Appendix D-4

Avian Interim Report Summer 2010

Baseline Avian Studies for the Alta East Wind Resource Area Kern County, California

Interim Report
July 10 – August 31, 2010

Prepared for:

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October 15, 2010

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NATURAL RESOURCES ◆ SCIENTIFIC SOLUTIONS

EXECUTIVE SUMMARY

In July of 2010 Western EcoSystems Technology, Inc. initiated a second year of avian studies in the Alta East Wind Resource Area (AEWRA) in Kern County, California. The results of the first year of avian studies conducted in 2009-2010 suggested that a wind development at the AEWRA would not have significant impacts to most avian species. During the 2009/2010 surveys, two golden eagle nests and golden eagle use were documented in areas outside the project boundary. The use by golden eagles was occurring to the north, northeast, and west of the current project boundary and the nests were located approximately 3.5 and 11 miles from the project boundary. Therefore, a second year of avian study was initiated to better understand the potential risks that the proposed project would pose to eagles, as well as to continue to better understand avian use of the project site in general. The second year of avian use studies was initiated at the AEWRA on July 10, 2010 and is scheduled to continue through June of 2011. This interim report presents the results of fixed-point bird use surveys conducted during the summer of 2010. Seasonal interim reports are designed to give CH2M HILL and Alta Windpower, LLC, an early warning of relatively high wildlife use or if sensitive species are observed within the study area.

A total of 54 30-minute (min) fixed-point bird use surveys were conducted within the AEWRA over the course of nine visits from July 10 to August 31, 2010. Sixteen unique bird species were observed, and a total of 219 individual birds within 83 separate groups were recorded.

Upland game birds were the most abundant bird type recorded, accounting for 50.7% of the total observations. This was due to relatively high numbers of California quail (84 individuals) and chukar (27 individuals). Passerines were the second most abundant bird type recorded during surveys, comprising 39.3% of the total observations. The most abundant passerine species recorded included sage sparrow (34 individuals) and cactus wren (24 individuals). Only two raptors were observed during surveys (0.9% of total bird observations); a red-tailed hawk and an unidentified accipiter.

A comparison of the adjusted mean raptor use (number of raptors divided by the number of 800-meter [2,625-foot] plots and the total number of surveys) was made between the AEWRA and 41 other existing and proposed wind energy facilities with similar data. During the summer observation period, mean raptor use in AEWRA was low (0.02 raptors/plot/20-min survey), ranking lower than all of the 41 other wind resource areas with data for the summer season. This is consistent with the results of the 2009/2010 studies.

Two sensitive species were recorded within the AEWRA during fixed-point surveys, loggerhead shrike (12 individuals) and Le Conte's thrasher (two individuals). Loggerhead shrike is a California species of special concern while Le Conte's thrasher is a federal species of concern. No golden eagles or California condors were documented in or near the project during summer 2010, indicating that summer use of the project by eagles during this period is limited to nonexistent.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

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REPORT REFERENCE

Chatfield, A., and K. Bay. 2010. Baseline Avian Studies for the Alta East Wind Resource Area, Kern County, California. Interim Report: July 10 – August 31, 2010. Prepared for CH2M HILL, Oakland, California. Prepared by Western EcoSystems Technology, Inc. (WEST), Cheyenne, Wyoming.

INTRODUCTION

Terra Gen Power is proposing to develop the Alta East Wind Project, a wind energy facility located in Kern County, California. CH2M HILL, a contractor to Terra Gen Power, contracted Western EcoSystems Technology, Inc. (WEST) to develop and implement a standardized protocol for baseline avian studies in the Alta East Wind Project and surrounding area, defined in this report as the Alta East Wind Resource Area (AEWRA), with the purpose of estimating impacts of the proposed wind energy facility on birds and to assist with siting turbines to minimize impacts to avian resources. The protocols for the baseline study are similar to those used at other studies in California and throughout the western US with modifications to accommodate site-specific characteristics of the AEWRA. Additionally, the protocols follow guidance of the California Wind Energy Guidelines (CEC and CDFG 2007) and the US Fish and Wildlife Service (USFWS) Wind Turbine Guidelines Advisory Committee (WTGAC 2010).

