

MINIMIZING SPECIES DISPUTES IN ENERGY SITING: UTILIZING NATURAL HERITAGE INVENTORIES

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*“If we could first know where we are, and whither we are tending, we could then better judge what to do, and how to do it.”*¹—Abraham Lincoln

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I. INTRODUCTION

Too often, energy facility siting decisions and energy project developments become contentious due to inadequate information about how the proposed project could impact natural resources. Thus, knowing about potential impacts on natural resources early in the decision-making process is important to both the resources and the energy project, and a lack of information damages both. Once agencies, individuals, or companies make

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1. Abraham Lincoln’s “House Divided” speech delivered June 7, 1858 in Springfield, Illinois. JOSEPH R. FORMIERI, *THE LANGUAGE OF LIBERTY: THE POLITICAL SPEECHES AND WRITINGS OF ABRAHAM LINCOLN* 224 (2009) (emphasis in original).

significant commitments to a particular site — property purchased, permits applied for, infrastructure developed — it can be very difficult to alter or stop a project in the face of political and economic momentum, regardless of belatedly discovered environmental impacts. Similarly, lack of information for project developers can result in delays, public opposition, extra costs, loss of reputation, and even denial of needed permits. In short, inadequate information creates a classic lose-lose scenario.

Gathering information to assess the environmental impacts of a project before construction has been part of the planning landscape in the United States since the passage of the National Environmental Policy Act (NEPA) in 1969.² A number of states followed suit, adopting “little NEPAs” that expanded the environmental review process to state-funded projects and, in some states, to privately-funded projects unregulated by the federal NEPA.³ These statutes are designed to ensure developers have enough information to minimize the environmental impacts of the planning, construction, and operation of projects. In the best-case scenario, these laws facilitate the development of new projects that avoid or minimize environmental impact, limit the development of inappropriate projects, and promote the discovery of cleaner and safer technology.

NEPA and most state’s little NEPAs do not apply to private developments, and therefore, private energy projects often do not undergo a NEPA-like review. However, acquiring information about environmental impacts prior to making important energy siting and development decisions is important. Natural Heritage Inventories, which are available in all states, can help fill the information gap and turn some of the lose-lose situations into win-wins.

Natural Heritage Inventories record occurrences of rare, threatened, and endangered species using a standard methodology for collecting, processing, and managing data, thus resulting in a map of these species and their habitat. While most of the information in the inventories is recorded on public land, the use of predictive modeling enables inventories to anticipate whether threatened, rare, or endangered species are likely to be found on adjacent private land. Therefore, these inventories may be a useful tool to indicate, in the early stages of energy project development and siting evaluation, whether environmental conflicts are likely, allowing developers to select alternative sites and establish mitigation plans, as well as anticipate and prevent public opposition to an energy project.

2. 42 U.S.C. §§ 4321-70h (2006).

3. See *State Environmental Planning Information*, NAT’L ENVTL. POL’Y ACT, <http://ceq.hss.doe.gov/nepa/regs/states/states.cfm> (last updated Dec. 4, 2011) (listing states with “NEPA-like” laws).

This article discusses the history of Natural Heritage Inventories.⁴ It also provides an overview of how these inventories operate in and have been integrated into the energy facility siting process of six states in the mid-western and western United States.⁵ Finally, it suggests how both the inventories and policies supporting them could be improved to make them more useful in energy-facility siting.⁶

II. HISTORICAL PERSPECTIVE AND NATIONAL LEADERSHIP

Natural Heritage Inventories began in South Carolina. In 1974, after The Nature Conservancy (TNC) and South Carolina's Wildlife and Marine Resources Department created the Santee Coastal Reserve, the Wildlife and Marine Resources Department director provided TNC funding to create a biodiversity inventory system. The director wanted TNC to help identify other potentially valuable preserves in South Carolina.⁷ At the same time, TNC's chief scientist, Robert Jenkins Jr., pioneered a new approach to a common preservation practice: instead of protecting an area and then inventorying it, he suggested the inventory process come first, be widespread, and catalog the biological features in need of conservation.⁸ Under this approach, the biological features would help identify sites that should be conserved, rather than conducting inventories only after a site was acquired for conservation purposes. This new process was successfully used in South Carolina and subsequently perfected in other states.

By 1976, three more programs using the new inventory approach started, and TNC developed a strategy to establish programs in every state.⁹ The TNC plan consisted of establishing an operational center with trained biologists in a state (often in an existing TNC office), collecting and recording information about species, and encouraging states assume responsibility for the program within a few years.¹⁰ The strategy worked, and by 1993, every state had an inventory program.¹¹ In 1994, TNC officially withdrew as the national overseer of the inventory programs and

4. Part II.

5. Part II.A-F. This paper discusses the use of natural heritage inventories in wind, natural gas, and pipeline project development and does not address oil or natural gas drilling projects.

6. Part III.

7. NATURESERVE, BACKGROUND ON STATE NATURAL HERITAGE PROGRAMS (on file with co-author).

8. *Id.*

9. *Id.* The states were West Virginia, Mississippi, and Oregon. *Id.*

10. *Id.* It seems that this process, much like the programs themselves, was not identical for every state. For example, the Idaho program staff reported that the program began as a joint initiative between the state's Game and Fish Department and TNC, and was always housed in the Idaho Fish and Game Department.

11. *Id.*

the Association for Biodiversity Information (ABI), an independent nonprofit organization that had been simultaneously developing information products to integrate heritage data from individual state programs in order to evaluate impacts from large-scale, multi-state projects, took over that role.¹²

Today, NatureServe (formerly ABI) serves as the national program coordinator and also provides support for programs in eleven Latin American countries and each Canadian province.¹³ NatureServe offers consultation, information management, and technology services and provides software individual programs can use to monitor, evaluate, and implement land use and resource management scenarios.¹⁴ Additionally, NatureServe staff may be hired to interpret biological data and evaluate proposed projects such as conservation planning, nature preserve or public park design, and open-space corridor development.¹⁵

III. INDIVIDUAL STATE INFORMATION

Each Natural Heritage Program (NHP) in the United States is an autonomous organization, affiliated with, but independent of, NatureServe. Some are entirely government-operated programs, while others are quasi-governmental and others are completely independent, non-profit or university-run programs. Despite their autonomy, all NHPs share some generic characteristics. First, these programs maintain lists of rare, threatened, and endangered species, and they function as a clearinghouse for data about individual species, biological communities, and habitat areas. Second, these programs inventory and monitor their respective state for rare, threatened, and endangered species in an effort to keep databases current and, particularly, keep an accurate account of the endangered species in the state. Finally, these programs provide data reports about rare, threatened, and endangered species to state and federal agencies, scientists, and private parties through formal and informal requests. Despite these broad similarities, the programs vary widely, however, and the following

12. *Id.* In 2001, ABI became NatureServe.

