

Appendix A2. Fatality estimates for North American wind-energy facilities.

Project	Bat Fatalities (bats/MW/year)	Predominant Habitat Type	Citation
Alite, CA (2009-2010)	0.24	shrub/scrub & grassland	Chatfield et al. 2010
Alta VIII, CA (2012-2013)	0	grassland and riparian	Chatfield and Bay 2014
Alta Wind I-V, CA (2013-2014)	0.2	NA	Chatfield et al 2014
Alta Wind I, CA (2011-2012)	1.28	woodland, grassland, shrubland	Chatfield et al. 2012
Alta Wind II-V, CA (2011-2012)	0.08	desert scrub	Chatfield et al. 2012
Barton Chapel, TX (2009-2010)	3.06	agriculture/forest	WEST 2011
Barton I & II, IA (2010-2011)	1.85	agriculture	Derby et al. 2011
Beech Ridge, WV (2012)	2.03	forest	Tidhar et al. 2013
Beech Ridge, WV (2013)	0.58	forest	Young et al. 2014
Big Blue, MN (2013)	2.04	agriculture	Fagen Engineering 2014
Big Blue, MN (2014)	1.43	agriculture	Fagen Engineering 2015
Big Horn, WA (2006-2007)	1.9	agriculture/grassland	Kronner et al. 2008
Big Smile, OK (2012-2013)	2.9	grassland, agriculture	Derby et al. 2013
Biglow Canyon, OR (Phase I; 2008)	1.99	agriculture/grassland	Jeffrey et al. 2009
Biglow Canyon, OR (Phase I; 2009)	0.58	agriculture/grassland	Enk et al. 2010
Biglow Canyon, OR (Phase II; 2009-2010)	2.71	agriculture	Enk et al. 2011
Biglow Canyon, OR (Phase II; 2010-2011)	0.57	grassland/shrub-steppe, agriculture	Enk et al. 2012
Biglow Canyon, OR (Phase III; 2010-2011)	0.22	grassland/shrub-steppe, agriculture	Enk et al. 2012
Blue Sky Green Field, WI (2008; 2009)	24.57	agriculture	Gruver et al. 2009
Buffalo Gap I, TX (2006)	0.1	grassland	Tierney 2007
Buffalo Gap II, TX (2007-2008)	0.14	forest	Tierney 2009
Buffalo Mountain, TN (2000-2003)	31.54	forest	Nicholson et al. 2005
Buffalo Mountain, TN (2005)	39.7	forest	Fiedler et al. 2007
Buffalo Ridge I, SD (2009-2010)	0.16	agriculture/grassland	Derby et al. 2010
Buffalo Ridge II, SD (2011-2012)	2.81	agriculture, grassland	Derby et al. 2012
Buffalo Ridge, MN (Phase I; 1996)	NA	agriculture	Johnson et al. 2000
Buffalo Ridge, MN (Phase I; 1997)	NA	agriculture	Johnson et al. 2000
Buffalo Ridge, MN (Phase I; 1998)	NA	agriculture	Johnson et al. 2000
Buffalo Ridge, MN (Phase I; 1999)	0.74	agriculture	Johnson et al. 2000
Buffalo Ridge, MN (Phase II; 1998)	2.16	agriculture	Johnson et al. 2000
Buffalo Ridge, MN (Phase II; 1999)	2.59	agriculture	Johnson et al. 2000

