, Energy, and the Interior to designate energy transmission corridors on federal lands in 11 western states (Arizona, California, Colorado, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, and Wyoming) (Energy Policy Act 2005, § 368(a)). The Act further states that permits and approvals for construction should be expedited and take into account environmental review made during designation of the corridor (Energy Policy Act 2005, § 368(c)). A Programmatic Environmental Impact Statement (PEIS) is being developed. The draft PEIS has identified 230 animal species and 265 plant species that are federally listed as threatened or endangered within the 11 states, and critical habitat has been designated for 151 species. All or some of these species could potentially be affected by development of ROWs within the corridor. Potential impacts from construction could include reduction and loss of habitat, impacts on species, and"[d]isturbance of migratory movements, foraging, and reproductive behaviors; avoidance of construction areas by some species." Approximately 390 miles of stream habitat also are within the corridor. Wetlands in all of the states could also be affected by construction activities in the corridor; however, design of the corridor does take avoidance of wetlands into account (U.S. Department of Energy et al. 2007).

Shareholder-owned Electric Utilities

Several long transmission lines are in development, including the Trans West Express Project that involves construction of over 1,300 miles of transmission lines. This 500 kilovolt transmission line will run from Wyoming to Arizona, traversing Colorado and Utah. Although the project will use some existing corridors, it will affect various habitats and federal conservation lands. The Regional Planning Project Review Report states that the planning of route alternatives aimed to cross lands with "the least environmental sensitivity and utilizing locations where siting opportunities exist," such as areas designated in land use plans or already designated as utility corridors on federal lands. However, based on the preliminary maps, the project is extensive and will likely affect sensitive habitats in the four states it crosses, especially Arizona and Utah.

Another major transmission construction project with potential impacts in the Mid-Atlantic region of the U.S. is the Trans-Allegheny Interstate Line Company (TrAILCo) 200-mile 500 kilovolt transmission line project. This project will connect to the planned Dominion Power transmission line project and will span 65 miles (Edison Electric Institute 2008). The two lines will total 270 miles of 165-foot towers and 150 foot-wide ROW (Piedmont Environmental Council n.d.b) that will traverse open space areas and existing conservation easements (Piedmont Environmental Council n.d.a). Approximately 481 acres will be cleared for the Dominion Power line, and the line and ROW will traverse 78.1 acres of wetlands, 136 streams, 85.2 acres of forest, and 38.9 acres of agricultural or open space lands (Irons 2007). State threatened and endangered species have been identified in the vicinity of the proposed transmission lines, including the wood turtle, upland sandpiper, loggerhead shrike, Henslow's sparrow, green

floater, and the Madison cave isopod. Species of concern from Virginia's Wildlife Action Plan also are located within the vicinity of the proposed routes (e.g., the gray catbird, rosebreasted grosbeak, scarlet tanager, wood thrush, and the eastern towhee) (Irons 2007). Various other transmission line construction projects are also planned for the Mid-Atlantic area.

Known Impact Types

Transmission corridors can result in a broad range of impacts to wildlife and habitats – some positive, others negative. ROWs traverse many important habitats such as wetlands, grasslands, and forests, resulting in fragmented habitats; fragmentation is one of the primary threats to biodiversity and species persistence (Electric Power Research Institute 2003, Temple 1996, Coleman 1996, California Energy Commission 2004). Construction, operation, and maintenance activities can also affect species and habitats in a variety of ways. Compensating for these impacts may lead to opportunities for wetland mitigation banking or conservation banking that address not only the immediate impacts of the given ROW project itself, but that also produce additional aquatic and conservation benefits.

Habitat Fragmentation

Fragmentation results in a patchwork of habitats that were once larger and contiguous. For species that are sensitive to habitat patch size, the reduced habitat area may not be sufficient to support their persistence and reproduction (Temple 1996, Willyard et al. 2004, Environmental Law Institute 2003, Rich et al. 1994). Species that are large-bodied, are not habitat generalists, or are poor dispersers may be especially sensitive to habitat fragmentation (Meffe, et al. 2002). Because double-width ROWs for transmission lines can span from 100 to 300 feet through forested habitats, they may create a significant distance between forest patches; thus, ROWs construction and intensive maintenance can harm species that are sensitive to isolation (Willyard et al. 2004, Temple 1996).