13. *About Us*, NATURESERVE, <http://www.natureserve.org/aboutUs/index.jsp> (last visited Mar. 5, 2012); *Products & Services*, NATURESERVE, <http://www.natureserve.org/prodServices/index.jsp> (last visited Mar. 5, 2012). The active Latin American programs are in Belize, Bolivia, Columbia, El Salvador, Guatemala, Mexico, Nicaragua, Panama, Paraguay, Peru, and Venezuela. NATURESERVE, THE NATURESERVE NETWORK (2010), http://www.natureserve.org/visitLocal/pdf/Network_Apr10.pdf.

14. *Products & Services: Expert Consultation*, NatureServe, <http://www.natureserve.org/prodServices/expertconsult.jsp> (last visited Mar. 5, 2012).

15. *Products & Services*, *supra* note 14.

subsections highlight some of the key differences in the six state programs of South Dakota, North Dakota, Minnesota, Wyoming, Idaho, and Montana.

A. NORTH DAKOTA

The North Dakota program is housed in the North Dakota Parks and Recreation Department. The program does not have a website or regular staff and, though appropriated by the state in 1981, has been dormant for years at a time since 1981.¹⁶ In periods when the program is not dormant, the Parks and Recreation Director will require staff members in the department to add a natural heritage component to their regular job functions.¹⁷ However, even in periods when the program is active, the total time dedicated to the Natural Heritage Inventory is less than the equivalent of one full-time position.¹⁸

The North Dakota NHP receives no state funding, but rather provides a database and inventory by taking advantage of federal grants and institutional relationships.¹⁹ Any inventory projects the program has completed have been funded by federal sources and have been carried out by contractors.²⁰ To supplement the limited survey data the program provides and to keep it current with limited funding, the program maximizes its relationships with the Army Corps of Engineers, environmental consulting firms, and the United States Fish and Wildlife Service (USFWS) to add information developed by these organizations to the heritage database.²¹

The North Dakota program is currently active and working on a variety of programs, two of which are partnerships with the North Dakota Game and Fish Department. First, these two departments are working to systematically re-rank plants based on their susceptibility to global warming and add them to the state Wildlife Action Plan, if necessary.²² Second, the staff is enlarging the Natural Areas Registry, which identifies and preserves, through “benevolent land stewardship,” unique and significant natural landscapes located on private lands.²³ Under this initiative, program staff sends letters to landowners that they believe may house important

16. Telephone Interview with Kathy Duttonhefner, Coordinator/Biologist Natural Res. Div., N.D. Parks & Recreation Dep't (Sept. 15, 2011).

17. *Id.*

18. *Id.*

19. *Id.*

20. *Id.*

21. *Id.*

22. *Id.*

23. See *Natural Areas of North Dakota*, N. PRAIRIE WILDLIFE RES. CENTER, <http://www.npwrc.usgs.gov/resource/habitat/natareas/index.htm> (last modified Aug. 24, 2006).

ecological communities, asking to survey the property.²⁴ If the landowner agrees and relevant species are discovered, the property is added to the registry.²⁵ The program is an effort to address the shared challenge that surveying private property poses to all natural heritage programs assessed in this paper.²⁶ Though private landowners hold much of the property in mid-western states, North Dakota is unique because a remarkable eighty-nine percent of the state is privately-owned.²⁷ Therefore, surveying the state requires owner consent, and thus, the success of the state's NHP requires cooperation between state and private actors.

In North Dakota, the Public Service Commission (PSC) has energy siting authority.²⁸ The commission is charged with regulating wind projects with the capacity to produce 0.5 megawatts (MW) or more of power, facilities producing one hundred million cubic feet or more of gas per day, and facilities generating fifty MW or more of electricity by any means.²⁹ When considering siting permits, the commission is required by statute to consider, among other factors, the "effect of the proposed site or route on areas which are unique because of biological wealth or because they are habitats for rare and endangered species."³⁰ Moreover, the statute encourages the commission to "cooperate with and receive and exchange technical information and assistance from and with any department"³¹ Beyond these general parameters, the legislature has given little direction to the PSC, and thus, it has fairly broad discretion over siting.³² The commission's regulations do address rare and threatened species, although they do not explicitly mention the NHP. The regulations prohibit energy

24. Telephone Interview with Kathy Duttonhefner, *supra* note 16.

25. *Id.*

26. *Id.*

27. *Public Lands: A North Dakota Game and Fish Department Perspective*, N.D. GAME & FISH DEP'T, <http://gf.nd.gov/multimedia/news/positions/publiclandwhitepaper.html> (last visited Mar. 5, 2012). The other states examined in this article have much lower percentages of private land. See IDAHO DEP'T OF COMMERCE, IDAHO FACTS 1 (stating Idaho's percentage of privately-owned land is thirty-one percent); *Economic Value of Healthy Fisheries*, TROUT UNLIMITED, Jan. 2005, at 2 (providing Wyoming's percentage of privately-owned land is forty-three percent); *Land Ownership in Montana Counties*, NAT. RESOURCE INFO. SYS., http://nris.mt.gov/montanafacts/county_own.asp (last visited Mar. 5, 2012) (stating Montana's percentage of privately-owned land is 58.7%); *What Is an SWCD?*, MASWCD, http://www.maswcd.org/What_is_an_SWCD/what_is_an_swcd.htm (last visited Mar. 5, 2012) (providing Minnesota's percentage of privately-owned land is seventy-eight percent).

28. N.D. CENT. CODE § 49-02-01 (1999).

29. *Id.* § 49-22-03(5)(a)-(c).

30. *Id.* § 49-22-09(10).

31. *Id.* § 49-22-14.1.