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Buffalo Ridge, MN (Phase II; 2001/Lake Benton I)	4.35	agriculture	Johnson et al. 2004
Buffalo Ridge, MN (Phase II; 2002/Lake Benton I)	1.64	agriculture	Johnson et al. 2004
Buffalo Ridge, MN (Phase III; 1999)	2.72	agriculture	Johnson et al. 2000
Buffalo Ridge, MN (Phase III; 2001/Lake Benton II)	3.71	agriculture	Johnson et al. 2004
Buffalo Ridge, MN (Phase III; 2002/Lake Benton II)	1.81	agriculture	Johnson et al. 2004
Casselman Curtailment, PA (2008)	4.4	forest	Arnett et al. 2009
Casselman, PA (2008)	12.61	forest	Arnett et al. 2009
Casselman, PA (2009)	8.6	forest, pasture, grassland	Arnett et al. 2010
Cedar Ridge, WI (2009)	30.61	agriculture	BHE Environmental 2010
Cedar Ridge, WI (2010)	24.12	agriculture	BHE Environmental 2011
Cohocton/Dutch Hill, NY (2009)	8.62	agriculture/forest	Stantec 2010
Cohocton/Dutch Hills, NY (2010)	10.32	agriculture, forest	Stantec 2011
Combine Hills, OR (2011)	0.73	grassland/shrub-steppe, agriculture	Enz et al. 2012
Combine Hills, OR (Phase I; 2004-2005)	1.88	agriculture/grassland	Young et al. 2006
Crescent Ridge, IL (2005-2006)	3.27	agriculture	Kerlinger et al. 2007
Criterion, MD (2011)	15.61	forest, agriculture	Young et al. 2012
Criterion, MD (2012)	7.62	forest, agriculture	Young et al. 2013
Criterion, MD (2013)	5.32	forest, agriculture	Young et al. 2014
Crystal Lake II, IA (2009)	7.42	agriculture	Derby et al. 2010
Diablo Winds, CA (2005-2007)	0.82		WEST 2006, WEST 2008
Dillon, CA (2008-2009)	2.17	desert	Chatfield et al. 2009
Dry Lake I, AZ (2009-2010)	3.43	desert grassland/forested	Thompson et al. 2011
Dry Lake II, AZ (2011-2012)	1.66	desert grassland/forested	Thompson and Bay 2012
Elkhorn, OR (2008)	1.26	shrub/scrub & agriculture	Jeffery et al. 2009
Elkhorn, OR (2010)	2.14	shrub/scrub & agriculture	Enk et al. 2011
Elm Creek II, MN (2011-2012)	2.81	agriculture, grassland	Derby et al. 2012
Elm Creek, MN (2009-2010)	1.49	agriculture	Derby et al. 2010
Foote Creek Rim, WY (Phase I; 1999)	3.97	grassland	Young et al. 2003b

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Foote Creek Rim, WY (Phase I; 2000)	1.05	grassland	Young et al. 2003b
Foote Creek Rim, WY (Phase I; 2001-2002)	1.57	grassland	Young et al. 2003b
Forward Energy Center, WI (2008-2010)	18.17	agriculture	Grodsky and Drake 2011
Fowler I, II, III, IN (2010)	18.96	agriculture	Good et al. 2011
Fowler I, II, III, IN (2011)	20.19	agriculture	Good et al. 2012
Fowler I, II, III, IN (2012)	2.96	agriculture	Good et al. 2013
Fowler I, IN (2009)	8.09	agriculture	Johnson et al. 2010
Fowler III, IN (2009)	1.84	agriculture	Johnson et al. 2010
Goodnoe, WA (2009-2010)	0.34	grassland and shrub-steppe	URS 2010a
Grand Ridge I, IL (2009-2010)	2.1	agriculture	Derby et al. 2010
Harrow, Ont (2010)	11.13	agriculture	Natural Resources Solutions Inc. (NRSI) 2011
Harvest Wind, WA (2010-2012)	1.27	grassland/shrub-steppe	Downes and Gristki 2012
Hay Canyon, OR (2009-2010)	0.53	agriculture	Gritski and Kronner 2010a
Heritage Garden I, MI (2012-2014)	5.9	agriculture	Curry & Kerlinger 2014
High Sheldon, NY (2010)	2.33	agriculture	Tidhar et al. 2012
High Sheldon, NY (2011)	1.78	agriculture	Tidhar et al. 2012
High Winds, CA (2003-2004)	2.51	agriculture/grassland	Kerlinger et al. 2006
High Winds, CA (2004-2005)	1.52	agriculture/grassland	Kerlinger et al. 2006
Hopkins Ridge, WA (2006)	0.63	agriculture/grassland	Young et al. 2007
Hopkins Ridge, WA (2008)	1.39	agriculture/grassland	Young et al. 2009
Judith Gap, MT (2006-2007)	8.93	agriculture/grassland	TRC 2008
Judith Gap, MT (2009)	3.2	agriculture/grassland	Poulton and Erickson 2010
Kewaunee County, WI (1999-2001)	6.45	agriculture	Howe et al. 2002
Kibby, ME (2011)	0.12	forest, commercial forest	Stantec 2012
Kittitas Valley, WA (2011-2012)	0.12	sagebrush-steppe, grassland	Stantec 2012
Klondike II, OR (2005-2006)	0.41	agriculture/grassland	NWC and WEST 2007
Klondike III (Phase I), OR (2007-2009)	1.11	agriculture/grassland	Gritski et al. 2010
Klondike IIIa (Phase II), OR (2008-2010)	0.14	grassland/shrub-steppe and agriculture	Gritski et al. 2011
Klondike, OR (2002-2003)	0.77	agriculture/grassland	Johnson et al. 2003b
Leaning Juniper, OR (2006-2008)	1.98	agriculture	Gritski et al. 2008
Lempster, NH (2009)	3.11	grassland/forest/rocky embankments	Tidhar et al. 2010

