



M102

Memorandum

Date:	February 10, 2014
To:	Sandra Rivera
Cc:	Altamont Pass Wind Resource Area Scientific Review Committee (SRC)
From:	The Monitoring Team
Subject:	Monitoring Program Options for the 2014 Bird Year

At the September 17, 2013 meeting of the Alameda County Board of Supervisors, the Board directed staff to reduce funding for avian fatality monitoring programs in future years. A cap of \$250,000 per year was set on future funding, representing a decrease in the monitoring budget of approximately 50%. Under this level of funding, the Monitoring Team (MT) determined that continuation of the current fatality monitoring program may not be the best use of funds, as the decrease in sample size would be insufficient to provide precise estimates of fatality rates at old-generation turbines.

A number of alternatives to continued fatality monitoring at old-generation turbines have been discussed and proposed over the years at in-person meetings and in conference calls, and these proposals are briefly described below. Implementation of any of the alternatives would require development of a study plan and budget – most likely in conjunction with an SRC subcommittee – and subsequent detailed review by the full SRC, with the final study plan being approved by the full SRC.

Continuation of Fatality Monitoring at Old-Generation Turbines

The monitoring program was reduced by approximately 58% at the beginning of the 2010 bird year. The reduction mandated by the County Board of Supervisors would require a reduction of an additional 50%. At this level, the percentage of each BLOB that would be monitored would be reduced to an unacceptable level, and switching to a sampling scheme that is not stratified would call into question the representativeness of the sample and potentially compromise comparability with previous years.

Background Mortality Study

The latest analysis of information from the current fatality monitoring program indicates that background mortality for burrowing owl and American kestrel in particular and small birds in general may be as high as 44% of all fatalities detected during the year. If true, this would lead to incorrect conclusions about the effectiveness of curtailment of turbine operations in reducing fatalities and about the reduction in fatalities resulting from the implementation of the Wildlife Protection Program and Schedule.

In addition, if a substantive proportion of fatalities are not in fact turbine-related, as seems to be the case, then the problem of overestimating turbine-related fatalities will continue into the repowering environment.

Therefore, it seems appropriate to conduct a study of background mortality rates to determine what the general level of background mortality might be, so that estimates of turbine-related fatalities at repowered projects can be appropriately interpreted.

At least two studies addressing background mortality in a rigorous way have been conducted in the past. At Buffalo Ridge, 46.6% of all carcass searches were conducted on reference plots without turbines, but accounted for approximately 36% of all carcasses found (Johnson et al. 2000). In the San Geronio Wind Resource Area, 7 of 39 carcasses found during carcass searches were located at control site at least 400 meters away from turbines (17.9%, Anderson et al. 2005).

Such a study would most likely attempt to match sites with and without turbines that have burrowing owls and/or American kestrels in the vicinity, and conduct searches there in the same manner using the same personnel that have been doing searches over the past several years. Searches could be conducted over the course of the year, or they could be confined to the winter period when predators such as red-tailed hawks are most abundant.

Bat Activity, Ecology, and Detection Probability Studies

Based on high bat fatality rates found at some wind farms with new generation turbines, there is concern that repowering in the APWRA may lead to substantially higher bat fatality rates. As a result, studies of various aspects of bat ecology as they relate to potential turbine-related fatality rates have been suggested.

Because carcass searches at new generation turbines in the APWRA have produced higher numbers of bat fatalities than searches at old generation turbines, a study of detection probability at the two turbine types has been suggested. One hypothesis to explain why carcass searches at new generation turbines result in higher numbers of fatality incidents being detected relative to older generation turbines is that collision risk – for whatever reason – is higher at newer generation turbines. An alternative hypothesis is that detection probability is higher at new generation turbines because construction associated with installation of those turbines (and removal of the old turbines) has resulted in more bare ground, which leads to higher detection probabilities relative to older generation turbines. A study of detection probability of bat carcasses at new and older generation turbines could potentially discriminate between these two competing hypotheses.

Other bat studies that could be conducted include an assessment of bat activity levels in the APWRA compared to other wind farms with high levels of bat fatalities, a study of the seasonal distribution of bat activity levels, a study to determine if the APWRA is part of a bat migration corridor, and other potential studies to address the outstanding research questions identified by researchers working in this area (Kunz et al. 2007).

Johnson G.D., W.P. Erickson, M.D. Strickland, M.F. Shepherd and D.A. Shepherd. 2000. Avian Monitoring Studies at the Buffalo Ridge, Minnesota Wind Resource Area: Results of a 4-Year Study September 2000.

Anderson R., J. Tom, N. Neumann, W.P. Erickson, M.D. Strickland, M. Bourassa, H.J. Bay and K.J. Semka. 2005. Avian Monitoring and Risk Assessment at the San Gorgonio Wind Resource Area. August 2005. Prepared for the National Renewable Energy Laboratory. Golden, Colorado. Available electronically at <http://www.osti.gov/bridge>

Kunz, T.H., E. B Arnett, W. P. Erickson, A. R. Hoar, G. D. Johnson, R. P. Larkin, M. D. Strickland, R. W. Thresher, and M. D. Tuttle. 2007. Ecological impacts of wind energy development on bats: questions, research needs, and hypotheses. *Frontiers in Ecology and the Environment* 5(6): 315–324.