32. Brent Stahl et al., *Wind Energy Laws and Incentives: A Survey of Selected State Rules*, 49 WASHBURN L.J. 99, 125 (2009) (noting, however, that North Dakota has one of the most comprehensive sets of wind-lease-related regulations).

facility construction and require buffer zones in areas that are “critical to the life stages of threatened or endangered animal or plant species” and “where animal or plant species that are unique or rare to [the] state would be irreversibly damaged.”³³

Like all other states examined in this article except Minnesota, developers are not required to contact the North Dakota NHP for information or data. However, if the project developer voluntarily requests information, the program provides either a geographic information system (GIS) file or hardcopy map of species occurrences within the requested area. In contrast to all other state-run programs examined in this paper, and as a result of its administration by the Parks and Recreation Department, the program does not have authority over animals and, thus, encourages project developers to seek information about those species from the Game and Fish Department.³⁴ This program does not supplement the GIS data with biologist comments.³⁵

From 1981 through the early 2000s, there was little demand from the private sector or public agencies for the North Dakota program’s data and little communication between program staff and those surveying in the state for private projects or public agencies.³⁶ Recently, however, private and public attitudes about the program have changed. Currently, the program receives an average of one request per week from private developers of wind, oil, or gas projects, as well as regular calls from both federal and state agencies for inventory data.³⁷ Additionally, perhaps most importantly for the future of the program, staff members have developed relationships with private contractors and public agencies, both of which now contact the NHP in order to share their data so it may be added to the heritage database.³⁸

B. SOUTH DAKOTA

The South Dakota program is housed in the Department of Game, Fish, and Parks. In addition to carrying out the same responsibilities as the North Dakota counterpart, this office manages a variety of grant-funding programs focused on diversity, habitat protection, and implementation of the state’s Wildlife Action Plan.³⁹ While the program retains a traditional natural

33. N.D. ADMIN. CODE 69-06-08-01(1)(f)-(g) (2012).

34. Telephone Interview with Kathy Duttonhefner, *supra* note 16.

35. *Id.*

36. *Id.*

37. *Id.*

38. *Id.*

39. *Funding*, S.D. GAME, FISH & PARKS, <http://gfp.sd.gov/wildlife/funding/default.aspx> (last visited Jan. 9, 2012). Wildlife Action Plans are a mandated requirement for states to receive federal funding from the State Wildlife Grants Program. This funding still exists and is

heritage function, it also has developed over the years into a wildlife diversity program with “a broader conservation mission that [sic] just compiling and monitoring rare species.”⁴⁰ For example, the program initiated and funded reintroduction of osprey and peregrine falcons in South Dakota, was directly responsible for developing the state’s aquatic nuisance plan, and regularly finances and produces books about the state’s natural resources.⁴¹

In South Dakota, the Public Utilities Commission (PUC) regulates all energy facilities and facility expansions capable of generating 100 MW or more of electricity, substations of 250 kilovolts (kV) or more, transmission lines of 250 kV or more, and natural gas pipelines.⁴² The PUC permits wind-energy projects over 100 MW and expansion projects of twenty-five MW or more that will be integrated with an existing wind facility to subsequently generate 100 MW or more of electricity.⁴³ Additionally, wind facility developers planning to generate five MW or more of electricity must notify the commission prior to construction.⁴⁴ The statute, therefore, does not regulate projects under five MW and only requires the PUC be notified for a project between five and 100 MW. South Dakota currently generates 784 MW of wind electricity, even though the PUC has only permitted two projects.⁴⁵ Recognizing that many wind projects are permitted at the local level, the PUC published a model wind energy facility ordinance for county commissions to use in crafting regulations.⁴⁶ The ordinance has since been adopted by at least one county and includes suggestions for setbacks, decommissioning, tower height, spacing qualifications, and cable specifications.⁴⁷

administered by the USFWS. Most states now have completed these plans that identify rare and threatened species and “outline the steps that are needed to conserve wildlife and habitat before they become rare and more costly to protect. Taken as a whole, they present a national action agenda for preventing wildlife from becoming endangered.” STATE WILDLIFE ACTION PLANS, <http://www.wildlifeactionplans.org/> (last visited Mar. 5, 2012).

40. Email from David J. Ode, Acting Coordinator S.D. Natural Heritage Database, to Lea M. Colasuonno, co-author (Sept. 19, 2011) (on file with co-author).

41. *Id.*

42. S.D. CODIFIED LAWS §§ 49-41B-2(6), -24 (Supp. 2011).

43. *Id.* § 49-41B-2(13); *see also* ASS’N FISH & WILDLIFE AGENCIES & U.S. FISH & WILDLIFE SERV., WIND POWER SITING REGULATIONS AND WILDLIFE GUIDELINES IN THE UNITED STATES 43 (Apr. 2007), *available at* http://www.fws.gov/midwest/wind/guidance/AFWA_SitingSummaries.pdf.

44. S.D. CODIFIED LAWS § 49-41B-25.1.

45. Telephone Interview with Brian Rounds, Staff Analyst, S.D. Pub. Utilities Comm’n (Dec. 21, 2011). The two projects approved by the PUC were a 210 MW project and a 162 MW project. *Id.*

46. *Id.*

47. BROWN COUNTY, S.D., CODE ch. 4.36 (1991).

South Dakota PUC rules do not mandate applicants utilize the NHP when siting energy projects, but they do demand applicants discuss environmental impacts and data that may be easily found by contacting the program. For example, applicants are required to provide a description of the existing environment at the time of application and documentation of irreversible changes.⁴⁸ Furthermore, maps and analysis of current and anticipated land uses of the potential project area, specifically delineating areas of native grassland, must be provided.⁴⁹ The applicant must also discuss the project's potential impacts on terrestrial and aquatic ecosystems as a whole, rather than just on a site-specific level,⁵⁰ and mitigation strategies that could ameliorate negative biological impacts.⁵¹ The PUC also may, like all government agencies in South Dakota, require an environmental impact statement for "any major action" they propose or approve where data about endangered and threatened species could be critical.⁵² Finally, the PUC's model wind energy facility ordinance recommends counties require applicants address project-specific impacts on "native habitat, rare species, and migratory routes" and that such information be obtained from the South Dakota Department of Game, Fish, and Parks, the agency responsible for the natural heritage program.⁵³

Even though project developers are not required to utilize the state's Natural Heritage Program to satisfy these environmental obligations, they often do so voluntarily. When developers request NHP information, they receive a GIS file and comments from the agency's biologists evaluating the project site. The GIS file comprises element occurrences that represent sightings of rare, endangered, or threatened species and, by implication, expected habitat areas of these species.⁵⁴ The accompanying biologist evaluations provide general analysis of the site and always address three specific issues. First, biologists evaluate whether rangeland, native grassland, or wetland areas may be impacted by the project because these areas are unique habitats that sustain important bird and aquatic species.⁵⁵

48. S.D. ADMIN. R. 20:10:22:13 (2005).

49. *Id.* R. 20:10:22:18.

50. *Id.* R. 20:10:22:16 (requiring the effect on terrestrial ecosystems); *id.* R. 20:10:22:17 (requiring the effect on aquatic ecosystems).

51. *Id.* R. 20:10:22:16.

