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Bugging the Oil and Gas Industry: The American Burying Beetle in Oklahoma

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Oil and Gas, Natural Resources, and Energy Journal

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BUGGING THE OIL AND GAS INDUSTRY: THE AMERICAN BURYING BEETLE IN OKLAHOMA

BRETT THOMAS



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The American Burying Beetle, *Nicrophorus americanus*, (“ABB”), a small orange and black beetle, known throughout the eastern half of Oklahoma for being listed by the United States Fish and Wildlife Service

1. Widescreen Arkive, *American Burying Beetle (Nicrophorus americanus)*, Last visited April 15, 2015, <http://www.arkive.org/american-burying-beetle/nicrophorus-americanus/>

(“the Service”) as an endangered species. While the ABB has been listed as endangered since July 13, 1989, under the Endangered Species Act (ESA), the recent publication and finalization of the Oil and Gas Industry Conservation Plan (“ICP”) has changed the environment surrounding the ABB in Oklahoma. Prior to the ICP, companies were required to bait and trap beetle.² Chaparral spent \$6 million to trap and relocate six ABBs for a pipeline, perhaps making the ABB one of the most expensive insects around.³ With a maximum allowed disturbance totaling at 32,234⁴ acres and mitigation credit acres reported by the Oklahoma Independent Petroleum Association at a cost of \$10,000 per acre⁵, the implications of the ICP could end up costing the oil and gas industry hundreds of millions of dollars during the twenty-two years the ICP is in effect. Furthermore, with the deadlines approaching in 2015 and 2016 for determinations under the ESA to be made on more than 251 species, due to a settlement between the WildEarth Guardians, the Service, and the Department of the Interior, this ICP may be a show of what is to come not only in Oklahoma, but throughout the country.⁶ According to the Service Endangered species website, as of March 1, 2015, Oklahoma is home to twenty-one listed species⁷, two proposed listed species⁸, and three candidate species.⁹ While

2. Adam Wilmoth, New home prepared for endangered beetles, *Daily Oklahoman*, February 25, 2014, last visited March 27, 2015, <http://newsok.com/new-home-prepared-for-endangered-beetles/article/3937280/?page=2>.

3. *Id.*

4. U.S. Fish and Wildlife Service, Oklahoma Ecological Services Field Office, Final Oil and Gas Industry Conservation: Associated with the Issuance of Endangered Species Act Section 10(a)(1)(B) Permits for the American Burying Beetle in Oklahoma, May 21, 2014, http://www.fws.gov/southwest/es/oklahoma/documents/abb/abb_icp/final%20icp%2020140521%20with%20signatures.pdf.

5. Letter from Brian Woodard, Vice President of Regulatory Affairs, Oklahoma Independent Petroleum Association, to Fields Supervisor, Oklahoma Ecological Service Field Office, U.S. Fish and Wildlife Service (April 29, 2014).

6. Ann Norman, National Center for Policy Analysis: *Environmental Regulation through Litigation*, Backgrounder No. 174, August, 2014, <http://www.ncpa.org/pdfs/bg174.pdf>.

7. U.S. Fish & Wildlife Service, *Environmental Conservation Online System*, last visited March 27, 2015, http://ecos.fws.gov/tess_public/reports/species-listed-by-state-report?state=OK&status=listed.

8. U.S. Fish & Wildlife Service, *Environmental Conservation Online System*, last visited March 27, 2015, http://ecos.fws.gov/tess_public/reports/species-listed-by-state-report?state=OK&status=proposed.

9. U.S. Fish & Wildlife Service, *Environmental Conservation Online System*, last visited March 27, 2015, http://ecos.fws.gov/tess_public/reports/species-listed-by-state-report?state=OK&status=candidate.

the ABB is the buzz of not only the Oil and Gas Industry but much of the state, decisions being made in the next two years may result in similar situations throughout the state regarding different animals. While the only other insect that is of status in Oklahoma, is the Rattlesnake Master Borer Moth, which is a candidate species for listing, the continued conservation of plants and animals from extinction will continue to be point of contention between the market place and the conservation.¹⁰

The purpose of this paper is to: 1) provide a brief background of the ESA; 2) provide basic information on the ABB; 3) Discern how the ABB being endangered has been dealt with in the past by the Oil and Gas Industry; 4) review the requirements and raise legal issues under the ICP; and 5) discuss current and possible issues with future ESA listings in Oklahoma.

The Endangered Species Act

In 1966, Congress passed the Endangered Species Preservation Act that allowed for some protection to be given to endangered species. In 1973, Congress passed the Endangered Species Act that provided the framework of the current the version of the ESA, which allowing for the listing of invertebrates and plants as being endangered or threatened.¹¹ The ESA protects animals that are either listed as “endangered” or “threatened” by the Service. An endangered species “means any species which is in danger of extinction throughout all or a significant portion of its range other than a species of the Class Insecta determined by the Secretary to constitute a pest whose protection under the provisions of this chapter would present an overwhelming and overriding risk to man.”¹² While a threatened species “means any species which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range.”¹³ The ESA specifically lays out five factors that are to be considered when listing a species as either endangered or threatened:

- (A) the present or threatened destruction, modification or curtailment of its habitat or range;

10. U.S. Fish & Wildlife Service, *Environmental Conservation Online System*, last visited March 27, 2015, <http://ecos.fws.gov/speciesProfile/profile/speciesProfile?spcode=IOLJ>.

