Please note that attachments consisting of journal articles and lengthy reports were replaced with web links when these materials were available online.
Figure 2. Mean number of Steller’s jays (±SE) detected within 50m of point count stations in RNSP, June – August 2007-2016.

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Table 1. Mean number of Steller’s jays detected within 50m of point count stations in RNSP June through August of 2007 – 2016.

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The large home ranges and long distance daily movements of common ravens in RNSP (Scarpignato 2011) violate the assumptions of the point count sampling methodology used as part of this monitoring program. This problem was anticipated during the design of the monitoring program (J. Marzluff, J. Black, L. George pers. comm.) and was amply demonstrated by the results in all previous survey years (e.g. Bensen 2010, 2008a, 2007). None or virtually no ravens were detected within 50m of monitoring stations. The same lack of detections occurred during the 2016 survey year and so a presentation of raven detections within 50m of point count station results was not included in this year’s report. The relative abundance of common ravens can be roughly represented, however, by looking at the “no boundary” pclt results, as shown in Figure 3 and Table 2. These results represent all detections at each station, regardless of how far away the individual ravens were from the station. Raven density cannot be estimated with this method nor can a high probability of detection be established, making the results inconclusive.

![Figure 3. Mean number of common ravens (±SE) detected at any distance from point count stations in RNSP during June through August, 2007 - 2016.](image-url)
### Table 2. Mean number of common ravens detected at any distance from point count stations in RNSP during June through August of 2007 – 2016. Results indicate relative abundance only.

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**Marbled Murrelet Nest Video Camera Monitoring**

*Note – a separate report of the entire 2015 - 2016 marbled murrelet nest video camera monitoring program will be completed in early 2017 and will provide extensive details on the results summarized below.*
Two of the three suspected marbled murrelet nests where a video camera monitoring system was installed were not occupied in 2016. No murrelets or corvids were detected on camera at those two sites.

The third suspected marbled murrelet nest was re-occupied by an adult marbled murrelet on 1 May 2016. A marbled murrelet pair switched incubation duties approximately every 24 hours from 2 May 2016 to 15 May 2016. During those 15 days, the adult murrelets made minimal movements throughout the day. No corvids were seen on camera during those 15 days. On 15 May 2016, at 07:04, the adult at the nest started to move its head from left to right and up and down, obviously watching something outside of the camera frame. At 07:05, the adult murrelet got up off the nest and flew off, never to return (see top photo on cover of report). At 07:07 a Steller’s jay flew into the camera frame, to the marbled murrelet nest and appeared to start to feed on the murrelet egg (the egg could not be seen directly due to obscuring vegetation). A second Steller’s jay then flew into the camera frame about 15 seconds later, near the nest, and started “begging” (wing flutters) behavior towards the first Steller’s jay (see bottom photo on cover of report). The Steller’s jays then proceeding to feed on the marbled murrelet egg on and off over the next three hours. After approximately 10:00 the Steller’s jays were not seen again at the nest. Presumably the entire contents of the marbled murrelet egg were consumed. The following day, 16 May 2016, the other adult marbled murrelet of the pair arrived at the nest at 05:23, where its mate was not present. The other marbled murrelet landed on the nest, looked back and forth and down at the nest, and walked around the nest, for the next three minutes. The other marbled murrelet adult then flew off the nest, never to return. The Steller’s jays were not seen at the nest over the next five days that the camera was left on. The camera was continuously run until 20 May 2016. The camera was then run at the nest starting the first week in June and subsequently run for two days per week until mid-July. No murrelets or corvids were seen on camera during that time.

D. Discussion

Forest Corvid Point Count Surveys

The year 2012 was set in the RNSP Corvid Management Strategy as an adaptive management evaluation year. During 2007 – 2009, there was less intensive forest corvid management in high use visitor areas of the parks while the years 2010 – 2012 had increasingly intense and focused corvid management. From 2012 - 2015, and continuing in 2016, management effort was almost exclusively concentrated on the campgrounds. New visitor education slogans, personal visitor contact methods, and media were implemented based on Ward et al.’s (2012) recommendations stemming from their assessment of the RNSP corvid education program. The 2016 results, when compared with the previous nine years, contributes to the determination of whether the RNSP forest corvid management program is reducing forest corvid densities in high use visitor areas as compared to control areas away from high use visitor areas. It is important to note is that the study design for the RNSP forest corvid monitoring program is structured to be able to detect a
50% change in corvid densities at the campgrounds with 95% accuracy (George and Peery 2012, RNSP 2008a).

Similar to 2007 - 2015, a within-year comparison of means among the 2016 survey station categories showed that the campground areas contained higher numbers of Steller’s jays as compared to the control areas (Table 1, Figure 2). However, this was the fifth survey year that a drop in jay numbers was recorded in the campgrounds. The decrease exceeded the 50% decrease designed to be detectable by the monitoring program (George and Peery 2012, RNSP 2008a), if a rough running average of 2007 - 2011 is used as a benchmark (Table 1, Figure 2). It is most likely too early to state that the decrease is directly attributable to the more intense and targeted corvid management actions that occurred in the campgrounds in 2012 - 2016. There is the possibility that the decrease was a multiyear, localized phenomenon unconnected with any management actions. A compelling counterpoint, however, is that the other survey areas (i.e. picnic areas — which did not have intensive corvid management in 2012 - 2016 and the control areas) did not experience concurrent large drop in Steller’s jay numbers. The fact that those areas remained relatively stable provides evidence that the decrease in Steller’s jays at the campgrounds was not a regional ecological or demographic phenomenon. Finally, a fifth consecutive year of lower Steller’s jay detections further increases the likelihood that a real decrease is occurring. The next few years of monitoring should be very telling. If the trend of decreasing Steller’s jays in the campgrounds continues and the control areas remain stable, then there will be increasing evidence that the more intense, targeted corvid management methods are effective.

The forest corvid survey results for common ravens, also as expected (L. George and J. Black pers. comm.), were again not conclusive. Raven territories and daily movement patterns are simply too large, as shown by Scarpignato’s (2011) raven home range study conducted in RNSP, to be accurately sampled using standard point count methods within a heavily forested environment. There were almost no detections within any of the 50m plot areas and so the results were not included in this year’s report. Instead, only the “no plot boundary” results were reported. The “no plot boundary” results are also difficult to analyze because no detection reliability index can be established for birds located greater than 50m from point count stations, thus violating the assumption that all individuals are being observed. Unfortunately, at this point in time, the raven results are not easily interpreted. The trends seen in Figure 3 are more likely artifacts of sampling error rather than actual population trends. Current point count methodologies used by RNSP appear unsuitable for monitoring common ravens in the forest environment. At this point, no viable alternative common raven monitoring methods have been developed or suggested.

Marbled Murrelet Nest Video Camera Monitoring

Note — a separate report of the entire 2015 - 2016 marbled murrelet nest video camera monitoring program will be completed in early 2017 and will provide an extensive discussion on the entire 2016 recorded marbled murrelet nesting attempt. The following discussion is limited to corvid monitoring using video cameras at marbled murrelet nests.
The marbled murrelet nest video camera monitoring program initiated in 2016 appears to be at least minimally useful for monitoring corvid predation of murrelet nests. One of the three suspected murrelet nest sites where cameras were installed in 2015 and then turned on in 2016 was reoccupied and available for monitoring. Golightly and Schneider (2011) monitored the only other murrelet nest for multiple years using video cameras in RNSP. That nest, or nest branch, was occupied for seven out of ten years. The 2016 results presented in this report further confirm that murrelets do sometimes return to nest at the same location on subsequent years within the parks. It is unknown why murrelets did not return to the other two suspected nest sites.

With a sample size of one, no conclusions can be made about the regularity with which marbled murrelet nests are depredated. Additional nest monitoring would be very useful in determining the rate of murrelet nest depredation and identifying predators.

It should be noted that the marbled murrelet nest searching expertise provided by James Spickler (EcoAscension) and Dr. Steve Sillelt (Humboldt State University) greatly enhanced the probability that the highly cryptic murrelet nest sites would be found. There are only a handful of persons that have expertise and previous experience climbing in old growth redwood trees and finding murrelet nests.

The camera and power technology used for the monitoring was easy to use, relatively inexpensive, and did not fail during 2016. The only major improvement that could be made would be to find digital video cameras and recorders that required less energy to run. The remote locations of the murrelet nest trees along foot trails required a deep cell battery power system. Each camera system was powered by four, 50 ampere hour deep cell batteries that weighed approximately 20 kilograms apiece. The battery array needed to be switched out and recharged every three to four days. The regularity of battery switching and weight of the batteries meant that any murrelet nest tree using this power system must be within a half kilometer of a trailhead and on flat ground. Any further or up or down a grade would mean that each battery would need to be packed in individually instead of rolled in on a hand wagon as was done in 2016. If a lower power hungry video recording system can be devised, then more remote murrelet nest trees may be available for monitoring.

SECTION II. CORVID MANAGEMENT

A. Introduction

A comprehensive description of the purpose, policy, scientific background, management history, objectives and methods of corvid management in Redwood National and State Parks is described in the parks’ Corvid Management Strategy (RNSP 2008a). The following summary of actions implemented in 2016 is intended to match the organization of Section V - Management Strategy,
Section VI – Effectiveness Monitoring, and Section VIII – Planned Actions If Additional Funding Becomes Available, of the RNSP Corvid Management Strategy, for ease of tracking.

B. Corvid Management Actions Implemented

Section V. A. - Visitor Education was implemented with the following tasks accomplished:

- The corvid management program visitor education recommendations outlined in Ward et al. (2011) were partially implemented in 2016, including:
  - A “Keep It Crumb Clean” educational social media video continued to be webcast. The video is required viewing for any park visitor making an online reservation at any of the three large State Park front-country campgrounds (Elk Prairie Campground, Mill Creek Campground and Jedediah Smith Campground) in RNSP. The video is also available on the parks’ main webpage and social media webpages. The video was viewed approximately 10,000 times in 2016 and 40,000 times since it was initially webcast two years ago. The video can be directly viewed at: [https://www.youtube.com/user/RedwoodNPS](https://www.youtube.com/user/RedwoodNPS).
  - Conveyed message at key visitor access points to ensure target audience received orientation. Park staff identified the four campground entrance kiosks as key access points to provide information to campers, the most critical group of park visitors that the corvid education campaign must reach. Every vehicle entering the park campgrounds from May through September received a card with the “Keep It Crumb Clean” motto and logo on the front and a message on the reverse along with a short verbal message from entrance kiosk park staff. Tens of thousands of visitors were contacted this way.
  - Concentrated all interpretive staff scheduling and deployment to campgrounds during evening meal times when most campers were present and managing food at their sites. See next item for details.

- Three National Park Service seasonal interpretive rangers dedicated-to-the-murrelet/corvid program salary equivalents were hired for the May – September high park visitor season. These positions were in addition to other seasonal and permanent National Park Service and California State Park interpretive staff that informed visitors about murrelets, corvids and food. These positions patrolled/roved (contacted visitors while moving around high use areas like campgrounds and trailheads) the three largest front country campgrounds in RNSP and various high visitation day use areas providing information on marbled murrelets, clean camping, proper trash disposal and the negative effects of intentionally or unintentionally feeding corvids and other wildlife. The roves were timed to occur from 17:00 – 19:00 to coincide with the maximum number of visitors in the campgrounds. In addition, the seasonal rangers gave formal interpretive programs, campfire talks, and Junior Ranger programs. Funding for these extra positions came from the MV Kure/Stuyvesant Oil Spill Restoration Trust Fund administered by a trustee council made up of officials from the California Department of Fish and Wildlife – Oil Spill Prevention and Response division and the US Fish and Wildlife Service (USFWS). Non-oil spill funded seasonal and permanent interpretive staff from both the...
National Park Service and California State Parks roved and made presentations and their numbers are included in the totals above. Interpretive staff contacted approximately 10,000 visitors during roves.

- A corvid-marbled murrelet education article was included in the 2016 issue of the RNBP visitor guide newsletter.
- In 2016, approximately 300,000 visitors were contacted during their time at RNBP and it can be assumed that the vast majority of them were exposed, at least in passing, to some sort of murrelet-corvid educational media (e.g. sign, pamphlet, video, staff contact).
- A corvid-murrelet dedicated web page was maintained at the publicly accessible Redwood National Park website - http://www.nps.gov/redw/nature/index.cfm.

**Section V. B. - Temporary Removal of Select Picnic Tables** was again implemented this year. Per the Corvid Management Strategy, picnic tables were made unavailable at five sites: Tall Trees Trailhead, Redwood Creek Overlook, Lady Bird Johnson Trailhead, Orick Horse Three Hour Loop Trail picnic area and Mill Creek Loop Horse Trail picnic area.

Dispersed camping along lower Redwood Creek gravel bars was again permitted in 2016 due to a lack of corvid response to the temporary camping closure from 2009 – 2011.

**Section V. C. - Law Enforcement** was implemented as part of standard law enforcement practices within RNBP. No specific actions were reported to the Corvid Program Manager.

**Section V. D. - Facility Management** was implemented as part of the standard maintenance procedures of RNBP.

A concrete floor was installed at the covered dining area of the Howland Hill Outdoor School in the northern portion of Redwood National Park. The concrete floor makes it easier for outdoor school managers and students to clean up crumbs after meals as compared to the gravel surface previously in place. Less crumbs, hopefully, will result in less corvid feeding at the outdoor school. Funding for this infrastructure improvement came from the MV Kure/Stuyvesant Oil Spill Restoration Trust Fund administered by a trustee council made up of officials from the California Department of Fish and Wildlife – Oil Spill Prevention and Response division and the US Fish and Wildlife Service (USFWS).

**Section V. E. – Inventory of Potential Human Created Corvid Food Sources Outside of Park** a preliminary inventory was completed in 2008 and the results are included in Bensen (2008a).

**Section V. F. – Program Coordination and Reporting**, a California State Park and a National Park Service staff member continued as the co-Corvid Program Managers to coordinate corvid management activities in RNBP. This report partially satisfies the data analysis and reporting component of this task.
Section VI. A. - Visitor Education Evaluation, completed in 2011, see RNSP (2012) for details.

Section VI. B. - Corvid Monitoring and Reporting, was completed and additional monitoring efforts were initiated.

- The point count survey effort and data analysis described in this report documents this task for 2016.
- Three digital remote video cameras were installed in October, 2015 at three separate marbled murrelet nests within Prairie Creek Redwoods State Park. These cameras used to monitor corvid predation at a marbled murrelet nest in 2016 (see results section for details) (photo front cover).

Section VII. A. – Outside-the-parks Corvid Management was not implemented in 2016 due to lack of additional funding and staff.

Section VII. B. – Research, see RNSP (2012, 2013a, 2013b) for a synopsis of three large scale corvid management related research studies conducted in RNSP and completed between 2011 and 2013.

Section VII. C. – Additional Visitor Education was implemented in 2016 – see Section V.A. above for details.