52. S.D. CODIFIED LAWS § 34A-9-4 (2004) ("All agencies may prepare, or have prepared by contract, an environmental impact statement on any major action they propose or approve which may have a significant effect on the environment.").

53. S.D. PUB. UTILS. COMM'N, DRAFT MODEL ORDINANCE FOR SITING OF WIND ENERGY SYSTEMS 8 (2008), available at <http://puc.sd.gov/commission/twg/WindEnergyOrdinance.pdf>.

54. Telephone Interview with Silka Kempema, Wildlife Biologist, S.D. Dep't Game, Fish, and Parks (Aug. 22, 2011).

55. *Id.*

Second, biologists evaluate the size of the project area and whether rare, threatened, or endangered species live in the vicinity.⁵⁶ Finally, biologists assess how non-listed, yet culturally important, “non-heritage” species may be affected by the project.⁵⁷

While this basic analysis is provided to all projects, wind project developers in South Dakota receive two supplementary documents from the heritage program.⁵⁸ First, they receive a copy of South Dakota’s “Siting Guidelines for Wind Power Projects.” Even though the guidelines are not mandates, because South Dakota does not currently have any environmental regulations that apply to turbine siting, they are distributed to all stakeholders involved in wind energy development.⁵⁹ The guidelines explicitly encourage developers to contact the regional Game, Fish, and Parks office, where the natural heritage program is housed, “early in the planning process to determine if there are any resources of special concern in the area under consideration.”⁶⁰ Moreover, it notes that while “[b]iological resource surveys at each potential wind power site in the early stages of planning can help determine whether serious conflicts are likely to occur at a particular site, . . . cumulative effects with multiple sites in a particular region/area must also be acknowledged and/or investigated and minimized/avoided.”⁶¹

Second, wind project developers are provided a copy of the South Dakota Bat Management Plan.⁶² The document provides background information on South Dakota’s bat populations and notes recent research “suggest[s] that active wind generators may adversely affect bats through collisions resulting in death”⁶³ and includes a strategy to “[a]nalyze the potential threats in areas selected as high priority for wind power generation and determine the effects of wind power generation sites on migratory bat populations in South Dakota.”⁶⁴

56. *Id.*

57. *Id.* For example, the greater sage-grouse, though not a listed species, is an important cultural species, and thus, the program will address the impact of the project on the mating seasons of this species.

58. *Id.*

59. See generally S.D. GAME, FISH, & PARKS, SITING GUIDELINES FOR WIND POWER PROJECTS IN SOUTH DAKOTA, available at <http://gfp.sd.gov/wildlife/docs/wind-power-siting-guidelines.pdf>.

60. *Id.* at 4.

61. *Id.*

62. S.D. BAT WORKING GRP., SOUTH DAKOTA BAT MANAGEMENT PLAN (2004) available at <http://gfp.sd.gov/wildlife/management/plans/bat-management-plan.pdf>.

63. *Id.* at 10.

64. *Id.* at 31.

C. MONTANA

The Montana program stands out among all the programs examined in this article because it is housed under the Montana State Library (MSL). Thus, even though the University of Montana operates the NHI program, because it is part of the library system, data about the use of the inventory is confidential under Montana law. As a result, it is unclear what agencies and private parties utilize the inventory and for exactly which projects the information is being obtained.⁶⁵ Another unique aspect of the program is its production of the Montana Field Guides webpage, where users can access identification, habitat, reproduction, range, and distribution information about Montana's animals, plants, lichens, and ecological communities.⁶⁶ In 2010 this site averaged 1275 users weekly.⁶⁷ Additionally, this program is currently working with EPA to map wetlands across Montana and provides access to the map and downloads of the information free via the Internet.

Montana has not enacted statewide statutes or regulations for wind development projects.⁶⁸ Importantly, though, components of wind projects may require permitting under the Major Facility Siting Act if the project necessitates new electric transmission lines with a design capacity of more than sixty-nine kV or employs pipelines seventeen inches in diameter and thirty miles or longer in length.⁶⁹ The Act excludes transmission lines from regulation for a variety of reasons, including length and capacity of the line, right-of-way agreements with landowners, and the upgrade of existing lines.⁷⁰ However, projects that are subject to the Act must describe the existing environment, "contain a baseline study of the proposed sites and any alternate locations of off-site associated facilities and their impact

65. See MONT. NAT. HERITAGE PROGRAM, <http://mtnhp.org/> (last visited Mar. 2, 2012). The director of the program, Dr. Neil Snow, did confirm in an email that the program is used by a wide variety of agencies, however, and specifically noted the state Departments of Fish, Wildlife, and Parks, Environmental Quality, Transportation, Agriculture, Natural Resources and Conservation, as well as local environmental consultants, non-profit organizations, and federal agencies such as Bureau of Indian Affairs, Fish and Wildlife, Natural Resources and Conservation Service, Forest Service, Bureau of Land Management (BLM), Park Service, and United States Geological Survey (USGS). E-mail from Dr. Neil Snow, Dir. Mont. Heritage Program, to Lea M. Colasuonno, co-author (Oct. 8, 2011) (on file with author).

66. *Montana Field Guides*, MT.GOV, <http://fieldguide.mt.gov/default.aspx> (last visited Jan. 9, 2012).

67. ASS'N FISH & WILDLIFE AGENCIES & U.S. FISH & WILDLIFE SERV., *supra* note 43, at 28.

68. E-mail from Dr. Neil Snow, Dir. Mont. Heritage Program, to Lea M. Colasuonno, co-author (May 8, 2012) (on file with author).

69. ASS'N FISH & WILDLIFE AGENCIES & U.S. FISH & WILDLIFE SERV., *supra* note 43, at 28; see MONT. CODE ANN. § 75-20-104(8) (2011).

70. MONT. CODE ANN. § 75-20-104(8) (2011).

zones,” and must “assess impacts associated with the proposed facility, and . . . identify mitigation strategies”⁷¹

Montana’s Department of Environmental Quality regulations specifically address sensitive areas and the responsibilities of energy project developers subject to the Major Facility Siting Act. The Act defines the areas as “government-designated areas that have been recognized for their importance to Montana’s wildlife, wilderness, culture, and historic heritage” and characterizes examples of such areas as wildlife refuges, state parks, historic sites, wilderness areas, and designated wild and scenic rivers.⁷² The rules require that when electric transmission lines are at issue, alternative options must be evaluated in terms of the significance of environmental “advantages and disadvantages” and “siting constraints.”⁷³ Moreover, applicants must discuss potentially significant impacts of a project with the appropriate agencies and summarize those discussions in the permit application.⁷⁴ Thus, while major facility developers are required to take sensitive areas into account, none are required to consult the natural heritage program in order to do so.