ROWs can serve as barriers to dispersal and make crossing from one habitat patch to another more difficult (Temple 1996, Willyard et al. 2004). Species typically are prevented from dispersing across inhospitable corridors due to morphological, physiological, or behavioral characteristics. When species dispersal and migration is limited, gene flow also can be inhibited, leading to increased vulnerability to extirpation and extinction (Temple 1996, Willyard et al. 2004, Environmental Law Institute 2003, Coleman 1996). Even species that are able to disperse across ROWs may still experience increased mortality due to increased exposure to human influences (Meffe et al. 2002).

Edge effects resulting from ROW construction have the most significant impact on many habitat-specialist species (Temple 1996). Although edges can naturally occur, ROWs generally produce an "abruptly delineated" edge (Willyard et al. 2004). While some species such as white tail deer thrive in this type of edge habitat, many other species are sensitive to edges, particularly species that depend on the interior of forests, wetlands, and grasslands (Environmental Law Institute 2003). Biotic interactions such as predation, parasitism, and competition may become more prevalent with the creation of additional edge area (Willyard et al. 2004, Environmental Law Institute 2003). Edge habitat also favors some detrimental species, such as cowbirds, which are

nest parasites; cowbirds lay eggs in the nests of other birds. They have been shown to preferentially select power line corridors that have been mowed (Rich et al. 1994). Another study found that songbirds that nested next to a 52-meter power line corridor in Maryland had lower rates of reproductive success due to increased predators and parasitism, hatching problems, and weather conditions (Askins 1994).

Fragmentation also alters habitats and ecosystem characteristics (Coleman 1996). A transmission corridor that cuts through a forest can create microclimates that were not present prior to construction (i.e., increased light penetration, wind, and temperature levels and decreased vegetation cover and moisture levels, etc.) These changes can stretch into the forest away from the edge, disrupting species assemblages and ecosystem structure (Rubino et al. 2002).

Invasive Species

Non-native invasive species are a leading threat to species of conservation concern, and constitute a major source of habitat degradation nationwide. Utility ROWs have been shown to facilitate the introduction and spread of non-native species (Electric Power Research Institute 2008, Rubino et al. 2002); disturbed habitat resulting from construction, maintenance, and even recreation along a ROW is more susceptible to invasion than local undisturbed habitat (Environmental Law Institute 2003, Cameron et al. 1997, Baker 1999). In Washington State, for example, ROW construction activities in a boreal forest led to the introduction of 34 alien species into the ROW (Gleason 2008). Corridors can also serve as conduits for the spread of invasive species from one area to another (Willyard et al. 2004). Throughout the southeastern U.S., invasive species are prevalent along ROWs, and have been shown to spread from ROWs to nearby sites, negatively affecting wildlife, forests, and agriculture (Jones et al. 2008).

Direct Avian Impacts

In addition to impacts to birds from habitat fragmentation, some bird populations also suffer direct impacts from power line collisions (Electric Power Research Institute 2004 and 2006, Bridges et al. 2008). Collisions often occur due to reduced visibility, or obstruction of hunting or courtship behaviors (Bridges et al. 2008). The occurrence and causes of avian collisions are well-documented; and electric utilities often take steps to prevent collisions, such as through the application of recommendations that were developed by the Avian Power Line Interaction Committee (Bridges et al. 2008). Species most often documented colliding with power lines include Ciconiiformes, Falconiformes, Strigiformes, and Passeriformes (Bevanger 1998). Vegetation management regimes for ROW corridors also can affect bird populations directly. Maintenance activities such as herbicide applications and the timing and location of mowing of vegetation can adversely affect nesting and breeding birds (Baker 1999).