The purpose of the following interim report is to discuss the results of fixed-point bird use surveys conducted at the AEWRA from July 10 to August 31, 2010, and to bring items of biological interest to the attention of CH2M HILL and Alta Windpower, LLC, such as seasonal raptor use and the presence of sensitive or special-status species. This current survey effort is scheduled to continue through the spring of 2011 and is designed to supplement a previous year-long avian use study conducted at the AEWRA (previously known as the Sun Creek Wind Resource Area) in 2009-2010 (see Chatfield et al. 2010). While the results of the first year of surveys suggested that a wind development at the AEWRA would not have significant impacts to most avian species, use of the adjacent area by golden eagles and golden eagle nests located in the surrounding landscape was documented. Therefore, a second year of avian study was initiated to better understand the potential risks that the proposed project would pose to eagles, as well as to continue to better understand avian use of the project site in general.

STUDY AREA

The proposed AEWRA is located in southeastern Kern County, approximately two miles (3.2 kilometers [km]) north-northwest of the unincorporated city of Mojave and 10 miles (16 km) east of the city of Tehachapi (Figure 1). The study area is comprised of undeveloped rangeland on a combination of privately-owned land and land administered by the Bureau of Land Management (BLM) within the Alta East Wind Project and surrounding area. The AEWRA falls within the high desert plains and hills on the western edge of the Mojave Desert. The existing natural conditions of the region are complex as the Tehachapi Mountains to the north and west transition into Mojave Desert to the south and east. Elevations within the study area range from approximately 3,100 to 4,200 feet (ft; 940 to 1,280 meters [m]) above sea level, with the highest elevations occurring in the northwestern portion of the study area (Figure 1). The habitat ranges from lowland creosote (*Larrea tridentata*) scrub and Joshua tree (*Yucca brevifolia*) woodland in the southeast to juniper (*Juniperus* spp.) shrubland on the steeper, rocky slopes in the north and west. Wetlands within the AEWRA are limited to a network of ephemeral drainages; there are no perennial water sources within the study area. Highway 58 bisects the AEWRA, an

underground portion of the Los Angeles Aqueduct runs along the southeast corner of the study area, and a network of dirt roads and off-highway vehicle trails run throughout the study area.