Natural heritage data from the Montana program may be requested in two ways. First, one can navigate the free interactive “natural heritage map viewer” program available online through the program website. The web program enables users to choose different types of maps, such as land management maps, generalized observation maps, or photographic maps, and to activate a variety of map layers, including adding or subtracting species, natural features, or jurisdictional boundaries; it subsequently allows users to save the personally-tailored map.⁷⁵ Second, individuals or agencies may obtain data through a formal request. These requests, of which the Montana program answers about one thousand annually, provide requestors with detailed information similar to that available online.⁷⁶ Specifically, requestors receive a cover letter that summarizes the findings, a Species of Concern Data Report, a map depicting the Species of Concern locations, a

71. MONT. ADMIN. R. 17.20.1418(1) (2011).

72. MONT. CODE ANN. § 75-20-104(10). Although the Code was changed in 2005 and that change lessened the general environmental burden for projects being developed in sensitive areas, the change did not materially alter applicants’ responsibilities for natural heritage data. *See* MONT. ADMIN. R. 17.20.1430 (repealed 2003) (regarding sensitive areas and areas of concern for transmission lines, as well as facilities inventory and environmental information).

73. MONT. ADMIN. R. 17.20.1305(2)(c).

74. *Id.* R. 17.20.1418.

75. *Natural Heritage Map Viewer*, MTNHP, <http://mtnhp.org/mapviewer/?t=6> (last visited Jan. 9, 2012).

76. E-mail from Dr. Neil Snow to Lea M. Colasuonno, *supra* note 65; *see also* Mont. Natural Heritage Program, *Information Request Examples*, MTNHP, http://mtnhp.org/requests/req_exmpl.asp (last visited Mar. 1, 2012).

map depicting wetlands, and a map showing land cover (vegetation) types.⁷⁷

Montana, like most of the NHI programs surveyed, reported that accessing private land for surveying can be difficult. Specifically, the director said, “as is true in much of the western [United States], some landowners are uncomfortable with surveying activities of state or federal biologists.”⁷⁸ He also noted “many landowners in Montana do welcome research on species of concern by such biologists,” but he did not highlight specific programs like those Wyoming and North Dakota have underway to access private property in Montana.⁷⁹

D. MINNESOTA

Minnesota does not have a natural heritage program in the traditional sense, but instead assigns the three traditional heritage program functions to three different units within the Department of Natural Resources. The first of these units is the Minnesota Biological Survey, which handles all surveying. The second is the Information Technology Department that uses the “Biotics” software to produce the Natural Heritage Information System (NHIS) database. Lastly, the Conservation Management and Rare Resources Unit manages a variety of heritage-related issues, including endangered species coordination and non-energy permitting. Even though bureaucratically these programs are separated, they operate cohesively and share one website with the mission of “collect[ing], manage[ing], and interpret[ing] information about nongame animals, native plants and plant communities to promote the wise stewardship of these resources.”⁸⁰

In Minnesota, the Energy Facility Permitting Unit (EFP) within the Public Utilities Commission (PUC) conducts environmental reviews of proposed large energy facilities.⁸¹ The review includes regulating wind power generation plants, electric power plants and transmission lines, and natural gas facilities.⁸² The Minnesota legislature divided regulatory responsibility for wind projects between the PUC and the counties according to the size of the project. Local governments retain full authority

77. E-mail from Dr. Neil Snow to Lea M. Colasuonno, *supra* note 65; *see also* E-mail from Dr. Neil Snow to Lea M. Colasuonno, *supra* note 68.

78. E-mail from Dr. Neil Snow to Lea M. Colasuonno, *supra* note 65.

79. *Id.*

80. *Natural Heritage and Nongame Research Program*, MINN. DNR, <http://www.dnr.state.mn.us/eco/nhrp/index.html> (last visited Mar. 1, 2012).

81. MINN. STAT. chs. 216A, B, E, F, G (2012); *see also Administrative Organization*, PUB. UTILITIES COMMISSION, <http://www.puc.state.mn.us/puc/organization/index.html> (last visited Mar. 1, 2012).

82. MINN. STAT. chs. 216A, B, E, F, G.

to establish siting regulations for wind projects of five MW or less.⁸³ In contrast, the legislature granted the PUC control of projects exceeding five MW and mandated that a permit issued by the PUC “supersedes and preempts all zoning, building, or land use rules, regulations, or ordinances adopted by regional, county, local, and special purpose governments.”⁸⁴ However, the state allows counties to permit projects less than twenty-five MW if they choose.⁸⁵ Thus, while projects undergoing county permitting are subject to the varied local regulations, wind projects subject to PUC regulation are required to “[d]escribe any rare and unique natural resources, including habitat and community types, threatened, endangered, species of special concern *as determined by the NHI database.*”⁸⁶

PUC regulations for natural gas pipelines in Minnesota do not contain NHP specific language like the wind project regulations. The state legislature requires PUC pipeline regulations to have delineated criteria the commission will use to assess “the impact of the proposed pipeline on the natural environment”⁸⁷ and evidence that the applicant considered alternatives before settling on a preferred route.⁸⁸ The criteria developed by the PUC in accordance with the statute require an evaluation of the impacts of the proposed pipeline on all culturally significant lands and the “cumulative potential effects of related or anticipated future pipeline construction.”⁸⁹ However, as with all energy projects under PUC jurisdiction, Minnesota’s Environmental Protection Act (MEPA) applies if the project meets statutory requirements and, thus, provides another outlet under which NHP data may be useful to private developers or public agencies.⁹⁰

Concomitant with the PUC, the Minnesota Department of Natural Resources (DNR), based on its statutory jurisdiction over wildlife in the state, also has statutory responsibilities in energy facility siting.⁹¹ The DNR “must develop and manage permanent prairie landscape reserves to

83. *Id.* § 216F.02(b)-(c).

84. *Id.* § 216F.07.

85. *Id.* § 216F.08(a) (“A county board may, by resolution and upon written notice to the Public Utilities Commission, assume responsibility for processing applications for permits required under this chapter for LWECs with a combined nameplate capacity of less than 25,000 kilowatts.”).

86. MINN. DEP’T OF COMMERCE, APPLICATION GUIDANCE FOR SITE PERMITTING OF LARGE WIND ENERGY CONVERSION SYSTEMS IN MINNESOTA 15 (Aug. 2010) (emphasis added).

87. MINN. STAT. § 216G.02(3)(b)(4).

88. *Id.* § 216G.02(3)(b)(2).