Wetland Impacts

In addition to the habitat impacts from ROW construction and maintenance already discussed, ROW construction and maintenance activities can directly affect wetlands. Constructing transmission lines and infrastructure through wetlands can result in loss or degradation of

wetland vegetation and habitat. Use of heavy equipment compresses wetlands, which in turn also affects the hydrological functions of the wetland (Nickeron et al. 1989). Impacts vary, and some types of wetlands such as shrub/bog wetlands take longer to recover than other types of wetlands (Electric Power Research Institute 2002, Nickeron et al. 1989). Wetlands in the arid west ecoregions have been documented to have a higher rate of failure after restoration than other types of wetlands, according to a study of pipeline ROW wetlands restoration (Martin et al. 2008). Many utility ROW managers have experience in avoiding impacts and minimizing the disturbance to wetland, streams, and other aquatic resources by careful siting of towers and other transmission facilities, and in providing compensatory mitigation where impacts cannot be avoided.

Positive Impacts

Although ROW activities can cause harm to wildlife habitat and wetlands, a variety of positive impacts also can result from ROW corridors. Birds living in early successional habitat have been in decline over the last 30 years (Marshall and VanDruff 2008). Because ROWs can open up habitat, it can provide this habitat type in areas where this habitat may have previously been unavailable (King and Byers 2002, Confer and Pascoe 2003). ROWs also can open up habitat for species that are not tolerant of shade (Rubino et al. 2002). These may include rare plant populations that benefit from the repeated clearing activities needed to maintain the ROW (Sheridan et al. 1997). The endangered Karner blue butterfly has been the subject of conservation along ROWs in the upper Midwest, where the maintenance of an herbaceous layer has allowed the propagation and growth of the wild lupine plant, on which the butterfly depends (McLoughlin 2002, Wisconsin Dept. of Natural Resources n.d.). ROWs located along stream corridors and adjacent to wetlands often prevent the intrusion of other incompatible uses into the area, and thus have served indirectly to conserve wetlands and wetland-dependent species.

The next chapter examines whether conservation activities within ROWs focused on positive impacts offer the potential through wetland and conservation banking to offset negative impacts at other sites.

4
A NEW APPROACH: THE POTENTIAL FOR WETLAND AND CONSERVATION BANKING IN ROWS

ROW siting, construction, management, and maintenance require a highly professional approach. Many transmission corridor owners and managers already devote substantial attention to biological and physical conditions on these important lands, and must plan for their long-term use and functionality. Some of these corridors are carefully managed to avoid impacts to wildlife or wetlands, and in some instances they are actively managed to encourage restoration activities and the maintenance of species that are compatible with ROW goals.

The new wetland mitigation banking provisions of the 2008 Compensatory Wetland Mitigation Rule and the conservation banking guidelines outlined in the 2003 USFWS Conservation Banking Guidance provide insight into the compatibility of ROW management needs with banking requirements.

Several issues related to wetland and conservation banking will need to be considered by utilities and potential partners when considering whether to site such banks in transmission corridor ROWs. The initial issue will be whether the managed ROW lands contain aquatic resources or habitats that are suitable for offsetting impacts. Then, if this is the case, it will be necessary to determine whether there is likely to be any demand for mitigation credits – viz. are development activities in the vicinity causing impacts that are subject to permitting and that will require compensatory mitigation. The relevant "service area" is critical at this point, for even if there is demand for compensatory mitigation, federal and state (and in a few cases local) guidelines and regulations will limit the area within which credits generated by a ROW bank can be used.

1. Authority to Manage ROW Lands to Generate Wetland or Habitat Credits

Wetland mitigation banking requires that aquatic functions be restored, enhanced, created, or in some instances, preserved. In order to establish a wetland mitigation bank within a ROW, the bank sponsor will need to have sufficient access to the lands on which banking will occur in order to generate the credits and to carry out required monitoring, management, maintenance, and long-term protection. This means that the ROW owner must be able to carry out these activities in a manner that is consistent with the property interest that it holds and consistent with its operation of the ROW for transmission purposes.

