

Preliminary analysis of the 2008 habitat use data confirmed strong patterns of occupancy across all sites, with the majority of plovers found >120 m from roads, in moist, soybean stubble. Across all areas, plovers selected sites with these characteristics more than would be expected based on their proportion among all habitat types. Although fields meeting these three criteria may seem common, their prevalence within the traditional hotspots mentioned above is becoming less each year. Large open fields are being broken by housing developments, cell phone towers, and wind turbines. Moist fields with standing water are being drained by increasingly efficient tile technology. Fewer fields are being planted to soybeans as ethanol subsidies make corn a more profitable crop.

It has long been thought that plovers prefer soybean fields to corn fields and other agricultural cover, but this notion has thus far been based on opportunistic observations. Our comprehensive survey of all the cover types in the agricultural landscape confirms that plovers do indeed select soybean fields for daytime habitat. There are several possible advantages that soybean fields offer to plovers: 1) they typically receive fewer pesticide applications, which allows for higher invertebrate prey biomass, 2)

they have less cover to obscure vision while watching for predators, 3) they allow for freer, safer flight compared to corn fields that are cluttered with stout stalks (Erickson 1992).

In addition to a field's substrate, moisture is also important for quality plover habitat. Moisture may be essential for the long-term production of invertebrates as well as the short-term exposure of available invertebrates. Standing water in the vicinity may also be useful for preening, which is essential to the molting process that occurs while stopping over in the spring. In the surveys preceding the blitz when conditions were much wetter, nearly all plovers were observed in fields that contained standing water.

Following the type of ground cover and moisture level, the distance from thick cover and roads also seems important to plovers in selecting habitat. Plovers most often occupy the middle of fields, distancing themselves from cover that may hold predators and roads with disturbing traffic. There is little data on the most frequent predators of golden-plovers particularly during migration, though raptors appear to take advantage of the concentrated prey provided by staging plovers. In township G, we recorded a particularly high density of Northern Harriers (*Circus cyaneus*),

and observed instances of the harriers hunting large flocks of feeding plovers.

Although open, wet, and very sparsely vegetated areas are preferred for the daytime activities of foraging and preening, plovers must also find suitable habitat for roosting.

We restricted our formal surveys to the hours of 0900 to 1700, but often continued informal observations up until sunset. During this time period we consistently observed flocks of plovers moving from the preferred foraging fields described above to adjacent corn stubble fields. This is the first documentation of roosting habitat for American Golden-Plovers during spring migration. These stalk fields may provide a degree of thermal cover during cool spring nights and perhaps cover from nocturnal predators.

## Conclusions

This project has been extremely successful in providing aspiring biologists with real world experiences in bird research and conservation. In just two years, more than forty students have participated. Each one has had the opportunity to learn the pleasures and challenges of rigorous fieldwork, the natural history of plovers, and the skills involved in developing, executing, and interpreting wildlife research. Through this project, we have been able to develop camaraderie within our chapter, collaborate with other student chapters, and interact with experienced professionals.

With the help of these volunteers we've surveyed an enormous geographic area and documented substantial numbers of plovers. During our time in the field, we've begun to document unique behaviors and natural history of staging plovers. By systematically analyzing habitat associations we've also started to define the key components of stopover habi-

*It takes a crew to do work on projects such as the one being done on the American Golden-Plover. Photo by Alex Svec taken in 2008 of the many participants in this study.*