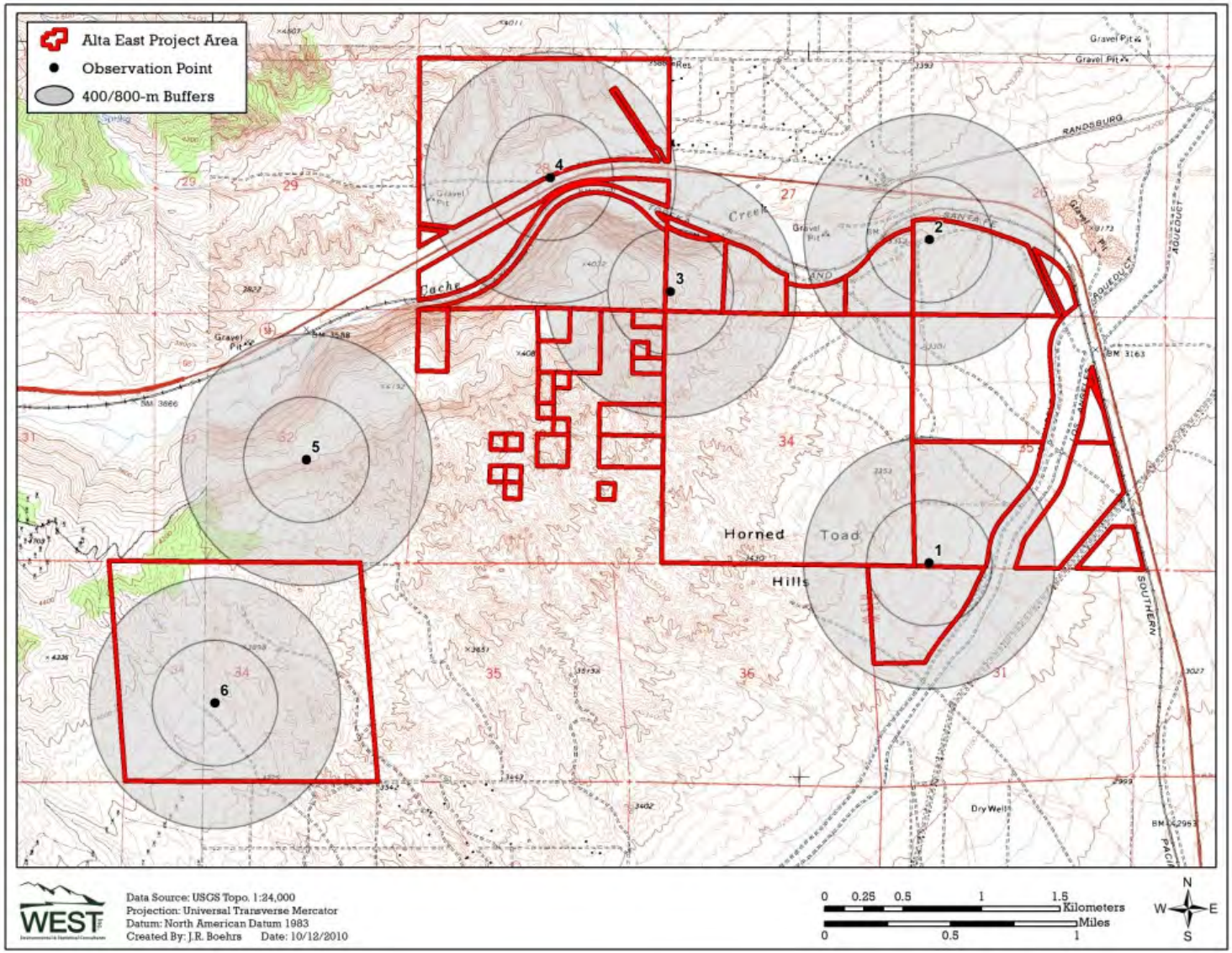

Figure 1. Study area map showing locations of fixed-point survey stations in the Alta East Wind Resource Area during Summer 2010.

METHODS

Fixed-Point Bird Use Surveys

The objective of the fixed-point bird use surveys was to estimate the seasonal and spatial use of the study area by birds, particularly diurnal raptors, defined here as kites, accipiters, buteos, harriers, eagles, and falcons. Fixed-point surveys (variable circular plots) were conducted using methods described by Reynolds et al. (1980). All birds seen during each 30-minute (min) fixed-point survey were recorded.

Bird Use Survey Plots

Six points were selected to survey representative habitats and topography of the study area while providing relatively even coverage (Figure 1). To the extent possible, survey stations were selected to be consistent with locations used in the 2009-2010 survey effort at the AEWRA (Chatfield et al. 2010). However, due to changes to land access and changes within the boundary of the AEWRA, several new points were established. Each survey plot was an 800-m (2,625-ft) radius circle centered on the point.

Bird Survey Methods

All species of birds observed during fixed-point surveys were recorded. Observations of large birds beyond the 800-m radius were recorded, but were not included in the statistical analyses. For small birds, observations beyond a 100-m (328-ft) radius were excluded from the analysis.

The date, start, and end time of the survey period, and weather information, such as temperature, wind speed, wind direction, and cloud cover, were recorded for each survey. Species or best possible identification, number of individuals, sex and age class (if possible), distance from plot center when first observed, closest distance, altitude above ground, activity (behavior), and habitat(s) were recorded for each observation. Behavior and habitat type were recorded based on the point of first observation. Approximate flight height and flight direction at first observation were recorded to the nearest 5-m (16-ft) interval. Other information recorded included whether or not the observation was auditory only and the 10-min interval of the 30-min survey in which the observation was initially noted.

