

DOCKETED

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Comments Against Fountain Wind #6

Comments previously sent to Shasta County Supervisors and Humboldt County proving fraudulent impact research and fraudulent disclosures to the public.

Additional submitted attachment is included below.

Comments on the Humboldt Wind Project Draft Environmental Impact Report

In these comments are factual and scientifically based reasons why the wind industry's history of fraudulent research and the studies conducted for this DEIR, have to be dismissed by Humboldt County.

California Environmental law

Article 9. Contents of Environmental Impact Reports

(a) An EIR must include a description of the physical environmental conditions in the vicinity of the project, as they exist at the time the notice of preparation is published, or if no notice of preparation is published, at the time environmental analysis is commenced, from both a local and regional perspective. This environmental setting will normally constitute the baseline physical conditions by which a lead agency determines whether an impact is significant. **The description of the environmental setting shall be no longer than is necessary to an understanding of the significant effects of the proposed project and its alternatives.**

(c) Knowledge of the regional setting is critical to the assessment of environmental impacts. Special emphasis should be placed on environmental resources that are rare or unique to that region and would be affected by the project. **The EIR must demonstrate that the significant environmental impacts of the proposed project were adequately investigated and discussed and it must permit the significant effects of the project to be considered in the full environmental context.**

Federal Environmental law • [Part 1502. ENVIRONMENTAL IMPACT STATEMENT](#)

• [Section 1502.24. Methodology and scientific accuracy.](#) .

Agencies shall insure the professional integrity, including scientific integrity, of the discussions and analyses in environmental impact statements. They shall identify any methodologies used and shall make explicit reference by footnote to the scientific and other sources relied upon for conclusions in the statement. An agency may place discussion of methodology in an appendix.

The law states one thing and the Humboldt County DEIR says another. This DEIR does not come close to presenting real world conditions in the field at this project site nor does it adequately discuss the mortality impacts to species that will come from these massive turbines. The mistakes, omission of obvious facts, research fraud and biases to be found in Stantec's DEIR are seemingly endless. In fact, there are far too many problems with this DEIR for me to take the time to discuss them all in these comments before the June 14th deadline. But I will present enough information to prove that this DEIR should never be accepted by anyone of ethical character.

But as bad as the content of this DEIR is, it does serve one useful purpose for the residents of Humboldt County. It has put this county on notice that credible studies have to be conducted. Otherwise an industrial blight with horrendous negative impacts, far greater than what's being presented in this DEIR, will be headed their way.

This proposed project exists in a bottleneck portion along a major migration corridor. With proper research and radar studies the people of Humboldt County would know that hundreds of thousands of birds and possibly millions pass through or near this location annually. Species migrations that range from hummingbirds to eagles and many of these migrants are nocturnal. There is an annual migration of tens of thousands of hawks, eagles, falcons, and vultures along this coastline. I have watched it and every year people in Marin County also gather to see this migration further down the coast at Hawk Hill.

The mortality footprint from this project will extend all the way up to Alaska and down into South America. Every single raptor species living near or migrating through this project area will be killed by these turbines. Especially Humboldt County's eagles. Huge areas around these turbines will be turned into locally abandoned habitat. The numbers will vary by species, but hundreds of raptors and many thousands of birds will be killed annually.

Migratory Birds



Humboldt Bay is considered an internationally significant area for migratory birds by both the American Bird Conservancy and the Western Hemisphere Shorebird Reserve Network. Large numbers of waterfowl, shorebirds, wading birds, raptors, and songbirds depend on the habitats the Bay and Refuge provide during all seasons of the year for foraging, roost sites, and breeding. The primary reason the Refuge was established in 1971 was due to the area's importance as a wintering and stopover habitat for migratory birds.

Heavy influxes of birds occur during fall and spring months as birds are migrating south and north, respectively through the Pacific Flyway. Over 260 different species of birds have been documented either on the Refuge or in the nearby vicinity. This includes over 34 species of shorebirds exceeding 100,000 birds during migration peaks (Nov and Apr) and 31 species of waterfowl numbering over 75,000 birds. The dune forest and riparian areas found on the Lanphere and Ma-le'i Dunes Units support large numbers of breeding and non-breeding songbirds. These very rare and pristine habitats attract migrants moving up and down the coast.

For a list of species and when you may see them in the Humboldt area have a look at our [watchable wildlife brochure](#).

Study Counts more than Half a Million Shorebirds, Highlighting Importance of Humboldt Bay

Sep 21, 2018

A new study shows Humboldt Bay to be one of the key sites in the western hemisphere for dozens of species of shorebird including western sandpiper, marbled godwit, and long-billed curlew.



Colwell and student researchers observe migrating birds at the Arcata Marsh.

This proposed wind project, like that at Altamont, sits along a migration corridor for raptors and other species. Only this project location would sit in endangered species habitat, will have far more migrating birds, far more species types, much bigger turbines with much faster tip speeds. In addition, this project will have a **far greater density of deadly raptor sweep per square mile to for all unsuspecting species**. In fact, this project will have 10-20 times more deadly rotor sweep per square mile as other California Wind projects.

What on earth are these people thinking? And all for a tiny bit of energy, but a goldmine for developers.

This deceptive DEIR routinely avoids the hell these turbines will bring to species. Nesting failures will occur, offspring will die after adults are killed and there will be perpetual mortality and habitat abandonment for many species. This project will be killing thousands of nocturnal migrants and none of this is mentioned in the DEIR. Mortality will occur to endangered species and even condors if they are released in the region.

These are the Humboldt Wind Project realities that will be hidden behind, agency collusion, this industry's routinely fraudulent post operational research, fraudulent population surveys, gag orders, personnel hiding carcasses and the fact that no wind projects in North America are required to report all carcasses to the public.

"During operation of the proposed project, northern spotted owls could collide with WTG blades while flying through the rotor swept area." Could collide? Mortality will occur to every species that uses this habitat. Wake up Humboldt County because terms like "maybe", "could", "possibly" or "potentially significant" actually mean species annihilation will be coming from blade strikes.

Operational Impacts

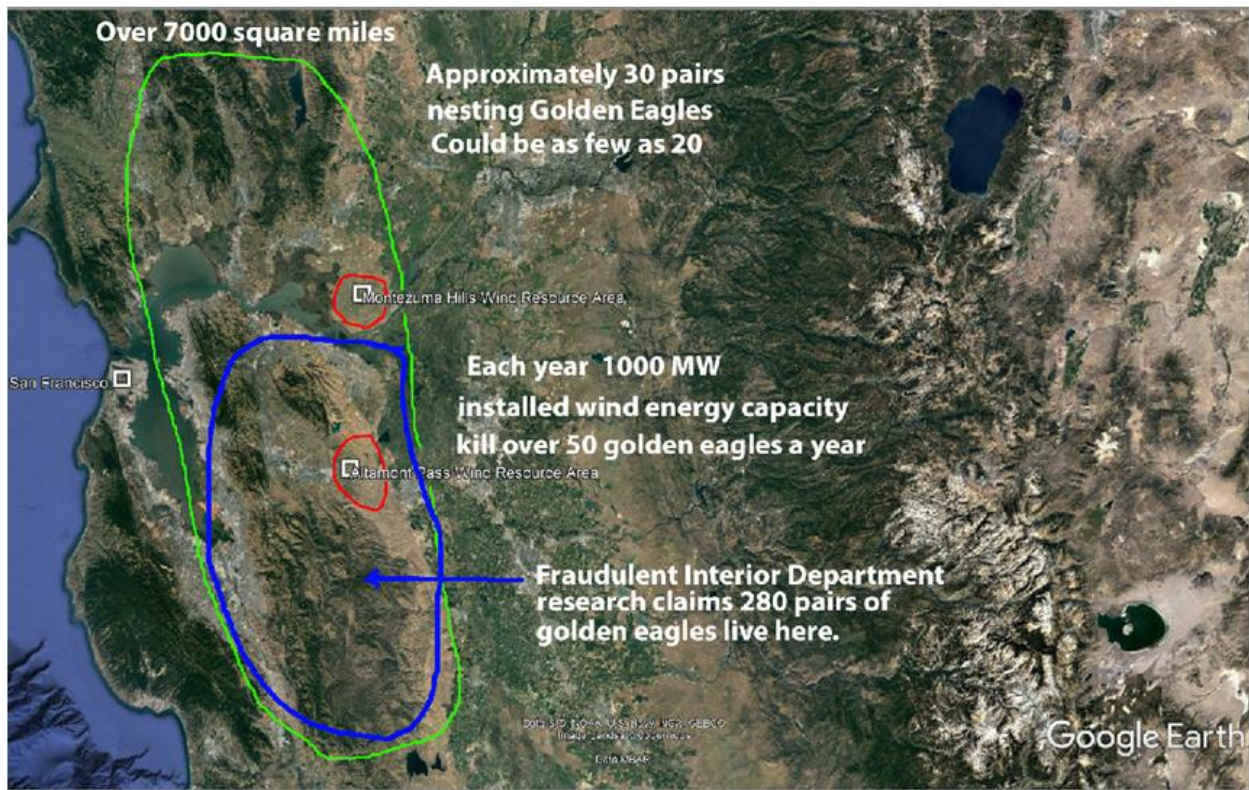
IMPACT 3.5-8	Operational Impacts on Northern Spotted Owls. <i>Northern spotted owls that cross the road/ridge in the wind turbine generator zone as a matter of foraging habit, or during dispersal by young birds, have the potential to collide with WTG blades. This impact would be potentially significant.</i>
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The public and planning officials would understand all this if wind energy related research had any credibility. But it doesn't. This industry's smoke and mirrors research hasn't had any credibility for decades. If it had credibility, the public would know that this industry is hiding annual wind energy mortality to millions of birds, 1500 -2000 eagles and even endangered species. In California golden eagles have killed off in such great numbers, that it should be classified as an endangered species because so few remain.