11. U.S. Fish & Wildlife Service, *Environmental Conservation Online System*, last visited March 27, 2015, <http://www.fws.gov/endangered/laws-policies/esa-history.html>.

12. 16 U.S.C.A. § 1532 (West).

13. *Id.*

- (B) overutilization for commercial , recreation, scientific, or education purposes;
- (C) disease or predation;
- (D) the inadequacy of existing regulatory mechanisms; or
- (E) other natural or manmade factors affecting its continued existence.¹⁴

While any of these factors can trigger the Service to list a specific species, a “take” upon the species is prohibited once the species listed as endangered or threatened, accompanied by a section 4(d) permit.¹⁵ “The term ‘take’ means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct.”¹⁶ While the general prohibition of a take on a listed species is in effect, the Secretary of the Interior may issue permits which allow the otherwise prohibited takings of listed species so long as the take is “incidental” and the permit is accompanied by a conservation plan that would estimate the projected take, describe steps that are to be taken by the applicant to minimize and mitigate the impacts, and provide the necessary evidence of sufficient funding to complete such minimization and mitigation efforts that are being proposed.¹⁷ The purpose of the ESA is to not only prevent the extinction of listed species but also to get species to a point of recovery in which they can be removed from being listed as either threatened or endangered.¹⁸

The American Burying Beetle

Lifecycle and Facts

The ABB is the largest carrion beetle in North America, reaching 1.0 to 1.8 inches in length.¹⁹ The ABB is identifiable by the unique large orange-red marking front portion of the thorax.²⁰ A carrion beetle is dependent on

14. 16 U.S.C.A. § 1533 (West).

15. Sam Kalen, *Landscape Shifting Paradigm for the Endangered Species Act: An Integrated Critical Habitat Recovery Program*, 55 *Nat. Resources J.* 47, 56 (2014).

16. 16 U.S.C.A. §1532 (West).

17. 16 U.S.C.A. § 1539 (West).

18. Sam Kalen, *Landscape Shifting Paradigm for the Endangered Species Act: An Integrated Critical Habitat Recovery Program*, 55 *Nat. Resources J.* 47, 56 (2014)

19. U.S. Fish and Wildlife Service, *American Burying Beetle Biology*, June 4, 2014, <http://www.fws.gov/southwest/es/oklahoma/Documents/ABB/American%20Burying%20Beetle%20Biology.pdf>

20. *Id.*

animal carcass for food and reproduction as it buries a small animal carcass in the ground, by which it lays its eggs and then uses the buried carcass as a source of food to provide for their young and themselves.²¹ The ABB has been known to bury carrion up to depth of two feet beneath the soil.²² The ABB is unusual, as insects are concerned, due to the fact that the parents generally stay with the larva and directly provide food and protection after hatching.²³ To complicate the issues for the oil and gas industry, ABBs are nocturnal insects that are active when ambient nighttime temperature exceeds 60 degrees Fahrenheit.²⁴ With a one-year life cycle, ABBs usually emerge as adults in in late summer or early fall, then winter underground when temperatures at night are below 60F, then emerge the next year to mate and reproduce.²⁵ The ABB is a strong flyer and have been reported moving distances from .10 to 18.6 miles in different parts of their range, moving up to 1.8 miles per night during their active season.²⁶ With their wide range, the ABB are considered to be habitat generalists, existing in many types of habitat with a diversity of vegetation types and soil make up (excluding wetlands, farmlands, urban areas, and deserts) that must allow them to ultimately bury their carrion and to create their brood chambers.²⁷ The historical range of the ABB spread over 35 states, however the ABB currently occupies an estimated 10% of its previous historical range.²⁸

The Decline of the ABB

There are numerous theories and attributable causes to the decline of the historic ABB population range. One of the main causes thought to be behind the declining numbers of the ABB in the last several years is a loss of appropriate sized carrion such as the Passenger Pigeon, Greater Prairie-

21. Mark V. Lomolino, J. Curtis Creighton, Gary D. Schnell, and David L. Cretain, *Conservation Biology*, Ecology and Conservation of the Endangered American Burying Beetle (*Nicrophorus americanus*), Vol. 9, No. 3 (June., 1995), pp. 605-614.

22. U.S. Fish and Wildlife Service, Oklahoma Ecological Services Field Office, Final Oil and Gas Industry Conservation, *supra*.

23. Dr. Amy Smith, Examination of American Burying Beetle Reproductive Habitat, Final Report (2010), <http://digitalprairie.ok.gov/cdm/ref/collection/stgovpub/id/19528>.

24. New York State Department of Environmental Conservation, American Burying Beetle Fact Sheet, last visited March 27, 2015, <http://www.dec.ny.gov/animals/7124.html>

25. *Id.*

26. U.S. Fish and Wildlife Service, Oklahoma Ecological Services Field Office, Final Oil and Gas Industry Conservation, *supra*.