89. MINN. R. 75852.1900(3)(B), (G), (I) (2009).

90. MINN. STAT. § 116D.

91. *Id.* § 84.027; *see also* MINN. DEP’T OF NATURAL RES., GUIDANCE FOR COMMERCIAL WIND ENERGY PROJECTS 2 (2011).

maintain the native plant and animal populations, landscape features, and habitat types that are characteristic of intact native prairie ecosystems.”⁹² Additionally, the DNR is tasked with supporting counties developing a comprehensive plan and “must provide [to the county commission] the natural heritage data from the county biological survey, if available.”⁹³ Both of these roles for the DNR enable the state to operationalize its natural heritage database.

Minnesota stands apart from the other five programs assessed in this article for two reasons. First, as noted above, Minnesota requires project developers provide information based on the state heritage database when applying for some energy project permits. Second, Minnesota protects the most critical information about rare and threatened species under the state Data Practices Act.⁹⁴ Therefore, information requests are divided into three groupings. An individual or company can access and search the Rare Features Database⁹⁵ by signing a licensing agreement with the state.⁹⁶ An individual or company can also obtain, for a fee, a hardcopy report from the Rare Features Database—where DNR staff perform the search and provide a summary of the species in the area of interest. Finally, less critical information housed in separate databases, such as the Native Plant Communities Database, Sites of Biodiversity Significance Database, and the Railroad Rights-of-Way Prairies Database, are provided free of charge and can be downloaded by any internet user from the DNR website.⁹⁷

E. WYOMING

The Wyoming NHP, called the Wyoming Natural Diversity Database (WYNDD), is housed at the University of Wyoming and operates as part of the research arm of the university completely independent of the state government. The program started in 1979 as a science branch of the state’s Nature Conservancy chapter and operated there until moving to the university in 1998, where it has expanded significantly.⁹⁸ The shift in

92. MINN. STAT. § 84.961(3).

93. *Id.* § 394.23.

94. MINN. DEP’T NATURAL RES., HOW TO OBTAIN NATURAL HERITAGE DATA (2009), available at <http://www.dnr.state.mn.us/eco/nhnrp/nhis.html#datarequest>.

95. See *Natural Heritage Information System*, DNR.MN.US, <http://www.dnr.state.mn.us/eco/nhnrp/nhis.html> (last visited Mar. 5, 2012). This database is now called Biotics. *Id.*

96. MINN. DEP’T NATURAL RES., *supra* note 94. The agreements can be two-year agreements or per hour fee schedules. *Id.*

97. *Id.*

98. Telephone Interview with Dr. Gary Beauvais, Dir., Wyo. Natural Diversity Database (Sept. 7, 2011). Dr. Beauvais reported that since 1998 full-time, year-round staff has doubled to twelve, and summer field-research staff is more than twenty-five including part-time, volunteer,

management from a non-profit, environmental organization to a university has changed the public opinion of WYNDD; instead of being viewed as an advocacy center, it is now considered a neutral, technical resource for scientific data.⁹⁹

The program has numerous unique features that differentiate it from others evaluated in this article. First, the program has been a leader in endangered species work in Wyoming, focusing fieldwork on little known species.¹⁰⁰ This data has enabled conservation advocates to file numerous Endangered Species Act petitions for pygmy rabbits, diving beetles, pocket gophers, as well as numerous land snail and rare plant species.¹⁰¹ In contrast to North Dakota, WYNDD is largely staffed by biologists and performs its own inventory work.¹⁰² Additionally, in contrast to all other programs discussed herein, WYNDD puts on educational programs, including classes, seminars, and guest lectures around the state.¹⁰³

Furthermore, WYNDD uses predictive modeling.¹⁰⁴ Developers, policymakers, and regulators are universally interested in this modeling technique and have made formal requests for the information. Similar to North Dakota's Natural Areas Registry, this tool addresses the challenges created by the shortage of data from private property, which comprises forty-three percent of Wyoming.¹⁰⁵ A second method WYNDD is using to address the shortage of data available for private property is to ask private consultants to share data they obtained through private contracts on private land with WYNDD.¹⁰⁶

Multiple authorities regulate energy sources in Wyoming. The Industrial Siting Council (ISC) permits industrial facilities¹⁰⁷ and wind energy projects with thirty or more turbines.¹⁰⁸ Wyoming subsequently

and student workers. *Id.* Additionally, in 2009, the program added an entire branch and a staff member dedicated to invertebrate zoology. *Id.*

99. *Id.*

100. E-mail from Dr. Gary Beauvais, WYNDD Director to Lea M. Colasuonno, co-author (May 8, 2012) (on file with author).

101. *Id.*

102. *Id.*

103. *Id.*

104. Idaho is in the process of developing this tool, North Dakota does not use it, and the authors were unable to confirm whether Minnesota, Montana, or South Dakota are currently employing it.

105. *Economic Value of Healthy Fisheries*, *supra* note 27, at 2.

106. Telephone Interview with Dr. Gary Beauvais, *supra* note 98.

107. See *Industrial Siting*, WYO. DEP'T OF ENVTL. QUALITY, <http://deq.state.wy.us/isd/> (last visited Mar. 5, 2012). Other "facilities" regulated by this agency are those with construction costs of \$186.7 million or more and a variety of commercial operators capable of receiving or disposing of large quantities of commercial and radioactive waste. *Id.*

108. WYO. STAT. ANN. § 35-12-102 (2011).

delegates permitting authority for wind projects comprising less than thirty turbines but more than 0.5 MW to county commissioner boards.¹⁰⁹ However, the counties are free to refer any wind project, small or large, to the ISC if they choose not to regulate it.¹¹⁰

The state legislature mandated that the ISC consider rare and threatened species in the construction of facilities it regulates.¹¹¹ Specifically, an application for an ISC permit requires “[a]n evaluation of potential impacts together with any plans and proposals for alleviating . . . environmental impacts . . . [and] shall cover . . . threatened, endangered and rare species and other species of concern identified in the state wildlife action plan as prepared by the Wyoming game and fish department.”¹¹² The ISC rules require permit applicants satisfy the statutory obligation by using an “evaluation of . . . a *recent survey* for threatened and endangered and rare species of concern (flora & fauna) . . .”¹¹³ Thus, while a wind facility developer may request heritage data from the WYNDD database at any stage in the project, the developer must still satisfy the “recent” requirement in the application process and, thus, will likely have to conduct an independent survey. Moreover, because the law is linked to the Wildlife Action Plan not the WYNDD database, an independent survey may be required since it is possible that a species addressed in the Wildlife Action Plan is not addressed in the WYNDD database and reliance only on the database could result in less than full compliance with the law. Nevertheless, the NHP can provide developers with important information about what to look for in the surveys they conduct at the time of the siting permit application.

