Endangered Species Management Plan

Marbled Murrelet Conservation on Oregon Parks and Recreation Department Lands

Adult marbled murrelet on nest. Photo credit: Nick Hatch, U.S. Forest Service

Prepared by:

Noel Bacheller

Central Natural Resource Specialist/Ecologist
Oregon Parks and Recreation Department

January 13, 2023

Amended 2/22/23

Contents

Tables

Figures

Executive Summary

The marbled murrelet (*Brachyramphus marmoratus*) is a rare native bird species of the Pacific coast of North America that ranges from Alaska to California during the breeding season. The species lives primarily in the ocean, but nests in forests for a portion of the year. Due to population declines, the marbled murrelet was listed as Threatened under the federal Endangered Species Act in 1992 and by the Oregon Department of Fish and Wildlife (ODFW) in 1995. In July 2021 the Oregon Fish and Wildlife Commission up-listed the species from Threatened to Endangered. This up-listing triggered new requirements for state agency consultation, planning, and coordination. One aspect of the new state agency requirements is for relevant state agencies to produce agency-specific Endangered Species Management Plans that define the agency roles and approaches to conservation of the species.

Oregon Parks and Recreation Department (OPRD) owns and/or manages 166 park properties within the range of the species, including 95 that support habitat that includes trees of suitable size for murrelet nesting. OPRD conducted a habitat suitability analysis based on Light Detection and Ranging (LIDAR) data that characterized habitat based on tree height and proximity to "edge" features such as neighborhoods, park facilities, roads, structures, etc. Based on this analysis, 56 of these parks contain habitat of moderate or better habitat suitability. 43 contain likely high suitability habitat. These 166 properties total over 44,000 acres of land - of which 2,621 acres is highly suitable, 12,733 is moderately suitable, and 4,317 is minimally suitable. 22 of these parks have historically been known to have murrelets usage either within the park boundary or immediately adjacent to it based on OSU/USFWS data. Formally designated marbled murrelet critical habitat is designated within 5 of these parks: Cape Meares Scenic Viewpoint, HB Van Duzer Forest state Scenic Corridor, Oswald West State Park, Saddle Mountain state Natural Area, and Sunset Highway. 10 other parks are adjacent to designated critical habitat on other land ownerships.

This plan describes the OPRD system of lands relevant to the species; summarizes OPRD rules, policies, and statutes that already passively protect the species; and describes OPRD's approach to murrelet habitat management and species conservation as required by ODFW rules that came into effect after the up-listing. The plan describes the agency response and approach to each of the topics required under OAR 635-100-0140.

Since OPRD manages habitat for late seral forest condition already, and since OPRD recreational development is guided by various rules related to appropriate facility siting that minimize impact to late seral habitat, the agency's actions are well aligned with murrelet conservation already. OPRD is also prescribing additional modifications to facility operations to reduce passive impacts to habitat through noise, trash management, and timing of activities. In addition to compatible processes that are part of OPRD's existing management framework and the additional murrelet enhancement measures laid out in this document, OPRD is in the process of investigating preparation of a Habitat Conservation Plan for marbled murrelet, northern spotted owl, and coastal marten. If this effort comes to fruition, this ESMP will be replaced by that larger effort per the terms of ODFW OAR and ORS.

This Endangered Species Management Plan prescribes some management overlays that differ slightly from the provisional Survival Guidelines. These differences arise from assessment of edge habitats and disturbed

areas that influence habitat suitability. These edge effects and areas of reduced habitat suitability generally occur in proximity to land uses such as developed park facilities, major roads, neighborhoods, and large openings. Edge effect areas and their effects on modeled habitat suitability were determined in coordination with the US Fish and Wildlife Service (Kevin Maurice, personal communication, 12/15/22), and vetted with Martin Nugent of ODFW (Nugent, personal communication, 12/19,2022).

OPRD has supplemented this management plan with detailed maps of areas with proposed seasonal restrictions on noise, areas requiring consultation before removal of trees, habitat suitability ratings, existing designated critical habitat, and historically known occurrences of murrelet usage within park properties. These maps depict sensitive information that, to protect the species, is for internal reference and not for public distribution.