When looking over this DEIR it is important to understand the wind industry playbook. With this industry's turbine related research surveys, studies and methods, they may be consistent with some state and federal guidelines, but all these guidelines are worthless because they do not adhere to or require scientific principles. Making matter worse, desperately needed wind turbine impact research, that adheres to scientific principles is being deliberately avoided by government agencies, universities, and conservation groups. As a result, wind energy

developers sit back and proclaim that their research is telling truth. But what's really taking place is that the wind industry's contrived nonscientific research is being created to "lie" for developers.

With proper research the people in CA would know that over 80% of our golden eagles have disappeared in the last 25 years. But instead of this truth, in an effort to conceal these wind industry impacts, fraudulent research has been conducted that suggests that there is an abundance of eagles around 2 wind projects that regularly slaughter these eagles. It is a fraud on the public.



Over the years I have found that wind Energy research is like a house of cards. Once you start pulling out the research cards with lies, lies by omission and deception, it all falls down. The sad truth is that over the years, layer after layer of incestuous and unscientific wind turbine impact research has been created.

Stantec said nothing about how deadly these turbines are or that this project when compared to past wind projects is actually much larger than 155 MW. If 60 turbines are built with the dimensions stated below, this wind project will have a bird killing rotor sweep that far exceeds all the original rotor sweep from Altamont's original 580 MW nameplate capacity.

World's deadliest turbines headed for Humboldt County?

This turbine, identified here as "large", had an overall height of 179.5 m, a blade radius of 74.5 m, a blade width at the widest point of 4.2 m, and a max speed of 17 rotations per minute. Blade pitch was not available in turbine specifications, so we assumed a blade pitch of 15 degrees, which is the default value for the Band Model in absence of more specific data.]

Table 1-1. Summary of Wind Turbines in the Altamont Pass Wind Resource Area

Turbine Model	Capacity (kW)	Height (feet)	Rotor Diameter (feet)	Number Installed	Number Installed 2009	Total Installed APWRA Capacity (kW)	Total Operational APWRA Capacity 2009 (kW)
Kenetech	100	60/80/ 140	59	3,500	2,661	350,000	266,100

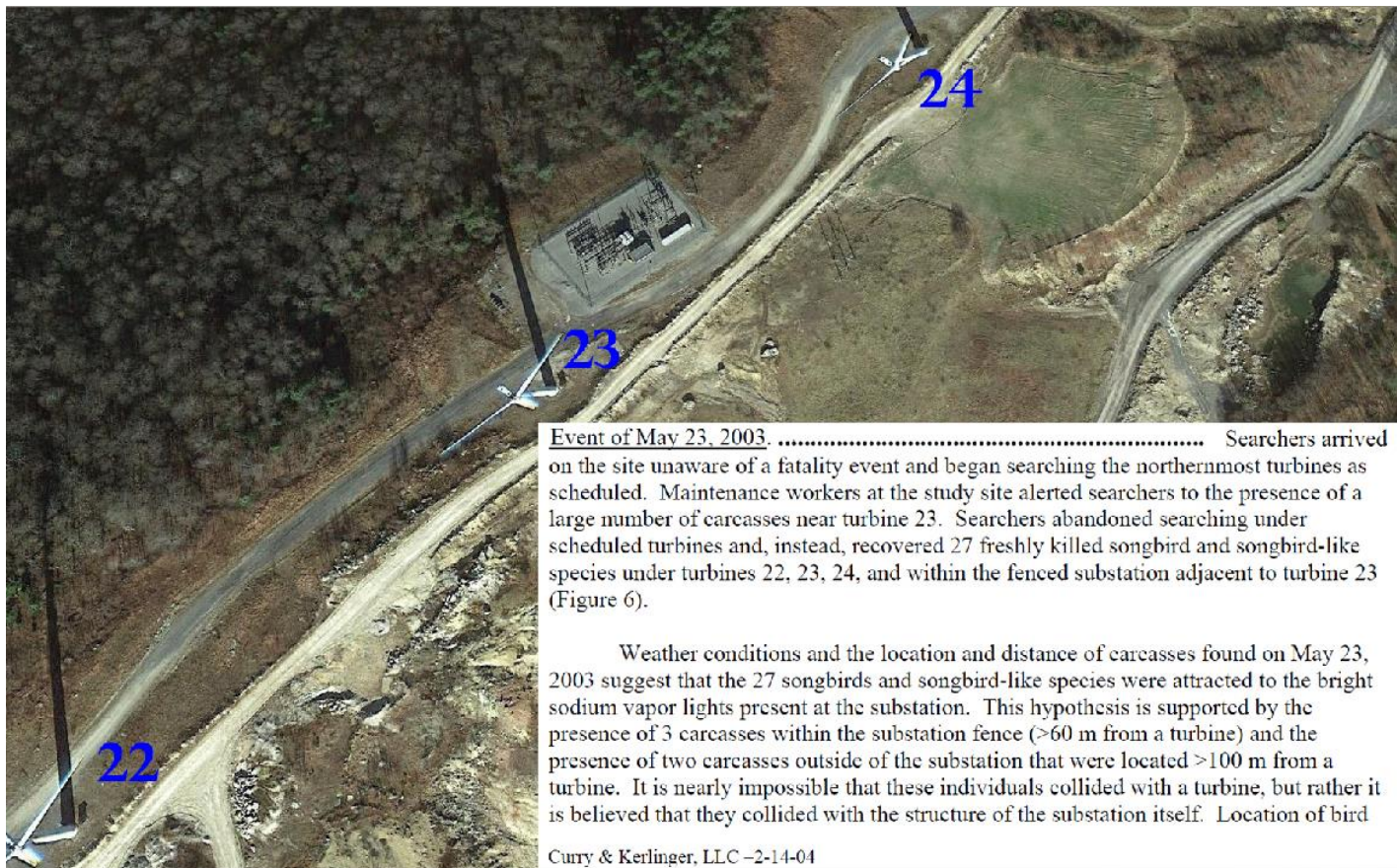
Each turbine proposed for Humboldt County has the equivalent rotor sweep in cubic feet, as 220-240 of these Kenetech 100 kW turbines. With 60 of these massive turbines, this project would have approximately 3 times the deadly rotor sweep that Altamont once had. But with 74.5 meter blades spinning at 17 rotations per minute, these blades will be sweeping the air with tip speeds twice as fast, nearly 300 mph .

This industry can make references from hundreds of studies, but they cannot cite one scientifically credible study conducted in the last 30 years related to the flying species being impacted by wind turbines. Over the years, one of this industry's biggest lies by omission, has been the species **slaughter taking place during nocturnal migrations**. In America the first and only truly credible scientific turbine related mortality study I have come across, took place in 1985. It was conducted in Southern CA around a few small turbines and the results were published in 1986. This study estimated a mortality rate of 6800 fatalities annually from about 150-200 MW of small 40-100 kW turbines at San Geronio Pass. Using daily searches of 50-meter search areas around these tiny turbines, this study estimated mortality rate of 34-45 birds per MW and the majority of these fatalities were determined to be **nocturnal migrants**.

Since this study was conducted in 1985, there has never been another such study conducted in North America. This study has also been stripped from the internet and hidden for years.

This lack of credible green energy research on wind turbine mortality to migrating birds is no accident, it is deliberate. From wind industry research it would appear that flocks of birds are safer at night than during the day. But the wind industry has known for decades how vulnerable and deadly wind energy developments are to nocturnal migrations of birds. Even a 2009 report from New Zealand took notice of the lack of turbine mortality research that has been conducted on nocturnal migrant birds.

Mass fatality events do occur to nocturnal migrants at wind farms. But these events are routinely covered up with this industry's fake research. Gag orders, not searching turbines daily and allowing wind personnel to handle carcasses during studies has help keep a lid on this. But on occasion word of one of these events does happen to get out. When it does, these wind farm fatalities are blamed on other stationary equipment.



Look at this Google Earth image and read several quotes from a mortality study. Read how fake wind industry research explained away this mass fatality. Turbine killing these migrating birds “nearly impossible”? Yes, but only for this industry because wind industry guidelines require no science. In reality, the impact from any of these three large wind turbines in the image could

have easily launched migrating bird carcasses far beyond this substation. In my opinion there was far more than the 27 birds bird fatalities during this mass fatality event.

The study then went on to report these fatalities as being **“an anomaly in the annual data and therefore these carcasses are not included in the annual estimates of avian mortality.”**

When science and accountability are not required, fake research like this is produced. Wind industry research going back decades is riddled with this sort of deception. It is also why millions of birds and bats that are being killed annually by wind turbines are not reported. Without scientific principles, the post construction mortality research for Humboldt Wind project will be no different, especially if Stantec gets involved.

How many thousands of daytime and nocturnal migrants are really passing through the proposed Humboldt site every year? The public has no idea because of research methodology like this.....

“Observations that could not be identified to species (e.g., unidentified hummingbird, Order Trochilidae, or unidentified warbler, Order Parulidae) **were excluded** from the total species count.” And this..... “Survey methods were consistent with the California Guidelines (California Energy Commission and California Department of Fish and Game 2007), ECPG (USFWS 2013), and Draft Work Plan. Plots consisted of an **800-m radius** centered on BUC plot locations and plots were selected to achieve views out to a distance of at least 800 m.”

How many people on earth can identify a hummingbird species from 100, 200 or even 800 meters away? None. From these same distances how many people could see flocks of birds with binoculars and count or estimate numbers? Just about anyone could. Folks, this project will be slaughtering thousands of hummingbirds.

In my opinion Stantec’s wind industry related research is so bad, that if they performed this poorly in another profession like a plastic surgeon, with actual guidelines and accountability, every patient would have grounds to sue for medical malpractice.

This statement was taken from the American Bird Conservancy website.....

“Wind industry companies hire their own consultants to conduct pre-construction risk assessments. This is a violation of the first principle of scientific integrity: Those that have a vested interest in the outcome, should not be collecting and interpreting the data. Indeed, there is a poor correlation between these pre-construction risk assessments and the number and types of birds killed post-construction⁷. Making matters even worse, federal permitting for wind energy projects is voluntary, not mandatory⁸.”