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Lempster, NH (2010)	3.57	grassland/forest/rocky embankments	Tidhar et al. 2011
Linden Ranch, WA (2010-2011)	1.68	grassland/shrub-steppe, agriculture	Enz and Bay 2011
Locust Ridge, PA (Phase II; 2009)	14.11	grassland	Arnett et al. 2010
Locust Ridge, PA (Phase II; 2010)	14.38	grassland	Arnett et al. 2010
Maple Ridge, NY (2006)	11.21	agriculture/forested	Jain et al. 2007
Maple Ridge, NY (2007-2008)	4.96	agriculture/forested	Jain et al. 2009d
Maple Ridge, NY (2007)	6.49	agriculture/forested	Jain et al. 2009a
Maple Ridge, NY (2012)	7.3	agriculture/forested	Tidhar et al. 2013
Marengo I, WA (2009-2010)	0.17	agriculture	URS 2010b
Marengo II, WA (2009-2010)	0.27	agriculture	URS 2010c
Mars Hill, ME (2007)	2.91	forest	Stantec 2008b
Mars Hill, ME (2008)	0.45	forest	Stantec 2009
Milford I & II, UT (2011-2012)	1.67	desert shrub	Stantec Consulting 2012
Milford I, UT (2010-2011)	2.05	desert shrub	Stantec Consulting 2011
Montezuma I, CA (2011)	1.9	agriculture and grassland	ICF International 2012
Montezuma I, CA (2012)	0.84	agriculture and grassland	ICF International 2013
Montezuma II, CA (2012-2013)	0.91	agriculture	Harvey & Associates 2013
Moraine II, MN (2009)	2.42	agriculture/grassland	Derby et al. 2010
Mount Storm, WV (2009)	17.53	forest	Young et al. 2009a, 2010b
Mount Storm, WV (2010)	15.18	forest	Young et al. 2010a, 2011
Mount Storm, WV (2011)	7.43	forest	Young et al. 2011; Young et al. 2012
Mount Storm, WV (Fall 2008)	6.62	forest	Young et al. 2009b
Mountaineer, WV (2003)	31.69	forest	Kerns and Kerlinger 2004
Munnsville, NY (2008)	1.93	agriculture/forest	Stantec 2009
Mustang Hills, CA (2012-2013)	0.1	grassland and riparian	Chatfield and Bay 2014
Nine Canyon, WA (2002-2003)	2.47	agriculture/grassland	Erickson et al. 2003
Noble Altona, NY (2010)	4.34	forest	Jain et al. 2011a
Noble Bliss, NY (2008)	7.8	agriculture/forest	Jain et al. 2009
Noble Bliss, NY (2009)	3.85	agriculture/forest	Jain et al. 2010a
Noble Chateaugay, NY (2010)	2.44	agriculture	Jain et al. 2011b
Noble Clinton, NY (2008)	3.14	agriculture/forest	Jain et al. 2009

