

STANDARD GUIDANCE FOR TOWERS WITH POTENTIAL IMPACTS TO FEDERALLY-LISTED SPECIES AND MIGRATORY BIRDS

Federally-listed Species

The U.S. Fish and Wildlife Service (Service) is concerned about new communication tower projects (including radio, television, cellular, and microwave) and their cumulative impacts on migratory birds and federally-listed species. Section 7(a)(2) of the Endangered Species Act (ESA) requires federal agencies to ensure that any action they authorize, fund, or carry out is not likely to jeopardize the continued existence of any federally-listed threatened or endangered species or result in the destruction or adverse modification of designated critical habitat. Under the ESA, it is the responsibility of the federal action agency to determine the effects of their action on federally-listed species or designated critical habitat.

When making your determination, the Oklahoma Ecological Services Field Office (OKESFO) recommends using the best available scientific information on Oklahoma's federally-listed species which includes, but is not limited to, scientific literature and reports, recovery plans and consultation with species experts. The OKESFO's website (<<http://www.fws.gov/southwest/es/oklahoma/>>) includes county species occurrences and life history information for each species and additional documentation on the section 7 process. Information on how to determine if your proposed project will affect federally-listed species is provided in our enclosures titled **Environmental Review Guidelines, Biological Assessment/Evaluation Development Guidelines** and **Project Description and Evaluation Request Outline**.

Migratory Birds

Construction of communication towers in the United States has been growing at an exponential rate and nearly 93,000 were registered with the FCC in 2003. However, the number of towers is probably much higher due to under-reporting of up to 35 percent (Manville 2001). Collisions with communications towers are conservatively estimated to kill from 4 to 50 million birds per year (Manville 2005). Construction of new towers represents a potentially significant impact to migratory birds, especially some 350 species of night-migrating birds that may collide with towers and guy wires during inclement weather. Most proposed towers are similar to other towers that have been recently monitored for bird mortalities. During a 2004 study in Michigan, guyed towers killed nearly ten times more birds than free-standing towers (Gehring 2004).

Information concerning the impacts of towers on migratory birds and appropriate recommendations to avoid and/or minimize impacts to migratory birds protected under the Migratory Bird Treaty Act (MBTA) are provided at <<http://www.fws.gov/southwest/es/oklahoma/tower.htm>>. If you have included a Tower Site Evaluation Form with your request, it is likely that you have previously accessed our website and have reviewed the Service's recommendations. However, for your convenience, we have provided our recommendations in this correspondence.

We advise implementing the Service's recommendations and sending us evidence that these measures for minimizing impacts to migratory birds have been incorporated. You should be

aware that violation of the MBTA can result in significant fines. If our recommendations, or similar measures, to avoid impacts to migratory birds are not incorporated into project design, the chances of killing migratory birds and violating the MBTA are greatly increased. The tower evaluation form you provided and a copy of our response will be kept in the administrative record for this project to document what, if any, actions were taken to avoid and/or minimize impacts to migratory birds.

Recommendations on Tower Siting, Construction, Lighting, and Decommissioning

The Service recommends implementation of measures to avoid and/or minimize impacts to migratory birds for all new towers. The following recommendations are based on the best information available, and are the most prudent and effective measures for avoiding or minimizing bird strikes at towers. We believe that they will provide significant protection for migratory birds. As new information becomes available, the guidelines will be updated accordingly and can be accessed through our website <<http://www.fws.gov/southwest/es/oklahoma/tower.htm>>.