I am in full agreement with this statement, however the ABC website failed to mention the wind industry’s history of routinely producing fraudulent Post Construction turbine mortality research.

A closer look at some of this Humboldt Wind DEIR

For this DEIR, studies used methodologies that were set up to miss obvious raptor behaviors and raptor migrations. Stantec studies missed collecting accurate data during migration periods of both daytime and nocturnal migrants. Typical of Stantec research, very important data that was available and should have been recorded, was not recorded. With Stantec's keyhole research methodologies, while conducting eagle use surveys, 500,000 birds could have been seen migrating through this project's massive turbine sweep zones, and nothing would be said about it in this DEIR.

None of the data collected by Stantec is scientifically valid for assessing this project's potential impacts and none of the information in this DEIR is suitable for mitigation purposes. This industry's research routinely hides most wind turbine fatalities, hides potential impacts and does not account for nesting failure mortality or species loss from habitat abandonment around projects.

The Radar studies are inaccurate and grossly inadequate for assessing risk to endangered and special status species. Stantec's DEIR repeatedly makes references to fraudulent studies and industry research. Stantec found no active eagle nests, very few raptor nests, no active cooper's hawk nests, no active sharp shinned hawk nests, no active owl nests of any kind and for this DEIR would not confirm other important raptor nests, "a suspected white-tailed kite (*Elanus leucurus*) nest, a suspected peregrine falcon (*Falco peregrinus*) eyrie,". These are rare and highly protected special status species and the confirmation of a white-tailed kite nest or peregrine falcon eyrie would be fairly easy.

But because of the difficult habitat around the project site, finding the nests of other species can be much harder to actually document. But research with confirmation of occupied nesting territories with nesting behavior of species is much easier to document and should have been reported in this DEIR.

This DEIR discloses no research information of the nesting behavior and activities of many very important species living in the project area. These are species that will certainly off by these turbines.

No spotted owl nests were reported and no research into spotted owl nesting behavior was conducted. But not admitting these owls are nesting near the project, Stantec's DEIR deceptively discusses "areas of potential activity" and "functional nesting habitat."

The DEIR does admit that Marbled Murrelet nesting habitat does exist near the project. But no Marbled Murrelet nests were reported and no research was conducted to document any nesting territories or if any nesting behavior or nesting activities were taking place. While there is difficulty in locating murrelet nests, documenting Murrelet nest sites from observations of nesting behavior and nesting activities has been routine for years. This DEIR reports on no

Murrelet circling behaviors from radar or direct observations at nesting locations. These are endangered species and the public should know how many Murrelet nest sites exist and the local population that exists near the project site. Murrelet nests can also be documented with drones equipped with cameras.

Biological Resources: *Humboldt Wind Energy Project Eagle Use Survey Report, Humboldt County, California, October 2017–October 2018*

The eagle use surveys presented in this DEIR are not credible. Stantec observations avoided the best golden eagle habitat at the project site. These surveys missed critical breeding, foraging and migration periods when eagles were most likely to have been seen in turbine zones. Understanding eagle behavior as I do, I also know that the time of day or the start time for eagle observations is very important. But I could not find this information. The image below shows the golden eagle habitat not surveyed and the important months missed in these eagle use surveys.

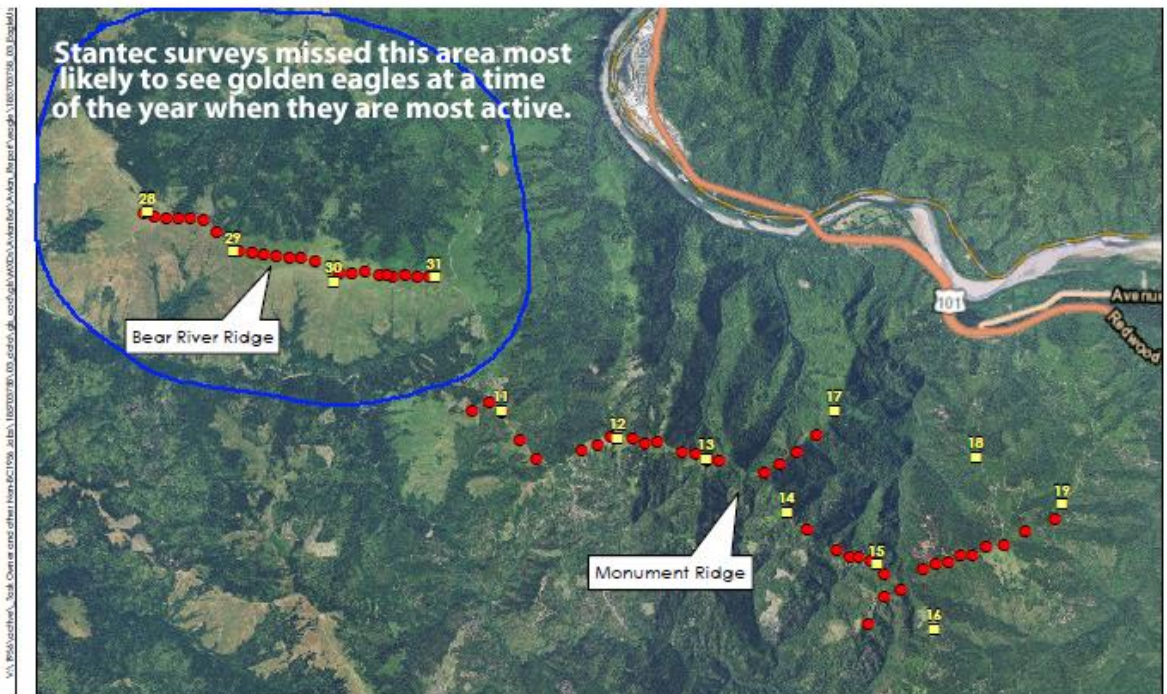


Table 1. Survey effort by plot number for eagle use surveys conducted at the Humboldt Wind Energy Project, Humboldt County, California, October 24, 2017–October 26, 2018

Plot No.	Month/Dates													Total Visits
	Oct 24–26	Nov 1, 19, 29	Dec 13, 19–20	Jan 3–4, 9–10	Feb 7, 14–15	Mar 7–8, 14	Apr 3	May 1, 23, 29	Jun 6–7, 15, 26	Jul 3–5, 11–12, 19, 25	Aug 8–9, 15, 27	Sep 13–14, 22, 24, 27–28	Oct 4, 15, 26	
11	1	1	1	1	1	1	1	1	1	1	1	1	1	13
12	1	1	1	1	1	1	1	1	1	1	0	1	1	12
13	1	1	1	1	1	1	1	1	1	1	1	1	1	13
14	1	1	1	1	1	1	1	1	1	1	1	1	1	13
15	1	1	1	1	1	0	0	1	1	1	1	1	1	11
16	0	2	1	1	1	0	0	1	1	1	1	1	1	11
17	0	2	1	1	1	1	1	1	1	1	1	1	1	13
18	0	2	1	1	1	0	0	1	1	1	1	1	1	11
19	0	2	1	1	1	0	0	1	1	1	0	1	1	10
28	0	0	0	0	0	0	0	0	1	1	1	1	1	6
29	0	0	0	0	0	0	0	0	1	1	1	1	1	6
30	0	0	0	0	0	0	0	1	1	1	1	1	1	6
31	0	0	0	0	0	0	0	1	1	1	1	1	1	6
Total	5	13	9	9	9	5	5	13	13	13	11	13	13	131

Biological Resources: Humboldt Wind Energy Project Eagle and Raptor Aerial Nest Survey Report, Humboldt County, California, Spring 2018

I have seen time and again, that Stantec research is very good at designing studies that do not find target species. This eagle survey serves as a good example.

Stantec's eagle and raptor nest surveys should have used both ground-based and helicopter survey techniques. Stantec did not any conduct ground-based nesting surveys that routinely document nesting behaviors, foraging territories and nesting territories. Ground based surveys are even more important than helicopter surveys. So just because Stantec did not report any eagle nests, it does not mean that they do not exist. Bald eagles and golden eagles do live around and were seen around this project site. It is very likely that the nests of both of these eagle species exist in the vicinity of this project site.

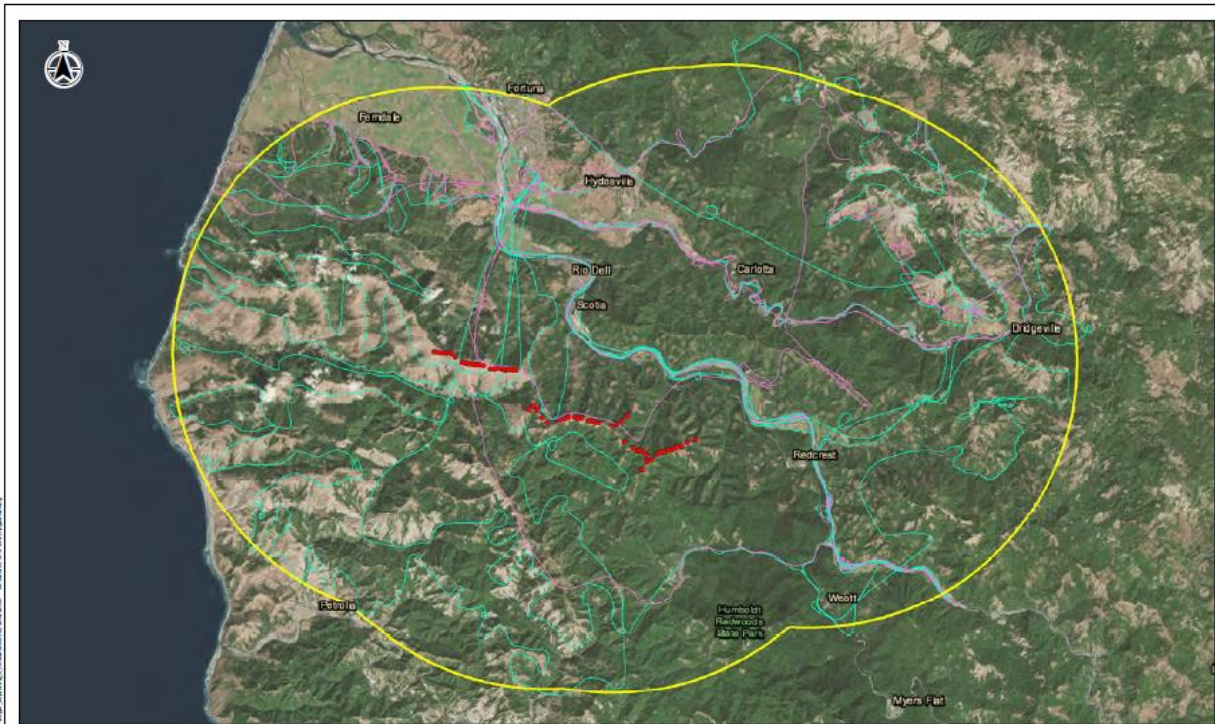
But these Stantec helicopter surveys were also poorly done. While these flight patterns shown in the DEIR would probably be suitable for an open desert area like Nevada. They are not suitable for this forested project site. There are huge flight pattern gaps that are over than ten miles wide in this terrain. In this habitat, if the proper flight angle is not taken, a helicopter could miss an eagle nest only ¼ mile away. This is especially true for a golden eagle's nest.

