

**Topeka Shiner Survey Memo for  
Buffalo Ridge II Wind Project  
Brookings and Deuel Counties,  
South Dakota**

**Update – March 2010**

Prepared for:



**Iberdrola Renewables and**

**Buffalo Ridge II LLC**

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## INTRODUCTION

Buffalo Ridge II, LLC (Buffalo Ridge II), an unregulated wholly-owned affiliate of Iberdrola Renewables, Inc. (Iberdrola), is proposing to construct a utility-scale wind farm, the Buffalo Ridge II Wind Project (the Project), in Brookings and Deuel counties, South Dakota. The Project would be up to 306 megawatts (MW) in size, consisting of up to 204 wind turbine generators. Construction of the first 210-MW phase of the Project started October 12, 2009, beginning with access road and turbine foundation installation; construction of the remaining project facilities (overhead transmission lines, substations, underground collection system and turbine erection) would occur in 2010.

The Project is located in watersheds that ultimately drain into streams with known populations of the federally endangered Topeka shiner (*Notropis topeka*). Representatives from Iberdrola and HDR Engineering (HDR) met on site with Natalie Gates of the U.S. Fish and Wildlife Service (USFWS) and Silka Kempema of South Dakota Game Fish and Parks on September 14<sup>th</sup> 2009, to discuss the Project. At that site meeting, Ms. Gates expressed concern that many of the USGS-mapped “blue line” streams in the Project boundary provide potential Topeka shiner habitat, and any construction activity within those mapped streams could have the potential to impact the species. Further discussion with Ms. Gates indicated that a survey by a field biologist with experience identifying Topeka shiner habitat could be useful in determining which mapped blue line streams may or may not contain potential habitat.

Therefore, in an effort to identify which mapped streams in the area may provide Topeka shiner habitat, HDR visited the site on September 25<sup>th</sup> 2009 with Jesse Wilkens, a biologist Ms Gates suggested as experienced with Topeka shiner surveys. The results of this survey were sent to Ms. Gates on October 5, 2009, and Sarah Emery of Iberdrola has been coordinating with Ms. Gates on the results. In order to evaluate additional stream segments and investigate the results of additional precipitation in the area, HDR and Mr. Wilkens visited the site on two more occasions.

## METHODOLOGY

After the September survey, HDR and Mr. Wilkens investigated the Project area on October 23<sup>rd</sup> and October 30<sup>th</sup>, 2009 and evaluated mapped USGS blue line streams for potential Topeka shiner habitat. The field visit concentrated on mapped streams in the general vicinity of proposed construction activity. Some stream segments that had not been previously evaluated were visited, and some previously-visited segments of streams were re-evaluated in light of comments from the FWS on the precipitation that had occurred in the area since the September survey. In general, the mapped streams were evaluated at points where they crossed public roads, although in some areas further field evaluation occurred. Mr. Wilkens evaluated the potential for a mapped line to contain Topeka shiners by checking for the presence or absence of bank and stream features, noting the water level, and type of vegetative cover. Photos were taken and notes made on whether the

evaluated stretch of mapped stream did or did not contain potential habitat. In general, if a tributary did not contain habitat at its upper reaches, and the next downstream road crossing checked also did not contain habitat, it was assumed that the entire stretch between these two points did not have the potential for habitat. In several areas HDR and Mr. Wilkens walked a significant portion of the mapped streams to determine if any segment of the feature had no potential shiner habitat (i.e., no channel of any kind, no moving water, or a break or obstruction that would prevent shiners from moving upstream). Additionally, it was determined after the surveys that the northeastern portion of the Project area is located in the Minnesota River Basin, which does not contain Topeka shiner populations. Therefore, all streams located in watersheds within this basin are assumed to not contain habitat.

The weather before and during the October site visits was wet, with frequent rain events occurring throughout the previous month. This aided in the evaluation of potential habitat of the mapped streams, as it made it very clear which ones do not carry sufficient water, even during rain events, to support Topeka shiners.

