

Data Dictionary  
Fatalities Table

The table below (see following page) describes the fields that appear in the Fatalities table. The data in the Fatalities table come from several data sources. Baseline (BL), Current Study (CS), (KB), and Wildlife Reporting and Response System (WRRS) represent distinct programs with different field methods and different data tracking protocols, but similar goals in terms of documenting turbine related avian mortality.

To make it possible to compare mortality among these programs, the field data have been synthesized into a common format that allows analysis over data from multiple sources as a whole. The common format is represented in the columns and data types in the table below. Many fields, such as **Date** and **Species**, convert easily into the common format, while others, such as **Decay** and **CauseOfDeath**, are more subtle and thus have required more post-processing of field data for reliable valid conversion.

All data fields that are essential to basic mortality calculations and analysis (*Level 1 data*) have been standardized with common values, enumerated below in the Data Description column. Some of these fields are required to have a non-NULL value and are noted as such, for instance **CauseOfDeath**. Other fields, both fields with standardized common values and fields with unconstrained values (all of these are *Level 2 data* and thus not essential to analysis) contain can contain a NULL value.

Note that some BL records are noted as having only NULL values for some fields, as shown in the Notes column. There are a number of reasons that these fields may contain only NULL values. The field could have been created for data collected in CS study but not in the BL study or under WRRS protocol, the information may not have been standardized and coded, or the information may be shared among multiple fields (such as comments and notes). The null status of these Level 2 data fields does not suggest that BL or WRRS has no information for these fields, but only that we did not extract, code, and standardize this Level 2 data that would not directly affect the analysis.

The records in the Fatalities table are unique fatalities. All additional and subsequent findings of additional parts of fatalities are recorded with the same FatalityNumber in the table FatalitiesAdditionalParts.<sup>1</sup>

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<sup>1</sup> New or altered text is highlighted.

**dbo.Fatalities**

Field Name	Data Description	Notes
RecordID	Primary key (unique identifier). Do not allow nulls.	Automatically numbered. User cannot enter or change the value.
FatalityNumber	<p>This field uniquely identifies a fatality, or the initial finding of the dead animal.</p> <p>Multiple records within the database may have the same FatalityNumber. One of these records is the initial find; the others are all additional parts (see AddParts below) of the same fatality.</p> <p><b>Current Study (CS)</b> FatalityNumber format: YearMoDa-No; for instance 20081231-02, where YearMoDa is the date of the original find and 01 is the ordinal number of the find on that day (the example would be the second find of the day).</p> <p><b>KB</b> FatalityNumbers have the same format as CS FatalityNumbers with a KB prefixed; for instance KB20070917-03.</p> <p><b>Baseline (BL)</b> FatalityNumber formats include a BL prefix followed by a number with or without a decimal point: BL#.# BL#.#.# BL#.#.#.# BL#.#.#.#.#</p> <p>Do not allow nulls. This field is required. If this field is left blank, this record is not valid.</p>	The BL- prefix was assigned to the Baseline (BL) fatality identification number to create the FatalityNumber for this database table.
AddParts	<p>Boolean.</p> <p>True if find is an additional part of a fatality that has previously been found. In the <b>Fatalities</b> table, the only value is False. All records with value True appear in the table <b>FatalitiesAdditionalParts</b>.</p> <p>Do not allow nulls.</p>	Only value shown in BL data is <i>NULL</i> .
Incidental	<p>Boolean.</p> <p>True if the bird is found other than during a standard scheduled search.</p> <p>Do not allow nulls.</p>	In BL dataset, this value is based on Report as recorded in SPSS data. For all Report = Incidental/ NREL, Incidental = True.