27. *Id.*

28. *Id.*

Chicken, and the Wild Turkey throughout their range.²⁹ The University of Nebraska State Museum Division of Entomology identifies five probable attributing causes to the decline of the population: (1) artificial lighting which causes the decrease of nocturnally active insects, (2) changing food sources based on the changing habitat, (3) disruption of habitat due to development, (4) increased competition for carrion, and (5) genetic issues.³⁰ While the ICP details and addresses some of these concerns as will be discussed in further sections, the ICP specifically identifies the removal of top-level carnivores such as the grey wolf and eastern cougar as society moved west resulting in the increased populations of meso-carnivores (such as the American crow, raccoon, red fox, opossum, and striped skunk) which led to an increased competition of carrion food sources.³¹ The prevailing theories surrounding the decline of the ABB focus on habitat fragmentation caused by (1) reduced appropriate sized carrion prey for ABB reproduction, and (2) increased competition for carrion prey by other predatory scavengers.³² Other threats to the ongoing conservation efforts to restore the ABB to stable numbers include the introduction of invasive species, specifically the red imported fire ant (RIFA), which has been shown to prevent other carrion beetles burying their prey and has even been shown to completely eliminate ground-nesting species populations of rodents and birds in specific areas.³³ The RIFA is not only a direct threat to the ABB but also an indirect threat upon their food source.

The Oil and Gas Industry Conservation Plan (ICP)

Minimization

The ICP has been finalized and was issued May 21, 2014, by the Service office located in Tulsa, Oklahoma. There are several requirements for the industry that will have effects on the daily operations of both Upstream and Midstream operations within the Planning Area.³⁴ Upstream Production

29. *Id.*

30. Brett Ratcliffe, University of Nebraska State Museum, The American Burying Beetle, An endangered species, last visited March 27, 2015, <http://museum.unl.edu/research/entomology/endanger.htm>.

31. U.S. Fish and Wildlife Service, Oklahoma Ecological Services Field Office, Final Oil and Gas Industry Conservation, *supra*.

32. *Id.*

33. *Id.*

34. The Planning Area includes 45 counties in Oklahoma: Adair, Atoka, Bryan, Carter, Cherokee, Choctaw, Cleveland, Coal, Craig, Creek, Delaware, Garvin, Haskell, Hughes, Johnston, Kay, Latimer, Le Flore, Lincoln, Love, Marshall, Mayes, McClain, McCurtain,

activities that are covered by this plan include: seismic exploration; facility construction, maintenance, and decommissioning (including well pads, roads, electrical lines, impoundments, and communication towers); drilling and completion activities; and gas flaring.³⁵ Affected Midstream Development included in the ICP for the Planning area include: construction of pipelines (gathering, transmission, and distribution), access roads, stations (booster, compressor, pump meter, electrical), mainline valves, pig launchers and receivers, regulator facilities, electrical lines, communication towers, and any other facility associated with the operations; maintenance of the pipelines, facilities, and stations.³⁶ Most of the covered activities in either area of operations use heavy equipment and destroy the habitat of the ABB directly or such use of equipment may cause the death or harm directly to the ABB that may be present underground, destroyed by the digging operations or the vehicles commonly used by the industry during operations, production, and construction activities. The ICP has set a maximum amount of land disturbance that will be allowed in Planning Area of 32,234 acres.

Anticipated Effects

The anticipated effects on the ABB are generally covered by three topics: (1) destruction of physical habitat; (2) general effects on their actual habits and activities; (3) physical destruction or harm to the ABB in both adult and larvae stages of life.

First, harm to the physical habitat concerns center mostly around the vegetation and the soil impacts of the oil and gas industry. While typically nocturnal, during daylight hours the ABB exists in vegetation until their nocturnally active period. The removal of vegetation of the habitat may result in a loss of cover and moisture within soil thus causing further destruction during the active period of the ABB.³⁷ The impacts related to the soil may be caused by the use of heavy machinery by compacting top soil that would otherwise be suitable for the burying of their prey.³⁸ The

McIntosh, Murray, Muskogee, Noble, Nowata, Okfuskee, Okmulgee, Osage, Ottawa, Pawnee, Payne, Pittsburg, Pontotoc, Rogers, Seminole, Sequoyah, Tulsa, Wagoner, and Washington.

35. U.S. Fish and Wildlife Service, Oklahoma Ecological Services Field Office, Final Oil and Gas Industry Conservation, *supra*.

36. U.S. Fish and Wildlife Service, Oklahoma Ecological Services Field Office, Final Oil and Gas Industry Conservation, *supra*.

37. *Id.*

38. *Id.*

maintenance of vegetation at a height above eight inches is also important, as shorter vegetation results in the loss of moisture in the soil which has been shown to harm or even result in the death of the ABB while underground for both winter or during their breeding cycle during their active months³⁹.

