



Researchers have discovered that fence collisions are a major source of mortality for lesser prairie-chickens in Oklahoma and New Mexico.

Don't Fence Them In

For prairie-chickens, airspace is habitat, too

Story and photos by Donald Wolfe

Ask almost any birder, grouse biologist, sportsman, or environmentalist why a given species is declining, and you will likely hear one ambiguous answer: “habitat loss.” Ask any of the same people what that means, and you may receive a blank stare, or a “where have you been?” look, but probably not a clear answer. The truth is, (and this may ruffle some feathers), there usually isn't a clear answer.

I think this quick, ambiguous answer usually means one of two things: either we are unable to pinpoint the specific problems related to the decline or we are passing off the blame to someone else, perhaps an individual, an agency, an industry, or a bygone era. The issue of habitat loss can be an especially difficult

concept for many well-meaning folks who think they are making a contribution by “creating” wetland habitat in deserts or planting trees in prairies. Even professional biologists and land managers tend to think two-dimensionally. Much effort is often made to manage habitat on the land surface, but little attention is given the air space above the ground, which may contain wind generators, cell phone towers, power lines, and fences. For many species, this air space is of at least equal importance to habitat on the ground.

One of the greatest challenges that biologists face is identifying specific causes for population declines and developing solutions to address them. The next chal-

lenge is to get the word out to others who face the same challenges. Adding to the complexity, a specific cause in one locale may not be of equal significance somewhere else, thus general solutions often need to be made site-specific. Also, some species seem to persist in areas where the habitat, by what we know, is far from ideal, yet have disappeared from vast areas that are deemed suitable habitat. Complicating things even further is the fact that as habitat quality diminishes for one species, it may be improving for another species of equal conservation concern.

It is obvious that the transformation of native prairie into shopping malls is a direct loss of habitat for prairie species,

but what about erecting hundreds of wind turbines over 300 feet tall, dissecting the prairie into 160-acre grazing units, ridding an area of forbs or shrubs to produce a near monoculture of grasses, crisscrossing the prairie with power lines, or drilling gas or oil wells on 16-acre leases? These are important questions, to which we are only beginning to find the answers. However, there are some things we can learn from the experiences of others.

In Europe during the 1980s, fences were erected around valuable capercaillie and black grouse habitat to keep red deer from consuming the undergrowth. This was based on the assumption that nesting and brood-rearing habitat for these two grouse species needed to be enhanced and protected. While that may have been at least partly true, the “solution” proved to cause more harm than good. Grouse collided frequently with fences, often fatally. Researchers implied that without fence collisions, capercaillie populations would be stable or increasing in Scotland. Researchers also estimated that with the current fence collision risk, the entire Scotland capercaillie population would consist of only 40 hens by 2014, but if the fence collision risk could be eliminated, the projected number of hens would be around 1,300 by the same year.

But that is Europe, and we can't necessarily extrapolate from Scotland to North America. In fact, without looking specifically for publications on the subject, most biologists and land managers in North America wouldn't even be aware of the fence collision research and mitigation that has occurred in Europe, as the majority of this information has only been published in European journals.

In 1999, the Sutton Avian Research Center began long-term research on lesser prairie-chickens in Oklahoma and New Mexico. Although there has been a large amount of high quality research on the species in those states as well as in Texas and Kansas, the majority of the research effort has looked at habitat changes or been directed only at repro-



Marking fences appears to reduce collisions (above), but researchers are only able to measure mortality of radio-collared birds. Not all of the carcasses they recover are intact (left) so the cause of death can be difficult to determine.

duction. There has been little research on things like survival, movement patterns, or mortality causes, or especially on how all of these things come together.

We have now radio-tagged over 850 lesser prairie-chickens, including both cocks and hens, and have attempted to track these birds year-round, many until they are eventually found dead. Through December 2004, we were able to determine the cause of death for 128 birds in Oklahoma, and 132 birds in New Mexico. In Oklahoma, 51 (39.8 percent) of the mortalities were attributed to fence collisions, with the remainder due to

raptor predation (28.9 percent), mammal predation (25.8 percent), power line collisions (3.1 percent), and vehicle collisions (2.3 percent). In New Mexico, fence density is significantly lower than in Oklahoma, but fence collisions still accounted for 26.5 percent of the mortality. Since scavenging by both mammals and raptors also occurs, and since some collisions only cripple birds or result in a bird succumbing to their fatal injuries several hours or days after the collision, it is highly likely that actual collision rates are even higher.

[Continued on page 29](#)

What may also be of concern are the timing and apparent disparate sex ratios of the collisions. Hens are about twice as prone to fence collisions as are cocks. In fact, in Oklahoma, 58 percent of the hen mortality was due to fence, power line, or vehicle collisions. Additionally, the collision rates are highest in April and May. A breeding hen (April or May) that fatally collides with a fence results not only in her immediate loss, but in the loss of all her offspring. Furthermore, our research has shown that the additive mortality of collisions may affect other aspects of life history, including reproductive effort. In a recent publication, we have presented a scenario where the additive mortality and resultant changes in reproductive effort may increase vulnerability to chance events, which ultimately can lead to local extinctions of populations.

With funding from the U. S. Fish and Wildlife Service, the Colorado Bird Observatory, and the North American Grouse Partnership, we have undertaken a large effort to mitigate these losses. To date, we have removed about 50 miles of unnecessary fences in northwestern Oklahoma and the northeastern Texas Panhandle. We also are developing cost-effective methods to mark fences around booming grounds and other high-use areas to make the fences more visible to the birds and reduce the

chance of collisions. To date, over 10 miles of fences in critical areas have been marked.

Have these efforts helped? We have identified areas where we have documented fence collision rates as high as one per mile per year. We will never know how many unradioed birds also died along those same stretches of fences. All we can say at this point is that we have yet to recover a dead bird from below a marked fence. We hope that we can continue to make that claim as time goes on. In Europe, marking fences reduced grouse collisions by over 70 percent. While we can hope for even better results, achieving a similar success rate here may make the difference between a continued decline or a stable to increasing prairie-chicken population.

Back to the question of “what does habitat loss mean?” I think it is safe to say that, at least in some areas, obstructions in the flight path of grouse, such as fences and power lines, can be included as a type of habitat loss. Habitat, especially for avian species, cannot be considered only two-dimensional. Maybe this is only one of a myriad of types of habitat loss, but one that has been identified and of which efforts can be undertaken to repair.

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