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Field Name	Data Description	Notes
Injured	<p>Boolean.</p> <p>True if the bird, when detected, was alive and injured but not dead. This information could be supported by information in the Notes field or in another comment field in the table.</p> <p>Do not allow nulls.</p>	<p>In BL dataset, this value is based on Finding recorded in SPSS data. For all Finding = Injured bird, Injured = True.</p>
Source	<p><b>KB</b>= regularly scheduled KB team carcass find.</p> <p><b>CS</b>=regularly scheduled MTeam carcass search find. 2005 – 2009.</p> <p><b>WRRS</b>=Wildlife Reporting and Response System.</p> <p><b>Baseline</b>=Project done during the Baseline study period. 1998 – 2003. WRRS Baseline=WRRS fatalities found during the Baseline study.</p> <p>Do not allow nulls. This field is required. If this field is left blank, this record is not valid.</p>	<p>Only values in BL data are “Baseline” and “WRRS Baseline.”</p>
FatalityDiscoveryDate	<p>Date of find.</p> <p>Do not allow nulls. This field is required. If this field is left blank, this record is not valid.</p>	<p>BL: some records had no date recorded in the “date” field, so the “datesrch” field from the original dataset was used as the source for these records.</p>
Species	<p>Four-letter code for the species of the fatality.</p> <p>Valid species codes are present in the Species table. Only these codes can be entered into this table.</p> <p>Do not allow nulls. This field is required. If this field is left blank, this record is not valid.</p>	
Age	<p>Age of the fatality at death.</p> <p><b>adult</b></p> <p><b>juvenile</b></p> <p><b>immature</b></p> <p><b>nestling</b></p> <p><b>unknown</b></p> <p><b>NULL</b></p> <p>Allow nulls.</p>	

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Sex	Sex of fatality, if known. <b>male</b> <b>female</b> <b>unknown</b> <b>NULL</b> Allow nulls.	
Location	Quadrants of the Altamont Pass Wind Resource Area study area, North/East, North/West, South/East, South/West , assigned by WEST at start of the study. Allow nulls.	Only value shown in BL data is <i>NULL</i> .
Site	General location within APWRA where fatality was found, assigned by field crew, usually the gate by which the fatality was accessed. Allow nulls.	
CompanyName	Name of company that owns and operates the turbine where the fatality was found. AC AIC ALTECH DIABLO WINDS DIFWIND IX DIFWIND VII GB PATTERSON PASS SANTA CLARA TAXVEST TRES VAQUEROS VENTURE VIKING WEG NULL Allow nulls.	
Block	Search block. Allow nulls.	

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Plot	Search plot, assigned by WEST at start of study. Allow nulls.	
String	A unit of search. All turbines within a string are searched during a search. Allow nulls.	Most strings are composed of turbines of only one company.
BLTurbineID	Turbine identifier for Baseline data, assigned by researcher Smallwood. Allow nulls.	This field contains NULL values for all records with Source other than Baseline or WRRS Baseline.
TurbineLabel	Turbine identifier (not unique because some FPL turbines have the same identifier as Patterson Pass turbines). Allow nulls.	
TurbineBearingDegrees	Bearing from turbine to fatality. Allow nulls.	
TurbineDistance	Distance of fatality location from nearest turbine. Units are in meters. Allow nulls.	
Structure	Type and/or identification of non-turbine structure if it was nearer to the fatality than the nearest turbine. Allow nulls.	Only value shown in BL data is <i>NULL</i> .
StructureBearingDegrees	Bearing of fatality location from nearest structure (if structure was identified). Allow nulls.	Only value shown in BL data is <i>NULL</i> .
StructureDistance	Distance of fatality location from nearest structure (if structure was identified). Units are in meters. Allow nulls.	Only value shown in BL data is <i>NULL</i> .
PhotoNo	Photo identification. Allow nulls.	
Easting	UTM easting. Allow nulls.	Only value shown in BL data is <i>NULL</i> .
Northing	UTM northing. Allow nulls.	Only value shown in BL data is <i>NULL</i> .

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Datum	Datum of UTM coordinate is NAD 27 if left blank. Allow nulls. Default value 'NAD 27'.	Only value shown in BL data is <i>NULL</i> .
BodyParts	Body parts of fatality found. Allow nulls.	
CauseOfDeath	Cause of death, if it can be deduced/ascertained. <b>1 (Blade strike/turbine collision)</b> <b>2 (Electrocution)</b> <b>3 (Line strike)</b> <b>4 (Predation)</b> <b>5 (Other [not turbine related])</b> <b>6 (Unknown)</b> <b>7 (Other [turbine related])</b> <i>NULL</i> Do not allow nulls.	
DeathFactor	(A) Further specification and variation of the cause of death. OR (B) Further documentation of the cause of death. The letters have a different meaning, depending on which CauseOfDeath they are attached to. See Notes below for further description. <sup>i</sup> Allow nulls.	Only value shown in BL data is <i>NULL</i> .
EvidenceOfDeath	Information that indicates how and/or why the bird died. In many records, this includes a combined code of CauseOfDeath/DeathFactor. Allow nulls.	Only value shown in BL data is <i>NULL</i> .
EstTimeSinceDeath	Field crew estimate of range of days since bird fatality at time of find. Do not allow nulls.	Values in BL dataset are integers. Values in CS and WRRS datasets are ranges. Each study has its own metrics for time ranges:  <b><u>BL</u></b> 0, 1, 2, ... intermittent <b><u>WRRS Baseline</u></b> <4 days