The impacts of the oil and gas industry to the physical behaviors of the ABB during the active season are projected to be caused more by light pollution after dark from artificial lighting and flaring, which are both known to attract the ABB.⁴⁰ The disruptions of their habits during their typically active nocturnal periods affect their ability to forage and increase the likelihood of predation by other animals.⁴¹

The physical impacts of the industry include multiple ways in which the physical safety of the ABB is expected to be adversely affected. The use of heavy equipment and vegetation removal may not only result in the death of adult ABB, but also in the destruction of their brooding chambers.⁴² The physical construction projects may result in the burying, unearthing, crushing, of not only the brooding chambers but the wintering adults as well when construction activities and infrastructure placement occur within the range of the ABB.⁴³

The ICP requires the Oil and Gas Industry in Oklahoma minimize and mitigate the impacts that are likely to result upon the ABB population, as required by Section 10(a)(2)(B) of the ESA. Specific minimization measures that are required by the ICP are : (1) reduce the use of vehicles, heavy equipment, and machinery; (2) reduce risk of motor vehicles sparking wildfires; (3) increase safety during operation fluid use and storage; (4) Reduce erosion and increase soil stability; (5) provide educational program for construction personnel; (6) limit use of artificial lighting; (7) limit use of gas flares; (8) limit disturbance of maintenance machines used on vegetation; (9) limit the use of chemical herbicides; and (10) set aside topsoil for replacement.⁴⁴

Many of these minimization measures are directly pointed at the reducing the effects of the disturbance to the topsoil and vegetation of the

39. U.S. Fish and Wildlife Service, Oklahoma Ecological Services Field Office, Final Oil and Gas Industry Conservation, *supra*.

40. *Id.*

41. *Id.*

42. *Id.*

43. *Id.*

44. U.S. Fish and Wildlife Service, Oklahoma Ecological Services Field Office, Final Oil and Gas Industry Conservation, *supra*.

habitat of the ABB and increasing knowledge of the ABB in the field, there are a few of the measures that need to have the connection explained.

Artificial lighting and flaring is shown to have an effect on the actual habits of the ABB. Like many insects, the ABB is attracted to sources of light, therefore the ICP limits activities by the industry (with a few exceptions) from operating past sundown during the active season of the ABB.⁴⁵ The use of artificial lighting by the industry to continue operations throughout the typically dark hours of the night are limited to exceptions such as operations that continue throughout the night and where it is necessary to extend the construction process past daylight hours.⁴⁶ Furthermore, because the ABB are attracted to artificial light, the industry is required to use lighting that is down shielded and requires the use of sodium vapor lights because the ABB are less attracted to such lights over UV or mercury vapor lights.⁴⁷ The use of gas flaring is also restricted in similar manners as to reduce the threat caused to the ABB by light pollution.⁴⁸ The ICP requires that when gas flares are being used, the flares must be covered as to eliminate the emission of artificial light which could disrupt the nocturnal activities of the ABB.⁴⁹

Mitigation

The ICP also allows for companies to mitigate the take that is unavoidable through the use of mitigation lands available to take permittees through their own efforts to establish such lands, Conservation Banks, or third party mitigations lands.⁵⁰ While this option allows for the offset of takes to be purchased or funded by the permittee, the lands must be kept as mitigation lands in perpetuity.⁵¹ A common mitigation route for companies enacting a take upon a species that is listed or at-risk involves mitigation banking, “a market-based approach that revolves around the sale of credits from those who restore and/or protect habitat to those responsible for adverse impacts. Mitigation banking represents a departure from traditional mitigation, which requires developers or other parties to develop their own

45. *Id.*

46. *Id.*

47. *Id.*

48. *Id.*

49. *Id.*

50. U.S. Fish and Wildlife Service, Oklahoma Ecological Services Field Office, Final Oil and Gas Industry Conservation, *supra*.

51. *Id.*

mitigation sites.”⁵² “Conservation banks protect habitats for listed and at-risk species. As off-site mitigation, these banks exist to offset adverse impacts to species occurring elsewhere.”⁵³ While conservation banks have only been around since the 1990s, as of January 2009 there were over ninety the Service approved conservation banks holding a combined amount of land in excess of 90,000 acres.⁵⁴ Another form of mitigation comes by the way of land trusts and conservation easements, which are generally ran by non-profit land conservation organizations or through private land owners which allow for the credits to be used and created.⁵⁵

According to comments submitted to the Service by the Oklahoma Independent Petroleum Association (OIPA), conservation banks are initially planning to offer the mitigation credits at a minimum cost of \$10,000 per acre, which may be cost prohibitive to a number of projects and companies working within the area.⁵⁶ However, being that these lands are held in perpetuity, the price of credits is not only used for the establishment of the conservation bank but for the establishment of an endowment to support the bank in perpetuity.⁵⁷ The ICP allows for 32,234 acres for take by the oil and gas industry.⁵⁸ The take acreage allowed under the ICP does not mean that it resulting mitigation acreage will be physically equal to actual take because the ICP has mitigation ratios, which is the ratio of the land take of the development versus the amount of land that must be conserved.⁵⁹ The current ICP allows for temporary ratios as low as 1:0.25 to as a high as 1:1.5 for certain types of acreage takes with temporary (less than five years) impacts, mitigation ratios for takes of permanent cover change range from 1:0.05 to 1:2⁶⁰ while permanent take mitigation ratios

52. 41 No. 3 Real Estate Review Journal ART 3.

53. Jessica Owley, *The Increasing Privatization of Environmental Permitting*, 46 Akron L. Rev. 1091, 1108 (2013).

54. *Id.*

55. Jessica Owley, *supra* at 1114.

56. Letter from Brian Woodard, Vice President of Regulatory Affairs, Oklahoma Independent Petroleum Association, to Fields Supervisor, Oklahoma Ecological Service Field Office, U.S. Fish and Wildlife Service (March 4, 2013).

