

## **The National Ecological Observatory Network**

The world is now experiencing an era of rapid biological change as a result of human development. Ecosystems are increasingly stressed by climate, movement of invasive species over long distances, transport of pollution in the atmosphere, and human land use decisions. Ecologists must collect the vast amounts of global data needed to understand, forecast, and ultimately manage the changing biosphere and the services it provides.

The answer to this charge is the National Ecological Observatory Network (NEON), a continental-scale ecological user facility funded by the National Science Foundation that will operate for 30 years to gather and provide data on ecological drivers of and responses to environmental change (climate change, land use change, and invasive species). NEON is comprised of 60 sites systematically located throughout the United States (including Alaska, Hawaii and Puerto Rico), and subdivided into 20 eco-climatic domain areas (roughly three sites per domain). Three of those 60 sites are located in Domain 9- Northern Plains, headquartered in North Dakota. The core site is being constructed at Chase Lake National Wildlife Refuge- Woodworth Station. This is the only NEON site located on a National Wildlife Refuge. With Woodworth Station's long history of ecological research, it is a perfect pairing of past, present, and future.

Domain 9 is being led by Andrea Anteau, Field Operations Manager, based in Jamestown, ND. "I feel the partnership between the Fish and Wildlife Service and NEON will benefit both organizations greatly as we move forward. One of the primary goals of NEON is to provide data which can be used by managers to make decisions about our natural resources. Locating a permanent site on a refuge with such a long history of research is the perfect way to tie the NEON data in with historical data from the region."

NEON will combine its site-based data with remotely sensed data and existing continental-scale data sets (such as satellite data) to provide a range of scaled data products that can be used to describe changes in the nation's ecosystem through space and time. The data collected will be cleaned, synthesized, and made freely available to anyone wanting to use it. NEON data and resources are designed to enable a virtual network of researchers and environmental managers to collaborate, coordinate research, and address ecological challenges at regional, national and continental scales by providing comparable information across sites and regions.

NEON will also provide educational and professional development programs where users can engage with and learn about ecological data. One way people can get involved with NEON today is to participate in NEON's Project BudBurst [[budburst.org](http://budburst.org)], a national online citizen science campaign where people report on the timing of leafing, flowering, and fruiting of plants in their communities. The data are then made freely available to researchers and educators who can use them to learn more about the responsiveness of individual plant species to local, regional, and national changes in

climate. Participating in Project BudBurst only requires that one head outdoors, adopt a plant to watch, make observations as the plant grows through the seasons, and share findings with others online.

NEON has successfully completed the required planning and design phases and began construction of its sites during Summer 2012. NEON will complete civil construction in Domain 9 by the end of 2013. The first field crews conducting NEON research will begin work during Summer 2014. Constructing the entire NEON network will take approximately five years, so NEON expects to be in full operation by approximately 2017.

**Graphics and photo information:**

I will take photos during plot establishment process to include with copy.