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		<p>&lt;7 days &lt;14 days &lt;30 days &gt;30 days unknown</p> <p><b><u>WRRS</u></b></p> <p>&lt;1 day &lt;3 days &lt;4 days &lt;7 days &lt;14 days &lt;30 days &gt;30 days unknown</p> <p><b><u>CS</u></b></p> <p>0-3 days (fresh) 4-7 days 0-30 days &lt;30 days &gt;30 days aged injured unknown</p> <p><b><u>KB</u></b></p> <p>0-2 days 3-7 days 4-7 days &lt;30 days &gt;30 days 0-90 days aged injured unknown</p>

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Field Name	Data Description	Notes
IsCustomDaysDead	<p>True or false.</p> <p>True if the CalculatedDaysDead value is not based on rules using EstTimeSinceDeath, Decay, and Flesh. Instead, the CalculatedDaysDead value was based on professional evaluation using all information in the record. [At time of writing, Brian Karas of the MTeam performed the custom evaluation.]</p> <p>Allow nulls.</p>	Only value shown in BL data is <i>NULL</i> .
CalculatedDaysDead	<p>A point estimate for the number of days between the discovery of the carcass and the fatality date. The point estimate is based on rules using EstTimeSinceDeath, Decay, and Flesh, calculated by the database function KBBackDateCalc. CalculatedDaysDead is calculated only for data in the CS and KB datasets.</p> <p>Allow nulls.</p>	Only value shown in BL data is <i>NULL</i> .
HowIDed	<p>How the species of the fatality was identified (e.g., plumage, bone length).</p> <p>Allow nulls.</p>	Only value shown in BL data is <i>NULL</i> .
TypeOfScavenger	<p>Type of scavengers, if any.</p> <p><b>vertebrate</b></p> <p><b>invertebrate</b></p> <p><b>unclear</b></p> <p><b>n/a</b></p> <p><i>NULL</i></p> <p>The value <b>vertebrate</b> can include the presence of invertebrate scavengers.</p> <p>The value <b>n/a</b> means that there is no material present that could be scavenged.</p> <p>Allow nulls.</p>	Only value shown in BL data is <i>NULL</i> .
EffectsOfScavenging	<p>Condition of carcass attributable to scavengers.</p> <p>For records with Source = Baseline, this field assesses the extent of scavenging. Values are “no evidence of scavenging,” “arthropods only,” “some scavenging,” “extensive scavenging.”</p> <p>Allow nulls.</p>	

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InsectsPresent	Most records are true or false for this field. A few WRRS records are "N/A" or "unk" for this field. Allow nulls.	
TypesOfInsects	Types of insects observed, if present. Allow nulls.	Only value shown in BL data is <i>NULL</i> .
Decay	Indicates state of decay. <b>fresh</b> <b>feathers and flesh</b> <b>flesh and bone</b> <b>bone and feathers</b> <b>bone</b> <b>feather spot</b> <i>NULL</i> Allow nulls.	Only value shown in BL data is <i>NULL</i> .
Flesh	Indicates condition of flesh. <b>fresh</b> <b>gooey</b> <b>dried</b> <b>n/a</b> <i>NULL</i> The value n/a is used if no flesh is present. Allow nulls.	Only value shown in BL data is <i>NULL</i> .
Eyes	Indicates condition of eyes. <b>round, fluid filled</b> <b>sunken</b> <b>dried</b> <b>empty, skull</b> <b>no head</b> <i>NULL</i> Allow nulls.	Only value shown in BL data is <i>NULL</i> .