57. 41 No. 3 Real Estate Review Journal ART 3.

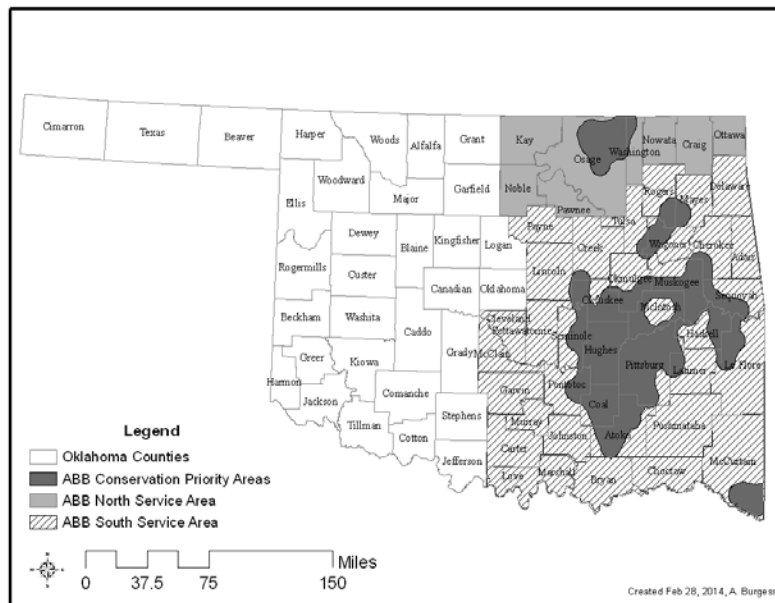
58. U.S. Fish and Wildlife Service, Oklahoma Ecological Services Field Office, *Final Oil and Gas Industry Conservation*, *supra*.

59. Tristan Kimbrell, *Moving Species and Non-Moving Reserves: Conservation Banking and the Impact of Global Climate Change*, 22 Fordham Envtl. L. Rev. 119, 126 (2010).

60. Atkins, *Environmental Assessment for the Oil and Gas Industry Conservation Plan Associated with Issuance of Endangered Species Act Section 10(a)(1)(B) Permits for the American Burying Beetle in Oklahoma*, Permanent Cover Change impacts are changes that

range from no less than 1:1 and as high as 1:3.⁶¹ With some of the mitigation ratios requiring two to three credit acres to be bought per acre of take, the costs of doing business in the Planning area expands quickly. Assuming that the full acreage allowable for take is taken at the initially forecast price of \$10,000 per acre, the total cost to the oil and gas industry of mitigation credits would be well over \$300 million over the course of the ICP effective time of twenty-two years. The price tag of over \$300 million assumes that the take acreage of 32,234 acres has a mitigation ratio of 1:1.

Further adding to the complexity of the mitigation lands, the Service has designated two service areas within the Planning Area. The North Service Area covers Kay, Noble, Osage, Pawnee, Washington, Nowata, Craig, and Ottawa counties. The South Service Area consists of the 37 remaining counties within the Planning Area. Any mitigation credits must be used in the Service Area in which the permittee implements a take upon the ABB.⁶²



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change the successional change of an area to another stage (e.g. grassland to forest, forest to grassland). (May 22, 2014).

61. U.S. Fish and Wildlife Service, Oklahoma Ecological Services Field Office, Final Oil and Gas Industry Conservation, *supra*.

62. U.S. Fish and Wildlife Service, Oklahoma Ecological Services Field Office, Final Oil and Gas Industry Conservation, *supra*.

63. *Id.*

For permittees conducting take operations in both service areas, then the proportional amount of take should be mitigated in each respective service area.⁶⁴ For example a pipeline construction that results in 100 acres of take, with sixty acres of take in Washington County and forty acres of take in Tulsa County, then sixty percent of the mitigation credits would have to come from the North Service Area and the remaining forty percent of the mitigation credits would have to come from the South Service Area. This becomes problematic because there are only two currently known conservation banks in Oklahoma, located in Pittsburg, Coal, Hughes, and Pontotoc Counties, which are both in the South Service Area.⁶⁵ At the moment, operations located in the North Service Area in Oklahoma are restricted, due to the lack of conservation banks servicing the area, and must either seek mitigation through their own actions or a third party in the North Service Area or apply with the Service for an exception to purchase credits from the conservation banks that have been established within South Service Area. While this adds another step to acquire mitigation credits in the North Service Area, there may also be unintended consequences if a conservation bank is not set up in the area soon. Failure to have a conservation bank established in the North Service Area combined with the possibility of the exception granted to purchase credits from the conservation banks located in the South Service Area, may have the reversed effect intended by the two service area system because the only mitigation credits currently available in the state lie in the South Service Area. Lacking the establishment of an ABB conservation bank in the North Service Area would essentially combine the two service areas for all intents and purposes or create great hardship upon the Oil and Gas Industry in the North Service Area if the exception to the area restriction is denied because they would have to establish their own lands in perpetuity or find a third party to do so.