Observation Schedule

Sampling intensity was designed to document bird use and behavior by habitat and season within the study area. Surveys were conducted weekly during the summer (July 10 to August 31). Surveys were conducted during daylight hours and survey periods varied to approximately cover all daylight hours during a season. Each point was surveyed the same number of times during the season.

RESULTS

This interim report presents the results of fixed-point bird use surveys conducted at the AEWRA from July 10 to August 31, 2010.

Fixed-Point Bird Use Surveys

A total of 54 30-min fixed-point bird use surveys were conducted within the AEWRA during nine visits from July 10 to August 31, 2010.

Sixteen unique bird species were observed during fixed-point bird use surveys, and a total of 219 individual birds within 83 separate groups were recorded (Table 1). Upland game birds were the most frequently observed bird type, accounting for 50.7% of all observations. This was primarily due to relatively high numbers of California quail (*Callipepla californica*; 84 observations) and chukar (*Alectoris chukar*; 27 observations). Passerines were the second most abundant bird type observed in the study area, representing 39.3% of all observations. The most common passerine species observed during the surveys included sage sparrow (*Amphispiza bellii*; 34 observations) and cactus wren (*Camphylorhynchus brunneicapillus*; 24 observations; Table 1). Raptors accounted for 0.9% of all individuals observed and the only raptors recorded during surveys were a single red-tailed hawk (*Buteo jamaicensis*) and a single unidentified accipiter (Table 1).

Table 1. Total number of individuals and groups for each bird type and species during the fixed-point bird use surveys at the Alta East Wind Resource Area, July 10 – August 31, 2010.

		Summer		Total	
Species/Type	**Scientific Name**	**# grps**	**# obs**	**# grps**	**# obs**
Raptors		**2**	**2**	**2**	**2**
Accipiters		*1*	*1*	*1*	*1*
unidentified accipiter		1	1	1	1
Buteos		*1*	*1*	*1*	*1*
red-tailed hawk	*Buteo jamaicensis*	1	1	1	1
Upland Game Birds		**9**	**111**	**9**	**111**
California quail	*Callipepla californica*	8	84	8	84
chukar	*Alectoris chukar*	1	27	1	27
Doves/Pigeons		**8**	**9**	**8**	**9**
mourning dove	*Zenaida macroura*	8	9	8	9
Large Corvids		**5**	**7**	**5**	**7**
common raven	*Corvus corax*	5	7	5	7
Passerines		**55**	**86**	**55**	**86**
cactus wren	*Campylorhynchus brunneicapillus*	21	24	21	24
Le Conte's thrasher	*Toxostoma lecontei*	2	2	2	2
loggerhead shrike	*Lanius ludovicianus*	9	12	9	12
sage sparrow	*Amphispiza belli*	17	34	17	34
unidentified sparrow		1	1	1	1
unidentified swallow		1	7	1	7
western meadowlark	*Sturnella neglecta*	3	5	3	5
western scrub-jay	*Aphelocoma californica*	1	1	1	1

Table 1. Total number of individuals and groups for each bird type and species during the fixed-point bird use surveys at the Alta East Wind Resource Area, July 10 – August 31, 2010.

Species/Type	Scientific Name	Summer		Total	
		# grps	# obs	# grps	# obs
Other Birds		**3**	**3**	**3**	**3**
unidentified hummingbird		2	2	2	2
white-throated swift	*Aeronautes saxatalis*	1	1	1	1
ladder-backed woodpecker	*Picoides scalaris*	1	1	1	1
Overall		**83**	**219**	**83**	**219**

Two sensitive bird species were recorded during fixed-point bird use surveys at the AEWRA: loggerhead shrike (*Lanius ludovicianus*; 12 observations), a state species of special concern (CDFG 2009), and Le Conte's thrasher (*Toxostoma lecontei*; two observations), a federal species of concern (USFWS 2008; Table 1).