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Noble Clinton, NY (2009)	4.5	agriculture/forest	Jain et al. 2010b
Noble Ellenburg, NY (2008)	3.46	agriculture/forest	Jain et al. 2009
Noble Ellenburg, NY (2009)	3.91	agriculture/forest	Jain et al. 2010c
Noble Wethersfield, NY (2010)	16.3	agriculture	Jain et al. 2011c
NPPD Ainsworth, NE (2006)	1.16	agriculture/grassland	Derby et al. 2007
Palouse Wind, WA (2012-2013)	4.23	agriculture and grassland	Stantec Consulting 2013
Pebble Springs, OR (2009-2010)	1.55	grassland	Gritski and Kronner 2010b
Pine Tree, CA (2009-2010, 2011)	NA	grassland	BioResource Consultants 2012
Pinnacle, WV (2012)	40.2	forest	Hein et al. 2013
Pinyon Pines I & II, CA (2013-2014)	0.04	NA	Chatfield and Russo 2014
Pioneer Prairie I, IA (Phase II; 2011-2012)	10.06	agriculture, grassland	Chodachek et al. 2012
Pioneer Prairie II, IA (2013)	3.83	agriculture	Chodachek et al 2014
PrairieWinds ND1 (Minot), ND (2010)	2.13	agriculture	Derby et al. 2011
PrairieWinds ND1 (Minot), ND (2011)	1.39	agriculture, grassland	Derby et al. 2012
PrairieWinds SD1, SD (2011-2012)	1.23	grassland	Derby et al. 2012
PrairieWinds SD1, SD (2012-2013)	1.05	grassland	Derby et al. 2013
PrairieWinds SD1, SD (2013-2014)	0.52	grassland	Derby et al. 2014
Rail Splitter, IL (2012-2013)	11.21	agriculture	Good et al 2013
Record Hill, ME (2012)	2.96	forest	Stantec 2013
Record Hill, ME (2014)	0.55	forest	Stantec 2015
Red Hills, OK (2012-2013)	0.11	grassland	Derby et al. 2013
Ripley, Ont (2008)	4.67	agriculture	Jacques Whitford 2009
Rollins, ME (2012)	0.18	forest	Stantec 2013
Rugby, ND (2010-2011)	1.6	agriculture	Derby et al. 2011
Shiloh I, CA (2006-2009)	3.92	agriculture/grassland	Kerlinger et al. 2010
Shiloh II, CA (2009-2010)	2.6	agriculture	Curry and Kerlinger 2010, Curry & Kerlinger 2013
Shiloh II, CA (2010-2011)	3.8	agriculture	Curry & Kerlinger 2013
Shiloh III, CA (2012-2013)	0.4	NA	Curry & Kerlinger 2013
Solano III, CA (2012-2013)	0.31	NA	AECOM 2013
Stateline, OR/WA (2001-2002)	1.09	agriculture/grassland	Erickson et al. 2004
Stateline, OR/WA (2003)	2.29	agriculture/grassland	Erickson et al. 2004

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Stateline, OR/WA (2006)	0.95	agriculture/grassland	Erickson et al. 2007
Stetson Mountain I, ME (2009)	1.4	forest	Stantec 2009
Stetson Mountain I, ME (2011)	0.28	forest	Normandeau Associates 2011
Stetson Mountain I, ME (2013)	0.18	forest	Stantec 2014
Stetson Mountain II, ME (2010)	1.65	forest	Normandeau Associates 2010
Stetson Mountain II, ME (2012)	2.27	forest	Stantec Consulting 2013
Summerview, Alb (2005-2006)	10.27	agriculture	Brown and Hamilton 2006
Summerview, Alb (2006; 2007)	11.42	agriculture/grassland	Baerwald 2008
Top Crop I & II (2012-2013)	12.55	agriculture	Good et al 2013
Top of Iowa, IA (2003)	7.16	agriculture	Jain 2005
Top of Iowa, IA (2004)	10.27	agriculture	Jain 2005
Tuolumne (Windy Point I), WA (2009-2010)	0.94	grassland/shrub-steppe, agriculture and forest	Enz and Bay 2010
Vansycle, OR (1999)	1.12	agriculture/grassland	Erickson et al. 2000
Vantage, WA (2010-2011)	0.4	shrub-steppe, grassland	Ventus Environmental Solutions 2012
Wessington Springs, SD (2009)	1.48	grassland	Derby et al. 2010
Wessington Springs, SD (2010)	0.41	grassland	Derby et al. 2011
White Creek, WA (2007-2011)	2.04	grassland/shrub-steppe, agriculture	Downes and Gristki 2012
Wild Horse, WA (2007)	0.39	grassland	Erickson et al. 2008
Windy Flats, WA (2010-2011)	0.41	grassland/shrub-steppe, agriculture	Enz et al. 2011
Winnebago, IA (2009-2010)	4.54	agriculture/grassland	Derby et al. 2010
Wolfe Island, Ont (July-December 2009)	6.42	grassland	Stantec Ltd. 2010
Wolfe Island, Ont (July-December 2010)	9.5	grassland	Stantec Ltd. 2011b
Wolfe Island, Ont (July-December 2011)	2.49	grassland	Stantec Ltd. 2012