

Memo

To: Humboldt County Planning & Building Department
3015 H Street
Eureka, CA 95501

From: H. T. Harvey & Associates
983 University Avenue, Building D
Los Gatos, CA 95032

Date: August 2019

Reference: Non-technical Summary of the Compensatory Mitigation Strategy Proposed for Marbled Murrelets impacted by Operation of the Humboldt Wind Energy Project

The Humboldt Wind Project will not cause any loss or impairment of old-growth forests used by marbled murrelets to nest. However, a collision risk assessment was used to obtain an upper estimate of 7.77 murrelets that could be lost over 30 years due to collisions with turbines as they fly between the ocean and inland nesting habitats in southern Humboldt County. A common strategy to mitigate mortalities of threatened and endangered species is the purchase and protection of habitat that could otherwise be lost. However, in California, only 4% of murrelet nesting habitat remains and has already been protected in parks and preserves. The few remaining privately owned lands with coastal old-growth forest either have a landowner that is unwilling to sell, are too small to support nesting by murrelets, or both. Furthermore, regeneration of murrelet nesting habitat takes hundreds or even a thousand years because murrelets require flat branches that form platforms, often with moss or ferns, high up in the tree and only mature trees have these sorts of branches and tree structure. Consequently, there are no viable options for adding habitat as mitigation in Humboldt County.

Given this, compensatory mitigation efforts have focused on reducing predation hazards to murrelets in its existing habitats. Although parks and preserves are regarded as relatively pristine, the quality of the murrelet habitat protected as parks and preserves has been substantially degraded by the relatively recent attraction and concentration of corvids (jays and ravens) into these otherwise pristine forests. People inadvertently or intentionally attract corvids to campgrounds and picnic areas by providing rewards in the form of food, either purposefully by feeding jays or inadvertently by leaving crumbs at picnic tables and disposing foods in bins that corvids can access. Steller's jays have been found to be as much as 6 times more abundant in murrelet nesting habitat where people frequently recreate relative to areas with low human-use.

Steller's jays and, to a lesser extent, common ravens frequently depredate murrelet eggs and chicks. Three in four murrelet nests were predated by corvids in a northern California park and similar predation rates have been found in central California parks. Because murrelets can only produce a single chick per year and may skip nesting altogether in years with poor ocean productivity, nest loss of this magnitude can substantially undermine population viability even where habitat is good and relatively plentiful. The chance that jays will discover and predate a murrelet nest increases proportionally with their abundance. This is because jays do not specifically search for murrelet nests, but rather randomly encounter nests while searching through the forest canopy for their primary foods (fruits and insects). As a result, murrelets nesting in parks where jays concentrate are at much greater risk of losing their chicks or eggs to predation.

A population viability assessment for murrelets nesting in central California found that 40% reduction in corvid predation would allow murrelets nesting there to produce enough chicks for the population to grow, minimizing the risk of extirpation. Given the benefit to murrelets, many parks and trustee agencies have sought to minimize human food rewards to corvids within parks to discourage corvids from being attracted to and concentrating in otherwise high-quality murrelet nesting habitat. To this end, the "crumb clean campaign" was developed, refined, and has been

August 1, 2019

Humboldt County Planning & Building Department 3015 H Street Eureka, CA 95501

Page 2 of 2

Reference: Non-technical Summary of the Compensatory Mitigation Strategy Proposed for Marbled Murrelets impacted by Operation of the Humboldt Wind Energy Project

successfully implemented in many parks and preserves to minimize the attraction of corvids to murrelet nesting habitat. In central California parks, this campaign successfully reduced corvid abundance by up to 54% (32% in the first year). This “crumb clean” strategy requires comprehensive control of human foods by installing bear-proof trash containers, food lockers, and water infrastructure, as well as directed efforts to educate park visitors. Importantly, funding and implementation of the “crumb clean campaign” throughout most of California has been done as a strategy to replace the hundreds of murrelets that have been killed in California oil spills (mitigation after the fact).

As a mitigation strategy for the Humboldt Wind Project, we are proposing to protect murrelet nests from predation by corvids at one of the few parks in northern California that has not been able to implement of the “crumb clean campaign” (Van Duzen County Park; VDCP). VDCP is a very popular place for people to camp, picnic, and swim in southern Humboldt County. Implementing the “crumb clean” strategy in VDCP will quickly improve the survivorship of murrelet eggs and chicks through reduced abundance of jays and other corvids. Corvid management in VDCP will also benefit murrelets nesting in nearby Cheatham Grove which, despite being under state park jurisdiction, is effectively contiguous with eastern edge of VDCP (separated by a bend in the Eel River) and affected by corvids visiting VDCP.

Implementing a “crumb clean” strategy at VDCP is conservatively estimated to produce between 48 and 97 new breeding murrelets over 30 years, which is equivalent to adding between 6 and 12 murrelets for each of the murrelets estimated to be lost due to the Project. Effectiveness will be monitored by conducting surveys for corvids in VDCP. By reducing nest predator abundance and their ability to predate murrelet nests, this mitigation will provide a net benefit to murrelets and aid in state-wide efforts to ensure this unique seabird continues to nest in California by maintaining a viable murrelet population. Monitoring of corvid populations (and their reduction over time) is the only available metric to determine the success of the program. This is because direct monitoring of murrelet populations in a small area such as VDCP and Cheatham Grove directly is almost impossible given the secretive nature of murrelet nesting activity. Radar monitoring is not a viable strategy because radar could not distinguish between murrelets using this stand and those flying by.

There are additional benefits to murrelets from the Project that should also be considered in the overall assessment of net benefits. Installation of a renewable energy facility in Humboldt County will minimize the reliance on petroleum-based energy generation. For Oil spills on Humboldt Bay have killed hundreds of adult murrelets since 1997, which is orders of magnitude greater than the take estimated for the Humboldt Wind Project. Furthermore, shifting to energy sources that do not release carbon into the atmosphere is essential to minimize climate change which, given the observed and projected warming trend, threatens to shift the range of coastal redwood forests northward. For murrelets, any additional loss of habitat that could result from climate change should be considered catastrophic due to the extraordinary amount of time needed to for these forests to develop the structure needed to support nesting by murrelets.