Incidental Take Permits Requirements

While the above areas of the discussing the ICP cover the requirements for permittees in the context of the actual take, companies that must apply for the take with a permit application that has several requirements that be met for the approval to be granted for the permit. Permit Applicants must

64. *Id.*

65. Muddy Boggy Conservation Bank is located in Coal, Hughes, and Pontotoc Counties and is operated by Mitigations Solutions USA. The Second Bank is operated by Common Ground Capital and is located in Pittsburg County.

provide proof of funding, an estimated take of the project, and a survey of the area of the project to test for the presence of the ABB.

When applying for permits, applicants must meet one of several financial funding requirements⁶⁶. To meet the financial requirements permittees may submit several financial indicators or securities, including ratio of liability to net worth, ratio of net income to liabilities, ratio of assets to liabilities, net worth statements, and a Corporate Guarantee from an officer of the permittee corporation.⁶⁷ Applicants may also meet the financial requirements by obtaining an irrevocable standby letter of credit or establishing a trust fund that will maintain funds to guarantee that the applicant has proper funding for mitigation and minimization under the ICP.⁶⁸ The applicant may also obtain a surety bond, performance bond accompanied by a standby trust, or through obtaining insurance that would satisfy the requirements of the ICP in case the applicant fails to do so or is unable to do so.⁶⁹

With the funding secured, the applicant is able to actually apply for the take permit under the ICP. The permit applicants must provide a report from a federally-permitted individual, under Section 10(a)(1)(a), of the ESA to determine the presence of the ABB around the project area.⁷⁰ However, the applicant may forgo this requirement and proceed with the application process based upon the assumption that the ABB is present for any variety of reasons such as timing, financial, likelihood of their presence, or really any other valid reason.⁷¹ In this situation the applicant would just assume that the ABB is present on all acreage for mitigation and minimization requirement estimations.^{72 73}

After the actual permitting application is completed and approved, several data points are required to be reported to the Service including actual impacts upon the land and the ABB to ensure that they are within the

66. U.S. Fish and Wildlife Service, Oklahoma Ecological Services Field Office, Final Oil and Gas Industry Conservation, *supra*.

67. *Id.*

68. *Id.*

69. U.S. Fish and Wildlife Service, Oklahoma Ecological Services Field Office, Final Oil and Gas Industry Conservation, *supra*.

70. *Id.*

71. *Id.*

72. *Id.*

73. The calculations of the area of impact required for mitigation and minimization are calculated based on the location of the activity within the service area.

scope and estimation of the permit and the ICP.⁷⁴ In addition to the completed project report, permittees must also produce annual reports concerning the take of acreage and impacts that are part of the take permitted, mitigation lands and the amount of credits bought, photographs, habitat restoration efforts within the permit location, and such required information by the Service.⁷⁵

Past Conservation Strategies

Prior to the ICP, the ABB was captured and removed from project sites by the oil and gas industry through bait and trapping techniques.⁷⁶ The preferred method for preventing the destruction of the ABB is the bait and trap method to remove the ABB from specific areas.⁷⁷ The recent change away from the baiting away of the ABB and focus on mitigation under the ICP follows a three year study out of Nebraska, which concluded that “baiting away with carrion stations is not a reliable conservation measure for the federally endangered American burying beetle.”⁷⁸

Issues and Effects on the Oil and Gas Industry

The effect of the ICP on the oil and gas industry includes the increase of preparation into projects and increase of financial obligations. Furthermore, unique consequences, due to the characteristics of the ABB, present issues relating to the oil and gas industry exist because of the limitations and the alternatives that are offered by the ICP.

The first major issue results for the oil and gas industry evolve out of timing and project planning. Due to the seasonal activity and life cycle of the ABB, the current ICP greatly reduces the freedom of the activities of the oil and gas industry. The fact that the ABB is underground between eight and nine months out of the year prevents the permit applicants from determining the presence of the ABB during the time of year that the ABB is underground. Therefore any and all studies must be done in the warmer months of the year when the ABB are active. This forces the permit applicant to either wait until the active months of the ABB to test for their presence or assume the increased financial responsibility of assuming the

74. U.S. Fish and Wildlife Service, Oklahoma Ecological Services Field Office, Final Oil and Gas Industry Conservation, *supra*.

75. *Id.*

76. Jessica Jurzenski, Factors Affecting the Distribution and Survival of Endangered American Burying Beetles, *Nicrophorus americanus* Olivier, Dissertation 8/1/2012.

77. *Id.*

78. *Id.*

presence of the ABB, thus incurring the costs of mitigation and minimization without being able to prove or deny the presence of the ABB. Either way, the applicants have a high risk of incurring an increased financial costs and risk for every project that is not given the opportunity to be surveyed for the presence of the ABB during the active season. The increased time and the extent of permitting requirements under the ICP regarding the ABB not only adds up to 135 days for the Service to conduct a formal consultation for projects, or however long the private Section 10 approved survey would take, but also extends the actual permitting approval process and the requirements for securing funding and analysis increases the time that is required for planning.