Section VIII. A. – Adaptive Management Process was implemented in 2012-2016 with increased online social media presence (educational video), increased educational program intensity (additional signs, print media, targeted ranger roving, etc.), education motto and logo changes, and removal of picnic tables from five locations throughout Redwood National Park. The three recently completed corvid management research studies will continue to inform park managers in 2017 and a number of changes are expected over the next few years given the additional findings. Discussions about the ramifications of the corvid monitoring data and research studies conducted in RNSP and elsewhere in the marbled murrelet range have continued with the US Fish and Wildlife Service and California Department of Fish and Wildlife. Additional information is expected from other marbled murrelet management areas in California within the next year. Further corvid management changes and improvements may result from those discussions and analysis. See next item for when changes may occur.

Section VIII. B. - Future Corvid Management Options will be implemented, if necessary, in one year with another review of current actions occurring in late 2016 or early 2017 in consultation with the US Fish and Wildlife Service, California Department of Fish and Wildlife and regional corvid and marbled murrelet experts.
SECTION IV. TRAIL AND BACKCOUNTRY MANAGEMENT PLAN ACTIONS AND AVOIDANCE AND MINIMIZATION MEASURES

A. Introduction

This section of the report describes all visitor development construction minimization measures implemented by the parks in 2016 as stipulated in the terms and conditions of the RNSP Trail and Backcountry biological opinion (USFWS 2007a).

B. Trail Plan Actions and Avoidance and Minimization Measures Implemented

The Lady Bird Johnson – Berry Glen Connector Trail construction was completed and the trail was opened to the public in October, 2010. The 2016 high visitor use period (May through September) was the fifth high visitation season for this trail. All avoidance and minimization measures were implemented. The primary measure was that all above-ambient noise-producing work was conducted outside of the marbled murrelet noise restriction period (24 March – 15 September). Spotted owl (Strix occidentalis caurina) presence surveys were conducted in preparation of the construction of the new route in 2007 and 2008. No spotted owls were detected during the surveys.

No other new trails or facilities described in the RNSP Trail and Backcountry Management Plan biological opinion (USFWS 2007a) were opened nor was construction begun in 2016.

As in previous years, human food availability surveys were not conducted in 2016 after it was determined after repeated preliminary observation and trials that a meaningful, repeatable monitoring method was impossible. Preliminary trials in 2007 and 2008 showed that the majority of campsites and trashcan areas are clean. No food waste was detectable to the observers. Virtually no food waste available to corvids was detected. Subsequent day-long observations of individual corvids feeding within the campsites showed that food scraps were so small as to be unnoticed by observers. In addition, successful feeding bouts were extremely short-lived, on the order of seconds. Therefore, it was determined that to develop a statistically meaningful, repeatable monitoring program would require a near continuous observation effort. Even with such effort, it is highly debatable whether such information would result in actionable management decisions.

All campsites within the Mill Creek Campground have wildlife-proof food storage lockers and all trashcans are wildlife-proof. Funding was provided by outside private donations and private non-profit wildlife conservation groups. This project was completed six years ago. Wildlife proof food storage lockers and trashcans were maintained throughout the RNSP complex using internal funding sources as well as oil spill restoration funds.
REPORT PREPARED BY:


ACKNOWLEDGMENTS

- Carol Wilson, Co-Lead Corvid Management Program, Environmental Scientist – North Coast Redwoods District, California State Parks.
- Mark Morriissette, Environmental Science Intern, North Coast Redwoods District, California State Parks.
- Susan Doniger, District Interpretive Specialist – North Coast Redwoods District, California State Parks.
- Jeff Denny, Supervisory District Interpreter – Redwood National Park.
- Kyle Max, Biological Science Technician – Redwood National Park.

LITERATURE CITED


USFWS Biological Opinion Reference #: 8-14-2003-1517


Personal Communications


Black, Jeff. Professor, Department of Wildlife, Humboldt State University, Arcata, CA.


George, Luke. Emeritus Professor, Department of Wildlife, Humboldt State University, Arcata, CA.
Gordon, Joel. Computer Specialist (former Resource Management Support Staff member), Redwood National and State Parks, Orick, CA.

McIver, Bill. Fish and Wildlife Biologist, US Fish and Wildlife Service, Arcata, CA.

Marzluff, John. Associate Professor, Division of Ecosystem Sciences, College of Forest Resources, University of Washington, Seattle, WA.

Peery, Zach. Statistician and Researcher, University of California, Berkeley/Moss Landing Marine Laboratories, Moss Landing, California.

Hi Christina,

I’ve queried our Fish and Wildlife Offices for a summary of permitted marbled murrelet activities in Oregon. Attached is a summary of the marbled murrelet permits that were issued between 1992 and 2016 for activities in Oregon including a summary of the species actions reported, and a summary of reported take (both purposeful and incidental). Please let me know if you have any further questions.

Regards,
Colleen

On Thu, Mar 23, 2017 at 11:20 AM, Christina E Donehower <christina.e.donehower@state.or.us> wrote:

Hi Colleen,

Jennifer Miller suggested I contact you to see if you may have some information to help inform a state-level Marbled Murrelet status review that we (the Oregon Department of Fish and Wildlife) have initiated in response to a petition. In brief, the petition from Cascadia Wildlands and five other conservation groups requests that the Marbled Murrelet be reclassified from threatened to endangered (uplisted) under the Oregon Endangered Species Act.

In an effort to consult with agencies, organizations, local governments, tribes, other states, and interested persons, we are reaching out to a variety of external entities to inform them of this process and to solicit information on Marbled Murrelet biology, population trends and demographics, marine and terrestrial habitat conditions, threats, and the adequacy of state or federal programs or regulations. We sent out this consultation letter and “backgrounder” (attached) last month to many agency representatives, so perhaps you have already heard about this issue through others in the USFWS? Information relevant to the status of the species in Oregon is being requested by April 7, 2017. In addition, we have a Marbled Murrelet webpage with more details: http://www.dfw.state.or.us/wildlife/hot_topics/marbled_murrelet.asp.

As part of our status review, we also need to consider utilization of the species for scientific
pursues. If available, we would be interested in some summary-level data associated with 10(a)(1)(A) permits issued for Marbled Murrelet research in Oregon (e.g., numbers of Marbled Murrelet permits issued annually from 1992-present, annual estimates of lethal and non-lethal take or similar metrics).

Thank you for considering this request, and please do not hesitate to contact me with questions or to discuss further.

Best Regards,
Christina

Christina Donehower
Strategy Species Coordinator
Oregon Department of Fish and Wildlife
4034 Fairview Industrial Drive SE
Salem, OR 97302
(503) 947-6099

--
**********************************************************************
Colleen Henson
Recovery Permits Coordinator - Region 1
U.S. Fish and Wildlife Service, Pacific Regional Office
Ecological Services Classification and Restoration - Division of Recovery/Grants
911 NE 11th Avenue, Portland, OR 97232

Phone: 503-231-6283   Email: Colleen_Henson@fws.gov

**********************************************************************
**WARNING: The contents of this e-mail might be protected under the Privacy Act and intended only for the use of the individual(s) and entity(ies) named above. If the recipient or reader of this e-mail is not the intended recipient, you are hereby notified that any dissemination, disclosure, copying, or distribution of the contents of this e-mail message is strictly prohibited. If you have received this e-mail in error, please immediately notify the sender via the contact information provided above.
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**Rivers, James, Oregon State University**

*Space Use and Reproductive Success of the Marbled Murrelet (OSU)*

Expiration Date: 4/21/2017  Current Permit Status: ACT Pending

- **TE89863B-0** 2016
  - N:\Permits_10a1\TE_89863B\Reports\TE89863B_2016.pdf
  - Marbled murrelet activities completed in 2016 - includes the OSU Vet Lab diagnostic report on a PTT tagged bird

- **TE89863B-0** 2016
  - N:\Permits_10a1\TE_89863B\Reports\TE89863B_0_NecropsyDiagnosticReport_05202016.pdf
  - Mortality and OSU Vet Lab diagnostic report on a PTT tagged marbled murrelet found dead at Beverly Beach State Park
# Species Actions Reported Summation

**Marbled murrelet**  
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Selected Index Location: None Selected  
From: 1992  
To: 2016  
Permit Type: All

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Raphael, Martin, Pacific Northwest Research Station (USFS)

Population and Reproductive Monitoring of Marbled Murrelets in WA

Reporting Year: 2003

IT = Incidental Take

Wednesday, March 29, 2017
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<td>Activities occurred in the near shore area of WA in the Strait of Juan de Fuca</td>
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<td>Conducted video monitoring of one active nest; collected nest data on a total of three nests</td>
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<td>Banded and blood withdrawn from 41 birds; blood collected in OR from 27 birds</td>
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<td>See 2005 annual report for details. Activities occurred in WA</td>
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<td>Oregon was removed as a geographic location under the permit</td>
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**Rivers, James, Oregon State University**  
*Space Use and Reproductive Success of the Marbled Murrelet (OSU)*

**Reporting Year:** 2016

*IT = Incidental Take*

Wednesday, March 29, 2017
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<td>Female</td>
<td>Salvage</td>
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<td>A PTT tagged murrelet was found at the Beverly Beach State Park approximately 1 week after being captured. An OSU Diagnostic Vet Lab necropsy report identified a bacterial infection in the reproductive and GI tract.</td>
<td>This murrelet is not being counted towards the incidental take limit under the permit. See the 5/20/2016 mortality/diagnostic report for more details.</td>
</tr>
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</table>

IT = Incidental Take

Wednesday, March 29, 2017
Christina,

Please find attached information for your consideration in evaluating the status of Marbled Murrelets in Oregon.

Thank you, Kim

S. Kim Nelson
Oregon State University
104 Nash Hall
Department of Fisheries and Wildlife
Corvallis, OR 97331-3803
541.737.1962
kim.nelson@oregonstate.edu
6 April 2017

Christina Donehower  
Oregon Department of Fish and Wildlife  
Marbled Murrelet  
4034 Fairview Industrial Drive SE  
Salem, OR 97302  
odfw.marbledmurrelet@state.or.us

Re: Notification of Marbled Murrelet Status Review and Consultation Pursuant to ORS 496.176(4) and ORS 635-100-0105(10)

Dear Christina:

Following is information that may be helpful in your review of the status of the Marbled Murrelet (Brachyramphus marmoratus) in Oregon.

Data:
I have electronic data that may be helpful to you in your review including (1) a database of murrelet occupied, presence, and absence sites in Oregon, primarily on Federal lands, and (2) a database of murrelet nest and occupied site characteristics. These data are currently being used in modeling and preparation of manuscripts so they would only be available under specific data-sharing agreements.

For data on the distribution and abundance of murrelets at sea collected as part of Effectiveness Monitoring for the Northwest Forest Plan (Falxa and Raphael 2016), contact Craig Strong (Crescent Coastal Research) and Deanna Lynch (USFWS-Olympia).

Publications:
There are some recent publications not mentioned in the petition that may be helpful to your review. Key conclusions from these papers are that murrelets have sustained low recruitment and low breeding propensity, contributing to continued declines and making rapid recovery difficult. In addition, distribution and abundance of murrelets at sea is dependent on the amount and distribution of suitable breeding habitat. Without adequate habitat close to shore populations will continue to decline. The marine papers also point out that near-shore ocean habitat needs to be preserved in close proximity to inland habitat so murrelets have abundant prey available near their nesting sites.


Please let me know if you have any questions. I appreciate the opportunity to provide additional information for your review.

Sincerely,

S. Kim Nelson
April 6, 2017

ODFW
Marbled Murrelet
4034 Fairview Industrial Drive SE
Salem, OR 97302
odfw.marbledmurrelet@state.or.us

Dear Friends at the Oregon Department of Fish and Wildlife,

On behalf of American Bird Conservancy (ABC), thank you for this opportunity to comment on the status of the Marbled Murrelet in Oregon. ABC is concerned about the steep decline of the murrelet’s population in Washington State and its long-term prospects of maintaining a viable population in the state of Oregon due to risk of ongoing habitat loss and fragmentation. Therefore ABC urges that it be downgraded to endangered status, and that additional conservation measures be developed and implemented.

Marbled Murrelets have been listed as a threatened species for nearly 30 years, yet Oregon has never developed a plan to recover them or protect the old-growth habitat they depend on. The state’s reliance on the nesting habitat located on nearby federal forestlands is not sufficient as murrelet populations in the Pacific Northwest continue to decline, and a recent status review conducted by the U.S. Fish and Wildlife Service determined that conservation of nesting habitat on state and private lands is now critical to the species’ survival.

The small number of this distinct population segment, the significant population decline in Washington State, and past projections of likely extinction in California and Oregon within 100 years, are indications that current protections and efforts to restore old-growth forest habitat need to be augmented. This would aid in the recovery of the Murrelet, listed salmon stocks, and the threatened Northern Spotted Owl, and also benefit clean air, clean water, wild salmon runs, carbon sequestration and other ecosystem services uniquely provided by these irreplaceable late-successional forests.

Washington Department of Fish and Wildlife conducted a status review of the Marbled Murrelet and what follows are its conclusion and recommendation to uplist its status to endangered:

Marbled Murrelets have undergone population declines nearly range-wide within the last few decades (Piatt et al. 2007, Environment Canada 2014, Falka and Raphael 2016). Murrelets in Washington have declined 4.4% per year between 2001 and 2015. When the Marbled Murrelet was federally listed in 1992, the primary factor contributing to its threatened status under the Endangered Species Act was the loss of forest nesting habitat. Moreover, there has been an apparent centennial decline in availability of forage fish prey resources, which in combination with habitat loss, appears to have compromised nest success and survival of young.

Despite progress in implementing federal forest management plans, habitat conservation plans and state Forest Practices Rules, habitat loss has continued and the Washington Marbled Murrelet population has experienced a decline of approximately 44% over 15 years. The
murrelet’s low reproductive rate requires high survivorship for the population to grow. The magnitude of the population decline indicates that the status of the Marbled Murrelet in Washington has become more imperiled since state listing in 1993. Without solutions that can effectively address the major threats in the short-term, it is likely the situation for Marbled Murrelets will only worsen and the species could be lost from some landscapes in the decades ahead.

American Bird Conservancy strongly agreed with this assessment, and urged in our comment that the Marbled Murrelet be uplisted to endangered status in Washington.

Northwest Forest Plan is Conserving Marbled Murrelet Habitat

The Marbled Murrelet is an amazing seabird that in the Pacific Northwest nests in mature and old-growth trees. Due to extensive habitat loss caused by widespread logging near the coast of central to northern California, Oregon, and Washington State, a distinct population segment of the Marbled Murrelet is federally listed as threatened under the Endangered Species Act.

A region-wide court injunction against logging on federal lands and political gridlock prompted intervention in the ancient forest debate by incoming President Bill Clinton. A forest summit was held in Portland, Oregon in 1993, and agencies were directed to develop the Northwest Forest Plan. This was a first of its kind, multispecies and ecosystem conservation plan intended to protect late-successional forests and riparian areas, as well as the Northern Spotted Owl, Marbled Murrelet, Pacific Salmon stocks, and 600 other old-growth-dependent species. The Plan went into effect in 1994 and it remains today the best available conservation framework of its kind.