In my analysis of the habitat around the project site on google earth imagery, I would have never conducted these eagle surveys like Stantec did. It is also my opinion that these flight routes were staged. The eagle nest surveys also failed to take a simple boat trip down the river to document bald eagle behavior that could help observers verify a nest, nesting activity and or a nesting territory.

These eagle surveys are a scientific disgrace yet this DEIR falsely claims otherwise.“The range of avian species observed coupled with active and inactive stick nests of varying size detected suggest that the survey methods are appropriate and suitable to observe eagles or their nests if the opportunity presented.” The only truth in this statement is that these survey methods were only appropriate for wind energy's version of research.

The 86 square miles of the Altamont pass Wind Resource Area, including a large area that extends for miles in all directions, was abandoned decades ago by nesting golden eagles because of wind turbines. The region around the Humboldt wind project needs a much more definitive raptor nest inventory. This is very important because these turbines will kill off most of these local raptors and species habitats will be abandoned.

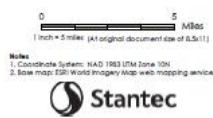
Stantec biologists reported seeing 21 different species of raptors in this excellent habitat. They produced very few raptor nests and provided no population estimates for these reported species.



20180508 Humboldt Wind Energy Project - Eagle Survey Area - Aerial Nest Survey Tracks - 10/20/18 - 10/20/18



- Eagle Survey Area
- March 27-29, 2018
- May 1-3, 2018
- Proposed Representative Wind Turbine Locations



Project Location: Humboldt County, California
 Prepared by PG on 2018-09-26
 Technical Review by JA on 2018-09-27
 Independent Review by JD on 2018-09-27

Client/Project: Humboldt Wind, LLC
 Humboldt Wind Energy Project

Figure No. 5
 Title: Aerial Nest Survey Tracks

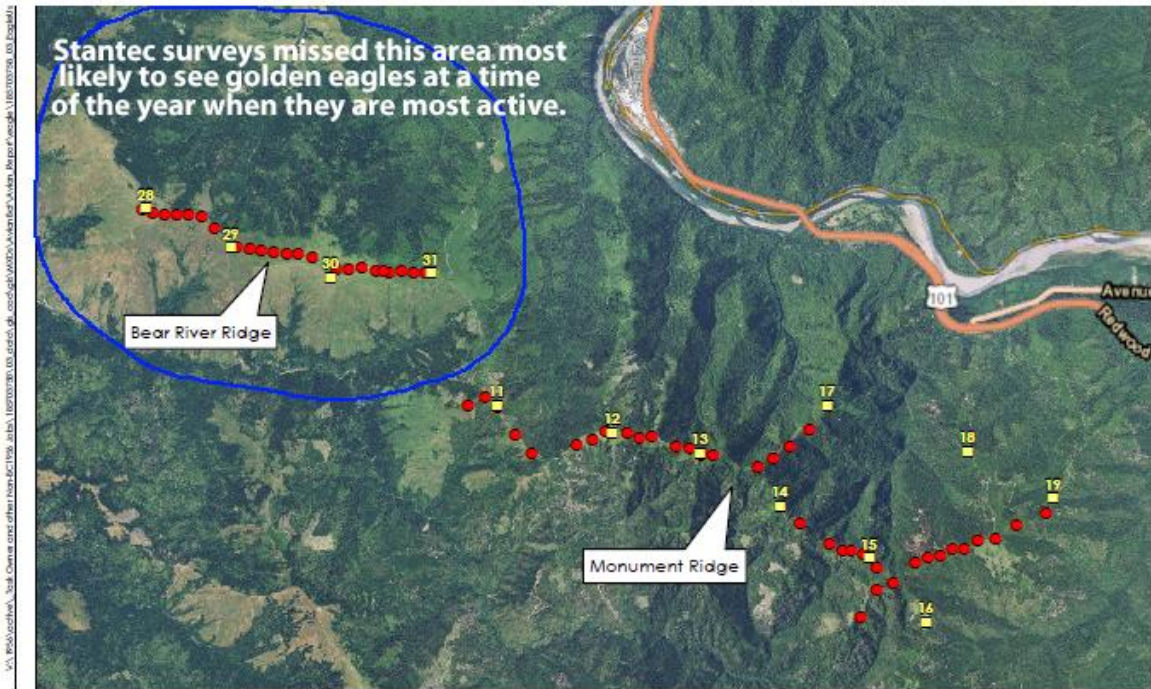


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11	1	1	1	1	1	1	1	1	1	1	1	1	1	13
12	1	1	1	1	1	1	1	1	1	1	0	1	1	12
13	1	1	1	1	1	1	1	1	1	1	1	1	1	13
14	1	1	1	1	1	1	1	1	1	1	1	1	1	13
15	1	1	1	1	1	0	0	1	1	1	1	1	1	11
16	0	2	1	1	1	0	0	1	1	1	1	1	1	11
17	0	2	1	1	1	1	1	1	1	1	1	1	1	13
18	0	2	1	1	1	0	0	1	1	1	1	1	1	11
19	0	2	1	1	1	0	0	1	1	1	0	1	1	10
28	0	0	0	0	0	0	0	0	1	1	1	1	1	6
29	0	0	0	0	0	0	0	0	1	1	1	1	1	6
30	0	0	0	0	0	0	0	1	1	1	1	1	1	6
31	0	0	0	0	0	0	0	1	1	1	1	1	1	6
Total	5	13	9	9	9	5	5	13	13	13	11	13	13	131

.Biological Resources: Humboldt Wind Energy Project Marbled Murrelet Radar Survey Report,

There are a number of problems with the Stantec radar surveys conducted and submitted for this project. There was not full horizontal and vertical radar coverage of the turbine sweep zones. In fact

there was very little. Then of the limited radar data that was collected, it was left for Stantec to interpret. Flight routes being taken by these murrelets into old growth stands near these turbine sites are not covered.

Look close at The DEIR images and study the all huge blind spots. With all these blind spots, there is little radar coverage on most of these turbine sites. There is also no complete vertical and horizontal radar coverage for this project's turbine rotor sweep zones (see VSR and HSR image). This vital information is missing not only for these Marbled murrelets but for the a multitude of other species as well. How many thousands of total targets were seen in this radar study, only to be dismissed as not being murrelets?

The Stantec radar studies also missed nearly a month and in some cases 2 months of very important murrelet flight data, and nesting location behavior data and courtship behavior data. That would put them in rotor sweep zones. The Stantec radar surveys also missed months of mid-day activity periods that could have shown murrelets flying back and forth from their nests after bringing food to offspring.