No presence-absence seining surveys were done; only the potential for habitat was evaluated.

## **RESULTS**

The results of the habitat evaluation are presented on the attached figure, with the streams symbolized to show potential for Topeka shiner habitat. The streams and tributaries in the Project area are identified as one of the following:

1. The stream segments that are labeled “No Habitat (Year Round)” (mapped as green lines) are USGS mapped blue line streams that do not have the potential to provide Topeka shiner habitat at any point in the year, generally due to the fact that there are no stream features present. Additionally, streams located outside of the Big Sioux Basin are marked as green because there is no potential for Topeka shiners to occur in these watersheds.
2. The stream segments that are labeled “No Habitat (If No Water Flowing)” (mapped as yellow lines) are segments that Mr. Wilkens found to have the potential for shiners to be present, but only when water is present due to greater than normal precipitation. These streams did not have permanent, year round shiner habitat, and they were often densely vegetated. However, there were generally some basic channels of at least temporarily flowing water identified within the wet swales at these locations that could conceivably contain shiners that swam up from the more permanent downstream habitats. The presence of any permanent pools that periodically connect to these stream segments, allowing fish passage to the pool, was also examined.

3. One main-channel stream (Six Mile Creek south of County Road 40) is labeled as “Potential Habitat” (mapped as a red line). This stream was identified by Mr. Wilkens as having the potential to contain Topeka shiner habitat.
4. The rest of the streams in the project area were “Unevaluated” (mapped as blue lines) during the site visits.

## CONCLUSIONS

Mr. Wilkens’ evaluation of the Project area showed that the many of the USGS mapped blue line streams in the Buffalo Ridge II Project area do not contain the potential for Topeka shiner habitat at any time of the year. Because of the lack of stream features, construction at any time of year within the “No Habitat (Year Round)” streams would not result in a “take” of the species. There are also many stream segments that Mr. Wilkens evaluated as having the potential for shiners to be present during precipitation events (the yellow mapped streams – “No Habitat (If No Flowing Water)”). If there is water flowing in these stream segments, HDR and Mr. Wilkens recommend further evaluation prior to any in-stream activity. However, if these segments are dry at the time of proposed construction, construction at that time would not result in a “take” of the species. HDR and Mr. Wilkens recommend avoiding all in-stream temporary and permanent activity to streams identified as Potential Habitat (red lines) for Topeka shiners. All in-stream activity in any unevaluated streams should also be avoided, until a site visit can evaluate the presence or absence of potential habitat. Finally, the Project Stormwater Pollution Prevention Plan (SWPPP) identifies best management practices to control sediment erosion from entering all streams.

## SIGNATURES

I declare that to the best of my professional knowledge and belief, the information contained in this memorandum is accurate as of March 15, 2010.



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Jesse Wilkens  
Watershed Scientist



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Joyce Pickle, M.S.  
Environmental Scientist  
HDR Engineering, Inc.



**Topeka Shiner Streams Habitat Map  
Buffalo Ridge II Wind Project  
Iberdrola Renewables  
Brookings and Deuel Counties, SD  
March 16, 2010**

- |  |                            |  |   |
|--|----------------------------|--|---|
|  | Project Boundary           |  | O and M Facility/Temporary Laydown Area |
|  | Turbine                    |  | Project Substation                      |
|  | Met Powers                 |  | Topeka Shiner Streams                   |
|  | Basin (HUC-6) Divide       |  | No Habitat (All Year)                   |
|  | Access Road                |  | No Habitat (If No Flowing Water)        |
|  | Underground Cabling        |  | Potential Habitat (Year Round)          |
|  | Project Overhead T-line    |  | Unevaluated                             |
|  | 115 kV                     |  | USGS Streams                            |
|  | 34.5 kV                    |  | Townships                               |
|  | Existing Transmission Line |  | County Boundary                         |
|  | 345 kV                     |  |   |

Note: The stream segments south of 202nd Street were evaluated the week of September 11th by Mr. Wilkins. Surveyed September and October, 2009.