The Northwest Forest Plan is first and foremost, a multispecies management plan for listed species including the Northern Spotted Owl, Marbled Murrelet and salmon stocks that provides the land management agencies with an “adequate regulatory mechanism” to comply with the Endangered Species Act, the National Forest Management Act, the Clean Water Act, and the National Environmental Policy Act. The Northwest Forest Plan promotes an ecosystem management approach with the specific goal of protecting those listed species and perpetuating and expanding the size of the region’s late-successional forest ecosystem.

Studies show that the Northwest Forest Plan is working as intended to retain mature and old forests, and that the highly fragmented forest ecosystem is growing back into the large blocks of mature forest habitat needed to maintain water quality and recover threatened species such as the Northern Spotted Owl, Marbled Murrelet and Pacific salmon stocks. It is important to note that the Northwest Forest Plan is a 100-year plan, now in its 21st year, and significant habitat gains for Northern Spotted Owl and to a much lesser degree Marbled Murrelets are not anticipated until mid-century.

According to the Pacific Seabird Group:

“significant thinning and logging is taking place within LSRs, which is further fragmenting the landscape and extending the time when large contiguous blocks of late seral habitat will exist on the landscape. In fact, under the NWFP, HCPs, and other habitat management plans, new murrelet habitat will not be suitable for at least 50 to 200 years. The inability to create new murrelet habitat in the short term combined with the continued harvesting of occupied and unoccupied habitat on state, federal and private lands ensures a downward trend in suitable habitat and murrelet populations into the future.

The continued loss of murrelet nesting habitat threatens their survival by: (1) reducing the amount of nesting habitat which in turn decreases the proportion of the population that is able to find quality nest sites; (2) fragmenting occupied sites and subjecting them to harmful edge effects, especially predation, that reduce nest success rate; and (3) reducing the availability of quality nesting habitat forcing murrelets to nest in lower-quality habitat, which diminishes nest success (USFWS 1997, 2012).”

Overall, under the Northwest Plan, 97% of the Murrelet habitat on federal lands has been conserved. However, it is important to remember that the Northwest Forest Plan alone does not provide enough to provide habitat protection for Murrelet recovery. As the 1996 rule notes, the FEMAT viability assessment concluded: “We believe there is only about a 60 percent likelihood that
the Marbled Murrelet population on federal lands would be stable and well distributed after 100 years, regardless of which option is selected.” (p. 26262)

In the 2009 5-year status review, FWS stated that although the Northwest Forest Plan protects some murrelets, without critical habitat, “conservation benefits would not likely extend to all areas currently protected for the murrelet.”

20-Year Monitoring Report Recommends No More Habitat Loss and Reduce Fragmentation to Conserve Marbled Murrelets

As part of the Northwest Forest Plan, a monitoring report on the plan’s effectiveness in conserving the Marbled Murrelet was released in 2015. The report also made management recommendations to conserve remaining habitat that are not being followed by federal agencies including the U.S. Fish and Wildlife Service and Bureau of Land Management. The report notes that the Northwest Forest Plan has been largely successful at conserving 97% of the high quality habitat on federal lands.

While the Northwest Forest Plan has been effective at restoring murrelet habitat, this is a very slow process given the condition of the landscape. Here are some details from the monitoring report:

…it can take more than 100 years for Class 2 habitat to become Class 3 and more than 200 years to become Class 4. The development of stands with old-growth characteristics necessary for murrelets is expected to take at least 100 to 200 years from the time of regeneration (USFWS 1997). For the many younger stands in the murrelet range that were clear-cut harvested in the past century, the benefits of habitat development are far into the future. However, if management for late-successional and old-growth forests continues, projections show substantial increases of forest exceeding 150 years in age by 2050 on western federal lands (Mills and Zhou 2003). Shorter term gains in habitat quality may occur as older forest fills in around existing suitable habitat and reduces edge and fragmentation effects in existing habitat, prior to the older forest developing the large limbs, nest platforms, and other characteristics of murrelet nesting habitat.

Over the long run, it is not unreasonable to expect to see some net increase in total amount of higher suitability habitat; however in the short term, conservation of the higher suitability habitat (Classes 3 and 4) is essential. If losses of suitable habitat are reduced, old forest suitable for nesting is allowed to develop, and fragmentation of older forest is reduced throughout the reserved federal lands, then meeting murrelet population objectives will be more certain. Given declining murrelet population trends as well as habitat losses, in many areas, it is uncertain whether their populations will persist to benefit from potential future increases in habitat suitability. This underscores the need to arrest the loss of suitable habitat on all lands, especially on nonfederal lands and in the relatively near term (3 to 5 decades).

In addition to arresting loss of suitable habitat, the study also concluded that forest fragmentation is a severe threat that needs to be ameliorated.

In this chapter, we found that nesting habitat cohesion, which is the inverse of habitat fragmentation, is a strong predictor of murrelet abundance and trends. This result is not surprising because murrelets prefer larger patches, which also tend to have fewer nest predators (Malt and Lank 2007, Raphael et al. 2002). (p. 114)

Increased edge resulting from forest fragmentation appears to have negative effects on murrelets. Malt and Lank (2007) found that murrelet nest sites at timber harvest edges had lower moss abundance than interior and natural-edge nest sites (stream corridors and avalanche chutes) owing to stronger winds, higher temperature variability, and lower moisture retention.

Another negative impact to murrelets associated with edges, especially those that occur between clearcuts or large openings and forests, is increased nest depredation rates (Marzluff and Neatherlin 2006, Marzluff et al. 2004, Masselink 2001). This is especially true when edges are near human development such as campgrounds (Marzluff and Neatherlin 2006) or include berry-producing plants such as elderberry (Sambucus sp.) (Masselink 2001).
Final Critical Habitat Rule a Missed Opportunity

The U.S. Fish and Wildlife Service has issued a final Marbled Murrelet critical habitat rule that designates 3.7 million acres. However, the rule ignored conservation comments urging the Service to provide either additional habitat protection or protective measures to reverse the current decline and the ongoing threats of habitat loss and fragmentation; threats that will exacerbated by the BLM FEIS, and the proposed sale of Oregon’s Elliott State Forest.

Numerous Threats Indicate Stronger Protections Needed Range-wide

ABC is concerned that clearcutting proposed in the BLM FEIS for Western Oregon will further fragment the landscape. The current buffers under the Northwest Forest Plan protect 503 acres of habitat based on a circular radius from the nest site. A 300-foot buffer provides for only 6.5 acres of protected habitat, a 98% reduction from the current standard. The BLM plan also cuts riparian reserves in half, and calls for extensive commercial logging in the reserves that is not focused on restoration of late-successional conditions, which raises doubt that the reserve network will function as intended.

State of Oregon Proposes Sale of Elliott State Forest

The Department of State Lands has proposed to sell the 84,000-acre Elliott State Forest, and its status remains uncertain, although the State Treasurer has proposed a pathway to decouple the forest from revenue mandates, and keep the forest in public ownership. However, great concern remains that current management practices on Oregon state and private lands are detrimental to and fail to provide for the conservation or recovery of the population. Habitat fragmentation and risk of blowdown in suitable habitat are greatly increased by the intensive even-aged forest management allowed on Oregon forests.

Predation Risk Indicates Large Buffers Needed from Campgrounds & Disturbed Areas

A study published in Condor has found that Marbled Murrelets nesting within campgrounds are at greater risk of predation, due to an increased concentration of predators such as Stellar’s Jay that benefit from the bounty of food left by humans. This harmful effect of increased nest and chick predation could extend outward from the campground for up to one kilometer (.62 miles).

The study notes that:

Because many RNSP campgrounds occur within nesting habitat for the federally threatened Marbled Murrelet (Brachyramphus marmoratus) (Bensen 2012), there is significant concern that increased abundance of Steller’s Jays could increase predation risk for Marbled Murrelet eggs and nestlings, perhaps compromising these areas as productive nesting habitat. Currently, the greatest threat to the viability of Marbled Murrelet populations in California is low productivity; direct observations at active nests in RNSP suggest that low reproductive success can be largely attributed to nest predation by corvids (Hébert and Golightly 2006, Hébert and Golightly 2007, Golightly and Schneider 2011). In California, Steller’s Jays have been implicated in 36% and Common Ravens in 46% of observed predation events on Marbled Murrelet nests (Singer et al. 1991, Peery et al. 2004, Hébert and Golightly 2007, Golightly and Schneider 2009). Management strategies directed at reducing corvid nest predation may be an effective means to recover Marbled Murrelet populations in California (Peery and Henry 2010).

In conclusion, given the degree of threats, and long time-frame for additional habitat to come online, we believe additional protections for the Marbled Murrelet are urgently needed. We urge the Oregon Department of Fish and Wildlife to recommend uplisting the Marbled Murrelet to endangered status in Oregon, and urge that additional conservation measures be adopted by the state as soon as possible.

Thank you for considering these comments.
Sincerely,

Steve Holmer
Senior Policy Advisor
American Bird Conservancy

Steve Holmer
Vice President of Policy
American Bird Conservancy &
Director, Bird Conservation Alliance
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April 6, 2017

ODFW
Marbled Murrelet
4034 Fairview Industrial Drive SE
Salem, OR 97302
odfw.marbledmurrelet@state.or.us

Dear Friends at the Oregon Department of Fish and Wildlife,

On behalf of American Bird Conservancy (ABC), thank you for this opportunity to comment on the status of the Marbled Murrelet in Oregon. ABC is concerned about the steep decline of the murrelet’s population in Washington State and its long-term prospects of maintaining a viable population in the state of Oregon due to risk of ongoing habitat loss and fragmentation. Therefore ABC urges that it be downgraded to endangered status, and that additional conservation measures be developed and implemented.

Marbled Murrelets have been listed as a threatened species for nearly 30 years, yet Oregon has never developed a plan to recover them or protect the old-growth habitat they depend on. The state’s reliance on the nesting habitat located on nearby federal forestlands is not sufficient as murrelet populations in the Pacific Northwest continue to decline, and a recent status review conducted by the U.S. Fish and Wildlife Service determined that conservation of nesting habitat on state and private lands is now critical to the species’ survival.

The small number of this distinct population segment, the significant population decline in Washington State, and past projections of likely extinction in California and Oregon within 100 years, are indications that current protections and efforts to restore old-growth forest habitat need to be augmented. This would aid in the recovery of the Murrelet, listed salmon stocks, and the threatened Northern Spotted Owl, and also benefit clean air, clean water, wild salmon runs, carbon sequestration and other ecosystem services uniquely provided by these irreplaceable late-successional forests.

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with habitat loss, appears to have compromised nest success and survival of young.

Despite progress in implementing federal forest management plans, habitat conservation plans and state Forest Practices Rules, habitat loss has continued and the Washington Marbled Murrelet population has experienced a decline of approximately 44% over 15 years. The murrelet’s low reproductive rate requires high survivorship for the population to grow. The magnitude of the population decline indicates that the status of the Marbled Murrelet in Washington has become more imperiled since state listing in 1993. Without solutions that can effectively address the major threats in the short-term, it is likely the situation for Marbled Murrelets will only worsen and the species could be lost from some landscapes in the decades ahead.

American Bird Conservancy strongly agreed with this assessment, and urged in our comment that the Marbled Murrelet be uplisted to endangered status in Washington.

Northwest Forest Plan is Conserving Marbled Murrelet Habitat

The Marbled Murrelet is an amazing seabird that in the Pacific Northwest nests in mature and old-growth trees. Due to extensive habitat loss caused by widespread logging near the coast of central to northern California, Oregon, and Washington State, a distinct population segment of the Marbled Murrelet is federally listed as threatened under the Endangered Species Act.

A region-wide court injunction against logging on federal lands and political gridlock prompted intervention in the ancient forest debate by incoming President Bill Clinton. A forest summit was held in Portland, Oregon in 1993, and agencies were directed to develop the Northwest Forest Plan. This was a first of its kind, multispecies and ecosystem conservation plan intended to protect late-successional forests and riparian areas, as well as the Northern Spotted Owl, Marbled Murrelet, Pacific Salmon stocks, and 600 other old-growth-dependent species. The Plan went into effect in 1994 and it remains today the best available conservation framework of its kind.

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**Overall, under the Northwest Plan, 97% of the Murrelet habitat on federal lands has been conserved. However, it is important to remember that the Northwest Forest Plan alone does not provide enough to provide habitat protection for Murrelet recovery. As the 1996 rule notes, the FEMAT viability assessment concluded: “We believe there is only about a 60 percent likelihood that the Marbled Murrelet population on federal lands would be stable and well distributed after 100 years, regardless of which option is selected.” (p. 26262)**

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**20-Year Monitoring Report Recommends No More Habitat Loss and Reduce Fragmentation to Conserve Marbled Murrelets**

As part of the Northwest Forest Plan, a monitoring report on the plan’s effectiveness in conserving the Marbled Murrelet was released in 2015. The report also made management recommendations to conserve remaining habitat that are not being followed by federal agencies including the U.S. Fish and Wildlife Service and Bureau of Land Management. The report notes that the Northwest Forest Plan has been largely successful at conserving 97% of the high quality habitat on federal lands.

While the Northwest Forest Plan has been effective at restoring murrelet habitat, this is a very slow process given the condition of the landscape. Here are some details from the monitoring report:

...it can take more than 100 years for Class 2 habitat to become Class 3 and more than 200 years to become Class 4. The development of stands with old-growth characteristics necessary for murrelets is expected to take at least 100 to 200 years from the time of regeneration (USFWS 1997). For the many younger stands in the murrelet range that were clear-cut harvested in the past century, the benefits of habitat development are far into the future. However, if management for late-successional and old-growth forests continues, projections show substantial increases of forest exceeding 150 years in age by 2050 on western federal lands (Mills and Zhou 2003). Shorter term gains in habitat quality may occur as older forest fills in around existing suitable habitat and reduces edge and fragmentation effects in existing habitat, prior to the older forest developing the large limbs, nest platforms, and other characteristics of murrelet nesting habitat.
Over the long run, it is not unreasonable to expect to see some net increase in total amount of higher suitability habitat; however in the short term, conservation of the higher suitability habitat (Classes 3 and 4) is essential. If losses of suitable habitat are reduced, old forest suitable for nesting is allowed to develop, and fragmentation of older forest is reduced throughout the reserved federal lands, then meeting murrelet population objectives will be more certain. Given declining murrelet population trends as well as habitat losses, in many areas, it is uncertain whether their populations will persist to benefit from potential future increases in habitat suitability. This underscores the need to arrest the loss of suitable habitat on all lands, especially on nonfederal lands and in the relatively near term (3 to 5 decades).

In addition to arresting loss of suitable habitat, the study also concluded that forest fragmentation is a severe threat that needs to be ameliorated.

In this chapter, we found that nesting habitat cohesion, which is the inverse of habitat fragmentation, is a strong predictor of murrelet abundance and trends. This result is not surprising because murrelets prefer larger patches, which also tend to have fewer nest predators (Malt and Lank 2007, Raphael et al. 2002). (p. 114)

Increased edge resulting from forest fragmentation appears to have negative effects on murrelets. Malt and Lank (2007) found that murrelet nest sites at timber harvest edges had lower moss abundance than interior and natural-edge nest sites (stream corridors and avalanche chutes) owing to stronger winds, higher temperature variability, and lower moisture retention.

