Eastern Golden Eagle Working Group

Dedicated to Research and Conservation

December 21, 2022

Public Comments Processing
Attention: FWS–HQ–MB–2020–0023
U.S. Fish and Wildlife Service; MS: PRB/3W
5275 Leesburg Pike
Falls Church, VA 22041–3803

Submitted via regulations.gov

Regarding: Permits for Incidental Take of Eagles and Eagle Nests
Docket No.: FWS–HQ–MB–2020–0023

The Eastern Golden Eagle Working Group is a collaboration of biologists and wildlife managers from the US and Canada dedicated to developing a more complete understanding of Golden Eagle life history and ecology throughout eastern North America. Our goals include raising conservation awareness, encouraging population management, coordinating collaboration, and supporting research activities. This set of comments on the proposed Eagle Rule (FWS-HQ-MB-2020-0023-1908) is submitted by a subset of members of the Eastern Golden Eagle Working Group. It does not represent the views of everyone in the group; to avoid conflicts of interest, several members recused themselves from comment, notably staff from certain federal and state agencies and from consulting firms.

The majority of our comments address concerns regarding golden eagles, and the eastern population in particular, but some comments are relevant to both Golden and Bald Eagles. We have several broad-scale comments, and then a number of detailed comments.

Our broad-scale comments are as follows:

First and foremost, we agree that, given the alternatives in the proposed Rule, Alternative 4 is the most acceptable option, with modifications and additions as described in this letter. Compared to Alternatives 1, 2, or 3, this alternative will likely provide the greatest conservation benefit to eagles and encourage participation by developers of wind energy facilities.

Second, we note that as with the previous version of the Eagle Rule, the eastern population of golden eagles is treated as an extension of the western population. In fact, the two populations are not one and the same – they do not occupy the same habitat components, they are not equally visible to observers, their causes of mortality differ, and their behaviors appear different. Much of the science referenced in the proposed Rule is based on western populations, and thus the science is best used for inference only for western populations. In fact, there is a substantial recent literature on eagles in the East, and we note that that literature is poorly referenced in the proposed Rule. For example, the Rule applies a one-size-fits all methodology to estimate relative abundance, to monitor for fatalities, and to track mortalities of these populations. Although we recognize that this approach may be convenient for regulators and industry, it means that the proposed Rule is biologically relevant primarily to the eagles in the western half of the continent where these approaches were developed and tested. While the populations that occupy the West may be much larger, it is our perspective that both populations

deserve equal protection. We would therefore like to suggest that if the goal of this proposed Rule is to protect all US golden eagle populations, the Rule should better take into account differences between regions and populations. Furthermore, if data or the science for inference are deficient for a population, then steps should be taken to support research to fill those knowledge gaps, including improved population estimates for the East.

Third, an important assumption of the proposed Rule is that eagle abundance translates into collision risk. This seems reasonable for golden eagles in some places, e.g., central Wyoming and the Altamont region have some of the highest abundances of golden eagles and they have high collision rates. Likewise, Florida and Texas have almost no golden eagles and very low collision rates. But this knowledge is almost useless in predicting collision risk in finer detail. In fact, there have been published studies showing that, in general, pre-construction density estimates do not correlate to post-construction fatality estimates (see Ferrer et al. 2012). Furthermore, this approach breaks down even more for bald eagles – abundance of this species correlates poorly with collision rates in Iowa, where during winter there are high numbers of eagles on the Mississippi River, but fatalities occur in upland environments. Consequently, it is our belief that this fundamental assumption of the proposed Rule is flawed. While the proposed Rule may attempt to use the best available science, it is important to acknowledge the flaws in a transparent manner to increase trust and confidence in the Rule.

Some comments about specific components of the proposed Rule:

Application of the mitigation hierarchy

The proposed Rule does not apply the mitigation hierarchy (i.e., avoid, then minimize, then compensate for impacts). Rather, there are no substantial mechanisms included to avoid or minimize impacts, instead jumping to "compensate." We suggest that the Service require measures to first avoid impacts, then minimize them, before imposing compensatory mitigation. For example, automated curtailment has been shown to decrease eagle mortalities at one wind facility (McClure et al. 2021, 2022) and other curtailment strategies are broadly effective for bats (Arnett et al. 2011). Thus, we believe that curtailment of some sort should be a part of the regulatory process for eagles. We prefer that the Service require "smart" curtailment at high-risk sites, which ideally would be identified prior to build-out. This requirement should be coupled with Service-issued guidance and recommendations for appropriate application of curtailment to allow for greater predictability for the regulated community, and broader uptake and application of this effective practice.