To establish a conservation bank on a ROW, the ROW must encompass endangered or threatened species or critical habitat. The presence of such species may have been previously identified, but is likely to have been identified for ROWs approved after the 1973 ESA, or upon listing of newly listed species or designation of critical habitat. Owners of transmission ROWs might have already taken conservation management actions in order to avoid an unlawful "take"

of threatened or endangered species through their own activities. Such measures may serve as a basis for further activities as ROW operators gain experience with species and habitat requirements (McLoughlin 2002).

Utilities will need to consider what will be needed to develop management plans for the species and habitats covered by the bank. Utilities that already have biologists or ecologists on staff may be more prepared to develop this type of plan, while others may need to consider with whom they will need to partner to develop these plans. The USFWS Guidance notes that conservation banks are a "flexible means" to meet conservation requirements of listed species and that no two banks will be used or designed exactly the same fashion (U.S. Fish and Wildlife Service 2003, § I.A.). Wetland mitigation banks, while more uniform under the new rules, will nevertheless vary substantially in management activities depending upon the wetland types being conserved or restored, and the form of mitigation being conducted.

The utility ROW owner will be responsible for meeting numerous regulatory requirements in order to establish a wetland mitigation or conservation bank. For wetland mitigation banks, this includes seeking approval for the wetland bank prospectus and banking instrument, selecting and protecting a site, and securing appropriate financial assurances, among other requirements. The land within the ROW must be suitable for wetland restoration, establishment, enhancement or preservation. For conservation banking, the land must support the target species, and long term protection must be guaranteed. Impacts such as edge effects, vegetation management such as pesticide application, and human interactions will have to be managed and minimized (Hill 2008).

Where the ROW is owned in fee simple, conducting necessary management activities are more straightforward than in the case of easement ROWs. The major issue will be assuring the regulatory agencies (Corps, IRT, USFWS, state regulators) that the necessary wetland or conservation banking activities will not be undermined or threatened by actions which are necessary (or that may become necessary in the future) to maintain and operate the transmission facilities. The bank sponsor will need to provide durable institutional mechanisms to guarantee that the management plans and mitigation plans will not be undone or threatened by the need for replacement or upgrade of facilities, or by emergency requirements related to power transmission obligations or by the possible co-locations of other facilities within the ROW.

Where the ROW is operated under an easement or use permit, these concerns will also be present. In addition, there will usually be a threshold issue regarding whether the proposed conservation activities are authorized by the easement held by the utility or corridor operator. While performing mitigation activities required by the construction and operation of transmission facilities is arguably within the scope of most transmission ROW easements (as necessary to the purpose for which the easement was granted), use of the easement lands to generate conservation or wetland credits for sale or use elsewhere is likely to be beyond the scope of many easements. At the least, this concern will create sufficient uncertainty that regulators, investors, and other will require further assurances and guarantees before authorizing such a bank.

If the proposed conservation activities are not within the scope of an ROW easement or ROW use permit, the ROW owner will need to enlist the collaboration of the underlying property owner in the establishment of the bank. The ROW owner and the landowner will need to

provide contractually (and in some cases by additional recordable land conveyances) for the management activities that are needed to meet bank approval and operations standards. This is likely to require financial payment to the landowner, or participation in some form of joint venture or contractual relationship. If the ROW transmission corridor easement owner hires or works with a third party (e.g., state or federal agency, conservation or land trust) that has experience with banking, such regulatory and bank requirements may be easier to address and meet, including coordinating management and legal relationships with the underlying landowner.