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The U.S. Fish and Wildlife Service has issued a final Marbled Murrelet critical habitat rule that designates 3.7 million acres. However, the rule ignored conservation comments urging the Service to provide either additional habitat protection or protective measures to reverse the current decline and the ongoing threats of habitat loss and fragmentation; threats that will exacerbated by the BLM FEIS, and the proposed sale of Oregon’s Elliott State Forest.

**Numerous Threats Indicate Stronger Protections Needed Range-wide**

ABC is concerned that clearcutting proposed in the BLM FEIS for Western Oregon will further fragment the landscape. The current buffers under the Northwest Forest Plan protect 503 acres of habitat based on a circular radius from the nest site. A 300-foot buffer provides for only 6.5 acres of protected habitat, a 98% reduction from the current standard. The BLM plan also cuts riparian reserves in half, and calls for extensive commercial logging in the reserves that is not focused on restoration of late-successional conditions, which raises doubt that the reserve network will function as intended.
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The study notes that:

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In conclusion, given the degree of threats, and long time-frame for additional habitat to come online, we believe additional protections for the Marbled Murrelet are urgently needed. We urge the Oregon Department of Fish and Wildlife to recommend uplisting the Marbled Murrelet to endangered status in Oregon, and urge that additional conservation measures be adopted by the state as soon as possible.

Thank you for considering these comments.

Sincerely,

Steve Holmer
Senior Policy Advisor
American Bird Conservancy
October 26, 2015

Michael Bean
Principal Deputy Assistant Secretary for Fish and Wildlife and Parks
U.S. Department of the Interior
Washington, D.C. 20240

Public Comments Processing
Attn: FWS-R1-ES-2015-0070
Division of Policy, Performance and Management Programs
U.S. Fish and Wildlife Service, MS: BPHC
Falls Church, VA 22041-3803

Dear Principal Deputy Assistant Secretary Bean,

Thank you for this opportunity to comment on the designation of critical habitat for the threatened Marbled Murrelet. Based on the best available science and a review of pending threats to Marbled Murrelet habitat, American Bird Conservancy (ABC) respectfully requests that the U.S. Fish and Wildlife Service (the Service) propose additions to designated critical habitat and require new protective measures to ameliorate continuing habitat loss and fragmentation from timber harvest on private, state and federal lands.

The small number of this distinct population segment, the significant population decline in Washington State, and past projections of likely extinction in California and Oregon within 100 years, are indications that current protections and efforts to restore old-growth forest habitat need to be augmented. This would aid in the recovery of the Murrelet, listed salmon stocks, and the threatened Northern Spotted Owl, and also benefit clean air, clean water, wild salmon runs, carbon sequestration and other ecosystem services uniquely provided by these irreplaceable late-successional forests.
ABC agrees with the Service that all 3,698,100 acres currently designated meet the definition of critical habitat and should be retained. In addition, ABC urges the Service to identify additional acres, including near shore areas, that are suitable for critical habitat designation, and to direct federal and state land management agencies to adopt more stringent habitat protection measures for the Marbled Murrelet, including larger buffers around timber management projects.

In addition, proposed regulatory and legislative changes threaten both Murrelet habitat and the conservation framework now in place on federal lands to provide for its recovery. There are also deficiencies in the 1996 rule, including a lack of adequate critical habitat designations on tribal, private, and state forest lands, and near shore areas that should be addressed by this proposal.

In conclusion, we urge your support for expanding the critical habitat designation and promote more aggressive habitat conservation measures for the murrelet on federally and state managed forests, as well as added conservation incentives for landowners and public acquisitions of private lands from willing sellers. Additional recommendations and relevant background information are contained below.

Thank you for your attention to these concerns.

Sincerely,

Steve Holmer
Senior Policy Advisor
American Bird Conservancy

Northwest Forest Plan is Conserving Marbled Murrelet Habitat, Just Not Enough

The Marbled Murrelet is an amazing seabird that in the Pacific Northwest nests in mature and old-growth trees. Due to extensive habitat loss caused by widespread logging near the coast of central to northern California, Oregon, and Washington State, a distinct population segment of the Marbled Murrelet is federally listed as threatened under the Endangered Species Act.

A region-wide court injunction against logging on federal lands and political gridlock prompted intervention in the ancient forest debate by incoming President Bill Clinton. A forest summit was held in Portland, Oregon in 1993, and agencies were directed to develop
the Northwest Forest Plan. This was a first of its kind, multispecies and ecosystem conservation plan intended to protect late-successional forests and riparian areas, as well as the Northern Spotted Owl, Marbled Murrelet, Pacific Salmon stocks, and 600 other old-growth-dependent species. The Plan went into effect in 1994 and it remains today the best available conservation framework of its kind.

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Studies show that the Northwest Forest Plan is working as intended to retain mature and old forests, and that the highly fragmented forest ecosystem is growing back into the large blocks of mature forest habitat needed to maintain water quality and recover threatened species such as the Northern Spotted Owl, Marbled Murrelet and Pacific salmon stocks. It is important to note that the Northwest Forest Plan is a 100-year plan, now in its 21st year, and significant habitat gains for Northern Spotted Owl and to a much lesser degree Marbled Murrelets are not anticipated until mid-century.
According to the Pacific Seabird Group:

“significant thinning and logging is taking place within LSRs, which is further fragmenting the landscape and extending the time when large contiguous blocks of late seral habitat will exist on the landscape. In fact, under the NWFP, HCPs, and other habitat management plans, new murrelet habitat will not be suitable for at least 50 to 200 years. The inability to create new murrelet habitat in the short term combined with the continued harvesting of occupied and unoccupied habitat on state, federal and private lands ensures a downward trend in suitable habitat and murrelet populations into the future.

The continued loss of murrelet nesting habitat threatens their survival by: (1) reducing the amount of nesting habitat which in turn decreases the proportion of the population that is able to find quality nest sites; (2) fragmenting occupied sites and subjecting them to harmful edge effects, especially predation, that reduce nest success rate; and (3) reducing the availability of quality nesting habitat forcing murrelets to nest in lower-quality habitat, which diminishes nest success (USFWS 1997, 2012).”

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In the 2009 5-year status review, FWS stated that although the Northwest Forest Plan protects some murrelets, without critical habitat, “conservation benefits would not likely extend to all areas currently protected for the murrelet.” In addition, the protections these birds enjoy under the Northwest Forest Plan may change as forest plans are revised. Both the Bureau of Land Management (BLM) and USFS are currently undertaking plan revisions in the region that seek to alter the Plan’s management standards.

**Marbled Murrelet 20-Year Monitoring Report (excerpts)**

Annual population estimates for the entire NWFP area ranged from about 16,600 to 22,800 murrelets during the 14-year period, with a 2013 estimate of 19,700 (95 percent confidence interval: 15,400 to 23,900). At the conservation-zone scale, there was strong evidence of a linear decline in the two conservation zones in Washington: Conservation Zone 1 (3.9 percent decline per year), which includes the Strait of Juan de Fuca, San Juan Islands, and Puget Sound and Conservation Zone 2 (6.7 percent decline per year), which includes the outer coast of Washington. At the state scale, which combines conservation zones and portions of conservation zones, we found strong evidence for a declining linear trend in Washington (4.6 percent decline per year) and no evidence of a trend in Oregon. For the entire NWFP area the
trend estimate for the 2001 to 2013 period was negative, but here also the confidence interval for the estimate overlapped zero and the evidence for a trend was inconclusive. This result differs from the decline previously reported at the NWFP-scale for the 2001 to 2010 period. This difference was the result of high population estimates for 2011 through 2013 compared to the previous several years, which reduced the slope of the trend and increased variability. Continued monitoring should help to better understand population trends and to assess underlying factors that might explain trends and variability in annual estimates. The population monitoring results to date indicate that the NWFP goal of stabilizing and increasing marbled murrelet populations has not yet been achieved throughout the NWFP area.

We found a net loss of about 2 percent of potential nesting habitat from 1993 to 2012 on federal lands, compared to a net loss of about 27 percent on nonfederal lands. In both analyses, we found that numbers of murrelets are positively correlated with amounts and pattern (large contiguous patches) of suitable nesting habitat, and that population trend is most strongly correlated with trend in nesting habitat although marine factors also contribute to this trend.

Model results suggest that conservation of suitable nesting habitat is key to murrelet conservation, but that marine factors, especially factors that contribute to murrelet prey abundance, play a role in murrelet distribution and trend. Conservation of habitat within reserves, as well as management actions that are designed to minimize loss of suitable habitat or improve quality of nesting habitat on all lands, should contribute to murrelet conservation and recovery.

Our findings indicate that the answer to this question is “no,” the murrelet population associated with the NWFP area is not stable or increasing, at least not in Washington. We believe that the magnitude of the decline observed for Washington State and its two conservation zones, based on the 2001 to 2013 period, is sufficient to cause concern, and may merit a review of potential management implications and responses.

Both the NWFP (FEMAT 1993) and the species’ recovery plan (USFWS 1997) anticipated a challenge in maintaining murrelet populations for 50 to 200 years, until new nesting habitat develops. In light of observed population trends, our findings underscore the importance of the short-term goal to maintain existing nesting habitat.
Loss of higher-suitability habitat was greatest on nonfederal lands (losses were 29.8, 21.1, and 21.8 percent of baseline in Washington, Oregon and California, respectively; Tables 2-9 and 2-10). On nonfederal lands, almost all loss (98 percent) was due to harvest (Tables 2-12 and 2-13). Losses were lower from federally reserved lands, totaling 1.7, 3.8, and 1.1 percent from the three states (Tables 2-9 and 2-10). The cause of loss varied by land ownership, based on the LandTrendr-verified losses. On federal lands, most of this loss of higher-suitability habitat (62 percent) was due to fire and about 23 percent due to harvest (Table 2-12). On federally reserved lands, wildfire accounted for 66 percent of losses (Table 2-12). Most of these losses (62 percent of all losses in reserves) occurred in the Oregon Klamath physiographic province, and from a single fire, the 2002 Biscuit Fire, which was Oregon’s largest contiguous, single-year fire on record (Azuma et al. 2004).

**Implications of Results**

In the short term, the objective is to conserve all remaining habitat, and to that end the NWFP has conserved to date the large majority (greater than 97 percent) of suitable marbled murrelet nesting habitat that was present on the federal lands NWFP management at the inception of the plan in 1994.

While some future losses due to wildfire and natural disturbances are likely, harvest losses within federal reserves should drop or cease, with the completion of the ‘grandfathered’ timber sales approved prior NWFP implementation, but harvested after 1993. Over 90 percent of currently higher-suitability habitat on federal lands occurs within the various reserve land use allocations, but whether this continues is highly dependent on future management and political decisions.

However, rate of loss of higher-suitability habitat has been about 10 times greater (26.6 percent) on nonfederal lands, due mostly to timber harvest (Table 2-13). Conservation of the threatened murrelet is not possible if such losses continue at this rate into the future. If the amount of higher-suitability habitat for murrelets is to be maintained at its current level, and given that almost half of the higher-suitability habitat is on nonfederal lands, accomplishing this goal will require significant contributions from nonfederal lands.

The development of stands with old-growth characteristics necessary for murrelets is expected to take at least 100 to 200 years from the time of regeneration (USFWS 1997). For the many younger stands in the murrelet range that were clear-cut harvested in the past century, the benefits of habitat development are far into the future. However, if management for late-
successional and old-growth forests continues, projections show substantial increases of forest exceeding 150 years in age by 2050 on western federal lands (Mills and Zhou 2003).

Over the long run it is not unreasonable to expect to see some net increase in total amount of higher-suitability habitat, however in the short term conservation of the higher-suitability habitat (Classes 3 and 4) is essential. If losses of suitable habitat are reduced, old forest suitable for nesting is allowed to develop, and fragmentation of older forest is reduced throughout the reserved federal lands, then meeting murrelet population objectives will be more certain. Given declining murrelet population trends as well as habitat losses, in many areas, it is uncertain whether their populations will persist to benefit from potential future increases in habitat suitability. This underscores the need to arrest the loss of suitable habitat on all lands, especially on nonfederal lands and in the relatively near term (3-5 decades).

In Chapter 2 of this volume, we found that a relatively high proportion (typically two-thirds or more) of suitable nesting habitat occurs as small patches (lacking interior forest conditions that are more than 90 m from a patch edge) or as edges of larger habitat patches. In this chapter, we found that nesting habitat cohesion, which is the inverse of habitat fragmentation, is a strong predictor of murrelet abundance and trends. This result is not surprising because murrelets prefer larger patches, which also tend to have fewer nest predators (Malt and Lank 2007, Raphael et al. 2002).

A key feature of the NWFP is a network of late-successional reserves that have the management objective of protecting and enhancing late-successional forest ecosystems, which serve as habitat for late-successional forest species, including the murrelet. These reserves contain both older and younger forests, and over time, as more mature habitat develops around existing older forest in reserves, patch size should increase, and fragmentation and the prevalence of edges should decrease within reserves. However, it can take many decades for murrelet nesting habitat to develop, and in the short-term, protection of existing habitat will continue to be critical to minimize habitat losses, both within and outside of late-successional reserves.

Near-term murrelet conservation should also consider habitat loss caused by windthrow. Windthrow is a natural phenomenon and an important process in coastal forests of the Pacific Northwest, but it can be highly influenced by human activities. Clearcut or heavy thinning harvests can increase the amount of windthrow on the landscape dramatically. This effect depends on complex interactions between biotic (e.g., forest age and condition) and abiotic (e.g., slope and aspect) factors operating at different spatial and temporal scales (Sinton et
al. 2000). Portions of forests can also be lost to windthrow after lighter thinning, but the magnitude of the effect depends on factors including topography and tree height-to-diameter ratios (Harrington et al. 2005, Roberts et al. 2007, Wilson and Puettmann 2007). Thus, thinning operations may accelerate the creation of forest conditions suitable to murrelet nesting in the long term (e.g., Maguire et al. 1994), but have short term negative impacts to murrelets to consider in management decisions (McShane et al. 2004).

Forest practices, natural forest disturbance and the interaction between these factors can increase the amount of forest edge. Increased edge resulting from forest fragmentation appears to have negative effects on murrelets. Malt and Lank (2007) found that murrelet nest sites at timber harvest edges had lower moss abundance than interior and natural edge nests sites (stream corridors and avalanche chutes) due to stronger winds, higher temperature variability, and lower moisture retention. Moss is an important nest substrate on large branches for murrelets in much of the NWFP area, therefore management actions adjacent to suitable murrelet nesting habitat can have implications for murrelets. Another negative impact to murrelets associated with edges, especially those that occur between clearcuts or large openings and forests, is increased nest depredation rates (Masselink 2001, Marzluff et al. 2004, Marzluff and Neatherlin 2006). This is especially true when edges are near human development such as campgrounds (Marzluff and Neatherlin 2006) or include berry producing plants such as elderberry (Sambucus sp.; Masselink 2001).