DISCUSSION

The current study was designed to supplement previous avian studies conducted at the AEWRA in 2009-2010 (Chatfield et al. 2010). The results of those studies suggested that a wind development at the AEWRA would not have significant impacts to most avian species; however, the use of adjacent areas by golden eagles and the location of golden eagle nests within approximately 3.25 and 11 miles of the project boundary warranted additional evaluation.

Based on the bird use surveys conducted during the summer of 2010, no golden eagles were observed within the AEWRA during this period, indicating that summer use of the project by eagles during this period is limited to nonexistent. These surveys are part of a larger one-year study effort, and are scheduled to continue through June of 2011.

Bird Use Surveys

Species diversity of birds observed during fixed-point bird use surveys generally reflected the desert scrub habitats comprising the AEWRA, and are generally consistent with results from the previous year of bird surveys (see Chatfield et al. 2010). Resident, breeding birds of dry, open shrubland and Joshua tree woodland were dominant. Upland game birds, such as California quail and chukar, and passerines, such as sage sparrow, cactus wren, loggerhead shrike, and common raven, were commonly observed throughout the summer. Other bird types, including raptors, were rarely observed during the study period. Loggerhead shrike (state species of special concern [CDFG 2009]) and Le Conte's thrasher (federal species of concern [USFWS 2008]) were the only sensitive species observed during the surveys. No eagles or condors were observed during the summer 2010 study.

Comparison of Seasonal Raptor Use

Based on the results from other wind resource areas with similar data, mean adjusted raptor use (number of raptors divided by the number of 800-m plots and the total number of surveys) in the AEWRA during the summer of 2010 was very low (0.02 raptors/plot/20-min survey) relative to data collected at 41 other existing and proposed wind energy facilities with data for the

summer season (Figure 2). These results are similar to those reported during the first year of studies covering all seasons at the AEWRA (see Chatfield et al. 2010).

