

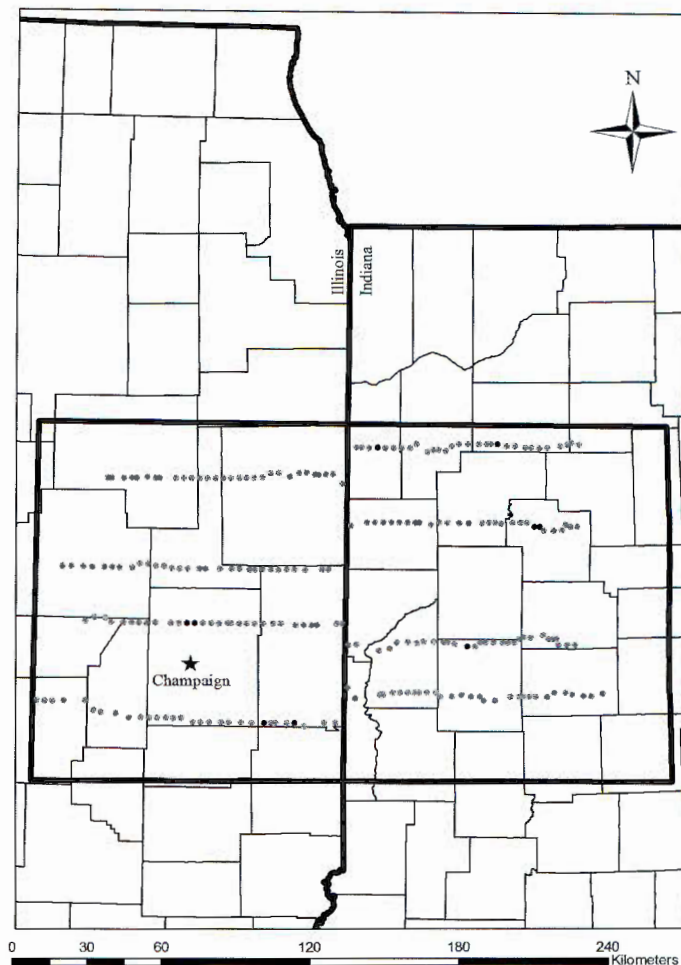
plovers recorded among all sites. The Benton and White counties, Indiana, held exceptional numbers of plovers in 2007. 2,064 were recorded at two adjacent points, and many more were observed incidentally outside of survey points. Flocks were not evenly dispersed throughout the region, but appeared to be spatially associated with one another, with 6 of the 9 observations occurring in pairs of adjacent sites. Six of the flocks recorded were in bare ground, two in soybean stubble, and one in tilled corn. All flocks were observed in dry fields, and all of the flocks were >73 m from the nearest road.

All of our volunteers had a positive, learning experience, but many went the entire day without seeing a single plover. Their observations of plover absence were valuable scientifically but did not result in a rewarding field experience. Because one of our main project objectives was to provide a quality field experience for each volunteer, we resolved to give this issue greater weight in future survey protocols.

## Year 2

Following our own finding on the spatial clustering of plovers in 2007, we also learned from local experts that some stopover locations consistently host large numbers of plovers year after year. By integrating these two findings, we concluded that a spatially focused approach would be the most effective means of conducting a survey that provided a consistent estimate of minimum abundance in the region, a maximum sample of the habitats selected by plovers, and a better research experience for student volunteers. At the same time we became aware of the immense amount of wind turbine siting and construction that was occurring across the region. In response to Illinois' renewable energy legislation calling for 25 percent alternative energy generation by 2025, wind facility developers are exploring the entire region for possible turbine sites (American Wind Energy Association 2008).

Although these facilities have the potential to provide alternative energy



**Figure 1.** Study area and sampling locations for American Golden-Plover survey, 2007

(• = survey route, ● = American Golden-Plover sightings).

for the region, they bring a substantial change to the landscape and airspace that is shared by many types of wildlife (Kuvinsky et al. 2007). It is likely that the turbines, access roads, altered drainage, and constant blade motion reduce the habitability of an area to plovers or alters their behavior. Although displacement from an agricultural area might seem insignificant in light of the immense amount available, it could be important if it occurs on one of the staging areas that plovers rely on each year. Documenting abundance of plovers at staging areas, and designating qualifying locations as Important Bird Areas, can help developers to shift the proposed footprint of a facility and avoid potential

conflict. The empirical data on critical habitat areas for migrant American Golden-Plovers is woefully incomplete. Our long-term sampling method offers an ideal method of identifying perennial hotspots for plovers that can be considered during wind facility siting and construction.

With the help of local birders and biologists, we identified 10 key sites as potential perennial stopovers and established them as our core observation areas for 2008 and the years to come (Figure 2). Our objectives for this second phase of the project were: 1) determine minimum abundance for region, 2) document key plover stopover areas, 3) define the spatial extent of hotspots, 4) examine the