One conservation measure that is commonly used to minimize negative effects of forest edges is to provide forested buffers (USFWS 1997). The murrelet recovery plan includes as a short-term recovery action maintaining and enhancing buffer habitat around occupied nesting habitat, and suggests minimum buffer widths of 300-600 feet in this situation (USFWS 1997). Buffers around suitable nesting habitat (whether determined to be occupied or not) would help reduce fragmentation, risk of windthrow loss, and potentially reduce nest predation risk (USFWS 1997). Buffers are particularly important in the near-term while larger blocks of habitat develop on reserved lands. The details of such buffers are beyond the scope of this report. However, if not already accomplished, development and implementation of forest management practices that protect (short-term) and develop (long-term) suitable murrelet nesting habitat on NWFP lands within the murrelet range would be beneficial. For such practices, minimizing short term impacts, such as by avoiding harvest of suitable nesting habitat, providing buffers round suitable nesting habitat to minimize edge effects of management actions (such as from thinning or clearcuts), and minimizing fragmentation of suitable habitat, will likely improve the status of this threatened species.

As described in Chapter 2, a substantial amount of suitable nesting habitat occurs on state and private lands. The loss of habitat on those lands is occurring at a much more rapid rate than on Federal lands. Because of the strong relationship between murrelet populations and nesting habitat and because recovery of murrelet populations will likely require contributions of nesting habitat on state and private lands, at least in the short-term (as discussed in the murrelet recovery plan), there is a need for incentives for private forest landowners to avoid fragmentation and loss of high quality nesting habitat and to maintain blocks of interior nesting habitat on the landscape as well as buffers adjacent to suitable habitat on federal and state lands.
Several points bear repeating: (1) loss of higher-suitability habitat has been relatively low on Federal land compared to non-federal land since creation of the Northwest Forest Plan; (2) marbled murrelet declines are not related to the small loss of higher suitability habitat on Federal lands, but could be related to the lack of buffers and heavy thinning adjacent to murrelet habitat in the LSRs; and (3) there appears to be a strong relationship between murrelet population declines and the large loss of higher suitability habitat on non-federal land, especially in Zone 2.

**Marbled Murrelet Population Trend and Long-Term Viability**

Declining murrelet population trends and habitat losses documented in the 20-year monitoring report of the Northwest Forest Plan underscore the need to minimize the loss of suitable habitat, especially in the relatively near term (next 50 – 100 years), until re-growing forests develop the structure needed for marbled murrelet nesting. Previous studies came to similar conclusions.

The 2004, “Evaluation Report for the 5-Year Status Review of the Marbled Murrelet in Washington, Oregon, and California” reported that the population of approximately 21,900 (3-state population estimate) individuals is declining and that the extinction risk for this species is at least 100% within 100 years in all areas that the species inhabits in the Washington, Oregon, and California, except zone 1 (Puget Sound Area). “Since the 1992 listing, suitable breeding habitat and number of occupied trees have decreased throughout the 3-state region”.

The importance of terrestrial habitat for both survival and recovery of Marbled Murrelets in Washington, Oregon, and California is clear from the status review conducted in 2004 which states “It is unrealistic to expect that the species will recover before there is significant improvement in the amount and distribution of suitable habitat”. A 2013 peer-reviewed study by the U.S. Fish and Wildlife Service (FWS) and U.S.D.A. Forest Service (USFS) found

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that distinct population segment of the Marbled Murrelet had declined by 29% over the last decade.¹

These findings, bolstered by the 20-year monitoring report, indicate that current measures to eliminate threats and protect habitat are inadequate and that additional measures are urgently needed. In addition, the Murrelet faces new threats in the form of inadequate regulatory mechanisms as a result of proposed changes to the resource management plans in Oregon, and legislation.

**Threats to Marbled Murrelet Habitat**

Proposals to increase logging in currently protected forests has also spawned opposition from scientists working to conserve the threatened Marbled Murrelet. The Pacific Seabird Group, an international, nonprofit organization that promotes the study and conservation of Pacific seabirds, sent a [letter to President Obama](http://www.fs.fed.us/psw/publications/miller/psw_2012_miller001.pdf) stating, “we have a high level of concern about current proposals to increase logging in western forests, where the cumulative impacts of the patchwork landscape could exacerbate problems already faced by the Marbled Murrelet.”

The group pointed out that plans to increase logging and create a timber trust on the Oregon & California Railroad (O & C) lands managed by the Bureau of Land Management would be particularly harmful to the murrelet. “Impacts on the Marbled Murrelet could be severe, because the lands that likely would be logged and fragmented include active murrelets and surrounding forest habitats.”

H.R. 2647, passed by the House of Representatives, would create new categorical exclusions for large-scale logging, limit citizen involvement and oversight, and undermine protections of the Northwest Forest Plan. The administration is strongly opposing the bill which if passed could result in significant habitat loss. The proposed O & C Land Grant Act, S. 132, would increase the risk of habitat loss and fragmentation for the Marbled Murrelet. The bill, which the administration has also raised concerns about, could be improved by prohibiting ecoforestry and other even-aged management within the Murrelet’s nesting area.

The 2012 Final Northern Spotted Owl Critical Habitat Rule misapplies the Northwest Forest Plan’s ecosystem management approach to promote ecological forestry which has not been adequately field tested or monitored, and is likely to be detrimental to Northern Spotted Owls, Marbled Murrelets and listed salmon by increasing fragmentation and facilitating Barred Owl invasion.

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The draft Northern Spotted Owl Critical Habitat Rule’s Environmental Assessment found that “Active forest management that is in the vicinity of murrelet nesting stands may be detrimental to the species survival and recovery.” (p. 61)

Logging (clearcutting and commercial thinning) increases fragmentation, opening the forests to nest predators such as crows, ravens, and jays. Despite this, there was no prohibition in the final owl critical habitat rule on the proposed active management to ensure murrelet nesting stands will not be disturbed, and notably, the fact that active management may be detrimental to Murrelet nesting stands was not mentioned as it had been in the draft, a glaring omission that again raises concern that Murrelet conservation is not receiving adequate attention by the Service.

Western Oregon Plan Revision Threatens the Northwest Forest Plan

The draft 2015 Western Oregon Plan Revisions poses a significant threat to the Marbled Murrelet, in addition to the Northern Spotted Owl and Coho salmon. ABC’s full comment is attached and some key excerpts follow.

As an initial amendment to President Clinton’s Northwest Forest Plan, American Bird Conservancy is viewing this draft both in terms of its specific impacts to forests and wildlife in western Oregon, and how it changes the Northwest Forest Plan’s regional restoration framework to provide additional habitat for and to conserve wide-ranging listed species including the Northern Spotted Owl and Marbled Murrelet.

A key principle we now reiterate is that the regional conservation framework of the Northwest Forest Plan needs to be retained and that the BLM and Forest Service need to work together to ensure forest plans comply with the best available science and legal obligations to protect endangered species, and to provide the public a fair and complete understanding of the changes being proposed to the Northwest Forest Plan. This fundamental principle is being ignored by BLM.

We are concerned that the draft alternatives reflect 1) an abandonment of the Northwest Forest Plan and the consistent regional management and restoration framework that it

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provides, 2) a significant weakening of protections for listed species, and water quality, by reducing riparian reserves and promoting clearcutting of mature forests including in Northern Spotted Owl critical habitat, and Marbled Murrelet nesting areas, and 3) an incomplete economic analysis that fails to recognize that recreation, clean water, carbon storage and other amenities provided by these federal forests are worth more in terms of jobs and overall economic contribution to society than an emphasis on increased timber production in endangered species habitat.

A key piece of new information is now available, the 20-year monitoring reports of the Northwest Forest Plan, is now available and should be considered. The reports indicate that the plan is working as intended, creating additional habitat for listed species, improving water quality, guiding needed restoration, and providing a stable supply of timber.

**Western Oregon Plan Revision Threatens the Marbled Murrelet**

The BLM and Forest Service are producing as much timber as Congress is funding. Approximately 757 million board is the estimated volume that can be produced in the Northwest Forest Plan area, and the agencies have been consistently producing over 600 million board feet. Any perceived shortfall is related to funding levels set by Congress and the administration, and not the result of litigation by conservation groups.

The timber industry had filed several challenges to BLM’s management of O&C lands in the D.C. District Court, generally arguing in each case that BLM had failed to offer for sale sufficient timber to meet statutory requirements. In August, the DC Court of Appeals rejected the first of these challenges, holding that the timber industry did not have standing to raise such a challenge because plaintiffs could not demonstrate that their claimed economic harm was linked to BLM’s timber program, as opposed to the Great Recession, lower funding levels for BLM operations, and other factors. In September, the District Court dismissed three additional challenges on the same grounds. As a result, there is no “court-ordered mandate” to increase timber harvest on O&C lands.

**Faulty No Action Alternative:** The No Action Alternative is based on the Northwest Forest Plan as written, as opposed to how it is actually being implemented in 2015. As a result, it does not offer a useful baseline for analysis, particularly for the 50-year projections, or for comparison with the proposed draft alternatives. The draft misleads the public by claiming inflated timber outputs under the Northwest Forest Plan as written despite the fact there has been considerable adaptive management since 1994, and old growth logging projects in matrix were typically found by federal courts to be illegal. White House Council on

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Environmental Quality guidance on this point is clear: “In these cases “no action” is “no change” from current management direction or level of management intensity.”

In addition, the economic analysis was incomplete, but it did include significant evidence that non-timber values such as recreation, water, wildlife habitat and carbon storage are more valuable than timber. However it failed to assess the costs of proposed increases in mature forest logging as proposed in the DEIS, which would diminish those values. Details below are from the BLM DEIS.

Recreation Value: The 2012 value of recreation is estimated at $223 million, and annual recreation value is expected to increase over the next decade to $250 million annually in each alternative. BLM administers approximately 50 percent of all public land within 30-minute driving time of the 12 largest communities in western Oregon, and 34 percent within 60-minute driving time. There were 10.8 million participants in recreation, with wildlife/nature viewing, scenic driving, camping and picknicking, non-motorized trail use, and hunting all experiencing over one million participants (p. 489). BLM projects 16.5 million annual participants by 2060 (p. 491). It is estimated that hunting, including Migratory Game Birds generates $26 million annually, and that wildlife viewing adds another $31.5 million.

Carbon Storage Value: In 2012, the forests in the decision area fixed and stored a net total of about 673,000 metric tons of carbon (p. 501). While there are market that exist to provide payments for carbon storage, there is currently no such market operating in western Oregon, and BLM does not participate. Absent a market value, BLM has analyzed the social cost of carbon which attempts to put a monetary value on the likely costs of climate change. There is considerable debate about these costs, so BLM has provided a range of values. At the low end, is an estimate of $99 million dollars a year resulting from carbon storage on BLM managed lands. At the high end, $291 million (p. 502).

Source Water Protection: BLM-administered public lands capture, filter and convey water that people in western Oregon drink. Approximately 80 percent of Oregonians depend on drinking water from public water systems. There are approximately 80 source water watersheds in the planning area and 73 percent of BLM-administered lands are in areas the Oregon DEQ identifies as drinking water protection areas (TNC and WSC 2012) (p. 502-503).

Here there appears to be some missing analysis because there is no estimate provided for the value of the water coming off of the forests, or of the replacement cost if that water not available, or possible filtration costs if currently clean water supplies were to become degraded. The analysis notes that the economics literature on water-treatment costs includes studies that show a relationship between the quality of forest cover and treatment costs. However, no value estimates are provided for water.

Biodiversity Value: Markets do not yet exist for biodiversity, but there are a number of ways to estimate values for ecosystems services provided by biodiversity, and the value to people of having wildlife in the environment. Food crops, clean water, clean air, and aesthetic
pleasures depend in biodiversity as do the persistence, stability and productivity of natural systems (Millennial Ecosystem Assessment, 2005 p. 79). Biodiversity also supports basic ecosystem services including waste disposal, soil formation, nitrogen fixation, bioremediation of chemicals, crop and livestock breeding, biological control of pests, and pollination (Pimentel et al 1997, Krieger 2001) (p. 504). The economic value of these services is currently beyond accurate estimation, and the replacement cost likely is far beyond our ability to pay.

**Scenic Amenities:** While BLM divides lands into one of four classes based on the quality of visual resources, no economic estimate is provided for the value to private property owners with views of BLM-administered lands. Studies do show that properties with pleasing views, increase in value from 1 to 89 percent depending on locations. Here the issue of regeneration harvest becomes particularly relevant. The amount and spacing of clearcuts will have a significant impact on the resulting views from private property.

In this instance, the Northwest Forest Plan as implemented, where regeneration harvest is relatively rare, may provide for a much more pleasing view than the clearcuts allowed for under all draft alternatives. However, there is no comparative analysis provided for the likely impact of these management activities on private land scenery values (p. 506).

**Summary of Economic Values and the Need for Further Analysis:** Table 3-159 on page 508 summarizes the economic value of goods and services. Resource uses on BLM-administration lands including energy production, grazing, minerals, and timber generated approximately $21 million of direct economic value in 2012. Carbon storage, recreation, and special forest products are valued at between $326 and $569 million. Other important values including water production, biodiversity, and scenery are not monetized in the report, but are likely beneficiaries of forest conservation and preservation.

**Marbled Murrelet Put at Risk by DEIS**

The DEIS puts the Marbled Murrelet at risk by proposing to increase logging, fragment habitat, and remove specific protection included in the Northwest Forest Plan. Under the Plan and current BLM RMPs, the agency must survey prior to logging in any potential Marbled Murrelet habitat. If there is any indication of occupancy, the agency protects a 0.5 mile radius of all contiguous existing and recruitment habitat (stands capable of becoming habitat in 25 years). These areas would be managed as LSR. Recruitment habitat is required to “protected and enhanced” by any silvicultural treatment. (Eugene RMP at 62).

The BLM’s proposed DEIS alters this regimen in all alternatives as laid out below. In the preferred alternative, murrelet surveys are restricted to the first 35 miles from the coast, although marbled murrelet habitat can extend up to 55 miles inland. Additionally, survey habitat is much more strictly defined as detailed out below. Timber harvest is allowed without surveys if large legacy trees are withheld from harvest and habitat is “maintained.”

*Alternative A: No surveys, protect existing sites, seasonal disruption restrictions
Alternative B: Surveys 35 miles from Coast in “mature or structurally-complex coniferous forest” and “conifer forests under 80 years old with platform trees (must be within 35 miles of coast, conifer, dbh greater than 19.1, over 33 meters tall, potential structure over 10 meters from ground, and contains platform over 4 inches in diameter. If stand occupied protect all occupied habitat plus 300 foot buffer around occupied stand. In stands under 80 with platforms, no surveys needed if platform trees aren’t removed; maintain habitat (need to define); seasonal restrictions during breeding season.

Alternative C: surveys in conifer stands over 120 years old, protect sites same as above for 10 years, and existing site protection lasts 10 years

Alternative D: surveys same as B (but no 35 mile limitation), buffer all contiguous habitat within .5 mile radius of occupied stand (no gaps wider than 100 meters in forest)

Existing Sites: Marbled Murrelets have high nest-site fidelity, and as such, the Pacific Seabird Group (PSG) protocol recommends treating all occupied Marbled Murrelet sites as occupied sites indefinitely. A murrelet site, due to the inability to locate an exact nest location, occupies the entire area of contiguous forest. Given that the BLM is under direction from the FWS to protect occupied habitat, a majority of BLM alternatives say that the BLM will protect existing sites, but it is unclear. Page 722.