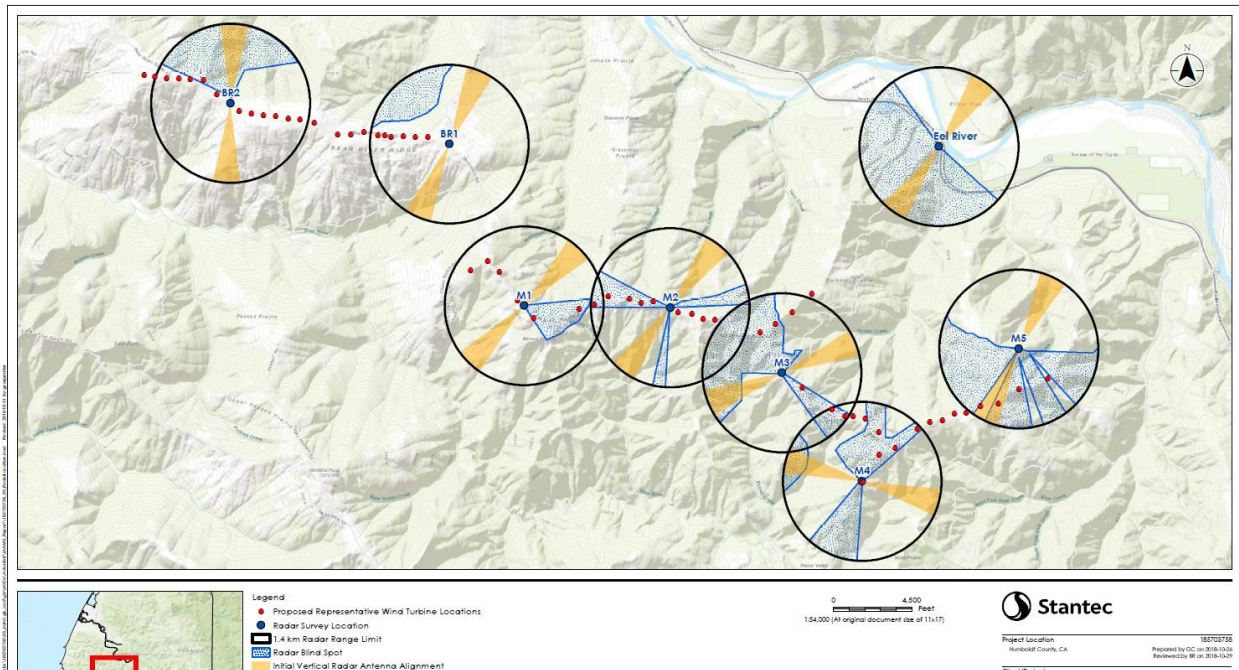
Examples of exclusionary statements

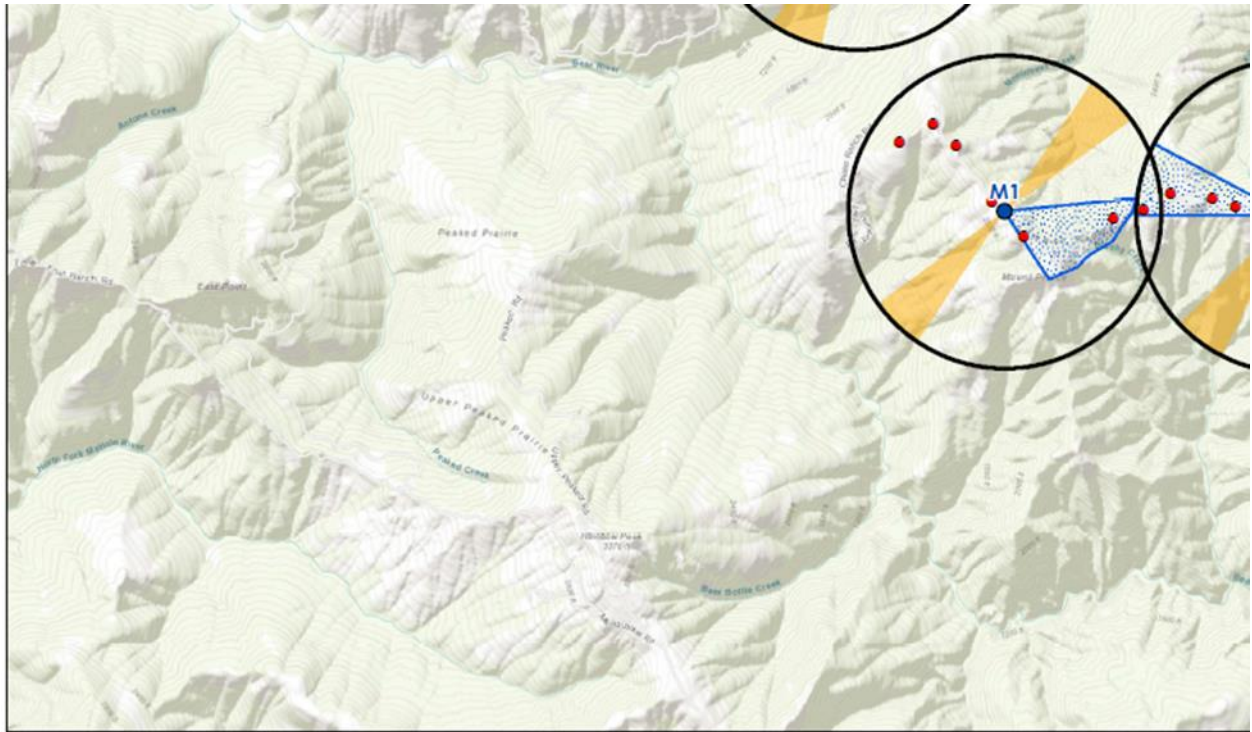
“Three observed ridge crossing flights **did not have any vertical data available**”

“Flight altitude, **when available**, for targets observed or projected to have crossed the ridge.”

“**With some exceptions**, most murrelet activity that we observed was generally traveling parallel to the project area”

As it is these radar studies and this DEIR tell the public virtually nothing about the Murrelets travel routes, their nesting in the forests around these turbine sites, their, or behaviors that indicate nesting. All this missing information is important in order to estimate the number of Murrelets and other species that will be killed when passing through the millions of cubic feet of deadly rotor sweep.





- Legend**
- Proposed Representative Wind Turbine Locations
 - Radar Survey Location
 - 1.4 km Radar Range Limit
 - ▨ Radar Blind Spot
 - Initial Vertical Radar Antenna Alignment

Table 2. Survey dates for marbled murrelet radar sampling at the Humboldt Wind Energy Project, Humboldt County, California, April 17, 2018 - September 27, 2018.

Radar Station	Morning Surveys	Evening Surveys	Mid-day Surveys
M1	● 4/22, 5/1, 5/5, 5/23, 6/18, 7/8, 7/25, 8/18, 9/8, 9/24	● 4/21, 4/30, 5/4, 5/22, 6/17, 7/7, 7/24, 8/17, 9/7	● 8/13, 8/14
M2	● 4/22, 5/1, 5/5, 5/23, 6/16, 7/9, 7/11, 7/26, 8/17, 9/9, 9/25	● 4/21, 5/4, 5/22, 6/15, 7/8, 7/25, 8/16, 9/8	●
M3	● 4/19, 4/30, 5/6, 5/24, 6/20, 7/9, 7/26, 8/17, 9/9, 9/25	● 4/18, 4/29, 5/5, 5/23, 6/19, 7/8, 7/25, 8/16, 9/8	● 6/19
M4	● 4/20, 4/28, 5/4, 5/27, 6/16, 7/7, 7/28, 8/19, 9/10, 9/26	● 4/19, 4/27, 5/3, 5/27, 6/15, 7/6, 7/27, 8/18, 9/9	●
M5	● 4/21, 4/26, 5/2, 5/25, 6/17, 7/10, 7/27, 8/14, 8/16, 9/12, 9/27	● 4/20, 4/25, 5/1, 5/26, 6/16, 7/9, 7/26, 8/15, 9/11	● 8/13
BR1	● 5/24, 6/17, 7/8, 7/25, 8/18, 9/8, 9/24	● 5/23, 6/16, 7/7, 7/24, 8/17, 9/7	● 6/20
BR2	● 5/26, 6/18, 7/7, 7/28, 8/19, 9/10, 9/26	● 5/24, 6/17, 7/6, 7/27, 8/18, 9/9	●
ER	● 4/18, 4/27, 5/2, 5/22, 6/15, 7/10, 7/27, 8/20, 9/7, 9/12, 9/27	● 4/17, 4/26, 5/1, 5/21, 6/14, 7/9, 7/26, 7/28, 8/19, 9/6, 9/11	●

The breeding season is defined by the earliest known nesting and latest known fledging dates, and is used by regulatory agencies to avoid adverse effects to the species. The breeding season extends 24 March – 15 September in California, and 1 April – 15 September in Oregon and Washington.

● Nearly a month late
● Two months late

● Three to 5 months late or no surveys



Biological Resources: *Marbled Murrelet Collision Risk Assessment Associated with the Humboldt Wind Project Proposed for Humboldt County, California*

None of this discussion on avoidance has any merit because the data used was collected with severely tainted and deceptive non scientific research methodologies. There was not full radar turbine sweep coverage with this murrelet radar study. Important data was missed and other data excluded. In reality, there were likely hundreds or ridge crossings for each pair nesting near these proposed turbine sites. The Stantec radar studies also missed nearly a month and in some cases 2 months of very important murrelet flight and nesting behavior.

The logic used in this discussion on avoidance is particularly disturbing and absolutely inexcusable.

“There are no murrelet-specific studies of avoidance. However, Sanzenbacher and Cooper (2015) discuss cases of murrelet avoidance of structures where no collision occurred (100% avoidance). Murrelets fly in and out of the canopy of large trees at high speeds and are presumed to recognize and avoid obstacles, even in low-light. The amount of time a murrelet will spend in a turbine area is short.”

This same language was used in wind industry reports discussions when this industry invaded and destroyed the historical habitat for the California Condor around Tehachapi pass. The fact is every bird on this planet can recognize and avoid obstacles like branch even in low light. **But what birds can't and shouldn't be expected to avoid are massive blades coming at them with speeds up to 300 mph.** Any slim chances a bird has for avoidance also drops significantly in low light conditions, darkness, high winds (that inhibit maneuverability) and with low visibility foggy or low cloud conditions.

Bird Use Count Survey

The BUC survey targeted large birds (e.g., raptors, vultures, corvids, waterfowl) but also documented all small birds

observed. BUCs were conducted at 13 plots. Surveys were initiated at the 9 plots on Monument Ridge on October

24, 2017, and the 4 plots on Bear River on May 17, 2018. Counts were conducted weekly at all accessible plots what plots were not accessible??

within the current project layout for 30 minutes per plot during daylight periods within a survey radius of 800 meters what daylight periods????? No nocturnal studies or behavioral observations.

Observations that could not be identified to species (e.g., unidentified

4

HUMBOLDT WIND ENERGY PROJECT BIRD USE COUNT AND SMALL BIRD USE COUNT SURVEY REPORT

hummingbird, Order Trochilidae, or unidentified warbler, Order Parulidae) were excluded from the total species count

Biological Resources: *Humboldt Wind Energy Project Bird Use Count Report, Humboldt County, California, October 2017–October 2018*

The summary of bird use counts shown below show minimal effort and a very poor effort went into these surveys. Look at all the important months that were missed for important survey locations during migration periods.

“Hummingbird, Order Trochilidae, or unidentified warbler, Order Parulidae) were excluded from the total species count”

Table 1. Summary of survey effort for bird use counts conducted at the Humboldt Wind Energy Project, Humboldt County, California, October 24, 2017–October 25, 2018.