Another notable department is the Wyoming Oil and Gas Conservation Commission (WOGCC), which regulates oil and gas development in the state.¹¹⁴ There is no mention of the natural heritage program or rare, threatened, or endangered species in its rules or regulations except a few references to applicants’ responsibilities under the Migratory Bird Treaty

109. *Id.* § 18-5-501. While the state legislature grants counties broad latitude in developing wind ordinances, the state legislature does mandate setbacks from occupied properties and public rights-of-way. *See also id.* § 18-5-504.

110. *Id.* § 35-12-102(a)(vii)(F).

111. 20-1 WYO. CODE R. § 10 (LexisNexis 2011).

112. WYO. STAT. ANN. § 35-12-109. Generally, the ISC regulates wind projects just like any other industrial facility, except for specific, narrow regulations concerning land reclamation and financial assurance. *See generally id.*

113. 20-1 WYO. CODE R. § 9(h)(vii)(n)(i) (emphasis added).

114. WYO. STAT. ANN. § 30-5-104; *see also Intermountain Oil and Gas BMP Project*, NAT. RESOURCE L. CENTER, http://www.oilandgasbmps.org/laws/wyoming_law.php (last visited Mar. 5, 2012).

Act.¹¹⁵ Although its regulations do state the WOGCC Commissioner is bound by Executive Order 2008-2, the Greater Sage-Grouse Core Area Protection Order requiring agencies, to the maximum extent possible, to maintain and enhance the species' habitat.¹¹⁶ Additionally, it is important to note these regulations do reference applicants' responsibility under the Department of Environmental Quality Act for water, waste treatment systems, National Pollutant Discharge Elimination System (NPDES), and hazardous wastes permits, but it does not require compliance with any of the Act's mandates for endangered, threatened, or rare species.¹¹⁷

The final important agency in the Wyoming energy siting process is the Wyoming Game and Fish Department. The department does not have direct authority over energy siting projects, much like Minnesota's DNR, because it has statutory authority for wildlife in the state, and thus, it provides recommendations to the ISC. These recommendations are, more often than not, accepted by the ISC and incorporated into subsequently issued permits.¹¹⁸ The Wyoming Game and Fish Department also issued "Wildlife Protection Recommendations for Wind Energy Development in Wyoming" in 2010. The document encourages early communication (at least two years prior to construction) between the project developer and both Wyoming Game and Fish and the USFWS to discover potential wildlife conflicts at the site and properly mitigate their affects.¹¹⁹

If project developers choose to contact WYNDD during or before permitting, the program provides a GIS file and pertinent biologists' comments about the habitat and species in the area. Since the Wyoming program, unlike all others analyzed herein, is completely independent of all state agencies, the Wyoming NHP does not directly interact with the various siting authorities. However, the State's Game and Fish Department uses the WYNDD databases in writing recommendations for the ISC, and thus, the program is an important indirect component of energy siting in Wyoming.

115. *See, e.g.*, 55-4 WYO. CODE R. § 1(c)(iv), (h), (bb), (jj).

116. *Id.* § 1(c)(v). Note this Executive Order was rescinded in 2010 by Executive Order 2010-4 and then subsequently replaced by Executive Order 2011-5, which effectively reinstated the initial Executive Order and required the state to maintain these protections for at least five years. Wyo. Exec. Order No. 2011-5 (June 2, 2011), *available at* <http://governor.wy.gov/Documents/Sage%20Grouse%20Executive%20Order.pdf>.

117. 55-4 WYO. CODE R. § 1(c)(i)(A)-(J).

118. WYO. STAT. ANN. § 35-12-110(b)(iv).

119. *See* WYO. GAME & FISH DEP'T, WILDLIFE PROTECTION RECOMMENDATIONS FOR WIND ENERGY DEVELOPMENT IN WYOMING 31 (2010).

F. IDAHO

The Idaho NHP, the Idaho Conservation Data Center, was cooperatively initiated by TNC and the Idaho Department of Fish and Game in 1984. The program, like all those evaluated in this article, performs monitoring functions for threatened and rare species and publishes reports on the botany, zoology, wetlands, and plant communities of Idaho. The program is currently developing the same kind of predictive modeling that Wyoming uses to forecast species locations and critical habitats in areas where survey data either has not or cannot be obtained. Additionally, the Idaho program is working with the USGS and other northwest states to update the Gap Analysis Program, a program whereby detailed GIS maps of land cover, native species, land stewardship, and management status are coordinated and then used to assess regional biodiversity and identify underrepresented biological elements.¹²⁰

Much like Wyoming, Idaho leaves many energy facility siting responsibilities with local, county-level, government, including wind-turbine siting and transmission line construction.¹²¹ Numerous counties have enacted wind-specific ordinances, including the Jefferson, Power, and Ada Counties, while other counties specify that wind power development applications will be permitted as either a conditional use permit (CUP) or special use permit (SUP).¹²² The only required state permits for wind facilities are from the Idaho Division of Building Safety for electrical issues and the Idaho Transportation Department, Division of Aeronautics for air traffic obstruction permits.¹²³

State involvement in transmission line siting is similarly limited, and state agencies only have a direct role if project developers cross or utilize state lands.¹²⁴ On the other hand, county-level planning and zoning commissions are required to develop and implement comprehensive plans

120. See NORTHWEST GAP ANALYSIS PROJECT, <http://www.gap.uidaho.edu/> (last visited Jan. 9, 2012).

121. See IDAHO CODE ANN. § 67-6511 (Supp. 2011); see also *Permitting & Siting Roles*, IDAHO OFFICE OF ENERGY RESOURCES, http://www.energy.idaho.gov/transmission/permit_siteroles.htm (last modified Apr. 30, 2010).

122. POWER COUNTY, IDAHO, ch. 20 (2009); Ada County, Idaho, Ordinance 772 (July 27, 2011); Jefferson County, Idaho, Ordinance 08-09 (Dec. 8, 2008); see also IDAHO DEP'T OF WATER RES., PERMITTING OF SMALL AND MEDIUM SIZED WIND TURBINE PROJECTS IN IDAHO 17-25 (2005) (providing ordinance variations for CUPs and SUPs for Elmore, Bonneville, Jerome, and Cassia Counties).