Pursuant to the PSG Protocol and available murrelet studies, occupied habitat means all the trees in a contiguous stand, including platform and non-platform trees. Any logging within this occupied habitat opens up the stand to predators and fragments the bird’s habitat, resulting in take.

The BLM states that under three of the four action alternatives, all existing murrelet sites would be “retained.” Page 733. The BLM needs to elaborate on what this means. We assume it means that the entire survey area, i.e. contiguous forest stand, for each murrelet nest site is to be protected, off limits from any kind of logging. Marbled Murrelet nest sites are compromised by forest and canopy openings that can be created by thinning or adjacent clearcutting. The BLM if indeed it is committed to protecting existing occupied sites, needs to ensure that all these sites are off limits from commercial harvest of any kind, because logging will create forest edges and openings that will expose these nest sites to an increased risk of predation. Additionally, even if these sites are in reserves this does not guarantee their protection because of the logging permitted in reserves that can downgrade or remove older forest.

300 Feet: In two of the BLM Alternatives the BLM proposes to protect Marbled Murrelet nest sites with a buffer of 300 feet as opposed to a half mile. This results in marbled murrelet occupied sites are approximately 6.5 acres in size as opposed to approximately 500 acres in size. The BLM provides no analysis or scientific justification that these 300 feet buffers will ensure protection of the nest site. Almost assuredly, a 6 acre nest site for the murrelet will result in the failure or predation of that nest site. Therefore, the BLM’s assumption in the
DEIS, that these sites will not be “taken” because of this 300 foot buffer is false and lacks scientific justification or rationale. This prescription will result in violations of the ESA, the MAMU Recovery Plan, the 5 Year Review Recommendations, and the NWFP Recommendations.

Potential or Suitable Habitat: We are concerned that the BLM is defining potential or suitable survey habitat for these alternatives too narrowly, and will accordingly miss certain types of Marbled Murrelet nest sites from this survey regiment. Murrelets will nest in younger stands if a single legacy tree is present, but the BLM is taking a stand level approach. When averaged, stands that provide nesting trees and habitat for murrelets could have average DBH, tree height, and various measurements that will not satisfy the BLM survey standards laid out above.

The BLM either needs to delete the DBH and height limitations or any limitations based on the number of platform trees present, or the BLM needs to factor in the percentage of nest sites that will occur outside of survey habitat and account for their loss and destruction in the modeling of the impacts. As an illustration, the BLM admits that over 10% of the existing occupied sites exist outside of what the agency has modeled or considered “nesting habitat.” Page 733. The agency needs to take a hard look at this issue.

35 Mile Delineation: Please explain or provide ecological or scientific justification for the 35 mile mark in Alternative B. It seems entirely arbitrary and will result in the take of murrelet nesting areas.

Habitat “Maintenance”: Under the alternatives where surveys are required in the future, we are concerned that the BLM’s habitat maintenance program will not result in adequate protection of the newly discovered nest site, not make it safe to assume that new sites will be retained, or that Marbled Murrelets will continue to reproduce at these locations. The BLM is permitting logging, as long as the large legacy trees with platforms are not removed. Again, it is inadequate to just protect potential Marbled Murrelet nest trees in a stand. Logging trees that provide canopy closure around these legacy trees opens the stand up to corvids and will result in dramatic risk of nest predation and failure. The entire contiguous stand with large buffers needs to be protected in perpetuity to protect murrelets.

Large Block Habitat: The BLM should have considered blocking up large areas of habitat known to contain legacy and platform trees to provide refuges for the marbled murrelet. Aside from the no action alternative, it appears every alternative is reducing protections for the Marbled Murrelet. Given the species flat lining or declining population levels, coupled with an alarming drop in juvenile numbers which signal problems with reproduction, should implicate an alternative that strengthens protections for the species and creates special reserves for the species to guarantee viability of the species.

False Assumptions: In numerous places throughout the DEIS, the BLM assumes that murrelet populations are increasing. This is false as the 20-year monitoring indicates. Alternatives that
all reduce protections for the species because they are based upon this false assumption flaws the NEPA process.

**Riparian Reserve Reductions:** Marbled Murrelets depend disproportionately on lower slopes and riparian forests. FWS’ 1997 Recovery Plan for the Marbled Murrelet says “With respect to slope, eighty percent of nests in the Pacific Northwest were located on the lower one-third or middle one-third of the slope.” Hamer and Nelson (1995) show that the mean distance to streams from marbled murrelet nests in the Pacific Northwest is 159 meters.

In California, Baker et al. (2006) found that marbled murrelet nest sites “were located closer to streams, had a greater basal area of trees >120 cm dbh, and were located lower on slopes than random sites based on analysis of variance models.” Baker (2006) states: We found that nest sites were much closer to streams than would be expected based on randomly available sites within old-growth forests. Nest sites may have been located near streams because these sites afforded murrelets better access from at-sea flyways. Studies have found proximity to streams or other openings to be important for murrelet nesting in other regions as well (Hamer and Nelson 1995, Meyer et al. 2004, Zharikov et al. 2006).

Proposed increased clearcutting within riparian reserves in the BLM’s DEIS is in direct conflict with FWS’ 1997 Recovery Plan for the Marbled Murrelet which recommends that mature forests within "secured areas" (such as riparian reserves) be protected so they can serve as future nesting habitat for the marbled murrelet. This recovery plan recommendation is not about existing high quality habitat, but about mature forests that can serve as future recruitment habitat. These 80-120 year-old maturing forests are precisely those targeted for logging in many recent policy proposals, such as the BLM Secretarial Pilots, and the federal legislation.

**BLM DEIS Should Be Withdrawn**

For these reasons, American Bird Conservancy is requesting that the draft RMP/EIS be withdrawn, and that the BLM be directed to work with the Forest Service to develop a consistent regional strategy to protect, restore and manage the federal forests under the Northwest Forest Plan. We further urge the Service to encourage BLM to drop its current effort to reduce protections for the Marbled Murrelet and its habitat, and to designate additional critical habitat to compensate for this risk, and the extensive logging over the past decade on private and state lands in Oregon.

**State Rules, HCPs, 1996 Rule are Inadequate to Protect the Marbled Murrelet**

Loss and degradation of murrelet habitat on private, state, and federal lands continues despite the Northwest Forest Plan, the 1996 critical habitat rule, the 1997 recovery plan,
Habitat Conservation Plans (HCPs) and other conservation agreements. The 20-year monitoring indicates that loss of habitat on non-federal lands is a significant threat, and that remaining high quality habitat should be conserved.

The 1996 rule did not designate sufficient critical habitat on non-federal lands to conserve the population. A total of 870,300 non-federal acres were designated, approximately 22% of the murrelet’s habitat. However, of the total, non-federal lands provide 41% of the known habitat indicating the designation should have been much larger. It is also important note that the loss of higher-suitability habitat was greatest on nonfederal lands. Losses were 29.8, 21.1, and 21.8 percent of baseline in Washington, Oregon and California.

The Service noted in the 1996 rule that there was limited data about the amount of suitable nesting habitat on private lands. Since that time, new survey methods and modeling provide managers a better understanding making the identification of additional habitat possible. We urge the agency to inventory private lands to assess areas of suitable habitat to designate as critical habitat.

Meanwhile, where the species is declining at the steepest rate (5.1% per year), Washington State has failed to comply with its federally-approved Trust Lands HCP, which required it to develop a long-term marbled murrelet conservation strategy for approximately 1.6 million acres of state-managed trust lands within the range of the murrelet. And despite the Conservation Plan now being eighteen years overdue, Federal and state agencies in Washington continue to allow significant fragmentation to take place through timber extraction activities, as well as loss of mature forests needed to provide future additional habitat.

The 2008 Science Report contained recommendations to the Department of Natural Resources for southwest Washington, and the Olympic Experimental State Forest. MM Manage Areas were identified in both places and the team recommended that 100% of these critical habitat areas be retained in southwest Washington, and 50% on the OESF. The Report also called for a one-mile buffer for the area around Olympic National Park to be deferred from harvest and managed to develop old forest habitat.

The 50% protection recommendation for OESF now appears to be insufficient, and the team did not provide recommendations or identify critical areas for the Northwest Puget Sound or Straits of Juan de Fuca Planning Units. Since 2010, significant habitat losses of mature forest (3,400 acres) have occurred in the Straits Planning Unit. We urge critical habitat designation for all Washington State managed lands that currently host Murrelets, and additional areas
required to ensure that habitat will be provided for recovery.

In Oregon, no murrelet HCPs currently exist. It is notable that the Elliott State Forest, which was originally proposed for critical habitat designation was excluded from the murrelet’s 1996 final critical habitat rule because the State of Oregon’s HCP. Subsequently, the State of Oregon has pulled out of the HCP development process to increase timber production in murrelet habitat. Critical habitat needs to be designated for suitable habitat on Oregon State Forests, particularly the Elliott.

The Quinault and Siletz tribal lands were not included in the 1996 designation, which states that if the rule is revised, that these areas should be reconsidered. We urge that these tribal areas be reevaluated and any remaining suitable habitat be designated.

2006 Critical Habitat Rule and 2012 Proposed Vacature

The Service’s proposed vacature of Marbled Murrelet critical habitat in 2012 was unreasonable, and raised concern that conservation of this threatened population segment is not a priority for the Service. Similarly, in 2006 the Service proposed to revise the designation of critical habitat to 221,692 acres, a reduction of approximately 3,666,108 acres. This was followed by a proposal in 2008 to delist the distinct population segment.

And, while we appreciated concerns expressed in the 2012 Final Northern Spotted Owl Critical Habitat rule for the Murrelet and potential implications if its critical habitat were vacated (see excerpts from the rule below), we were very disappointed that this was proposed by the Service. Vacating critical habitat until 2018 as the Service proposed would likely have resulted in significant additional Marbled Murrelet habitat loss and degradation. Moreover, the final owl rule lacks discussion on potential negative consequences for the Murrelet of active management in owl habitat, and how adverse modification of owl habitat is in fact allowed by the Rule, and will not afford the Murrelet additional protection in that circumstance.

“Currently 1,735,900 ac of the 2008 northern spotted owl critical habitat designation overlays critical habitat designated for the marbled murrelet. Critical habitat for the marbled murrelet is currently under litigation and may be vacated (see section 3.4.4 Cumulative Impacts). Should vacature occur, the nesting habitat components for marbled murrelets would generally be protected through avoidance or adverse modification of spotted owl PCEs in those areas where marbled murrelet critical habitat overlaps the 2008 spotted owl critical habitat. This 1.7 million acres of overlap will be a baseline from which to compare other alternatives to determine the amount of existing marbled murrelet critical habitat that may continue to be afforded incidental protections as a result of avoiding adverse modification of spotted owl critical habitat.” (EA p. 90)
Thus, critical habitat designation for the northern spotted owl may provide some ancillary benefits to marbled murrelets. However, in some parts of the spotted owl range, PCEs that provide for foraging in the form of dense shrub and hardwood openings, or low density patches of forest, particularly in the Klamath, Northern California Interior Coast Ranges, and Redwood Coast Critical Habitat Units, may not provide features beneficial to nesting murrelets. These vegetation pockets open up forest canopies and fragment the landscape for murrelets, inviting corvids (e.g., crows, ravens, and jays) and increasing the predation pressures on nesting murrelets, reducing the ability of this species to reproduce (Nelson et al. 2006). In these areas, protection of some spotted owl PCEs through the avoidance of adverse modification may not provide the habitat attributes needed by nesting marbled murrelets. Should the motion for remand of marbled murrelet critical habitat be granted, the protections of marbled murrelet critical habitat would not be in place in these areas. However, where spotted owl critical habitat overlaps murrelet critical habitat, it may provide incidental protections to habitat attributes necessary for nesting marbled murrelets through the avoidance of destruction or adverse modification of spotted owl PCEs that also support nesting murrelets.

In response to the proposed vacature and continuing habitat loss, ABC and large coalition of conservation groups sent President Obama a letter asking that planning be undertaken to provide additional conservation measures for the Marbled Murrelet. We are disappointed that the administration and Service is not addressing these concerns in the proposed critical habitat rule and would urge that a revised rule and additional conservation actions be undertaken in the near term.

**Policies to Protect Marbled Murrelet Habitat**

The NWFP requires surveys for and the protection of occupied marbled murrelet nesting sites. It is essential that this protective management requirement be retained. Similarly, the need to protect Marbled Murrelet habitat, including both occupied stands, and mature forest to be recruited as high quality nesting habitat indicates that all the mature forests within the range of the Marbled Murrelet should be conserved.

We urge that the Service re-evaluate their decision to include marine areas in the critical habitat designation for this species. As a seabird, murrelets are highly dependent on marine habitats throughout their life cycle. Oil spills, both acute and chronic, are a demonstrated threat to these birds. In addition, other potential threats include marine traffic, fisheries interactions, and contaminants.

The 1996 rule considered including five marine areas that supported the highest concentration of Murrelets during breeding season. Pacific Seabird Group states that “Murrelets cannot survive without an abundant and available prey base near suitable nesting habitat. Designating marine CH will be critical to murrelet survival and recovery.” We urge the Service to reanalyze this issue and determine if these areas should be designated.
Bolster the Reserve Network on Federal Lands

The existing network of late-successional reserves on federal lands in the Pacific Northwest designated in 1994 to conserve old growth ecosystems, including Northern Spotted Owls and listed salmon stocks, are insufficient to recover the Marbled Murrelet. There is inadequate mitigation of the apparent negative effects of fragmentation and human disturbance on both public and private lands to nest survival. To supplement recovery efforts we urge the Administration to halt sales of mature and old-growth forests throughout the tri-state range of the Murrelet, and designate additional critical habitat for habitat in the range of the murrelet.

The 1997 Marbled Murrelet Recovery Plan,\(^4\) page 143, recommends greater conservation of mature forests so they can grow and provide future murrelet nesting habitat:

Consistent with the Forest Plan Record of Decision, thinning within Late-Successional Reserves should be restricted to stands younger than 80 years.\(^3\) Protect 'recruitment' nesting habitat to buffer and enlarge existing stands, reduce fragmentation, and provide replacement habitat for current suitable nesting habitat lost to disturbance events. Stands (currently 80 years old or older) that will produce suitable habitat within the next few decades are the most immediate source of new habitat and may be the only replacement for existing habitat lost to disturbance (e.g., timber harvest, fires, etc.) over the next century. Such stands should not be subjected to any silvicultural treatment that diminishes their capacity to provide quality nesting habitat in the future. Within secured areas, these "recruitment" stands should not be harvested or thinned.

Recommendations for Additional Marbled Murrelet Protections

Based on the ongoing decline of this species and the rarity of its remaining mature and old-growth forest habitat, we urge the Service to direct the USFS and BLM to adopt Marbled Murrelet conservation measures recommended by scientists and murrelet conservation experts. Restoring the Marbled Murrelet population will necessitate:

- Protecting existing suitable habitat, both occupied and unoccupied, from logging and other harms.
- Recruiting additional suitable nesting habitat, by letting mature and younger forests grow.
- Preventing fragmentation (including clearcutting or commercial thinning) of the land around suitable habitat, maintaining protective cover from nest predators.