2. Credit Determination

The value of a bank is defined by the number of compensatory mitigation credits available for use or sale at the bank. A credit is defined as "a unit of measure (e.g., a functional or areal measure or other suitable metric) representing the accrual or attainment of aquatic functions at a compensatory mitigation site"(U.S. Dept. of Defense and U.S. EPA 2008, §332.2). The more credits assigned to a bank, the more inventory it has for sale, use, and potential return on investment. The number of credits available at a wetland mitigation bank is determined by the Corps in consultation with the IRT (U.S. Dept. of Defense and U.S. EPA 2008, §332.8(o)(8)-(9)). The factors that go into determining the number of credits available at the bank include the compensatory mitigation method used to generate credits (i.e., restoration, establishment, enhancement, or preservation) (U.S. Dept. of Defense and U.S. EPA 2008, §332.2), as well as the "difference between pre- and post-compensatory mitigation project site conditions, as determined by a functional or condition assessment or other suitable metric (U.S. Dept. of Defense and U.S. EPA 2008, §332.8(o)(3))." If a site is already protected through government fee title or a conservation easement, the site is less likely to generate significant credits (Hough pers. comm.). The rule states that "Credits for compensatory mitigation projects on public land must be based solely on aquatic resource functions provided by the compensatory mitigation project, over and above those provided by public programs already planned or in place (U.S. Dept. of Defense and U.S. EPA 2008, §332.3(a)(3))." In other words, for ROWs located on publicly-owned open space lands, because the public lands are already under protection, the only investments that might be awarded credits are those that restore or enhance aquatic resource functions. Conservation credit for habitat conservation is not as rigidly defined by the USFWS Guidance, but must be determined case-by-case based on species and habitat considerations.

It is likely that underlying lands (in the case of easement or use permit ROWs) and adjacent lands (in the case of all ROWs) may need to be involved in the mitigation plan or conservation plan that generates credits. Agreements with these landowners will likely include their potential sharing in the economic benefits resulting from banking. Because servient estate landowners retain the rights to enter upon and use lands subject to the ROW easement, they will need to be restricted by voluntarily entering into legally enforceable agreements and/or additional property conveyances in order to ensure that they do not interfere with the generation of credits as required by the approved banking instrument.

3. Site Protection

A recent study of electric utility ROW practitioners revealed that 98 percent of respondents use easements to obtain ROWs from landowners, 33 percent also purchase ROW lands, and 13

percent get land use permits. Most ROW easements involved one-time payments for the easement, but 6 percent of respondents report making annual payments to landowners under ROW agreements (Mullins et al. 2008). The form of ROW ownership or access becomes particularly important when evaluating requirements for long-term site protection of wetland and conservation banks. Wetland mitigation banking and conservation banking require provisions for long-term site protection that will require additional property conveyances to ensure the sustainability of the banking credits on these ROW lands.

The 2008 Compensatory Mitigation rule states that the aquatic resources and associated lands that comprise a compensatory wetland mitigation project must be provided "long-term protection through real estate instruments or other available mechanisms, as appropriate (U.S. Dept. of Defense and U.S. EPA 2008, §332.7(a))." Such instruments include "conservation easements held by entities such as federal, tribal, state, or local resource agencies, non-profit conservation organizations, or private land managers; the transfer of title to such entities; or by restrictive covenants (U.S. Dept. of Defense and U.S. EPA 2008, §332.7(a)(1))." In order to be adequate, a conservation easement or restrictive covenant should, where practicable, provide for third-party enforcement. Where the underlying land is government property, long-term protection may be provided by federal facility management plans or integrated resource plans (U.S. Dept. of Defense and U.S. EPA 2008, §332.7(a)(1)). The rule states that the real estate instrument used to protect the site must, "to the extent appropriate and practicable, prohibit incompatible uses (e.g., clear cutting or mineral extraction) that might otherwise jeopardize the objectives of the compensatory mitigation project (U.S. Dept. of Defense and U.S. EPA 2008, §332.7(a)(2))." If banks located in utility rights-of-way require ongoing mechanical and herbicidal maintenance practices or other activities that are considered "incompatible uses," the federal regulatory agencies are likely to conclude that the site will provide diminished functions, and thus may certify fewer credits at the bank, if indeed they approve a bank at all. The required long-term legal site protection requirements "must be finalized before any credits can be released (U.S. Dept. of Defense and U.S. EPA 2008, §332.8(t)(1))."