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Enamel	Indicates presence of enamel on remains and the condition of the enamel if present.  <b>n/a</b> <b>culmen</b> <b>claws</b> <b>culmen/claws</b> <b>NULL</b> Allow nulls.	Only value shown in BL data is <i>NULL</i> .
ColorLegScales	Indicates presence of leg scales condition of the leg scales if present.  <b>n/a</b> <b>original</b> <b>partially bleached</b> <b>bleached</b> <b>NULL</b> Allow nulls.	Only value shown in BL data is <i>NULL</i> .
ColorCere	Indicates presence of cere condition of cere if present.  <b>n/a</b> <b>original</b> <b>partially bleached</b> <b>bleached</b> <b>NULL</b> Allow nulls.	Only value shown in BL data is <i>NULL</i> .
Bone	Indicates presence of bone condition of bone if present.  <b>red</b> <b>yellow</b> <b>white (bleached)</b> <b>NULL</b> Allow nulls.	Only value shown in BL data is <i>NULL</i> .
SampleTaken	Indicates whether sample was taken for isotope or DNA analysis. Allow nulls.	Only value shown in BL data is <i>NULL</i> .
SampleType	Indicates type of sample was taken. Allow nulls.	Only value shown in BL data is <i>NULL</i> .

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DistanceSighted	Allow nulls.	Only value shown in BL data is <i>NULL</i> .
PartsSighted	Allow nulls.	Only value shown in BL data is <i>NULL</i> .
Searchers	Initials of searchers that found and recorded the fatality. Allow nulls.	Only value shown in BL data is <i>NULL</i> .
Visit	Allow nulls.	Only value shown in BL data is <i>NULL</i> .
TypesOfInjuries	Injuries, if any, noted by field crew. Allow nulls.	Only value shown in BL data is <i>NULL</i> .
CulmenClaws	Whether enamel is present on culmen or claws, or both. Allow nulls.	Only value shown in BL data is <i>NULL</i> .
CC		Only value shown in BL data is <i>NULL</i> .
LikelyCauseOfDeath	If information about the fatality clearly indicates why the fatality occurred, the cause of death is stated here. Allow nulls.	<b>LikelyCauseOfDeath</b> could be generated from Baseline SPSS data by concatenating <b>turbcaus</b> + <b>cause</b> . It was not generated for the current generation of data.
Scavenging	Boolean. True if this bird is used for a scavenging trial. Allow nulls.	Only value shown in BL data is <i>NULL</i> .
Electrocution	Boolean. True if the fatality was caused by electrocution. This information could be supported by information in the Notes field or in another comment field. Allow nulls.	In BL dataset, this value is based on CauseOfDeath which was assessed from a range of factors. For all records with CauseOfDeath=2, Electrocution = True.
TubeTrap	Boolean. True if the fatality is entrapment in a tube structure turbine. Allow nulls.	Only value shown in BL data is <i>NULL</i> .

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Field Name	Data Description	Notes
PartialBone	Boolean. True if the fatality finding includes only partial bones. Allow nulls.	Only value shown in BL data is <i>NULL</i> .
[I-4Bones]	Boolean. True if the fatality finding includes only one to four bones. Allow nulls.	Only value shown in BL data is <i>NULL</i> .
KB_Plot	Boolean. True if the fatality is detected at a KB plot during the KB study. Allow nulls.	Only value shown in BL data is <i>NULL</i> .
Haz	Boolean. True if the fatality is detected at a hazardous turbine removal site. Allow nulls.	Only value shown in BL data is <i>NULL</i> .
FeatherSpot	Boolean. True if the fatality finding consists only of a feather spot, a collection of feathers that represent a fatality (see definition of fatality under FatalityNumber above). Small amounts of flesh and/or bone can be attached. Allow nulls.	Only value shown in BL data is <i>NULL</i> .
Notes	Additional information recorded by field crew or added later (e.g., to cross-check with WRRS records). Allow nulls.	For Baseline, this field is a concatenation of <b>Comment</b> and <b>Comment2</b> from the original SPSS data.
DateEntered	Date the record was entered into the database. Value is entered automatically. Allow nulls.	User cannot enter or change the value.

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<sup>1</sup> Death Factor.