Mapping relative abundance

The proposed Rule uses eBird relative abundance values (page 36) that represent the average number of eagles of each species expected to be seen by an expert eBirder who observes for 1 hour at the optimal time of day for detecting the species, and who travels no more than 1 kilometer during the observation session (see eBird FAQs at https://ebird.org/spain/science/status-and-trends/faq#mean-relative-abundance).

The proposed Rule thus assumes that detectability is equal to relative abundance. For some species and some populations, this may be a reasonable approach. However, for the eastern population of golden

eagles, and potentially other populations, they are not equivalent because detection rates in some areas of the east, especially forested mountainous regions, are well below what is expected based on the number of birds that are actually present. An expert birder in the Ozarks, rugged areas of Alabama, Tennessee, North Carolina, Georgia, Virginia, West Virginia, or anywhere else across the eastern US would be hard pressed to see any golden eagles in an entire day or week, let alone a 1 hr period. This is not because golden eagles are not present, but because of their "secretive" habits (e.g., perching in dense forest away from people) and because observers generally are unable to view large areas in forested or rugged areas. For example, golden eagles have been recorded on camera traps in large numbers (>9 individuals recorded on 3 cameras placed within a 10 km of one another in a two-week period) in Arkansas, yet over a 4-day period, one of our EGEWG members, an expert eBirder who was in the same area at the same time, did not see a single bird away from the camera trap. Similar observations have occurred in other areas of the eastern US, including Alabama, North Carolina, Virginia, West Virginia, and Pennsylvania.

Based on the above and our collective expertise, it is abundantly clear that the model used to determine relative abundance using eBird data does not in any way accurately depict areas used by eastern golden eagles, or delineate risk relative to threats addressed in the EA.

Further, other key science was ignored in creating the Service's model. This includes eastern golden eagle GPS telemetry studies, hawk watch count data, and a recent modeling study conducted to predict eastern golden eagle relative probability of occurrence (McCabe et al. 2021), at minimum.

We suggest that the Service not apply a blanket model to estimate relative abundance across the entire country. Rather, we encourage the Service to utilize all of the best-available data (not solely eBird data), incorporate detection probability, ruggedness of terrain, density of birders, land cover type, and other factors that allow for a more realistic map of relative abundance. Further, the Service should enlist the help of experts with a deep understanding of the behavior and distribution of golden eagles in the east to assist with the modeling effort. The map should be reviewed by a panel of experts with knowledge of the eastern golden eagle population and if appropriate, a designation should be added for areas that are data deficient.

In developing the next iteration of the model, a designation should be added for areas that are data deficient if the model cannot otherwise adequately address such areas. This would identify areas where more substantial survey efforts are needed for development planning, as well as general targets for research and monitoring. Similarly, we recommend that the Service add a designation identifying the highest-use/-risk areas for eagles. This designation would likely have the effect of directing development to more appropriate areas (i.e., a measure of impact avoidance), as well as identifying areas that may be more difficult or expensive for developers to pursue.

Application of relative abundance maps

Importantly, while the relative abundance map could be useful for delineating general and specific permits, the way the map was created results in isolated pixels predicting high or low presence of eagles. These variations have no biological relevance to a flying bird. Thus, we suggest that the Service incorporate a smoothing algorithm to reduce the prevalence of these isolated pixels.

Finally, we recognize that the map is likely a preliminary effort. We therefore suggest specifying and implementing a process and timeline for updating and improving the modeling effort used. For example, the Service could propose to utilize suggestions such as those we provide here, together with those from other parties, to update models at 5-year intervals. This recommendation is particularly important given the expectation for a dramatic increase in wind energy development.

Fatality monitoring

We are concerned about several aspects of the proposed fatality monitoring protocol, including frequency of surveys, use of facility staff, and search radii.

We recommend that frequency of surveys should be based on regional-carcass persistence rates for eagles, not an arbitrary 3-month interval. We note that at the Manzana Wind facility in the Tehachapi Mountains in California, the Service required fatality monitoring for California Condors at monthly intervals. Condors are a substantially larger bird, and the landscape is considerably more open there than in many high-use areas for eastern golden eagles, so it is hard to imagine that monitoring at any interval less frequent than monthly would be needed for eagles.

Further, if the Service is considering allowing wind energy facility staff to monitor for eagle fatalities, then the Service should provide training sessions and materials for staff conducting the monitoring, including ongoing education, and ideally coupled with a certification process. This recommendation is important for a number of reasons including providing consistency among facilities and instilling trust and confidence in the process.

Importantly, to further instill public confidence in these regulations and processes, data transparency is key. Keeping eagle fatality data under lock and key has the opposite effect. Therefore, we strongly suggest that the Service make fatality data available to the public upon request. The data should be usable for research and minimally include the date found, location in latitude and longitude, and the cause of death. If these data were public, it would vastly improve the ability of researchers to study the effects of wind energy development on eagles and improve facility- and turbine-level risk assessment.

