



CREW Seminar Series: Fall 2012

Understanding and minimizing wind energy-environment interactions

Abstract

Wind energy is a rapidly growing alternative to carbon-based fuels with ~50GW of capacity currently installed. Current federal goals include ~5 times more land-based wind energy than what currently exists. As with all forms of energy, wind facilities impact natural systems and a wide variety of research is currently focused on avoiding, minimizing, and mitigating the impacts of current, planned, and projected wind energy on both species and habitats. One approach includes large-scale geographically oriented studies of energy-environment interactions. These are used for broad-scale siting decisions, risk analyses, and permitting processes. These approaches often require fundamental geospatial data and known causal relationships to work well. I will discuss a few points about these geographic approaches to set the context and motivation for a relatively new research program in wind energy that involves three ongoing wind energy projects. First, I will share results from an analysis of factors affecting the surface disturbance associated with commercial wind facilities. Second, we are developing a national map of land-based commercial wind turbines in the US. This project will combine turbine locations with facility level data by integrating data from a number of sources. When complete, the geo-dataset will be publically available. We will use the product to facilitate new collaborative research regarding the meteorological effects of wakes, and geographic analyses of energy generation and efficiencies. Third, USGS recently embarked on an effort to develop a methodology to assess the impacts of wind energy on wildlife. This is a relatively new project and I will briefly report on the scope and progress.

By Jay Diffendorfer from Geosciences and Environmental Change Science Center

On Friday, December 7, 2012, at 11:00 am

**In Bechtel Collaboratory (room 1B50), Discovery Learning Center
University of Colorado at Boulder**

Refreshments will be available at 10:50am

To attend the live broadcast (using Adobe Connect):

<https://meeting.colorado.edu/seminarseries-2012fall-jaydiffendorfer/>



Dr. Jay Diffendorfer is an applied ecologist with broad interests at the nexus of energy, sustainability, and landscape ecology. Trained as a population and community ecologist, he has worked on large-scale applied topics including Everglades restoration; reserve implementation, management and monitoring in Southern California; and the interplay between land cover change, invasive species, and biological conservation.

Currently his work primarily focuses on energy development, particular wind energy. The work includes understanding the environmental costs and benefits of energy production, developing a national map of wind turbines, understanding the causes of surface disturbance at wind facilities, and developing methods for siting energy production that minimize environmental impacts. He is a co-project lead for the new Wind Energy Impacts Assessment Methodology Project at USGS, which is developing a framework for assessing the impacts of wind energy development

on wildlife. He also works on spatial dynamics of ecosystem services, and continues some ecological research.

Jay received a BS in Wildlife Biology from Ohio Univ. and a Ph.D. in Ecology from the U. of Kansas. He did postdoctoral research at the U. of Miami, became a tenured faculty at San Diego State Univ., and then worked as landscape ecologist at the Illinois Natural History Survey. He is currently a supervisory research scientist at the Geosciences and Environmental Change Science Center, USGS.

How to get to the CU-Boulder Discovery Learning Center

From 28th Street (Hwy 36), go west on Colorado Ave., which leads into the University. Take the next left (going south) onto Regent Drive. The Discovery Learning Center (DLC; highlighted in green below) is located on the west side of Regent Drive. Parking is available at visitor parking lots and nearby meters.

The seminar takes place in the Bechtel Collaboratory room (1B50), which is located in the 1st basement (ground level), on the east side of the building (right side of the building when you come in through the south entrance).

