Status Report on Met Tower Incidents
Collinsville Montezuma Hills Wind Resource Area
Solano County, California

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Prepared for

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Summary of Met Tower Carcass Surveys Conducted at the Hamilton Ranch Met Tower between 1/30/2007 -9/12/2007.

A total of 33 rounds of met tower carcass surveys have been conducted thus far in 2007. (Table 1). Six fatality incidents representing 4 different species of birds have been recorded (Table 3). Both Red-winged Blackbirds and Western Meadowlarks had the highest number of incidents with 2 each, followed by Mourning Dove and Loggerhead Shrike, each with one. One California Species of Special Concern was recorded, a Loggerhead Shrike. Eighty-three percent or five of the six incidents recorded were between 21-40 meters from the met tower, with the other incident being located between 11-20 meters (Table2).

Table 1. Dates of fatality searches at the Hamilton Ranch Met Tower.

DATE	DATE
1/30/2007	5/29/2007
2/6/2007	6/4/2007
2/13/2007	6/11/2007
2/19/2007	6/18/2007
2/27/2007	6/25/2007
3/6/2007	7/2/2007
3/13/2007	7/9/2007
3/20/2007	7/18/2007
3/27/2007	7/23/2007
4/3/2007	7/30/2007
4/10/2007	8/6/2007
4/17/2007	8/13/2007
4/23/2007	8/20/2007
4/30/2007	8/27/2007
5/7/2007	9/3/2007
5/14/2007	9/12/2007
5/23/2007	
TOTAL	**33 Rounds**

Table 2. Date, species and distance from the base fatalities were recorded at the Hamilton Ranch met tower.

DATE	SPECIES	DISTANCE
5/7/2007	Red-Winged Blackbird	39
5/14/2007	Western Meadowlark	27
5/14/2007	Loggerhead Shrike	21
7/23/2007	Red-Winged Blackbird	12
7/23/2007	Western Meadowlark	32
8/6/2008	Mourning Dove	26

Table 3. Fatality incidents recorded at Hamilton Ranch met tower and the percentage of total per species fatalities recorded at the CMHWRA

SPECIES	Number OF INCIDENTS	Percent OF Incidents*
Loggerhead Shrike**	1	100
Mourning Dove	1	33
Red-winged Blackbird	2	50
Western Meadowlark	2	33
TOTAL	**6**	

*includes data from Shiloh I, January 31,2007-9/12/2007
* includes data from Shiloh II, January 31, 2007-9/12/2007
* includes data from Hamilton Ranch, January 31,2007-9/12/2007
**denotes California Species of Special Concern

Summary of findings for all met towers searched during the same time period.

We also looked at the number of incidents recorded at the other 14 met towers we have been monitoring in the Collinsville Montezuma Hills WRA during the same time period. There have been a total of 26 fatality incidents at all 15 met towers from January 31, 2007 until September 12, 2007. Each of the 15 met towers was searched 33 times during this period. The Hamilton Ranch met tower accounts for 23% of the recorded fatalities.

For the entire set of met towers searched in this time frame, the 26 recorded fatalities were distributed among 12 different species (Table 4).

Table 4. Incidents per species recorded at the MHWRA*.

SPECIES	# of Incidents
Barn Owl	1
Barn Swallow	1
Brewers Blackbird	2
Horned Lark	3
Loggerhead Shrike**	1
Mourning Dove	3
Pacific Slope Flycatcher	1
Red-tailed Hawk	1
Red-winged Blackbird	4
Rock Pigeon	2
Undidentified Sparrow	1
Western Meadowlark	6
TOTAL	**26**

*includes data from Shiloh I, January 31,2007-9/12/2007
* includes data from Shiloh II, January 31, 2007-9/12/2007
* includes data from Hamilton Ranch, January 31,2007-9/12/2007
**denotes California Species of Special Concern

These 26 fatalities are distributed over 12 species and 8 of those species (67%) suffered 1-2 fatalities for the species. The fatalities recorded for the other 4 species are as follows: Western Meadowlark (6); Red-winged Blackbird (4); Horned Lark (3) and, Mourning Dove (3).

Summary of findings for all met towers searched since February, 2006

We have been searching under two-thirds of this set of 15 met towers since February 2006 and 93% of this set since May 2006. In addition to the data presented above and restricted to the January 31 to September 12, 2007 time period we include the composite data from all towers searched since February 16, 2006.

There are two different heights of met towers surveyed, either 50 meters high or 60 meters high. When surveying the 50 meter high met tower, the outer search ring (50 meters) extends ~15-17 meters beyond the anchor holds for the guy wires. When surveying the 60 meter high met towers, the outer search ring is at the base of each guy wire anchor.

A total of 52 incidents representing 16 species of birds have been recorded at the various met towers within and adjacent to the Collinsville Montezuma Hills Wind Resource Area. Red-winged Blackbirds were the most common species recorded with 15 or 29% of all incidents followed by Western Meadowlarks with 8 or 15% of all incidents. Three raptors were recorded: one American Kestrel, one Barn Owl and one Red-tailed Hawk. As a group passerines had the highest number of total incidents with 40 or 77% percent followed by other birds with 9 or 17%. Raptors as a group accounted for 3 fatalities or 6% of all incidents. The incidents appear to be evenly distributed between 11-50 meters, with 0-10 meters having 5 incidents. The majority of all incidents were located on short vegetation.

Looking at the entire data set collected since February, 2006, it appears that the 50 meter towers may be less lethal to birds than the 60 meter towers by a factor of 2:1 (Table 5).

Table 5. Number of fatalities in relation to Met Tower height.

Tower Height	Number of Towers /Fatalities	Number per Tower
60 meters	6 / 30	5.00
50 meters	9 / 22	2.44

We feel that this difference is attributable to the greater amount of guy wire employed to support the taller towers. In addition, the guy wires of the 60 m towers extend farther above the ground and therefore into the airspace of migration and other bird flight.

Conclusions

It is our judgment that sufficient data have been collected to to confidently assess the level of risk at these temporary structures. A study of communication towers in Michigan (Gerhing and Kerlinger et al, 2006) document the difference between guyed

and unguyed towers less than 500 feet in height such that guyed structures experience more than an order of magnitude greater fatalities than unguyed structures.

None of the fatality number provided above constitutes a level of biological significance for any of the species involved. In addition, the met towers are temporary in nature and it is anticipated that permanent met towers will be free standing, thus eliminating the most significant threat of fatalities at these structures : collision with guy wires. We recommend the use of free standing met towers for permanent installations in the CMHWRA.