123. IDAHO DEP'T OF WATER RES., *supra* note 122, at 15-16.

124. *Permitting & Siting Roles*, *supra* note 121. For example, direct involvement by the Idaho Department of Lands is mandated when transmission lines cross navigable lakes or rivers, or when commercial logging is required to clear the site for the transmission lines. See IDAHO ADMIN. CODE R. §§ 20.02.01, 20.03.04, 20.03.17 (2011).

that must include both power plant site and utility transmission corridor analysis.¹²⁵ Moreover, these local county commissioner boards are also charged with analyzing and preserving areas of cultural, ecological, scenic, or wildlife significance.¹²⁶ As a result of these two responsibilities, the county commissioner boards often contact the Department of Fish and Game for information.

Although the Idaho Department of Fish and Game is statutorily responsible for all wildlife, plant, and fish species in the state, it has no siting or permitting authority. The Agency provides recommendations and mitigation strategies to decision-makers at the state, county, and private landowner level. When project developers and agencies tasked with permitting energy projects contact the Department of Fish and Game, the department provides a GIS file along with biologist's comments about the project. In contrast to South Dakota, Idaho does not provide a specific packet of information for different project types, but instead performs a formulaic analysis that is adapted to the unique characteristics of the site.¹²⁷

Currently, there are two large wind projects in the planning process in Idaho, both of which are on federal land. Environmental Impact Statements (EIS) under NEPA were prepared for both projects. The first project, on BLM land, was approved in 2006;¹²⁸ however, the project developer has been unable to secure a transmission contract, thus putting the project on hold since its approval.¹²⁹ The second project, also on BLM land, includes prime habitat for the greater sage-grouse along with numerous other species listed in the state as those of "greatest concern." Natural Heritage Inventory data was used in the EIS to identify species in the project area and along transportation routes that are "rare" in Idaho and to identify species currently suffering significant regional population declines that may be further impacted by the project.¹³⁰ A draft EIS was released in April of

125. IDAHO CODE ANN. § 67-6508(h); *see also id.* § 67-2355.

126. *Id.* § 67-6508(k).

127. Telephone Interview with Gregg Servheen, Wildlife Program Coordinator, Idaho Game & Fish Dep't, & Rita Dixon, Biodiversity Program Leader for the Natural Heritage Program, Idaho Game & Fish Dep't (Sept. 26, 2011).

128. To view the project's final EIS, see *Cotterel Wind Power Project*, U.S. DEP'T OF THE INTERIOR BUREAU OF LAND MGMT., http://www.blm.gov/id/st/en/fo/burley/Planning/cotterel_wind_power.html (last updated Jan. 18, 2011).

129. Telephone Interview with Gregg Servheen & Rita Dixon, *supra* note 127.

130. U.S. DEP'T OF THE INTERIOR BUREAU OF LAND MGMT., DRAFT ENVIRONMENTAL IMPACT STATEMENT FOR PROPOSED CHINA MOUNTAIN WIND PROJECT AND RESOURCE MANAGEMENT PLAN AMENDMENT, *available at* http://www.blm.gov/pgdata/etc/medialib/blm/id/plans/china_mountain_wind/volume_i.Par.5721.File.dat/7_Ch_3a_%20Affected_Env_508.pdf.

2011, and while the comment period closed in July, there has been no final decision on this project as of yet.¹³¹

Similar to all programs, this program reported the primary challenges are limited funding and limited access to privately owned property. However, with the current pressure to develop wind energy in Idaho, the program reported specific challenges with developing this new resource. First and foremost, because most of the development is occurring on private land and without statewide laws, it is unclear whether impact studies were performed prior to construction of currently operating sites or whether ongoing monitoring is taking place.¹³² Second, even with projects that do perform impact studies or obtain survey data for the project area prior to construction, it is unclear whether project developers are obtaining or performing more than one survey to ascertain a year-round understanding of the environmental impacts in light of seasonal variations in wildlife habitat usage and behavioral patterns.¹³³

IV. RECOMMENDATIONS AND CONCLUSIONS

Americans value their natural resources as both recreational and aesthetic amenities and as sources of energy for economic and domestic wealth. Of course, these two values can often conflict with each other. The Natural Heritage Programs available in each state provide a unique and important opportunity to limit some of these conflicts.

By using the information available through the programs early in the energy siting process, needless conflicts can be minimized. For example, by overlaying a natural heritage map on an energy resources map, a state agency or private actor can immediately identify the most energy-rich locations with the fewest conflicts and efficiently choose project sites. Second, natural heritage maps may be used to identify the most appropriate energy project for a particular location. Often, a region or location may be developed for more than one type of energy source. Armed with knowledge about which endangered, rare, or threatened species inhabit the area, a project developer can save money, time, and resources by choosing a project that will have fewer or more easily mitigated impacts and thereby obtain project approval with fewer political, public relations, or financial costs.

131. Press Release, Bureau of Land Mgmt, BLM Defers Final Decision on China Mountain Wind Project (Mar. 8, 2012), *available at* http://www.blm.gov/id/st/en/info/newsroom/2012/March-2012_News/idaho_blm_defers_final.html.

132. Telephone Interview with Gregg Servheen & Rita Dixon, *supra* note 127.

133. *Id.*

To obtain these benefits, changes to the current energy siting process should be made through state action. First, states could better publicize their Natural Heritage Program and encourage energy project developers to utilize the information available through the program early on in making land acquisition or siting decisions. Second, states could develop guidelines for energy facility siting, as South Dakota and Wyoming have done, that suggest the use of the Natural Heritage Program. Third, states could go further, as Minnesota has done, and require energy facility developers to consult with the Natural Heritage Program as part of the energy siting process. Not only will these steps benefit the individual project at issue, but it should also increase the value and usefulness of these databases over time. By driving more “business” to the databases, they become more important and frequented, and thus, additional data may become available that enriches the databases.

These programs must also receive sufficient funding in order to be an effective and efficient policy tool. By avoiding or minimizing often expensive siting confrontations, Natural Heritage Programs may result in a net savings of public and private resources. Additionally, these programs may speed up the delivery of society-valued renewable energy sources and limit the development of other less favored, more expensive energy sources. To reap the potentially significant gains, however, these programs must receive sufficient funding to inventory rare and endangered species and to subsequently catalog the information in databases. Along with this investment in fieldwork, it is necessary to invest in cutting-edge information technology that will enable the programs to maximize the value of each data point collected. In particular, states could learn from the “predictive modeling” technology currently used in Wyoming that draws inferences about species and habitat on unsurveyed land by extrapolating from data collected on surveyed land. Natural Heritage Programs have the potential to be important tools, enabling developers, policymakers, and the public to better understand “where we are, and wither we are tending,” and, in the end, to enable both government agencies and developers to make better decisions.