USFWS guidelines require the creation and conveyance of a perpetual conservation easement for land where a conservation bank will be established (U.S. Fish and Wildlife Service 2003, § II.C.3). Another important issue to note is that California regulations require that a conservation easement for a conservation bank must be held by a state agency or a qualifying non-profit agency (Hill 2008).

Thus, if the utility owns the transmission corridor ROW in fee, it may need to convey conservation easements or enter into deed restrictions in order to meet banking requirements. If the ROW is held by easement rather than in fee, joint conveyance of a conservation easement from both the dominant and servient estates might be needed in many instances to meet banking requirements. The conveyance would be from both the ROW easement owner and from the servient estate landowner in order to ensure third party enforceability of conservation restrictions. A landowner would be more likely to grant a conservation easement if some sort of credit-sharing scheme could be worked out and the landowner's liability were minimized. A bank could, of course, benefit a servient estate landowner if his/her lands contain threatened or endangered species or critical habitat, and if payment for credits could be shared among bank participants including the landowner.

In some states, conveyance of a conservation easement by a ROW holder may be subject to regulatory review to ensure that the utility's energy service requirements and obligations are being met and not compromised by such conveyances.

4. Financial Assurance

Wetland banking requires a description of long-term management needs with projected annual cost estimates and funding; long-term financing mechanisms include "non-wasting endowments, trusts, contractual arrangements with future responsible practices and other appropriate financial instruments. In cases where the long-term management entity is a public authority or government agency, that entity must provide a plan for the long-term financing of the site (U.S. Dept. of Defense and U.S. EPA 2008, § 332.8(d)(3))."

Challenges with establishing conservation banks also include "adequately assessing long-term operating and management costs (Mead 2008)." The three most expensive elements of developing a bank are costs of permitting the bank, cost of preparing reports and legal documents (easements and management plans), and the long-term financial assurances (Denisoff 2008). For conservation banks, utilities will need to be able to assure long-term financial responsibility for the bank and be willing and able to set up an endowment fund (Fleischer and Fox, 2008).

5. Liability

Generally, a mitigation or conservation banker assumes all regulatory liability for the success of the restored wetland or preserved or restored conservation lands. It will be important to ensure that this obligation can be met within the context of the ROW management obligations. It is likely that owners of servient estates will prefer that the liability be assumed by the utility owner or banking venture in the context of any agreements to establish a bank within a utility ROW. At the same time, ROW operators will want to ensure that the underlying landowner is not subject to prior liens or to legal threats that may prevent the ROW bank from being successfully constituted and maintained over the long term. For example, a farm may be subject to a mortgage or other lien and even though the farm owner enters into a legal conveyance of a conservation easement or a contractual agreement with a ROW owner in connection with a banking venture, the prior interest may take priority in the event of a default (Mead 2008). Thus, careful attention will need to be given in structuring legal relationships in order to avoid subjecting the banker to liability to conservation credit purchasers and regulators relative to the landowner's default.

There are, of course, other liability issues relating to accident, injury, etc. Establishment and maintenance of a wetland or conservation bank may create additional risks that will need to be evaluated by ROW operators when determining the feasibility and desirability of entering into a banking arrangement.

5
CONCLUSIONS AND ADDITIONAL OBSERVATIONS

Electric utilities that own the land where they have transmission corridor ROWs will have the advantage in establishing conservation banks. Their access rights and management options are far greater, and they can grant easements to third parties (conservation organizations or government agencies) to support banks. Those that hold ROW easements will have more complex legal and management issues to resolve.

It may be advantageous for a utility to establish a conservation bank if it has endangered species or critical habitat on its ROW land. It will have to ensure protection of these resources when conducting its own operations in any event, and may be able to use its existing investments and management expertise to produce additional value which can be sold or used for mitigation of anticipated future needs. For wetland mitigation banking, if a wetland or a riparian area exists or previously had existed within a ROW, restoration of the wetland or degraded stream banks may produce opportunities to sell excess credits. Many transmission corridors are located within stream corridors and floodplains, and these offer particularly good opportunities for riparian and wetland mitigation, as well as for conservation of the many wetland-dependent species listed as threatened or endangered.