We further suggest that when the Service conducts fatality surveys at wind facilities, they should be conducted more extensively at facilities that are in high-risk areas and do not participate in the permit program. If possible, the approach would create an incentive for participating in the permit program and reduce uncertainty about the overall level of take. In addition, we recommend collecting at least two years of fatality data at sites with a General Permit in the eastern EMU to gain a better understanding of fatality rates in this region, where such monitoring can be challenging due to topography and forest cover.

The proposed Rule intends to use search radii taken from Hull and Muir (2010) (NOTE: the citation is missing from the EA). Hull and Muir (2010) recommend search radii that range from 102 m for small (65 m hub height) turbines to 122 m for large (94 m hub height) turbines to capture 95% of fatalities (Table 9). Applying results from this study to the forested settings of golden eagle habitat in the East, where turbine pads rarely exceed 50 m radius (Diffendorfer et al. 2014), is inappropriate because the majority of search area is obstructed by vegetation. For clear areas with a 50-m radius, <50th percentile of large bird fatalities, would be found (see Table 5, Hull and Muir (2010)) and there is no available estimate of

the number of large birds found within forested areas. Additionally, the percentage of large birds expected to fall within the cleared pad decreases with increasing size of turbines; thus, as turbine sizes continue to increase fewer and fewer fatalities will be captured by surveys in these areas. One method to correct for lack of information on quantifying large birds falling in forested areas is to include cleared surveyable area and fall distance probabilities as predictors in estimating take. However, it is important to describe how that calculation would be made. Further, the sample of turbine sizes in Hull and Muir (2010) was limited and new turbines have hub heights exceeding 100 m. Thus, an updated analysis to understand fall distance probabilities is needed to accurately calculate fatality estimates for modern turbines.

Satellite transmitter (PTT) monitoring

The geographic extent of tracking golden eagle mortality using satellite transmitters (PTT) is not stated. However, based on information for tagging of nestlings, it seems that this tracking would only occur in the West. Because causes of death vary among EMUs (e.g., high rates of lead poisoning in Mississippi Flyway, very low rates of electrocution in the Atlantic Flyway) (Russell & Franson 2014, Slabe et al. 2022), monitoring using PTTs for one region or population may produce biased estimates of causes and rates of mortalities for other regions or populations. Furthermore, this issue once again highlights the problems of using a one-size-fits-all solution by applying data from one population to another population.

To address this issue, we recommend that the Service work with biologists in Canada or the eastern US to use telemetry to monitor golden eagles. Working with Canadian biologists would have an added benefit in that demographic rates could be separately estimated for the eastern population. In lieu of that, working with biologists in the eastern US for concentrated trapping of juveniles during fall migration could also help inform demographic rates for eagle ages from the first fall migration to adult.

Protection of historic eyries

There are no provisions in the proposed Rule to protect nesting areas for golden eagles in the eastern USA. Many eyries used historically by golden eagles in the eastern US exist, but little to no monitoring has occurred in the recent past. However, at least one telemetered female visited several historic eyries in Maine within the last 10 years and another telemetered female spent some time in Maine during summer (L. Mojica personal communication, T. Miller personal observation). These records suggest there is some potential for renewed use of historic nesting locations. If golden eagles renew nesting in historic eyries at some point in the future, it will be essential that the eyries remain protected despite long-term absence of eagles. Thus, we recommend that historic golden eagle eyries in the East are afforded the same protection as those in the West.

Protection of nests, roosts, & foraging areas

Under proposed general permitting for both energy and disturbance/take activities, nests, roosts, and foraging areas are all habitat elements that must be considered, but there is no mention of detectability or data sources for any of these elements. Nests are often (but not always) obvious structures that can

be detected during site surveys and thus mapped as part of a permit application. In contrast, communal roosts and foraging areas are more difficult to identify. Communal roosts may not be obvious or detectable without greater survey effort, although certain states may have some roosts mapped in databases they maintain, which might be made available to applicants. "Foraging area" is defined in regulation (50CFR 22.6) simply as "an area where eagles regularly feed during one or more seasons." Applicants would need to conduct surveys, or assume present foraging habitat based on suitable habitat within range of their project.

Communal roosts are important for winter survival and social interactions. It is unfortunate that, while the Service suggests roost habitats must be considered, it proposes minimal protections. Specifically, for disturbance permits, the Service says is has “received little to no documentation that confirms take from activities near roosts", so it proposes to "clarify that activities adjacent to communal roosts do not constitute disturbance." It is unlikely, in our view, that there is no activity that can cause take by disturbing a roost, even though activities may be conducted for months or years. The Service’s position seems to negate the value of communal roosts in general and is illogical given the published documentation that eagles are vulnerable to disturbance. Watts and Turrin (2017) studied bald eagle roosts and suggested that smaller, satellite roosts may not be essential, but certainly communal roosts have great value to bald eagle populations, especially in winter. Take could occur as a result of decreased survival of bald eagles disturbed from communal roosts, which might disproportionately affect subadult birds. Thus, we recommend that roosts, especially large communal roosts be protected.