\(^4\) Marbled Murrelet Recovery Plan
• Increasing the size of and strengthening the standards for buffers surrounding the nesting sites. We request the Service analyze the conservation benefits of a one-mile buffer.

Hi Christina,

Thank you for checking in. Below is the only reply I received:

1. Audubon Society of Portland
   1. Year of record(s): 2/12/1990
   2. Number of MAMU intakes: 1
   3. Disposition of MAMU: euthanized
   4. County/address of origin: ARCADIA BEACH, OREGON
   5. Cause for care, if known: CAUSE UNK., COMP. FX L. HUMERUS
   6. Other notes you feel are relevant: bird was an adult

The following records are from our database:

1. Sharnelle Fee (dba Wildlife Center of the North Coast)
   1. Year of record(s): 2011
   2. Number of MAMU intakes: 1
   3. Disposition of MAMU: released
   4. County/address of origin: Clatsop

2. Jeffrey Picton
   1. Year of record(s): 2015
   2. Number of MAMU intakes: 1
   3. Disposition of MAMU: Died
   4. County/address of origin: Benton

3. Wildlife Center of the North Coast
   1. Year of record(s): 2015
   2. Number of MAMU intakes: 1
   3. Disposition of MAMU: DOA
   4. County/address of origin: Clatsop

4. Jean Cypher
   1. Year of record(s): 2015
   2. Number of MAMU intakes: 1
3. Disposition of MAMU: died
4. County/address of origin: Hood River
Let me know if you have any questions.

Best,
Leslie

Leonard S. Henry, Wildlife Biologist
Possession Permit Specialist
Migratory Birds and Habitat Programs
U.S. Fish & Wildlife Service, Pacific Region
911 NE 11th Ave.
Portland, OR 97232-4181
leslie_henry@fws.gov
(503) 231-6739

PLEASE NOTE - Annual reports will be returned as "incomplete" if birds are not identified to species - DO NOT report "seagull", "hummingbird", etc. - thank you

On Fri, Apr 7, 2017 at 8:36 AM, Christina E Donehower <christina.e.donehower@state.or.us> wrote:

Hi Leslie,

I’m just checking back in to see if you received any information in response to your Marbled Murrelet inquiry to Oregon rehabilitators? I haven’t seen anything come through to me directly so am assuming that there was no response.

Thanks again,
Christina

Christina Donehower
Strategy Species Coordinator
Oregon Department of Fish and Wildlife
4034 Fairview Industrial Drive SE
Salem, OR 97302
(503) 947-6099

From: Christina E Donehower
Sent: Friday, March 24, 2017 11:13 AM
Thank you, Leslie. I really appreciate your assistance!

Best Regards,
Christina

Christina Donehower
Strategy Species Coordinator
Oregon Department of Fish and Wildlife
4034 Fairview Industrial Drive SE
Salem, OR 97302
(503) 947-6099

Hello Christina,

I've sent an inquiry to the Oregon rehabilitators that have had or are in a position to receive Marbled Murrelets. I've asked for their responses, if any, by close of business April 3, 2017. I hope that provides enough time for you to look it over.

Best,
Leslie

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Leslie R. Henry, Wildlife Biologist
Possession Permit Specialist
Migratory Birds and Habitat Programs
U.S. Fish & Wildlife Service, Pacific Region
911 NE 11th Ave.
Portland, OR 97232-4181
leslie_henry@fws.gov
(503) 231-6739

PLEASE NOTE - Annual reports will be returned as "incomplete" if birds are not identified to species - **DO NOT report "seagull", "hummingbird", etc.** - thank you
On Thu, Mar 23, 2017 at 12:21 PM, Miller, Jennifer <jennifer_miller@fws.gov> wrote:

Hi Leslie,
Can you reach out to our rehabilitators that have (or may have) contact with Marbled Murrelets? We are looking for any rehab or other records from the 1990s to present (historical data being of particular value). They can either provide information to you and you can curate and pass along to Christina, or you can have them send it directly to Christina.

Best,
Jennifer

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Jennifer Miller, Permits Branch Chief
USFWS - Pacific Region | Migratory Bird Permit Office
911 NE 11th Ave; Portland, OR 97232
jennifer_miller@fws.gov | (503) 231-2266

Permit Office Contact Information:
PermitsR1MB@fws.gov | (503) 872-2715 x3

On Thu, Mar 23, 2017 at 10:34 AM, Christina E Donehower <christina.e.donehower@state.or.us> wrote:

Hi Jennifer,

Thank you for getting back to me. We would be interested in available data on Marbled Murrelets entering rehabilitation.

For our review, we’re particularly focused on Oregon and any changes that may have occurred to the species, its habitat, threats, regulatory mechanisms, etc. since the Marbled Murrelet was initially listed (federally in 1992 and in Oregon in 1995). Datasets that span the early 90s to the present are especially valuable, but we will certainly accept other best available information, too.

I will follow-up with Colleen Henson to see if she can assist with the 10(a)(1)(A) permits.

Thanks again,
Christina

Christina Donehower
Strategy Species Coordinator
Oregon Department of Fish and Wildlife
Hi Christina,

Thanks for reaching out. I manage the Migratory Bird permit program. We have some data on Marbled Murrelets entering rehabilitation, if that would be of interest to you.

Regarding 10a1A permits, I would start with Colleen Henson <colleen_henson@fws.gov>. She would have access to that data or be able to connect you with the right person.

Let me know if I can help with anything else!

Best,
Jennifer

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Jennifer Miller, Permits Branch Chief
USFWS - Pacific Region | Migratory Bird Permit Office
911 NE 11th Ave; Portland, OR 97232
jennifer_miller@fws.gov | (503) 231-2266

Permit Office Contact Information:
PermitsR1MB@fws.gov | (503) 872-2715 x3

On Tue, Mar 21, 2017 at 3:29 PM, Christina E Donehower <christina.e.donehower@state.or.us> wrote:

Hi Jennifer,

I left a voice mail message to this effect yesterday but thought I would follow-up by email with some more background information. I spoke with Robin Bown on Friday, and she suggested I contact you to see if you may have some information to help inform a state-level Marbled Murrelet status review that we (the Oregon Department of Fish and Wildlife) have initiated in response to a petition. In brief, the petition from Cascadia Wildlands and five other conservation groups requests that the Marbled Murrelet be reclassified from threatened to endangered (uplisted) under the Oregon Endangered Species Act.

In an effort to consult with agencies, organizations, local governments, tribes, other states, and interested persons, we are reaching out to a variety of external entities to inform them of this process and to solicit information on Marbled Murrelet biology, population trends and demographics, marine and terrestrial habitat conditions, threats, and the adequacy of state or federal programs or regulations. We sent out this consultation letter and “backgrounder” (attached) last month to many agency
representatives, so perhaps you have already heard about this issue through others in the Migratory Birds office? Information relevant to the status of the species in Oregon is being accepted through April 7, 2017. In addition, we have a Marbled Murrelet webpage with more details: http://www.dfw.state.or.us/wildlife/hot_topics/marbled_murrelet.asp.

As part of our status review, we also need to consider utilization of the species for scientific purposes. If available, we would be interested in some summary-level data associated with 10(a)(1)(A) permits issued for Marbled Murrelet research in Oregon (e.g., numbers of Marbled Murrelet permits issued annually from 1992-present, annual estimates of lethal and non-lethal take or similar metrics).

Thank you for considering this request, and please do not hesitate to contact me with questions or to discuss further.

Best Regards,
Christina

Christina Donehower
Strategy Species Coordinator
Oregon Department of Fish and Wildlife
4034 Fairview Industrial Drive SE
Salem, OR 97302
(503) 947-6099
Hello,

Please find attached beached bird report and figures from COASST data on marbled murrelets.

All the best,

Hillary Burgess  
Science Coordinator  
Coastal Observation and Seabird Survey Team  
University of Washington  
Box 355020  
Seattle, WA 98195-5020  
Phone: 206.221.6893  
www.coasst.org
Marbled Murrelet - COASST data

Here we summarize the COASST data on Marbled Murrelet beaching rates and number of carcasses encountered. We include COASST data for surveys performed in Oregon (surveys from 2001 onwards, but consistent coverage with ≥ 10 surveys per month from 2002 onwards), and also a broader region encapsulating northern California (North of 40.43°N) and southern Washington (south of 47.138°N) to account for Oregon breeding birds dispersing North and South of the Oregon border.

We include 2 figures and 2 tables (the second table is included as an excel file) summarizing the number of Marbled Murrelet carcasses found by COASST.

The first figure shows the baseline of carcass encounter rate (carcasses km⁻¹) across months showing the average seasonal variation in carcass beaching rate (Figure 1). This is calculated by averaging (using a bootstrapping procedure) across years of the month-specific average encounter rate (Figure 1). Carcass abundance follows a bimodal pattern, with a peak in August (likely associated with breeding/post-breeding) and a second peak from November through January, indicative of winter mortality (Figure 1). Overall carcass beaching rates are low, with peak encounter rates for August of ~ 1 bird every 200km of beach surveyed.

![Figure 1](image_url)

**Figure 1.** Average seasonal variation in Marbled Murrelet carcass encounter rate (carcasses km⁻¹) for Oregon surveys, and for surveys from southern Washington through northern California.
The second figure is a time-series of month-averaged encounter rates, with the baseline mean (and 95% CI) overlaid (Figure 2). These graphics indicate that the fall and winter of 2007/2008 and 2014/2015 in Oregon, and 2015/2016 when including N. CA and S. WA, recorded greater numbers of Marbled Murrelet carcasses than usual (Figure 2). The increased abundance from 2014 through to 2016 coincides with the occurrence of the NE pacific warm anomaly (Bond et al. 2015, Di Lorenzo and Mantua 2016) that has also been linked with elevated mortality in Cassin’s auklets during the fall/winter of 2014/2015 (Jones et al. in review). Although the rates were higher in 2014/2015, the peak encounter rate still only represents 1 carcass every 25 km of coast surveyed (Figure 2).

Figure 2. Month-averaged carcass encounter rate of Marbled Murrelets, with baseline mean (±95% confidence interval) overlaid.

We summarise carcass counts into breeding/post-breeding (June-Oct), winterkill (Nov-Feb) and spring (Mar-May) seasons (Table 1). This further highlights the unusual number of carcasses encountered in 2014/2015. Note that the counts in the table are simple observed counts, and so are not corrected for increasing/differential survey effort over time.
**Table 1.** Summary of number of Marbled Murrelet carcasses found in Oregon and from northern California to southern Washington by year and season (breeding/post-breeding: June-Oct, winter: Nov-Feb, spring: Mar-May) along with the corresponding number of COASST surveys. Counts are observed counts, and are not corrected for effort.

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**References**


Jones et al. (submitted - PNAS) Massive mortality of a planktivorous seabird in response to a marine heatwave.
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COASST data

As of 29 March 2017

This is all records of Marbled Murrelet carcasses recorded by COASST on the outer coast of Oregon, Southern Washington and Northern California.

Note: The observed increase in numbers through time may be reflective of changes in survey effort, so please refer to the accompanying word file for effort-standardised counts.
Dear Reviewers,

Thank you for the opportunity to submit additional information you have requested concerning the listing status of the Marbled Murrelet (Brachyramphus marmoratus), under the applicable statutes that constitute the Oregon State Endangered Species Act.

My experience with this species includes formal training and surveying for the species beginning in 1985, over- and in-stand detections as part of a study of breeding birds of the central Oregon Coast Range, as a long-term advocate for the protection of murrelets and other old-growth dependent species as an individual, as Conservation Chair for Audubon Society of Corvallis, as an advisor for the City of Corvallis Watershed, and as a stakeholder in the collaborative Marys Peak Stewardship Group, which was convened by the Siuslaw National Forest. I am well-acquainted with the species and its natural history.

Based on my understanding of the Marbled Murrelet, I believe the following terrestrial circumstances are having a significant adverse impact on nesting, nestling survivorship, and the persistence of suitable nesting habitat in both short and long-term scenarios, thus warranting an uplisting of the species to endangered status.

Survey Standards outside high density populations near the coastal zone
Since the listing, standard terrestrial survey protocols were developed and applied across the range of Marbled Murrelet in Oregon. It was thought sampling effort sufficient for detecting presence in core use areas near the coastline would adequately detect presence at more inland sites. However, over the years research shows a return to inland sites in fewer immediately-subsequent years. This means that non-detections within a 2 year survey requirement to establish absence is not valid outside the more coastal zone. Due to non-detections, timber sales result in the immediate loss of nesting habitat. Over time, insufficient survey protocols will reduce the range of murrelet nesting, making the remaining habitat more vulnerable to predicted large scale stochastic events: large high-severity fires, windthrow, and subduction zone earthquakes. Cumulatively all these factors result in less habitat. A delay in implementing broadened protocols for inland habitat surveys recommended by the Pacific Seabird Group accelerates potential habitat loss.
Sub-standard compliance to FWS S&G on federal ownerships
I can’t address the adequacy of state-level terrestrial protections for Marbled Murrelet. But at state level a premise exists that stronger federal protections on federal lands will provide adequate protections for nesting habitat, particularly within Late-Successional Reserve (LSR) lands. However, Siuslaw N.F. has been aggressively thinning conifer plantations and younger stands within LSRs, especially those approaching 80 year old. I am most familiar with Siuslaw forestlands in and around Marys Peak (Benton County). Many <80 yr old stands have been thinned, and continue to be thinned under a single environmental assessment, with a single attendant FWS Biological Opinion. Standards and guidelines therein direct Siuslaw to apply a 200-400m buffer beyond the edge of all suitable habitat to protect suitable interior forest conditions. However a Google Earth aerial image review of thinnings on the east side of Marys Peak (Rock Creek and Griffith Creek watersheds) shows easily half of those edges show less than 60% crown closure retention within 200m of suitable (and unsurveyed) marbled murrelet habitat. This results in a reduction of suitable interior forest habitat conditions for at least 30 years across the entire Marys Peak LSR, even if the predicted long-term habitat suitability across the landscape could potentially increase. In personal communications with other Siuslaw Stewardship Group members, this suitable habitat edge disturbance is normal, rather than the exception, across many LSRs throughout the Siuslaw. Since the Siuslaw N.F. holds the greatest amount of murrelet habitat remaining in the Oregon Coast Range province, any reductions in suitable habitat acreage must be accounted for in state-level status review.

I apologize that I cannot supply reproducible satellite imagery, even that available on Google Earth, but recent images of the east slopes of Marys Peak (central Benton County 7 miles SW of Philomath), clearly show canopy closure adjacent to unmanaged older stands.

I agree that some efforts need to be made to promote an increase in suitable habitat acreage in the long-term, but the scale of this potential long-term benefit must not overwhelm the real and very actual short-term habitat loss, especially in the face of adverse conditions already adversely impacting the species. Those are of oceanic and climatic conditions that I do not address, but must also weigh in your determination.