Many regulatory entities are involved in reviewing and approving wetland mitigation banks (e.g., EPA, Corps, state agencies, etc.), while fewer agencies are required to approve a conservation bank (USFWS or NOAA and the relevant state wildlife agency) (White 2008). State public utility boards or commissions may need to be involved in reviewing some uses of corridors as well. In addition, it will be important to determine whether co-location and other potential future uses of ROWs otherwise suitable for wetland or conservation banking may make banking less feasible.

Developing banks in ROWs is a relatively new concept for wetland or conservation banks (Sheridan et al. 1997). ROW holders may benefit from partnerships with other organizations that have experience in establishing wetland or conservation banks or joint conservation/wetland mitigation banks. Indeed, the existence of multi-site umbrella banks where the banking instrument approvals have already been secured may offer a way to include transmission corridor ROW in wetland mitigation banking operations that already have an established track record and relationship with regulatory agencies (U.S. Dept. of Defense and U.S. EPA 2008, § 332.8(h)). For sites that offer both wetland and conservation banking opportunities, it may be advantageous to pursue wetland banking through the Conservation Banking Agreement provisions outlined in the USFWS Banking Guidance (Mead 2008).

Because utilities own or manage so many lands and are long-term institutional actors with technical sophistication, their exploration of banking could provide a great opportunity to

conservation agencies that have not previously had access to utility lands for conservation purposes.

Utilities also can look to peers that already implement wildlife protection strategies and conservation activities on their ROWs. For example, Kentucky's Department of Fish and Wildlife Resources has a program, Promoting Our Wildlife and Energy Resources (POWER), that provides payments and technical assistance to utilities to conduct approved wildlife habitat practices that keep them from having to carry out vegetation management activities (Kentucky Dept. of Fish and Wildlife 2005). Other examples include voluntary conservation efforts by DTE Energy in Michigan (Environmental Law Institute 2007b), and well-known utility conservation efforts in connection with the Karner Blue Butterfly on ROWs (e.g., National Grid).

Qualitatively, it would appear that transmission corridor ROWs offer potentially important locations for wetland mitigation banks and conservation banks. They are already under active management, require attention to real estate and easement status, manage liability and other issues, and they occupy substantial areas of land. They are also lands within which building and development are less likely, and hence offer fewer conflicts than many other potential sites for compensatory mitigation and conservation. In urbanized areas, where compensatory mitigation may be particularly needed, transmission corridor ROWs include some of the few areas of open land upon which such mitigation may be produced.

Additional work is needed to determine the level of legal and management barriers and opportunities encountered in the field, as well as what types of partnerships and other arrangements offer the greatest potential for realizing banking within this sector.

6
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A
OVERVIEW OF FEDERAL MITIGATION BANKING POLICY AND REGULATIONS

Federal Wetland Compensatory Mitigation Regulations, Guidance, and Plans

2008 Compensatory Mitigation for Losses of Aquatic Resources

- Final regulations governing compensatory mitigation for authorized impacts to wetlands, streams, and other waters of the U.S. under §404 and §10.
- The rule replaces provisions of the 1990 MOA that relate to the amount, type, and location of compensatory mitigation, and the use of preservation as a mitigation component. All other provisions of the 1990 MOA remain in effect.
- The rule replaces the entirety of the 1995 Mitigation Banking Guidance, the 2000 In-Lieu Fee Mitigation Guidance, and the 2002 Compensatory Mitigation Regulatory Guidance Letter (RGL 02-2).
- Department of Defense and Environmental Protection Agency. April 10, 2008. *Compensatory Mitigation for Losses of Aquatic Resources*. Final rule. Federal Register. Vol. 73, No. 70: pp. 19594-19705.
- http://www.epa.gov/wetlandsmitigation/

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