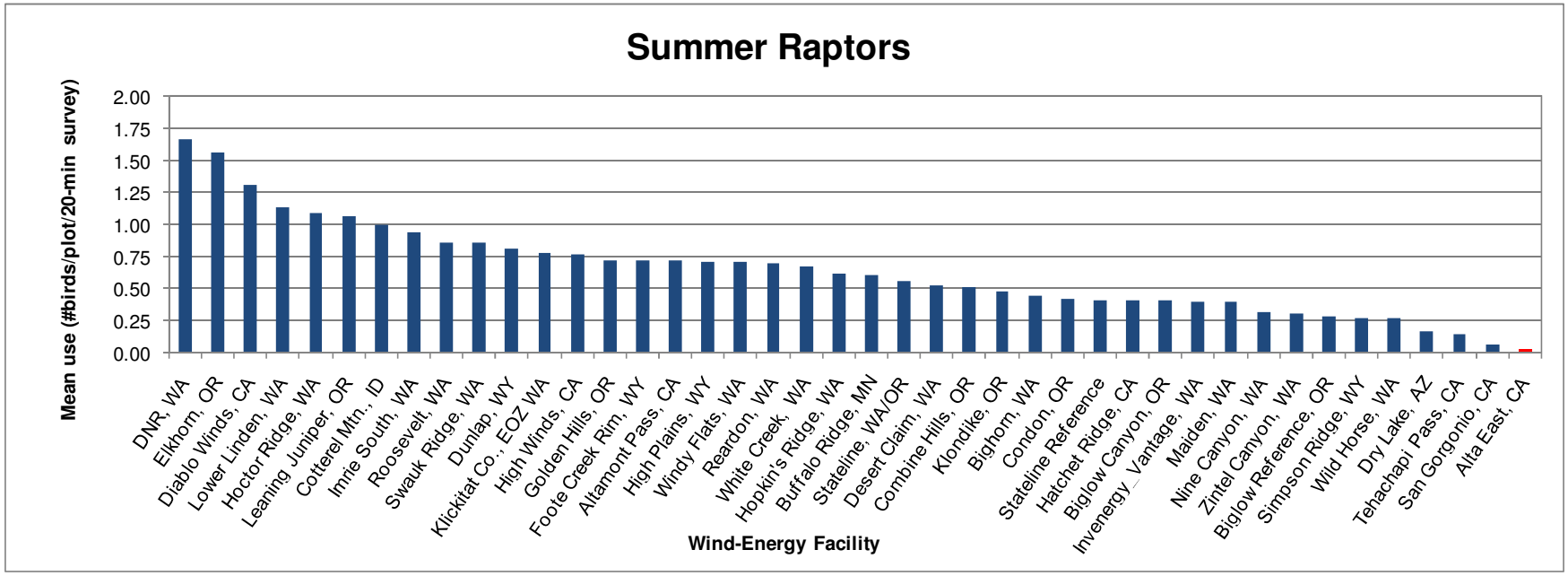

Figure 2. Comparison of summer raptor use between the Alta East Wind Resource Area and other United States wind energy facilities.

Data from the following sources:

Alta East, CA	This study.				
DNR, WA	Johnson et al. 2006a	Windy Flats, WA	Johnson et al. 2007b	Zintel Canyon, WA	Erickson et al. 2002a
Elkhorn, OR	WEST 2005a	Reardon, WA	WEST 2005b	Biglow Reference, OR	WEST 2005c
Diablo Winds, CA	WEST 2006	White Creek, WA	NWC and WEST 2005	Simpson Ridge, WY	Johnson et al. 2000
Lower Linden, WA	Johnson et al. 2007a	Hopkin's Ridge, WA	Young et al. 2003a	Stateline Reference	URS et al. 2001
Hoctor Ridge, WA	Johnson et al. 2006b	Buffalo Ridge, MN	Erickson et al. 2002b	Hatchet Ridge, CA	Young et al. 2007a
Leaning Juniper, OR	Kronner et al. 2005	Stateline, WA/OR	Erickson et al. 2002b	Biglow Canyon, OR	WEST 2005c
Cotterel Mtn., ID	BLM 2006	Desert Claim, WA	Young et al. 2003b	Invenergy_Vantage, WA	WEST 2007
Imrie South, WA	Johnson et al. 2006c	Combine Hills, OR	Young et al. 2003c	Maiden, WA	Erickson et al. 2002b
Roosevelt, WA	NWC and WEST 2004	Klondike, OR	Johnson et al. 2002	Nine Canyon, WA	Erickson et al. 2001
Swauk Ridge, WA	Erickson et al. 2003a	Bighorn, WA	Johnson and Erickson 2004	Zintel Canyon, WA	Erickson et al. 2002a
Dunlap, WY	Johnson et al. 2009a	Condon, OR	Erickson et al. 2002b	Biglow Reference, OR	WEST 2005c
Klickitat Co., EOZ WA	WEST and NWC 2003	Stateline Reference	URS et al. 2001	Simpson Ridge, WY	Johnson et al. 2000
High Winds, CA	Kerlinger et al. 2005	Hatchet Ridge, CA	Young et al. 2007a	Wild Horse, WA	Erickson et al. 2003b
Golden Hills, OR	Jeffrey et al. 2008	Biglow Canyon, OR	WEST 2005c	Dry Lake, AZ	Young et al. 2007b
Foote Creek Rim, WY	Erickson et al. 2002b	Invenergy_Vantage, WA	WEST 2007	Tehachapi Pass, CA	Erickson et al. 2002b
Altamont Pass, CA	Erickson et al. 2002b	Maiden, WA	Erickson et al. 2002b	San Gorgonio, CA	Erickson et al. 2002b
High Plains, WY	Johnson et al. 2009b	Nine Canyon, WA	Erickson et al. 2001		

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