Second, the increase in financial responsibilities and liabilities of projects may make oil and gas operations within the service areas cost prohibitive due to the increased costs, especially with smaller local companies that may not have ability to meet the financial requirements for multiple projects. With estimated cost of mitigation acres at \$10,000, according to the OIPA, even the average well pad site 3.5 acres⁷⁹ would increase the costs of each pad site by \$35,000 for mitigation credits, assuming a ratio of 1:1 or and increased cost of \$70,000 if the mitigation ratio is 1:2, not to mention the access roads and any other land disturbances that are needed to get to the pad site. This is just the information that is quantifiable with the provided information. The oil and gas industry will also incur the costs of studies, application preparation, mandated reports, and further minimization requirements that will vary greatly based on the location and the actual type of the project. With the implementation of the ICP, the cost of exploration, production, and transportation of the oil and gas industry just got more expensive. Unfortunately, with current state of the oil and gas industry as prices remain low, the implementation of the ICP may increase the costs of doing business in Oklahoma resulting in members of the oil and gas industry community finding somewhere else that is less expensive to produce and operate.

Third, the Section 10 surveys may not be adequate to testing for the presence of the ABB in the area even during the active months. The ABB breeds underground and remains underground between forty-eight and sixty-five days in their brood chamber.⁸⁰ Assuming the ABB is active four months of the year, maximum estimation in Oklahoma, the ABB spends up

79. The Shale Gas Information Platform, last visited March 27, 2015, <http://www.shale-gas-information-platform.org/categories/operations/the-basics.html>

80. Jessica Jurzenski, *supra*.

to half of this time in the brood chamber which means that their presence may go missed for two months even though they are on the site. By rough math, a mating ABB is only actively above ground for a maximum of two months in which their presence could be detected. It seems relatively likely that even with the presence of surveys and Section 10 consultations, the presence of the ABB could easily go missed. While the missing of the presence of the ABB during a study may be at the benefit of the oil and gas industry, it defeats the purpose of the act to protect the ABB as an endangered species under the ESA. The alternative is for members of the oil and gas industry just to assume that the ABB is present in their area which then increases the costs of mitigation with no evidence that mitigation would actually be required under the ESA.

Current and Foreseeable Issues under the ESA

The ICP for the ABB in Oklahoma has far reaching effects in Oklahoma, affecting forty-five out of the state's seventy-seven counties. However, this may be just the beginning such wide ranged insect habitat affecting the oil and gas industry throughout the state. In 2013, the Rattlesnake Master Borer Moth was determined by the Service to warrant being listed under the ESA, but was precluded because other species were in a higher priority.⁸¹ While the species is currently unlisted, the conservation plan for the ABB may resemble a conservation plan in Oklahoma for the Rattlesnake Master Borer Moth. Like the ABB, the Rattlesnake Master Borer Moth has a year-long life-cycle which begins when eggs are laid in late Fall.⁸² The eggs are laid on or near Rattlesnake Master, a prairie plant, which remain on or near the plant over winter.⁸³ In May, the eggs hatch and enter the base of the stem of the plan and eat into the roots of the plants.⁸⁴ The Feeding continue throughout the summer and the larvae pupate at some time during August, emerging as adults roughly three weeks later to begin the cycle anew.⁸⁵ Similar to the ABB, the Rattlesnake Master Borer Moth is nocturnal by

81. Press Release from U.S. Fish & Wildlife Service, *U.S. Fish and Wildlife Service Finds Listing Warranted but Precluded for Rattlesnake-Master Borer Moth* (August 14, 2013), last visited March 27, 2015, <http://www.fws.gov/midwest/news/669.html>

82. U.S. Fish & Wildlife Service, Conservation Assessment For Eryngium Root Borer (*Papaipema eryngii*), (2003) last visited March 27, 2015, http://www.fs.usda.gov/Internet/FSE_DOCUMENTS/fsm91_054244.pdf

83. *Id.*

84. *Id.*

85. *Id.*

nature and the reproduction takes place completely at night.⁸⁶ The Rattlesnake Master Borer Moth population in Oklahoma is one of sixteen known populations within country and is only found in one area of Oklahoma.⁸⁷ With the loss of natural prairie lands to both invasive trees and development, the fracturing habitat and diminishing numbers may bring the moth to extinction.⁸⁸ While the geographical habitat area of this specific moth would only be found in one location in the state, the industry should expect to see similar if not more restrictive terms if and when the species is listed under the ESA due to its small population, isolated location, and unique genetic population of the Rattlesnake Master Borer Moth in Oklahoma.

The Monarch Butterfly has also been in the news as its number have dropped by nearly one billion in the last twenty-five years.⁸⁹ The Service has partnered with the National Wildlife Federation and the National Fish and Wildlife Foundation to create the Monarch Conservation Fund to provide funding for the creation of monarch habitats across the country.⁹⁰ The service has dedicated \$1.2 dollars into the fund that will be matched by private sources.⁹¹ The Monarch Butterfly winters in Mexico and then migrates north to Canada for the summer.⁹² Oklahoma is a crucial location to migration pattern because it serves as one of the first reproduction sites upon the migration route to the summer habitat.⁹³ During the migration, the Monarch Butterflies will create four generations during their journey, with the fourth generation that will return to Mexico and begin the migration

86. *Id.*

87. Endangered and Threatened Wildlife and Plants; Review of Native Species That Are Candidates for Listing as Endangered or Threatened; Annual Notice of Findings on Resubmitted Petitions; Annual Description of Progress on Listing Actions, 79 FR 72450-01, at 72475-6

88. *Id.*

89. Robert Medley, *Effort to save monarch butterflies is underway in Oklahoma, nationwide*, *The Oklahoman*, February 15, 2015, last visited March 27, 2015, <http://newsok.com/effort-to-save-monarch-butterflies-is-underway-in-oklahoma-nationwide/article/5393566>