1. Any company/applicant/licensee proposing to construct a new communications tower is strongly encouraged to collocate the communications equipment on an existing communication tower or other structure (*e.g.*, billboard, water tower, or building mount). Depending on tower load factors, from 6 to 10 providers may collocate on an existing tower.
2. If collocation is not feasible and a new tower or towers are to be constructed, communications service providers are strongly encouraged to construct towers no more than 199 feet above ground level (AGL), using construction techniques which do not require guy wires (*e.g.*, a lattice structure, monopole, etc.). Such towers should be unlighted if Federal Aviation Administration (FAA) regulations permit.
3. If constructing multiple towers, providers should consider the cumulative impacts of all of those towers to migratory birds and threatened and endangered species, as well as the impacts of each individual tower.
4. If at all possible, new towers should be sited within existing “antenna farms” (clusters of towers). Towers should not be sited in or near wetlands, other known bird concentration areas (*e.g.*, state or Federal refuges, staging areas, rookeries), in known migratory or daily movement flyways, or in habitat of threatened or endangered species. Towers should not be sited in areas with a high incidence of fog, mist, and low ceilings.
5. In grassland habitat, proper siting of even self-supported (lattice or monopole) towers is important to avoid impacts to grassland birds. Research at Kansas State University has documented significant habitat avoidance by prairie chickens immediately surrounding all vertical features within their study area (Robel 2002). Specifically, 95 percent of all nesting prairie chickens avoided otherwise suitable habitats within approximately: 1) 100m from wellheads; 2) 375m from power lines; 3) 600m from improved roads; and 4) over 1,000m from buildings (Hagen 2003, Pitman 2003). Other biologists and researchers have long observed that prairie grouse soon abandon traditional mating grounds, called leks, following development of vertical structures nearby (Hagen et al. 2004). Many other grassland nesting birds also are known to avoid vertical structures (Leddy et al. 1999). Proposed towers in grassland habitat

should be constructed as close to existing towers, roads, buildings, and utility lines as possible. Because many grassland birds probably are already avoiding habitats within 300-600m of existing vertical structures, constructing the tower within this zone may avoid cumulative fragmentation impacts.

6. If taller (more than 199 feet AGL) towers requiring lights for aviation safety must be constructed, the minimum amount of pilot warning and obstruction avoidance lighting required by the FAA should be used. Unless otherwise required by the FAA, only white (preferable) or red strobe lights should be used at night, and these should be the minimum number, minimum intensity, and minimum number of flashes per minute (*i.e.*, longest duration between flashes) allowable by the FAA. The use of solid red or pulsating red warning lights at night should be avoided. Current research indicates that solid or pulsating (beacon) red lights attract night-migrating birds at a much higher rate than white strobe lights. The effect of red strobe lights has not been thoroughly studied and will require additional research.

7. Tower designs which use guy wires for support that are proposed to be located in known raptor or waterbird concentration areas or daily movement routes, or in major diurnal migratory bird movement routes or stopover sites, should have daytime visual markers (also known as bird diverter devices) on the wires to reduce collisions by these diurnally active species. More information on reducing bird collisions with power lines or cables is available from the Avian Power Line Interaction Committee (APLIC 1994, 1996) and copies can be obtained through the Edison Electric Institute by calling 1-800-334-5453 or at <EEI.org>. Recommendations also are available from the wind generation industry (NREL 1995; Anderson et al. 1999).

8. Towers and appendant facilities should be sited, designed and constructed so as to avoid or minimize habitat loss within and adjacent to the tower “footprint”. However, a larger tower footprint is preferable to the use of guy wires in construction. Road access and fencing should be minimized to reduce or prevent habitat fragmentation and disturbance, and to reduce above ground obstacles to birds in flight.

9. If significant numbers of breeding, feeding, or roosting birds are known to habitually use the proposed tower construction area, relocation to an alternate site is recommended. If this is not an option, seasonal restrictions on construction may be advisable in order to avoid disturbance during periods of high bird activity.

10. In order to reduce the number of towers needed in the future, providers should be encouraged to design new towers structurally and electrically to accommodate the applicant/licensee’s antennas and comparable antennas for at least two additional users (minimum of three users for each tower structure), unless this design would require the addition of lights or guy wires to an otherwise unlighted and/or unguyed tower.

11. Security lighting for on-ground facilities and equipment should be down-shielded to keep light within the boundaries of the site.

12. If a tower is constructed or proposed for construction, Service personnel or researchers from the Communication Tower Working Group should be allowed access to the site to evaluate bird use, conduct dead-bird searches, to place net catchments below the towers but above the ground,

and to place radar, Global Positioning System, infrared, thermal imagery, and acoustical monitoring equipment as necessary to assess and verify bird movements and to gain information on the impacts of various tower sizes, configurations, and lighting systems.

13. Towers no longer in use or determined to be obsolete should be removed within 12 months of cessation of use.

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