Ineffective federal consultations on private lands where MAMU are known to occur or may be present.
I am greatly concerned by instances where consultation by USFWS murrelet biologists give state agency or private landowners inadequate guidance on protections needed both within and adjacent to suitable habitat, and in response to scrutiny declare sufficient guidance was given.
The attached communication including portions from FWS State Director Paul Hansen, in response to my inquiry about variable retention (VR) harvest adjacent to unsurveyed suitable habitat in the Corvallis Municipal Watershed, was received prior to murrelet surveys done in the surrounding stands. Later surveys documented occupancy behaviors adjacent and immediately north the VR harvest (Turnstone Environmental Consultants). Although this is municipally owned forestland (nevertheless a state agency), it is being managed under Forest Stewardship Council standards, where significant High Conservation Value forests with threatened species are to be managed under the more rigorous federal standards (which would include surveys outside the actual stand to be entered).

The above conditions, both in combination and replicated across the range of
Marbled Murrelet in Oregon, indicate insufficient attention continues to allow for the elimination of suitable habitat in both the short and long term. Uplisting to endangered status would provide the needed significantly increased attention to protecting current terrestrial habitat for the species, and guide a more balanced approach to improving habitat over time with more appropriate attention paid to all short-term impacts to the species.

Respectfully yours,

Jim Fairchild
Dear Mr. Maurice,

You may recall that I contacted you last year regarding my concern that Corvallis timber sale thinning units were being done adjacent to unsurveyed murrelet habitat, and without regard to USFWS requested buffers. Citing the precautionary principle of presuming occupancy until determining absence, I submitted that such adjacent old growth stands should be more conservatively protected. In his response to your consultation review, State Director Dr. Paul Hansen to Trout Mountain Forestry (TMF) dated July 6 2011 and signed by Jody E Caicco, says this:

The Service requests that land managers implement within their harvest plan the guidance to "Maintain and enhance buffer habitat surrounding occupied habitat" from the "Recovery Plan for the Marbled Murrelet, September 1997" (page 140, section 3.1.1.3). To have the greatest benefits the buffer widths should be 300 to 600 feet and a portion of which can be a managed buffer. These buffers will mediate the effects of edge by helping to reduce the effects to interior forest conditions, reduce the loss of habitat to wind throw and fire, reduce fragmentation levels, recruit future habitat, and help reduce predation at the nests. All three proposed harvest units in the harvest plan are immediately adjacent to a forest road causing a significant stand type break which is hard, if not impossible, to incorporate a complimentary buffer to murrelet habitat when present across this road. Primary consideration for buffering should be given to contiguously forested stands where there is a type break but not a hard break such as a road prism causes.

Implementation of the May 18, 2011, harvest plan as described in the plan and on the May 5, 2001,, site visit should avoid disturbance take of marbled murrelets.[underlined by me for emphasis] If you have any further questions regarding this project please contact Kevin Maurice of my staff at (503) 231-6179.

Sincerely,

The attached Google summer 2012 image file, overlaid with TMF’s sale unit map, shows the accomplished harvest of most of Unit 123. There is a hard break topographically above Unit 123, that separates it from the old-growth stand to its south (this stand is an isolated stand surrounded by plantation stands), but there are no other hard breaks around Unit 123, with suitable habitat both west and north. Although the overlay legend is absent, you can see that the road prism as approximated by parallel black lines, a riparian management unit is shaded in blue, an intermittent stream lined in blue, and the unit shaded taupe. Black triangles indicate yarding landings. I am solely responsible for any inaccuracies in manipulating the overlay onto the Google Earth image, but I believe it is a fair representation.

The accomplished work is not a heavy thinning from below, as described in the unit plan, but a variable retention regeneration harvest (according to TMF and its auditor Kyle Meister with SCS Global Services) that, as can be seen as open canopy to the ground, is immediately adjacent to suitable habitat. There is no buffer, which I understand is not legally required. But if you do look at the scale provided, even some of the clumped variable retention area in the center of this unit is within the USFWS requested 300-600 foot buffer.

This is one of the three harvest units you consulted TMF with on site, and the two others have soft stand-only-type...
edges adjacent to unsurveyed murrelet habitat. This unit is perhaps the more egregious to me, because it is also in a designated riparian reserve system, and TMF indicates they plan to re-enter it again in the next 15-20 years.

Based on the image presented and the unit plan, the actual operation did not follow the plan you approved. And based on the State Director’s full response, I believe you were either not made aware of this stand type boundary without hard break, or that you did not share this information with Dr. Hansen.

Sincerely,
Jim Fairchild
Former Watershed Commissioner and neighbor to City Watershed lands.

****

Google Earth streams the world over wired and wireless networks enabling users to virtually go anywhere on the planet and see places in photographic detail. This is not like any map you have ever seen. This is a 3D model of the real world, based on real satellite images combined with maps, guides to restaurants, hotels, entertainment, businesses and more. You can zoom from space to street level instantly and then pan or jump from place to place, city to city, even country to country.

Get Google Earth. Put the world in perspective.

(http://earth.google.com)
Dear Christina,

Thank you for catching this error on my part so promptly. I'm sorry I couldn't respond before the end of your work day. I've attached the same image file, this time in .jpg format with an altered file name.

Please be sure I'm available for any additional information.

Respectfully yours,

Jim Fairchild
31540 Homestead Road
Philomath, OR 97370-9576
Tel & Fax # 541 929-4049
Mobile # 541 609-0078

-----Original Message-----
From: Christina E Donehower [mailto:christina.e.donehower@state.or.us] On Behalf Of ODFW Marbled Murrelet
Sent: Friday, April 07, 2017 3:14 PM
To: Jim Fairchild
Subject: RE: Information on Adequacy of S&Gs

Dear Mr. Fairchild,

Thank you for submitting this information. Are you able to provide the "Unit 123 VRH" file in another format? I'm having trouble opening that particular attachment.

Best Regards,
Christina

Christina Donehower
Strategy Species Coordinator
Oregon Department of Fish and Wildlife
4034 Fairview Industrial Drive SE
Salem, OR 97302
(503) 947-6099

-----Original Message-----
From: Jim Fairchild [mailto:alderspring@peak.org]
Sent: Friday, April 07, 2017 11:06 AM
To: odfw.marbledmurrelet@state.or.us
Subject: Information on Adequacy of S&Gs

Jim Fairchild
31540 Homestead Road
Philomath, OR 97370
April 6, 2017
Marbled Murrelet Status Review

Dear Reviewers,

Thank you for the opportunity to submit additional information you have requested concerning the listing status of the Marbled Murrelet (Brachyrhamphus marmoratus), under the applicable statutes that constitute the Oregon State Endangered Species Act.

My experience with this species includes formal training and surveying for the species beginning in 1985, over- and in-stand detections as part of a study of breeding birds of the central Oregon Coast Range, as a long-term advocate for the protection of murrelets and other old-growth dependent species as an individual, as Conservation Chair for Audubon Society of Corvallis, as an advisor for the City of Corvallis Watershed, and as a stakeholder in the collaborative Marys Peak Stewardship Group, which was convened by the Siuslaw National Forest. I am well-acquainted with the species and its natural history.

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Respectfully yours,

Jim Fairchild
Please accept the attached comment letter regarding the ODFW status review to consider uplisting of the Marbled Murrelet from threatened to endangered under the Oregon Endangered Species Act.

~~~~~~~~~~~~~~~~~~~~~~~~~~~
Joe Liebezeit, MS
Avian Conservation Program Manager
Audubon Society of Portland
5151 NW Cornell Road
Portland, OR 97210
971-222-6121
~~~~~~~~~~~~~~~~~~~~~~~~~~~
April 7, 2017

Re: Notification of Marbled Murrelet Status Review and Consultation Pursuant to ORS 496.176(4) and ORS 635-100-0105(10)

The Audubon Society of Portland (ASoP) appreciates the opportunity to provide further information to Oregon Department of Fish and Wildlife (ODFW) regarding the Marbled Murrelet uplisting review. In June 2016, ASoP and a number of other groups including Cascadia Wildlands, Coast Range Forest Watch, Center for Biological Diversity, and others, submitted the original Marbled Murrelet petition for consideration to uplist this species from Threatened to Endangered under Oregon’s Endangered Species Act.

Below we provide additional information compiled from consultation with Marbled Murrelet experts based on more recent literature than that cited in the original petition that will assist ODFW in the uplisting review:

- The estimate of loss of Marbled Murrelet nesting habitat in the WA, OR, CA distinct population segment is actually **2% higher** than what is cited in the petition (12% vs. 10% - pg. 13 of petition) based on more recent evidence provided in Raphael et al. 2016 (20-year report).

- More recent data cited in Raphael et al. 2016 indicates that the proportion of higher suitability Marbled Murrelet nesting habitat on non-federal lands has increased (60% vs. 52%) form 2004 to 2012. Subsequently the same habitat type on federal land has decreased from 8% from 2004 to 2012. Figure 5 of the petition should be updated with numbers: 0.76, 0.14, 1.33 and 34%, 6%, 60%, respectively for the categories “federal land, reserved”, “federal land, nonreserved”, and “nonfederal land” for the year 2012.

  This new information makes it even more imperative that non-federal lands must be included in a robust monitoring program and subsequently managed adequately to ensure Marbled Murrelets have a chance at recovery. An uplisting to endangered would enable such an effort.

- Please see Lorenz et al. 2017 (citation below). A new study indicating longer foraging distances for Marbled Murrelets can result in lower breeding propensity.
• A more recent estimate of suitable habitat lost across the distinct population segment (from 1994 to 2012) is 308,000 acres (in Raphael et al. 2016). The older estimate in the petition indicates loss of 209,000 acres from 1994-2003. Related to this, the estimate in the petition of “US Forest Service estimating in 2007 that only 48% of higher quality murrelet nesting habitat in the Northwest Forest Plan is under federal ownership (Rapp 2007)” should be more updated to: “US Forest Service estimating in 2012 that only 40% of higher quality murrelet nesting habitat in the Northwest Forest Plan is under federal ownership (Raphael et al. 2016)”

• Past years analyses in Oregon has indicated a declining Marbled Murrelet population (Miller et al. 2012, Raphael et al. 2011, Strong 2003). Although the latest population information shows no trend in Oregon (Raphael et al. 2016) this does NOT mean the population is stabilized or increasing. What it does mean is that the data are so variable (and confidence intervals so high) that scientists cannot tell if the population is declining or stable (Lynch et al. 2017). Based on loss of habitat, poor nesting success, the fact that there are no management guidelines for Marbled Murrelets in Oregon, the likelihood of a continuing population decline is very high.

• We reiterate from the petition document that loss of Marbled Murrelet habitat on state and private land has been substantial and is likely one of the most significant factors for this species’ imperiled status. Yet ODFW is unable to quantify this loss because they currently do not review timber sales related to murrelets on these lands. In order to credibly monitor Marbled Murrelet population trends over time and fully consider all impacts (including cumulative impacts), ODFW needs to monitor murrelets on private and state lands using a standardized, peer-reviewed protocol. An endangered listing would require this level of assessment.

Thank you for your consideration.

Bob Sallinger
Conservation Director

Joe Liebezeit
Avian Conservation Program Manager

Audubon Society of Portland
Literature Cited


Inspiring people to love & protect nature since 1902.

5151 NW Cornell Road
Portland, Oregon 97210

Tel 503.292.6855
Fax 503.292.1021

www.audubonportland.org
Please find attached comments on the uplisting process and the marbled murrelet status review from the initial uplisting petition groups and Defenders of Wildlife.

--

Nick Cady
Legal Director
Cascadia Wildlands  -  we like it wild.
CascWild.org
PO Box 10455 Eugene, OR 97440  -  541.434.1463

Cascadia Wildlands defends and restores Cascadia’s wild ecosystems in the forests, in the courts, and in the streets. We envision vast old-growth forests, rivers full of salmon, wolves howling in the backcountry, and vibrant communities sustained by the unique landscapes of the Cascadia bioregion. Join our movement today.
April 7, 2017

Christina Donehower
Strategy Species Coordinator
Oregon Department of Fish and Wildlife
4034 Fairview Industrial Drive SE
Salem, OR 97302
(503) 947-6099

RE: Marbled Murrelet Status Review

Dear Christina Donehower:

Cascadia Wildlands, Oregon Wild, the Audubon Society of Portland, Coast Range Forest Watch, the Center for Biological Diversity, the Oregon Chapter of the Sierra Club, and Defenders of Wildlife recommend uplisting the marbled murrelet from threatened to endangered based upon the scientific evidence included in the initial uplisting petition filed with the Department of Fish and Wildlife on June 21, 2016. Our organizations are committed to the recovery of this species, and the development of adequate protections for this species in Oregon. We will provide the Department with any more recent or updated scientific material on the status of the species throughout this process.

Thank you for considering the initial uplisting petition, and for now conducting this status review. Please do not hesitate to contact me with any questions.

Nick Cady, Legal Director
Cascadia Wildlands
PO Box 10455
Eugene, Oregon 97440
(541) 434-1463
nick@cascwild.org
Hello Ms. Donehower,

Attached, please find brief comments from Defenders of Wildlife regarding this initial phase of the Marbled Murrelet Status Review and Consultation. Thank you for the opportunity to comment -- we look forward to participating in the public process for this timely and important status review.

Best,
Quinn Read
April 6, 2017

Oregon Department of Fish and Wildlife
Marbled Murrelet
4034 Fairview Industrial Drive SE
Salem, OR 97302

Submitted via email at odfw.marbledmurrelet@state.or.us

Re: Marbled Murrelet Status Review and Consultation Pursuant to ORS 496.176(4) and OAR 635-100-0105(10)

Dear Ms. Donehower:

As the Oregon Department of Fish and Wildlife begins its Marbled Murrelet Status Review and Consultation, Defenders of Wildlife would like to express support for a reclassification of Marbled Murrelet from threatened to endangered under the Oregon Endangered Species Act. We appreciate the opportunity to provide feedback at this stage, and look forward to commenting in detail on ODFW's draft status review report.

Defenders of Wildlife is a national non-profit membership organization dedicated to the protection of all native animals and plants in their natural communities. We work on behalf of our 1 million members and supporters nationwide – including more than 18,000 Oregonians – to protect and restore native wildlife, safeguard habitat, and educate and mobilize the public.

Our organization has a long-standing interest in the conservation and recovery of the Marbled Murrelet. We recently provided extensive comments regarding the Draft Environmental Impact Statement for the Washington Department of Natural Resources' Long-Term Conservation Strategy for the Marbled Murrelet. Last year, we submitted comments regarding the Washington Department of Fish and Wildlife’s Periodic Status Review for Marbled Murrelet – which resulted in a staff recommendation to uplist murrelets to a state endangered species.

Based on the scientific evidence presented in the initial petition, we believe an uplisting recommendation is similarly appropriate for Oregon. We also urge you to consider the regionally relevant factors identified in WDFW’s Periodic Status Review for Marbled Murrelet.

We appreciate your time and consideration and look forward to participating in the public process for this timely and important status review.

Sincerely,

Quinn Read
NW Representative
206-979-3074
qread@defenders.org

Citations: