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Public Comments Processing
U.S. Fish and Wildlife Service
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Falls Church, VA 22041-3803

RE: Docket No. FWS–R8–ES–2018–0076; Endangered and Threatened Wildlife and Plants; Threatened Species Status for Coastal Distinct Population Segment of the Pacific Marten and the Species Status Assessment for Coastal Marten (*Martes caurina*) Version 2.0, July 2018; 80 Fed. Reg. 50,574 (Oct. 9, 2018)

To Whom It May Concern:

The American Forest Resource Council (AFRC) submits the following comments regarding the proposal to list the Coastal Distinct Population Segment of the Pacific Marten (*Martes caurina*) (coastal marten) as a threatened species under the Endangered Species Act (ESA). In, 2015 the U.S. Fish & Wildlife Service (Service) published a "not-warranted" 12-month finding for this species. 80 Fed. Reg. 18,742 (Apr. 7, 2015). The Center for Biological Diversity and Environmental Protection Information Center challenged this finding in federal district court. AFRC intervened as a defendant in the litigation. On March 28, 2017, the district court remanded the "not-warranted" decision to the Service. *Ctr. for Biological Diversity v. U.S. Fish & Wildlife Serv.*, 246 F.Supp.3d 1272 (N.D. Cal. 2017).

Based on its assessment of the resiliency, redundancy and representation of extant populations, the Service issued a positive 12-month finding and Proposed Rule on October 9, 2018 to list the coastal marten as threatened. The Service has provided a Species Status Assessment (SSA) and cited two primary threats to the coastal marten: (1) a decrease in connectivity among populations and (2) habitat conversion from that suitable for Pacific martens to that suitable for generalist predators and competitors of Pacific marten. Vegetation management, wildfire, and climate change are cited as the primary mechanisms related to these threats.

AFRC is a regional trade association whose purpose is to advocate for sustained yield timber harvests on public timberlands throughout the West to enhance forest health and resistance to fire, insects, and disease. We do this by promoting active management to attain productive public forests, protect adjoining private forests, and assure community stability. We work to improve federal and state laws, regulations, policies and decisions regarding access to and management of public forest lands and protection of all forest lands. Because AFRC is interested in making species conservation efforts align with timber supply needs, we offer the following comments. AFRC has a strong interest in ensuring that decisions under the ESA are made considering all appropriate factors. AFRC also joins in and

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incorporates by reference the comments of the National Council on Air & Stream Improvement (NCASI).

Failure to Examine Existing Regulatory Mechanisms

Listing Factor D, the adequacy of existing regulatory mechanisms, 16 U.S.C. 1533(a)(1)(D), is arguably the most important of the five listing factors, as it is determinative as to whether conservation of species is needed, since the statutory goal of conservation is to bring a species "to the point at which the measures provided pursuant to [the ESA] are no longer necessary." 16 U.S.C. 1532(3). There are significant existing protections for coastal marten habitat, such that the need for ESA listing is dubious. At minimum, the Service must robustly review existing regulations, which were largely omitted from both the SSA and the Proposed Rule.

There are significant measures arising from the Northwest Forest Plan (NWFP) that are important to the Factor D analysis. The Service's 2015 finding concluded "habitat recruitment through management of Federal lands under the NWFP should contribute to improved connectivity." 80 Fed. Reg. at 18,764. Future loss, fragmentation, or degradation of habitat governed by these restrictive plans "is expected to be low." *Id.* at 18,761. This is key because over 60% of each population area is in federal ownership. SSA at 89, Table 4.1. Similarly, areas with potential for becoming connective habitat are substantially in federal ownership. SSA at 92, Fig. 4.8

Here, the SSA acknowledges "net loss of older-forests that could provide marten habitat are not occurring at a rapid rate on Federal lands, and are in line with projections made 20 years ago in the NWFP. If NWFP projections continue to hold, older–forests are expected to increase *throughout the coastal marten historical range*." SSA at 65 (emphasis added). In many of the forests at issue, the NWFP's extensive reserve network has ground harvest activities to a halt and lead to significant economic pain over the last two decades. Yet nowhere does the SSA examine the specific regulatory mechanisms of the NWFP and how those would compare to regulation under the ESA. Nor does the Proposed Rule offer *any* analysis of existing regulatory mechanisms. By contrast, the 2015 12-month finding had detailed analysis on both federal and non-federal land. 80 Fed. Reg. at 18,760-61. This oversight is a failure to consider an important aspect of the problem that can render the ultimate decision subject to legal challenge. *See*, *e.g.*, *Defs. of Wildlife v. Zinke*, 856 F.3d 1248, 1257 (9th Cir. 2017).

The Service's Factor D failures extend beyond federal land. There is only one passing reference to state forest practices rules. SSA at 60. And there is no reference to the protections that the species receives due to its pending listing under the California Endangered Species Act (CESA). The state listing makes it unlawful for any person to "take" or "possess" CESA-listed species. Cal. Fish & Game Code § 2080. "Take" under California law is to "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill." Cal. Fish & Game Code § 8. Although California's definition of take is thus narrower than the federal definition, the California Court of Appeal has noted CESA's prohibition of possession in addition to take as well as the lack of any specific intent requirement. *Dep't of Fish & Game v. Anderson-Cottonwood Irrigation Dist.*, 8 Cal. App. 4th 1554, 1563, 11 Cal. Rptr. 2d 222, 227 (1992) (holding "take" does not require specific intent to hunt or fish the species); *id.*, 8 Cal. App. 4th at 1562 (applying statutory prohibition on "possess[ing]" listed species). Because of the restrictions already in place under the CESA, an ESA listing of the California marten populations may prove

superfluous. The Service should closely examine the question.

The Service has also inadequately analyzed the state of regulation of two other potential threats, trapping and anticoagulant rodenticides (ARs). Trapping is unlawful in California, but was lawful in Oregon at the time the SSA was published. SSA at 42-44. However, in early August 2018, the Oregon Fish & Wildlife Commission accepted a petition for rulemaking banning marten trapping. Oregon Fish & Wildlife Comm'n, Minutes of Aug. 3, 2018 Meeting, at 11-12, *available at* https://www.dfw.state.or.us/agency/commission/minutes/18/08_aug/Final_Aug%203%202018%20Minutes%20.pdf ; Mark Freeman, "Trapping ban for Humboldt marten clears first hurdle," *Medford Mail-Tribune*, Aug. 7, 2018, *available at* http://mailtribune.com/news/top-stories/marten-trapping-petition-accepted. Thus, some of the actions the Service forecast in its more optimistic scenarios, SSA at 9-11, will likely come to pass. The Service should monitor and analyze the Oregon rulemaking.

The SSA has some description of the AR stressor, SSA at 45-49, correctly stating this stressor is most associated with illegal marijuana grow operations. However, the Proposed Rule's analysis is cursory. 83 Fed. Reg. at 50,578. The AR stressor was one of the reasons that the district court remanded the 2015 12-month finding. *See Ctr. for Biological Diversity*, 246 F.Supp.3d at 1285-86. The SSA fails to conduct any meaningful analysis as to whether legalization of marijuana cultivation will affect this stressor, throwing up its hands and stating effects are "uncertain." SSA at 49. Both Oregon and California have now legalized recreational marijuana possession and sale, with the Oregon legislation becoming fully effective in 2016 and the California law at the beginning of 2018. ORS Chapter 475B; Cal. Health & Safety Code § 11362.1.

One of the purposes of the California law, passed by initiative, was to "create strict environmental regulations to ensure that the marijuana is grown efficiently and legally, *to regulate the use of pesticides*, to prevent wasting water, and to minimize water usage." Control Regulate and Tax Adult Use of Marijuana Act, § 2.F, 2016 Cal. Legis. Serv. Prop. 64 (Proposition 64) (emphasis added). Under Proposition 64, the California Bureau of Licensing is required to develop regulations that "ensure compliance with state laws and regulations related to environmental impacts, natural resource protection, water quality, water supply, hazardous materials, and pesticide use in accordance with regulations" including the CESA. Cal. Bus & Prof. Code § 26056. The law also provides for provide "environmental cleanup and restoration of public lands damaged by illegal marijuana cultivation." Prop. 64 § 2.C. The Service must grapple with the implications of this law.

Forest Management Activity Exempted By the Proposed 4(d) Rule Should Also Be Exempt From Consultation

AFRC supports the proposed 4(d) rule, which recognizes the need for active forest management to reduce risks of catastrophic wildfire and that fire, rather than timber harvest, is the chief source of disturbance in the coastal marten's range. 83 Fed. Reg. at 50,580; SSA at 40. Permitting active management is the best way to build fire resilience in the forest and further the conservation of species like the marten. If the Service ultimately decides to list the species, a 4(d) rule is essential.

Unfortunately, the 4(d) rule is designed only to have meaningful regulatory benefit on non-federal land. As the Proposed Rule states, "[n]othing in this proposed 4(d) rule would change in any

way the … consultation requirements under section 7 of the Act. …" 83 Fed. Reg. at 50,580. But why not? It stands to reason that most, if not all, of the federal projects that would otherwise fit the description in the 4(d) rule would be found not likely to adversely affect coastal marten. A statement either in the rule itself or the final Federal Register notice that federal activities consonant with those in the 4(d) rule are exempt from formal section 7 consultation, as they are presumed not likely to adversely affect coastal marten, would go a long way toward easing the regulatory burden of a potential listing. Such provision is well within the Service's general rulemaking authority under the ESA. 16 U.S.C. § 1540(f).

The Data Do Not Suggest the Marten Is Likely to Become Endangered within the Foreseeable Future[1]

1) Additional location information suggests the possibility of increased redundancy and resiliency

Moriarty, Levi and others obtained genetic verification from Pacific marten scats and associated location data in 2017 and 2018, which increased number of verified locations in southern Oregon. They identified 2 additional locations in the near-coastal forests suggesting potential redundancy with the Central Coast dunes and found 2 new locations near locations documented in 1997 and 2000, suggesting a potential for increased connectivity between northern California and southern Oregon.

2) Population size estimates for the Northern California extent are likely larger than reported

Based on available evidence, population size for the designated Northern California extant population area is larger than 80-100 individuals. The Service's data uses insufficient survey methodology to assess population size and is incongruent with recent capture data. Thus, the population size may be larger than 200-300 individuals, suggesting population resilience could be classified as moderate to high by suggested standards (e.g., SSA, p. 17).

a) Insufficient survey methodology to assess population size

The population estimate of 80-100 individuals is cited within the SSA (e.g., p 53, 96, Section 5) and Proposed Rule (e.g., p. 50576-50577; Table 1), basing information on the unpublished report of Slauson and Zielinski (2009). This study suffers from methodological and statistical challenges and therefore is of questionable validity. Slauson and Zielinski (2009) used a comparison of two non-invasive survey periods to suggest a decline in population and used averaged multi-state occupancy models to estimate the population size. The first survey occurred in 2000 and 2001 during the fall (September-November) (Slauson 2004). The second survey occurred June-August (Slauson and Zielinski 2009), when detectability may be lower (Zielinski et al. 2015) and followed a fire where portions of the landscape were still smoldering or actively on fire. The comparison between surveys and

[1] This section summarizes new data and scientific comments addressed in detail in NCASI's comments. The references cited are the same as in NCASI's comments.

periods are dissimilar and using these data to suggest a decline is questionable due to the reduction of stations in 2008, the confounding factor of fire, and the difference season when surveys were conducted.

Further, the multi-state model to estimate the population has not been validated. The authors stated, "While we acknowledge that this is not a standard approach for population estimation, we believe that our sampling design met the key assumptions to make this a plausible approach. Furthermore, by estimating population size using both methods, we can then evaluate the efficacy of the multi-state occupancy method for population estimation compared to the mark-recapture estimate." Unfortunately, hair samples were not sufficient to provide a second method. Instead of using a vetted approach, the authors use an untested method that may not be valid. The authors acknowledge that the survey design and framework was lacking and the sampling design was non-random, violating assumptions of statistical models that were used and potential alternative models.

b) Population size estimates are incongruent with recent capture data

Based on the estimated population size of 80-100 individuals, 33-41% of the population was recently captured outside of the "core" population area on tribal and private managed timberlands in northern California. During 2012-2017, the USDA Forest Service, Pacific Southwest Research Station, partnered with Green Diamond Resource Company and the Yurok Tribe to evaluate status of martens west of the proposed marten core and estimate juvenile dispersal. This study was initiated by Green Diamond Resource Company after observing martens on their lands in 2004 and 2006, with additional detections in a focused study during 2010-2011. During the "dispersal study", 54 cameras were placed approximately in a south to north line west of the marten core. When martens were detected, efforts were made to trap individuals. Field teams captured 33 martens (18 males, 15 females) and 24 (13 males, 11 females) were radio-collared and monitored during a 3-year period (2012-2015). The study objectives were expanded after adult martens were captured, and field teams collected >2,000 radio-telemetry locations, locating 125 rest site locations and confirming 33 dens with reproductive martens (Early et al. 2017, Delheimer et al. n.d.). This effort provides evidence of marten existing outside of core areas and the potential for a larger population size than the modelled estimate of 80-100 individuals.

3) Assumptions regarding lack of dispersal and connectivity in Oregon require additional information, specifically with the southern Oregon population

Additional information is needed to understand the degree to which populations are connected or isolated. New genetic results from detection dog team surveys suggests there may be >2 additional small marten populations in southern Oregon. These detections were coincidentally associated with historical detections (1997, 2001), and were both between the Southern Oregon and Northern California/Southern Oregon Border populations, suggesting some potential for population connectivity through that region (Figure 1). We could presume that martens could easily travel >14 km as daily distances averaged ~6 km within a home range in recent studies (Moriarty et al. 2016b, Moriarty et al. 2017) and 2 juvenile male martens moved >12 km within a day (Moriarty, unpublished data). Increased connectivity would increase resiliency.

4) The current habitat model is insufficient, and additional effort is needed to assess potential predicted habitat

The Service acknowledges potential drawbacks to the current predicted habitat model, but model validity is important for assessing resiliency throughout the document, as defined as the "availability of suitable habitat" (SSA p. 9-11,13, Section 3 and 4, Table 4.1 Proposed Rule p 50576-7, Table 1, etc.). The SSA states:

> "To assist in our analysis of habitat suitability, we used a habitat suitability model developed using data from detections of coastal marten in California (Slauson et al. In review, Slauson et al. 2018). […] Further work needs [to be] done to understand habitat requirements for coastal martens and the degree to which the California coastal marten model represents suitable habitat in coastal Oregon. In the interim, we have chosen to use the model developed by Slauson and others because it is seamless across the coastal marten historical range and because of available documentation." (USFWS SSA p 90)

Currently, the framework using the unpublished model by Slauson et al. (n.d.) is difficult to interpret and is, as the Service recognizes, unlikely to be accurate in Oregon. Although some text suggests the model was published (e.g., within the Conservation Assessment and Strategy, Slauson et al. 2018, pg 59), the citation suggests the manuscript is in preparation (p. 113). Increased transparency is required to assess validity of this unpublished dataset, even in Northern California where the data were collected. As an example of potential concern, the model appears to be overfit, it is not clear if the authors used a correction for assessing multiple models, or if the best model is merely the best from the available models, and not necessarily effective at predicting habitat for marten. Authors used 1159 surveys with <40 marten detections from 2001-2010, yet the model incorporated 29 predictor variables at 3 scales, seemingly equating to 87 covariates (Slauson et al. 2018, pg 59). There is no mention of modeling methods or how models were fit (Slauson 2015, Slauson et al. 2018, USFWS 2018a;b) (e.g., how many variables were in each model), if the authors used generalized linear mixed-models, if the authors accounted for survey differences (year, survey duration, season), and other factors.

The model fit is presumed "good" with a True Skill Statistic of 0.73 (Slauson et al. 2018, pg 61), but it appears the authors are considering "suitable OGSI-dominated habitat" as values greater than 6% predicted probability (Slauson et al. 2018, Fig 20, pg 62). This boundary seems low as a threshold for considering areas suitable, suggesting the model fit is poor even in the areas where it was developed. As an example, Davis et al. (2016) used thresholds >30% (e.g., Figure 1) and divided regions by physiographic provinces, each with independent data to model predicted habitat. Often, values are >23%, but it's suggested a continuous surface be used instead of identifying thresholds as when model fit is poor; identifying such thresholds of "moderate" and "high" predicted suitability can change interpretation drastically (Freeman and Moisen 2008). Another validation of the current model was that "new locations" (2011-2015) in selected areas of predicted habitat were used to verify the model and 36 of 49 were in predicted suitable habitat. With the same logic, it appears the model predicted 3 of 10 clusters of detections as highly suitable in southern Oregon and none of the marten detections in the Central Coast of Oregon, meaning it appears to be quite poor for populations in Oregon.

The poor model fit may be at least partially a result of unhelpful and difficult to interpret variables. The top-ranked model as used within the SSA included 4 variables: (1) Old-growth structural index (OGSI), 1km scale; (2) Serpentine, 3km scale; (3) Precipitation; and (4) Adjusted elevation. The OGSI index did not perform well at lower elevations throughout the modeled area (Slauson 2015). It is not clear if OGSI performs better than more interpretable variables, such as stand age. Of the marten detections in southern Oregon, 26% were in areas with serpentine soils and serpentine soils do not extend northward beyond southern Oregon, suggesting >75% of the detections would not benefit from inclusion of this variable in Oregon. It seems unlikely that "Adjusted elevation" would be helpful as marten detections in Oregon are largely coastal (e.g., 0-50m), or evenly throughout the coastal range in southern Oregon (80-1500m). Models specific to the areas surveyed and based on more interpretable variables would be more accurate, interpreted without ambiguity, and less reliant on untested assumptions.

5) The assumption that predation risk increased due to logging is not based on reliable data

The Proposed Rule and SSA used robust language regarding martens and predation risk, but the science behind these presumptions is largely lacking. The SSA states:

> "These risks are primarily related to habitat loss and associated changes in habitat quality and distribution and include: (1) A decrease in connectivity between populations; and (2) habitat conversion from that suitable for martens to that suitable for generalist predators and competitors, thereby increasing potential interactions and subsequent marten injury, mortality, or predation. These factors are all influenced by vegetation management, wildfire, and changing climate.
>
> Predation of martens (Factor B) has increased due to the changes in forest composition. Bobcats are their predominant predator, with predation accounting for 41 percent of marten mortalities in one study, and the sources of all those predations being bobcat. Bobcats prefer regenerating harvested stands less than 30 years old, and are nearly absent from older forests, the preferred marten habitat."

USFWS Proposed Rule, 83 Fed. Reg. at 50,577. Although phrased in the SSA as factual, it is uncertain if connectivity has decreased, if a change from suitable marten habitat to suitable habitat for generalist predators occurred, if an increase in bobcats (*Lynx rufus*) resulted from a change in forest composition, if bobcats are predominant marten predators throughout their range, if bobcats prefer regenerating stands less than 30 years old, and what actually defines preferred marten habitat. These statements are based on little to no data; further, some of these assumptions contradict published information in Oregon and may not be valid as overarching statements. More information is required to test each of these assumptions. Meanwhile, it would be helpful to review the Proposed Rule using transparent diction regarding assumptions versus statements supported by science.

Generally, many of these assumptions appear to stem from unpublished work by Slauson and others (USFWS 2018b, pg 49), presumably stemming from data recently presented (e.g., Slauson 2018). During such presentations, detailed methods were not provided. The Slauson (2018b) study depicted

bobcat occupancy at 8 *selected* sites that differed in the amount of young forest, varying from the mostly "young" forest (55%) to mostly old forest (100%) (i.e., Goose Creek, Mill Creek, Blue Creek, Pecwan Creek, Bluff Creek, Lost Man Creek, Redwood Creek, and Prairie Creek). Linking predation risk with un-replicated, non-random site selection, presumably with differing levels of survey effort, with a linear model that did not account for other stand or landscape level effects, seems unrealistic as a foundation for bobcats being associated with regenerating stands, increasing in abundance, or influencing marten population dynamics. Consider information from citations such as Wengert (2013), evaluating local bobcat habitat, or Joyce (2018, Ch 4), providing a summary table of marten predators, relevant citations, and empirical data of predation risk from a large data set.

Further, no clear link exists between presence of bobcats and presence of martens or other associated mustelids. For instance, in a recent study, predicted occupancy of martens within a particular sample unit was not influenced by predator occurrence within that sample unit (Moriarty et al. 2018). Similarly, probability of fisher occurrence at camera stations was unrelated to predator occurrence, including bobcats (Sweitzer and Furnas 2016, Fig 4). Recent surveys in Oregon suggested a high prevalence of bobcats in most of the marten range (Moriarty et al. 2016a, Barry 2018), and additional analyses are in progress assessing relative risk with both diet and predicted occupancy (Moriarty et al. in prep). As such, long-term radiotelemetry data from multiple populations, ideally including both martens and potential predators, is warranted.

Lastly, the citation of 41% of individuals being killed during a single study needs clarification, both from a data interpretation standpoint and how it compares to other studies, to be interpreted in the proper context relative to marten population dynamics and viability. For example, data are lacking to determine if marten losses were compensatory, additive, or a combination of both. Additional information, such as baseline mortality rates, recruitment rates relative to mortality rates, rates of mortality by age and gender, and population sustainability as related to survival needs to be understood. Finally, understanding mortality requires a competing risk approach as it is unclear how individuals may have differed in exposure days making simple proportions unsuitable for estimating survival or predation risk (e.g., Pollock et al. 1989).

Several studies have estimated marten survival. Overall survival for martens was estimated as 63% in Lassen National Forest, California (Moriarty et al. 2014), similar to 64% as estimated by Bull and Heater (2001) in un-harvested timberlands in Oregon, and generally in a moderate range for marten studies overall (McCann et al. 2010). As such, 36-41% mortality may be common for marten populations in the western states. In areas with a higher density of martens, such as Minnesota where 1,041-2,252 martens are killed within their 6- or 9-day trapping period (2007-2015), predation occurred on 29% of a radio-telemetered population outside of the harvest season (n=71 of 242 martens, Joyce 2018).

Further, marten survival appears higher than similar sized mammals (500-1200g). For instance, 64% of red squirrels (*Tamiasciurus hudsonicus*) in Montana were killed, on average, during a 7 year period (Halvorson and Engeman 1983). Estimates of survival of Mt. Graham red squirrels (*Tamiasciurus hudsonicus grahamensis*) are 21% for juveniles, 44% for animals 2 years of age, and 39% for animals >3 years of age (Buenau and Gerber 2004, Table 1 with citations within). An 8-year study of 1,796 marked eastern gray squirrels (*Sciurus carolinensis*) documented a high rate of mortality

in their first year (75%) followed by a "high" survival of adults (52%). Eastern spotted skunk (*Spilogale putorius*) survival was estimated as 35% (95% confidence interval = 34-37%) during one study and largely attributed to avian predation (Lesmeister et al. 2010). Barred owls (*Strix varia*) have been proposed as a potential predator to martens, although this also has been unverified (Holm et al. 2016). Although this literature review is not comprehensive, survival in these studies was 25-36% for juveniles and 35-48% for adults. These results suggest martens may have higher survival (59-64%) than similar species with overlapping body sizes. Accurate estimates of fecundity and survival, and variations in these estimates over time, are important to understand changes in marten populations.

Thank you for the opportunity to provide these comments.

Sincerely,

Travis Joseph
President