Point No.	Month/Dates																				Total Visits													
	Oct					Nov					Dec					Jan						Feb					Mar					Apr		
	24-26	1-2	8	15	19-20	29	6	13	19-20	3-4	9-10	17-18	24	31	7	14-15	20	26-27	6-8	14	22	28-29	4	10	17	27								
11	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1								
12	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1								
13	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1								
14	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1								
15	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0								
16	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0								
17	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1								
18	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	0	0	0	0	0	0								
19	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0								
28	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0								
29	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0								
30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0								
31	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0								
Total	9	9	9	9	9	9	9	9	9	9	9	8	9	9	9	9	9	9	7	5	5	5	5	5	5	5								

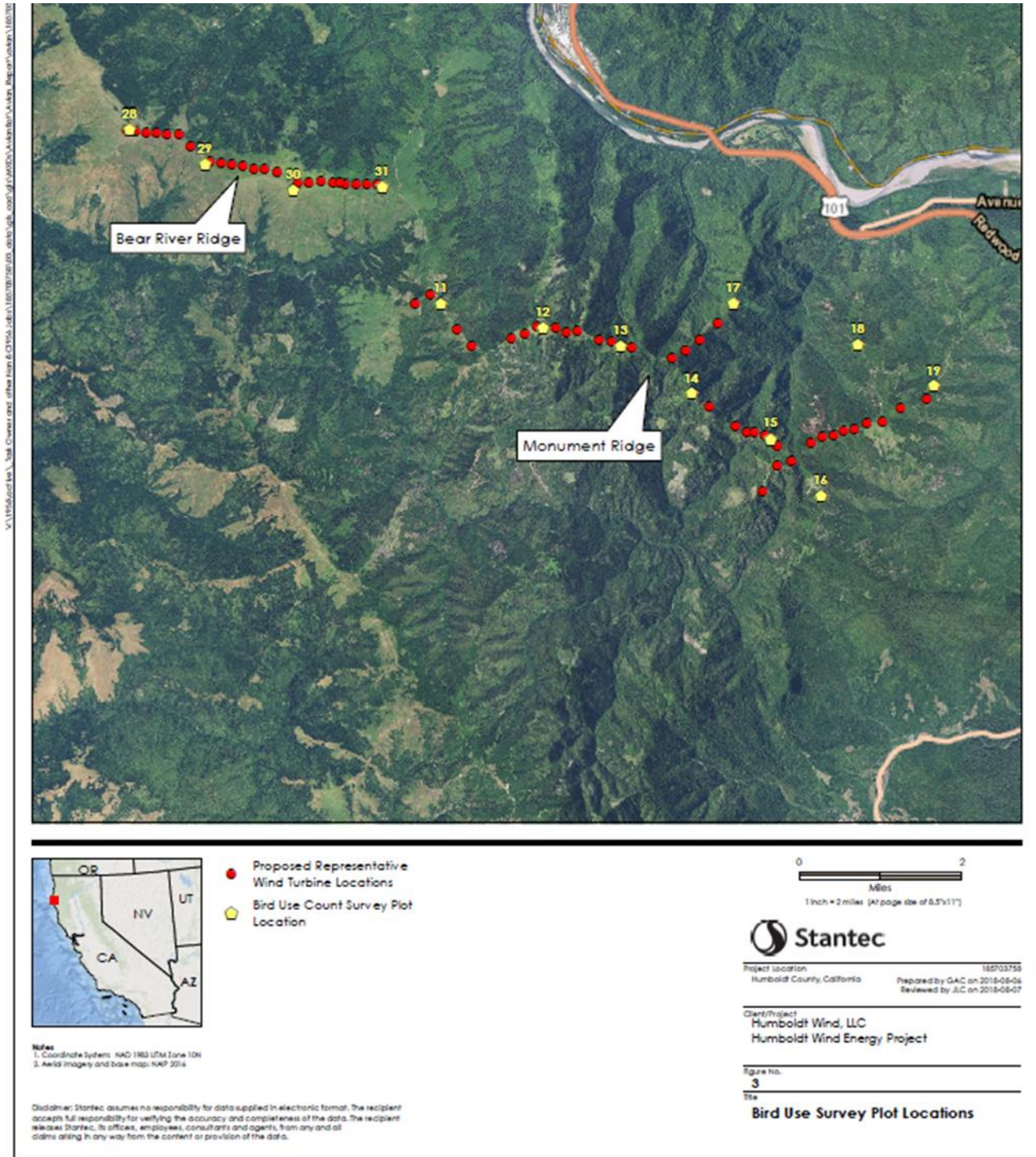
Point No.	Month/Dates (continued)																				Total Visits								
	May					Jun					Jul					Aug						Sept					Oct		
	2	9	15, 17	22-23	30	5-6	13-14	19-20	26-27	4-5	10-12	18-19	1-2	8-9	15, 19	22-23	28, 30	4, 6-7	10, 12	17, 20-21	24-26	1-4	9-10, 12	16-17, 19-20	22-25				
11	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1			
12	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1			
13	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1			
14	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1			
15	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1			
16	0	0	0	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1			
17	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1			
18	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1			
19	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1			
28	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1			
29	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1			
29	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1			
30	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1			
31	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1			
Total	5	5	9	13	12	13	13	13	13	13	13	13	12	13	13	13	13	13	13	13	13	13	13	13	13	13	506		

HUMBOLDT WIND ENERGY PROJECT BIRD USE COUNT AND SMALL BIRD USE COUNT SURVEY REPORT

Table 6. Summary of survey effort for small bird use counts conducted at the Humboldt Wind Energy Project, Humboldt County, California, April 3–October 26, 2018.

Point No.	Month/Date																												Total Visits							
	Apr				May					Jun					Jul					Aug					Sept					Oct						
	3	11	18	24	1	8-9	16-17	22, 24	31-1 ¹	7	14	21-22	27	3, 5	10, 12	19-20	1-2	8-9	16, 18	21, 23	29-30	4, 7	12-14	18, 20-21	25-27	2-3, 5	10-12	15-17, 19	23-26							
1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	29				
2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	29			
3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	29		
4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	29		
5	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	29	
6	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	29	
7	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	29	
8	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9	
9	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9	
10	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	
21	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	23	
22	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	23	
23	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	23	
24	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	23
25	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	23
26	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	23
27	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	23
28	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	23
29	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	23
30	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	23
31	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	20
32	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	20
33	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	20
Total	10	10	10	10	10	10	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	519

¹ The last site visit in May continued through June 1.



DEIR Created a Humboldt Wind Project risk assessment from fraudulent data

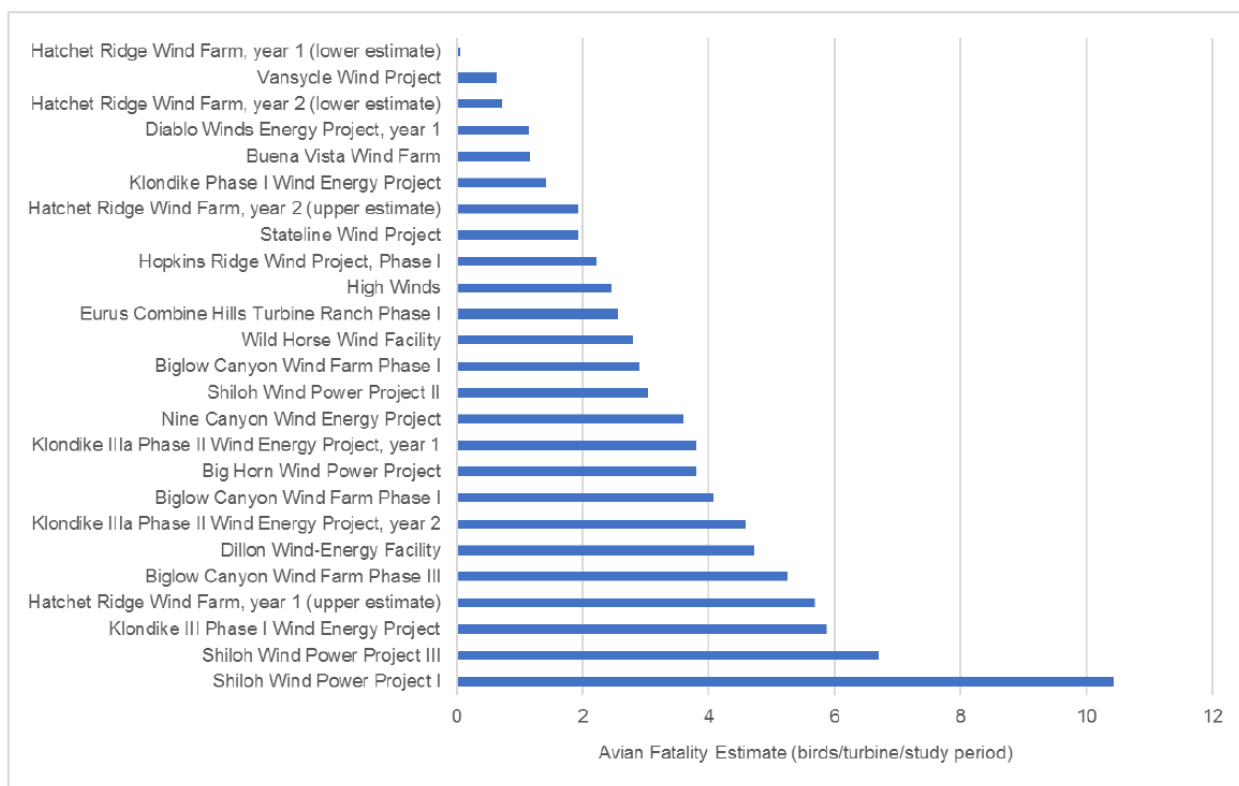
6.0 RISK ASSESSMENT-

The purpose of this risk assessment was to investigate the potential level of mortality that may result from collision risk at the project based on species use of the project area and observed fatality rates at operational wind projects in California, Oregon, and Washington. For this analysis, fatality data from 21 wind projects¹ in California, Oregon, and

Washington from 1999 to 2013 were compiled. Bird fatality rates in the region ranged from 0.06 bird to 10.44 birds per turbine per study period (birds/turbine/period) (Table 12; Graph 5). The average and median bird fatality rates were 3.34 and 2.90 birds/turbine/period, respectively.

For their risk assessment, Stantec has presented Humboldt County with the results from these regional mortality studies (see image) in the DEIR. But none of these studies are scientific or even remotely accurate because of the wind industry study methodologies for these reported numbers. Hatchet Ridge is showing the lowest mortality and the Shiloh I wind project is showing the highest mortality. I will discuss why neither of these studies are credible.

Stantec’s DEIR also does not mention that none of these wind farms location have near the bird numbers, number of bird species or the incredible bird migration activity as the Humboldt wind project location. Also not mentioned in this risk assessment is rotor sweep density per sq mile or that none these wind farms had 600 ft turbines with 74.5 meter blades spinning at 17 rpm or 297 mph.



Why the Hatchet Ridge and Shiloh wind mortality studies are not credible.

Below is a table showing the carcass distribution for 4845 bird fatalities, from small 100 ft tall, 100 kW turbines at Altamont pass. It shows that most birds could be located in an area 125 meters from towers. This is an area 4 times the height of these turbines.

Below is carcass distribution data collected from Altamont turbines with approximately 9 meter blades and maximum heights of about 100 feet. Today's turbines are 400-500 feet tall and average carcass distribution is reported to be about 20-25 meters from around turbines with 50-60 meter blade lengths.

Table 2-5. Number and Percentage of Turbine-Related Avian Fatalities within and beyond 125 Meters from Turbines

Bird Year	Within 125 Meters	Beyond 125 Meters	Total
2005	545 (99.6%)	2 (<1%)	547
2006	1,185 (99.5%)	6 (<1%)	1,191
2007	1,338 (98.7%)	18 (2%)	1,356
2008	924 (99.1%)	8 (<1%)	932
2009	815 (99.5%)	4 (<1%)	819
Total	4,807 (99.3%)	38 (<1%)	4,845

ICF International. 2011. Altamont Pass Wind Resource Area Bird Fatality Study, Bird Years 2005–2009. September. (ICF 00904.08.) Sacramento, CA. Prepared for Alameda County Community Development Agency, Hayward, CA.

The Shiloh I wind turbine mortality study by Kerlinger was conducted around much larger 1.5 MW turbines. It had search areas only out to 105 meters for wind turbines 4 times taller and blades over 4 times longer than those small turbines at Altamont. Mortality data from beyond 105 meters was not included in Shiloh I mortality estimates. None of the carcass searches were daily and the search areas were far too small. When compared to the Altamont turbines carcasses at Shiloh should have expected

carcasses out to 400 meters. Instead all this available carcass data was dismissed.

Table 12. Number of incidents per size grouping versus distance from wind turbine tower (Shiloh I)

Range	# Incidents			Ring Area	Fall Density		
	Small & Medium	Large	Bats		Small & Medium	Large	Bats
0-10	23	4	6	314.29	0.07	0.01	0.02
11-20	12	1	8	942.86	0.01	0.0011	0.01
21-30	12	5	16	1571.43	0.01	0.0032	0.01
31-40	20	1	18	2200	0.01	0.0005	0.01
41-50	18	6	25	2828.57	0.01	0.0021	0.01
51-60	34	6	25	3457.14	0.01	0.0017	0.01
61-70	43	2	7	4085.71	0.01	0.0005	0.0017
71-80	54	6	16	4714.29	0.01	0.0013	0.0034
81-90	32	2	6	5342.86	0.01	0.0004	0.0011
91-100	63	4	4	5971.43	0.01	0.0007	0.0007
101-105	20	5	1	3221.43	0.01	0.0016	0.0003

388 of 505 found beyond 38 meters

Avian carcasses of all size groups tended to be located somewhat evenly over a larger distance range than bat carcasses, which tended to be located closer to the towers. The average distance to the tower for bat incidents was ~50m, while the average distance to tower base for bird incidents was ~65m.

Curry & Kerlinger, LLC
October 2009

46

3 year study with undersized 105 meter search areas
100 turbines searched -76 with 80 meter towers and 24 with 65 meter towers
77% of birds and bats were found beyond 38 meter turbine blade length
Had a proper search areas of 150 meters been used well over
90% of the carcasses would have been found beyond the blade length

Searches took place were about once a week and crops were tilled planted and growing in the outer search areas.
Farming hid many of the carcasses and many more would have been found with daily searches.

Even so bat carcasses were still found more than 100 meters from towers

Watch List species: one Merlin; one Prairie Falcon (found incidentally, at tower C12R) and one Golden Eagle, a Protected Species, was found during the second year of this study within the standardized search area. Two other Golden Eagles were found incidentally outside the standardized search area. Both were found outside the prescribed search area. One Golden Eagle,

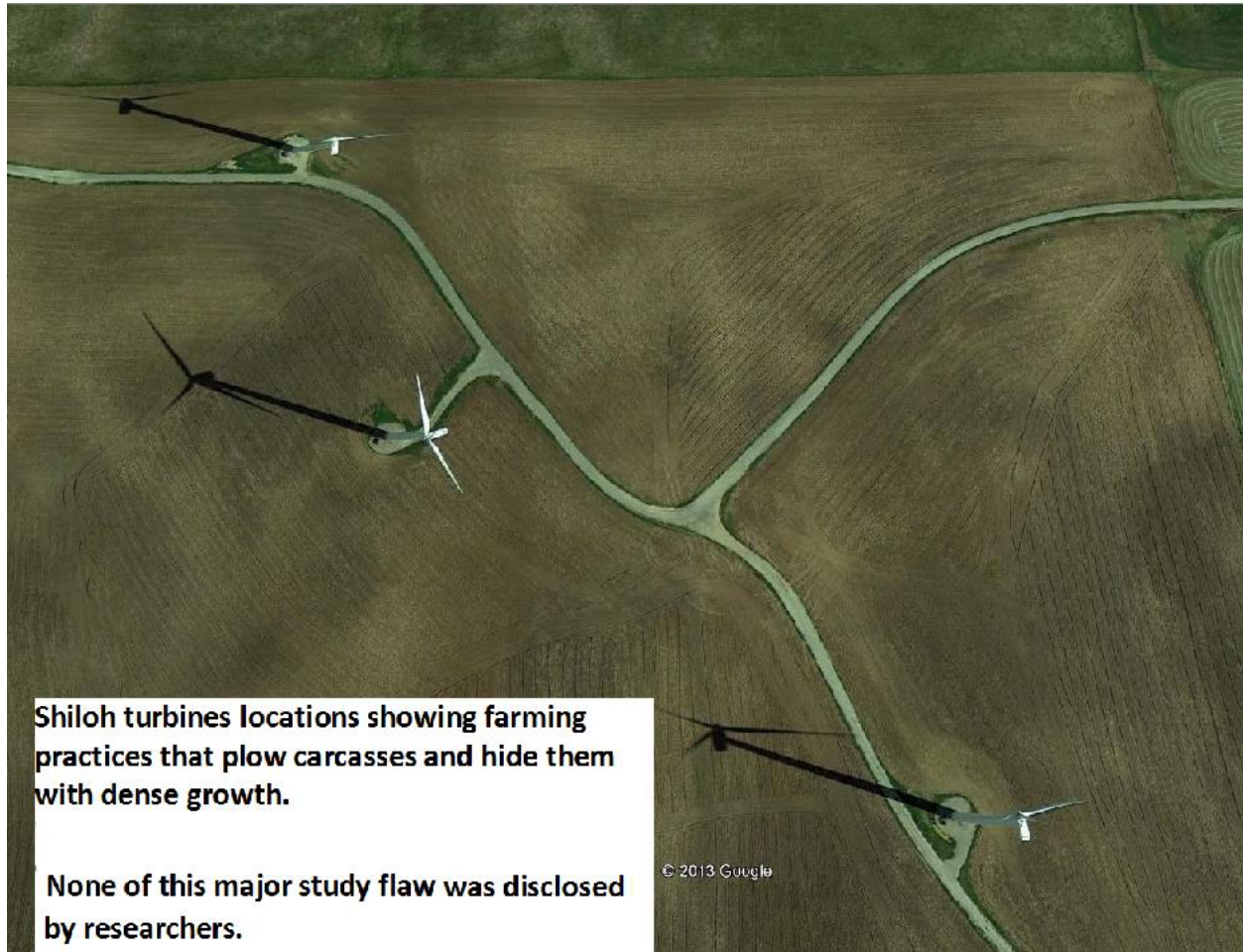
SHILOH I WIND POWER PROJECT

THREE YEAR REPORT

found injured on March 10, 2007, is described above. The other was found on August 14, 2007, dead at 155m away from the towers.) The March 2007 golden eagle incident was wrongly included as a turbine incident in the Year 1 report but moved to “incidental” in this report as it was found outside the search area.

Nothing about these exclusionary statements taken from the Shiloh I study above are scientific, but exclusionary statements like these, are typical of Dr. Kerlinger’s nonscientific studies. Dr Kerlinger’s 3-year study in Solano County had formal search areas out to 105 meters, but this was not adequate because a large proportion of fatalities were still being found much further out. The report never suggests that the formal search area size should be increased to account for all the carcasses missed beyond 105 meters or that many carcasses were being lost to intensive farming activities taking place

around these turbines.



Shiloh turbines locations showing farming practices that plow carcasses and hide them with dense growth.

None of this major study flaw was disclosed by researchers.

© 2013 Google

Most of the mortality taking place around these turbines was not disclosed in this study.

The adult golden eagle said to be incidental was eagle killed in March during a golden eagle's egg incubation period and most likely ended in a failed nest. None of these impacts were discussed. This eagle fatality was probably the last golden eagle nesting attempt to take place within in 10 miles of these turbines. I also have information about an unsuccessful nesting attempt/abandonment by bald eagles few miles away on Grizzly Island near this wind farm. But if these bald eagles were killed by any of the Solano County turbines, they were secretly shipped off to the Denver eagle repository and we will never hear the truth.

While the Shiloh wind fatality was very poor example of scientific mortality research, the Hatchet Ridge mortality study from Shasta County is a far worse example.

Hatchet Ridge

Look close at this ridiculous search methodology described in the study conducted at Hatchet Ridge. With the search methodology used for Hatchet Ridge, they set it up so that at least 2/3 of the carcasses would be missed or if found, could be classified as "incidental".

Centered on the turbine, search plot size was 127 meters x 127 meters, extending 63.5 meters (208 feet) from the turbines on each side. Linear transects spaced at 6 meter intervals were established within the search plot, with searchers scanning out to 3 meters on both sides of transects.

2.1.2 Incidental Fatalities

When a bird or bat carcass was found outside of the designated search plot and/or outside of the standardized search period, it was recorded as an incidental fatality. Incidental fatalities were documented with the same level of detail as survey finds; however, they were excluded from statistical analyses. All fatalities documented during the initial sweep survey and during the monthly searches were considered incidental.

“Non-searchable area varied between search plots. Four plots were fully searchable, 12 had non-searchable area between 0.5 and 10 percent, and 6 had non-searchable area between 10 and 19 percent, for a total of 7.8 percent of search plots designated as non-searchable. Non-searchable areas were generally located in the outer most third of the established search plot.”

Most of the so called “unsearchable” areas were located where increasing numbers of carcasses could have been found in this study. Even if 10,000 carcasses were seen outside of designated search areas, the outcome of the study would have remained the same.

It is not hard to imagine the multitude of wind turbine carcasses and scattered remains that were there to be found, but were never reported from the Hatchet Ridge turbines. Then there are all those unreported special status carcasses picked up by wind personnel that are being carted off by USFWS agents from wind farms that can't be reported. Endangered species and thousands of eagles killed by wind turbines across America are not being reported because USFWS agents can't discuss this regular government activity of carcass removal from wind farm freezers.

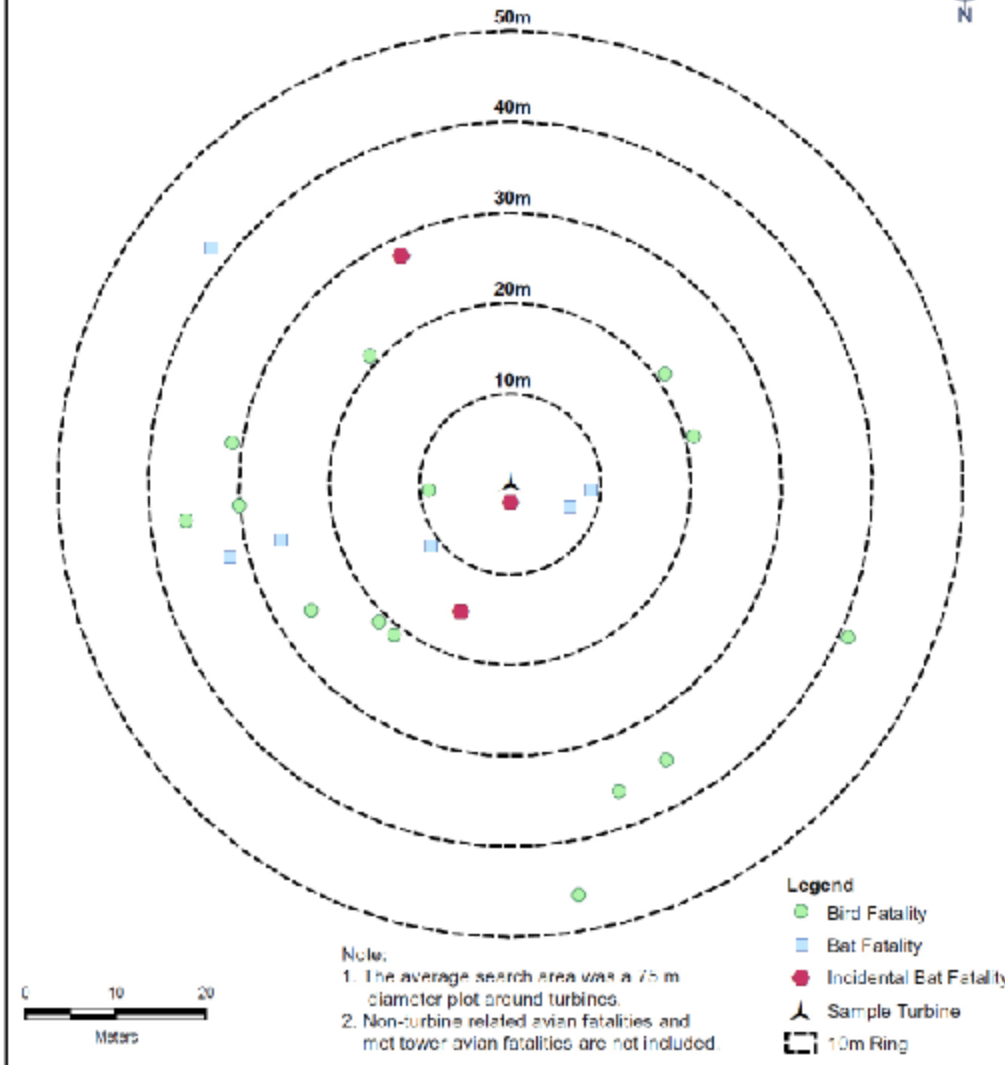
For decades, mortality studies conducted around communication towers were “scientifically” designed to actually find carcasses. In contrast, staged wind energy studies, like those conducted at Hatchet Ridge, are designed with methodologies to specifically allow the majority of fatalities to remain hidden by faulty design or by the selective removal of carcasses.

The 400 ft. turbines installed at Hatchet Ridge located near slopes, can easily send carcasses over 200 meters from towers on a windy day. Yet for Hatchet Ridge research, most fatality searches were limited to designated clear areas that reached out to about 63 meters.

Unlike wind turbine research, past communication tower research, reached out 1 ½ times the maximum tower height from bases and carcasses searches were daily. Not with the 400-foot turbines Hatchet Ridge. Carcasses searches were restricted to small areas with searches extended out every two weeks and in some cases a month. This massive flaw allowed extended periods of time for turbine carcasses to disappear by industry insiders or by beast.

As bad these two examples of wind industry mortality research are, it gets even get worse. STANTEC's mortality research is even more ridiculous because they will conduct mortality studies out to 50 meters for 400 ft turbines with 50 meter blades. But they won't even search these entire 50 meters areas in wide open terrain. Instead formal searches include a small clear roadway and the little clear area around turbine bases. Stantec missed thousands of carcasses that landed outside their tiny search areas and did not account for carcasses out to 250 meters.

Reported mortality & carcass distribution from from 44 400 ft tall turbines (132 MW)



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Client/Project:
 TransCanada Hyco Northeast, Inc.
 Kibby Wind Power Project
 Franklin County, Maine

Page No:
 2-5

Title:
**Summary of Carcass Distances
 and Directions from Study Turbines**
 10/2011

KC70_26_SuitePlan.d

10/20/11

Wolfe Island turbine no. 42

● search area

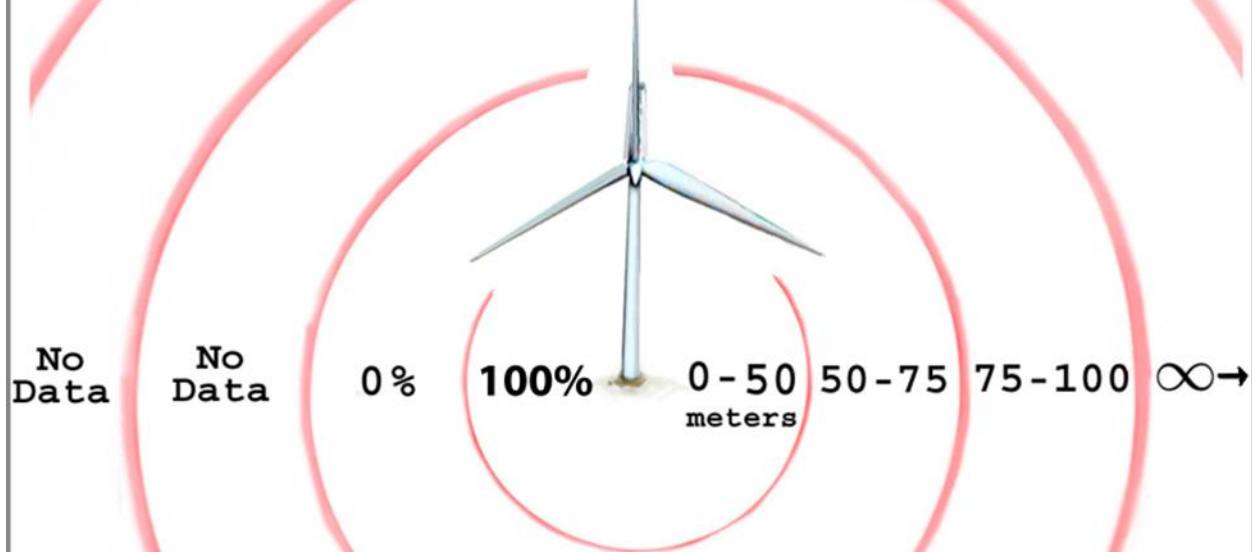


- Declared 50 meter search area
- 125 meters containing 95% of mortalities on 100kW turbines
- Proper search area for a 2.3 MW turbine

Typical Stantec post construction mortality research

2.3 MW Wind Turbine

Blades 50 meters



Birds and Bats reported from small portion of 0-50 meter designated search areas when most carcasses would be found in the huge area between 50 - 250 meters



For most bird and bat species dependent upon their remote habitats, a wind turbine invasion like this one, truly is a 1st degree environmental disaster.

For bird and bat species, a wind turbine invasion like the Humboldt wind project, truly is environmental disaster. Rigged research, rigged opinions and citing fraudulent research that says otherwise, will not change this fact.

Hopefully, Humboldt County officials will not use the industry's paid for biased opinions or the wind industry's contrived research, to justify an approval for the Humboldt Wind project. Then there is the mitigation matter to consider. With so many lies sitting on the table, any fair mitigation of impacts is simply not possible.

If Humboldt County officials have any questions about any of the content presented in these comments please contact me. If officials would like me to speak, ask and answer questions at a public meeting, with any of Stantec, Calif DGF or USFWS wildlife experts in attendance, please contact me.

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