90. U.S. Fish & Wildlife Service, *Save the Monarch Butterfly*, last visited March 27, 2015, <http://www.fws.gov/savethemonarch/>

91. *Id.*

92. Scott Thompson, *News on 6, Oklahoma Critical Piece In Preventing Extinction of Monarch Butterfly*, February 12, 2015, last visited March 27, 2015, <http://www.newson6.com/story/28099718/oklahoma-critical-piece-in-preventing-extinction-of-monarch-butterfly>

93. *Id.*

again the next spring.⁹⁴ The key features for the butterfly, is the need for Milkweed, the only plant where the Monarch Butterfly will lay eggs.⁹⁵ One potential reason for decline of the plant throughout the mid-west is the development of pesticide and herbicide resistant crops.⁹⁶ Prior to the these modifications, the plant would often be found in crop fields, now farmers spray the fields to kill off everything other than the crops, including the milkweed.⁹⁷ The resulting loss of Milkweed throughout their migration route is one cause being offered to their decline due to habitat loss. With such measures being taken by the Service and private organizations, it is foreseeable that the Monarch Butterfly may be listed under the ESA, resulting mandating of conservation measure. However, efforts made to conserve and create habitat prior to the species being listed may allow the Monarch Butterfly to remain unlisted like efforts undertaken for the conservation of the Greater Sage-Grouse in the northwest United States.

The Greater Sage-Grouse is found in the northwestern portion of the United States where their sole habitat of sage-steppe ecosystem exists.⁹⁸ Through collaboration with the private sector, the Service has been working to keep the Greater Sage-Grouse from being listed under the ESA.⁹⁹ The Sage Grouse Initiative is a collaboration of ranchers, conservationists, and the Service to proactively protect the species and their habitat in an effort to keep the bird from being listed.¹⁰⁰ The Initiative works to not only conserve the physical habitat by removing invasive tree species and traditional conservation measures, but also works with ranchers to develop grazing systems that are designed to provide the ranchers with the needed grazing for their cattle with minimizing the disturbance and destruction of the Greater Sage-Grouse activities and habitat based on the seasonal needs of both the bird and the ranchers.¹⁰¹ The Initiative has secured more than

94. *Id.*

95. *Id.*

96. *Id.*

97. Scott Thompson, *supra*.

98. U.S. Fish & Wildlife Service, Greater Sage-Grouse—Species Information, last visited March 27, 2015, <http://www.fws.gov/greaterSageGrouse/speciesinfo.php>

99. .Press Release, U.S. Fish and Wildlife Service, U.S. Fish and Wildlife Service, State of Wyoming, Sweetwater River Conservancy Launch Nation's First Greater Sage-Grouse Conservation Bank, March 18, 2015, http://www.fws.gov/greatersagegrouse/news_releases/20150318%20Sweetwater%20River%20Conservation%20Bank%20NR%20FINAL.pdf

100. The Sage Grouse Initiative, last visited March 27, 2015, <http://www.sagegrouseinitiative.com/our-work/proactive-conservation/>

101. *Id.*

380,000 acres of conservation easements that will be held in perpetuity that account for the grazing and ranching practices of the land owners.¹⁰² In February, 2015, the Service announced the creation and designation of the Sweetwater River Conservancy, a conservation bank that has 55,000 acres with the potential to expand to 700,000 acres in the future to provide industries such as the oil and gas with ability purchase conservation credits for the mitigation of development in the region.¹⁰³

Conclusion

The ABB is a unique insect that due to not only the complexity of theories revolving around its decline but also the habits and life cycle make the ABB an elusive insect. The Service developed the ICP, under the ESA, to ensure that the ABB will be around for generations to come and hopefully recover to be removed from the list. The combined logistics, physical requirements, financial requirements, and questionable effectiveness of the ICP make this a high cost of mitigation for the oil and gas industry through direct and indirect costs of compliance. The lack of a conservation bank in the North Service Area has the potential to cause numerous issues if exceptions to by the Service are not granted until such a bank is established while allowing the exceptions virtually destroys the purpose of the dual service area design. The unique habits of the ABB remaining underground for up to roughly ten months of the year also complicate the overall matter of figuring out exactly which locations within the forty-five county Planning Area are actually occupied by the ABB; therefore are subject to the minimization and mitigation efforts. With the potential of costing the Oklahoma oil and gas industry additional hundreds of millions of dollars in the foreseeable future, along with the uncertain future of oil and gas prices, this shake up of the industry operations is something that will not only affect the current oil and gas economy within the state, but future of oil and gas operations in within the forty-five listed counties within the Planning Area as well.

While this particular bug has caused a great amount conversation, planning, and upset throughout the state, the possible prospects of other potential candidate species may result in similar if not more complex plans of conservation and issues. The industry has a viable option to look

102. *Id.*

103. Press Release, U.S. Fish and Wildlife Service, U.S. Fish and Wildlife Service, State of Wyoming, Sweetwater River Conservancy Launch Nation's First Greater Sage-Grouse Conservation Bank, *supra*.

towards the Sage Grouse Initiative for an example of how preventative conservation may keep species from being listed by taking steps before mandates tell them they must.