Expanded in-lieu fee programs to offset take

We strongly encourage the Service to develop and apply compensatory mitigation options that are relevant to the eastern population of golden eagles. As mentioned above, causes of mortality differ among populations and EMUs. Importantly, the local area population of the Atlantic Flyway has had very few, if any fatalities as a result of electrocution, which is the only currently approved compensatory mitigation option. In the eastern EMU and across the country, lead toxicity is an important cause of mortality of both species, and lead toxicity has important demographic effects (Slabe et al. 2022). Importantly, golden eagles in the Atlantic Flyway have higher rates of lead poisoning than do eagles from other Flyways (Slabe 2019). Additionally, incidental capture in mammal traps is also a recognized problem for the eastern population (Fitzgerald et al. 2015). Therefore, we encourage the Service to continue its efforts to expand in-lieu fee programs to include additional options such as non-lead ammunition distribution programs* and incidental trapping abatement in the US and in collaboration with Canadian wildlife management agencies.

**For transparency, V. Slabe and T. Miller are currently studying and using non-lead ammunition distribution programs to offset eagle take.*

Additional comments:

Definition of in-use nests

The proposed Rule changes the definition of an in-use nest to exclude protection of bald eagle nests that do not have viable eggs or young, but may have been occupied by adults during the breeding season. The new proposed definition is:

*In-use nest means a bald or golden eagle nest characterized by the presence of one or more **viable** eggs or dependent young in the nest, **or, for golden eagles only**, adult eagles on the nest in the past 10 days during the breeding season.*

We find this definition inappropriate because the time prior to egg laying is critical to breeding. Eagles invest considerable time and energy into breeding activities prior to egg laying, e.g., nest-building, mating, prepping, establishing and defending territory boundaries. Further, nests and alternate nests have had legal protection because they are defining elements of a territory, persist from year to year, and could be used in future years. We recommend that the definition of an in-use continues to include protection of nests of both species during the critical time period leading up to egg laying.

Additionally, both logically and biologically, it does not make sense to define a nest for one eagle species differently from another. With the proposed definition change, we are concerned that this would set a precedent that could ultimately affect golden eagles. For instance, someone could argue that golden eagle in-use nests should be defined the same way as bald eagle in-use nests. If argued successfully, nest protection for both species would be in jeopardy during a critical time period.

Penalties for unpermitted take

A clear and robust explanation of how unpermitted eagle take will be addressed must be established. This communication would provide certainty for wind facility operators, and assurance to the public that violations will be effectively addressed. Penalties must be of sufficient magnitude to: (1) compensate broadly for eagle conservation goals and Rule non-compliance, (2) offset enforcement cost undertaken by the Service, and (3) encourage participation in the permitting program.

Repowering

We strongly recommend that it be specified that the proposed Rule applies at repowering of wind facilities. This is particularly important because replacing turbines and modifying turbine layout at repowering has been shown to be ineffective at reducing eagle fatalities (Huso et al. 2021). Many existing wind facilities are placed in locations that are high-risk for eagles, having been approved and constructed prior to our current understanding of and available best practices for appropriate facility siting. Thus, it is imperative that the proposed Rule apply to wind project repowering, as well as new facilities.

Replacing 5-year permit review with as-needed

It is important that the articulated circumstances under which the Service would initiate a review are appropriate. We recommend that review should be initiated “if eagle take exceeds or is on track to exceed authorized take,” to ensure that unnecessary fatalities are prevented at any facility where take is occurring at higher rates than anticipated.

Pre-construction eagle surveys

This proposed permitting framework makes accurate pre-construction eagle surveys at sites intended for wind facilities all the more important. Adherence to Service-issued survey guidelines should be specified as a condition of participation in the permitting process. This would not only ensure reliable and comparable data to underpin take estimates and quantification of compensatory mitigation, but would also inform future updates to the model and delineation of general vs specific permit areas.

Further, we suggest that because of their unique ecology and frequent use of rugged, forested, and often difficult-to-access landscapes, an effort should be made to develop pre-construction survey guidelines specific to eastern golden eagles at sites intended for wind energy facilities particularly in higher use areas like the Appalachian Mountains. Moreover, the EGEWG would be happy to assist with the development of guidelines for both pre- and post-construction surveys.

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We appreciate the opportunity to provide these comments. Please reach out to us should you have any questions or need additional information.

Sincerely,

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