Background

Marbled murrelet biology and habitat

Life history and habitat

Marbled murrelets live most of their lives in the ocean but nest on land when they are laying eggs and rearing young. The nesting season in Oregon extends from April 1 to September 15. During nesting season mating adults fly inland up to 50 miles to nest, typically in large coniferous trees in late seral forest habitats. They seek out suitable trees and branches for nesting with fairly specific requirements. Since marbled murrelets do not construct nests from materials that they bring to the nest site, they must find branches and other platforms that already meet their nesting needs. These platforms are typically large branches, "witches' broom" formations caused by dwarf mistletoe, epicormic branches, and other deformities that provide a relatively wide, flat and "cushiony" surface on which they can pack down the mosses, ferns, and other vegetation to shape a nest in the existing soft substrate. Adults fly inland daily around dawn and dusk to feed chicks in the nest with food they gather in the ocean. The primary nesting season, during which the chicks are most vulnerable and dependent on the adults, extends from the onset of nesting in April to August 5. From August 6 to September 15, chicks are more autonomous, and are less vulnerable to noise and other passive disturbance. Disturbance to chicks and adults in forest settings has been the subject of many analyses, and public land managers follow many established guidelines for buffer distances based on noise levels and other characteristics of disturbance.

Suitable nesting habitat trees are generally defined as coniferous trees over ½ site-potential-tree-height tall, having diameters at breast height of at least 19.1 inches, and having branches or other platforms in the canopy that are at least 4 inches wide and at least 32 feet above the ground surface. Site potential tree height is defined as the height expected for dominant trees in old growth forest within similar conditions or soil, moisture, exposure, and local climate. Site potential tree height varies across the range of the marbled murrelet and ranges from approximately 150 to 220 feet depending on location. Nest trees generally occur in forest stands having at least 40 percent canopy cover. Details on precise habitat characteristics are defined in a variety of US Fish and Wildlife Service Biological Opinions and academic research.

Reasons for population decline

Nesting habitat loss accounts for much of the decline of the species. Timber harvest and land development have decreased the availability of the large diameter trees that marbled murrelets depend on for nesting. Habitat fragmentation and increasing "edge" habitat, encourages corvids, which are major nest predators that decrease the likelihood of successful fledging of young.

Although suitable habitat has been recovering on public lands in recent years, it is declining on private and industrial lands. There has been a minor, recent, short-term net increase in suitable habitat related to management of public lands over the last few decades. However, this trajectory is not necessarily likely to continue given climate, wildfire, and insect/disease disturbances that appear to be increasing over time and which would be expected to decrease suitable habitat in affected areas.

Some of the decline of the species can also be attributed to changes in the ocean, where murrelets spend the majority of the year. Oil spills, ocean current changes, and other influences on murrelet prey (small fish and invertebrates) have decreased food sources periodically for murrelets, which can lead to significant changes in murrelet population stability – even when these ocean prey changes are temporary.

State Park Properties with known historic murrelet usage

Known historic presence

22 of 166 park properties within 35 miles of the coastline have historically been known to have murrelet usage either within the park boundary or immediately adjacent to it based on OSU/USFWS data:

- Alfred A. Loeb
- Beverly Beach
- Brian Booth
- Cape Lookout
- Cape Meares
- Cape Sebastian
- Carl G. Washburne
- Ecola
- Elmer Feldenheimer
- Golden and Silver Falls
- H.B. Van Duzer Forest
- Heceta Head Lighthouse
- Humbug Mountain
- Munson Creek
- Neptune
- Oswald West
- Saddle Mountain
- Shore Acres

- Sunset Bay
- Sunset Highway
- William M. Tugman
- Yachats

Potential habitat currently present on state park properties

For the purposes of this plan, potential habitat was assessed using Light Detection and Ranging (LIDAR) data to characterize stands of sufficient height to contain trees with the appropriate structural characteristics murrelets require for nesting. Suitably sized stands were further characterized for habitat suitability by assessing proximity to large openings, developed uses, roads, infrastructure, neighborhoods, and facilities. These nearby features can be sources of noise disturbance and predators such as corvids that decrease likelihood of nesting usage and fledging success. Superficially suitable habitat in close proximity to these features is known as "edge" habitat – as opposed to "core" habitat that is located further within the interior of suitable forested habitats. For the purposes of this edge assessment, and as a proxy for common sources of disturbance expected in the park environment, OPRD used the "no-effect", "disturbance", and "disruption" distances for chainsaws and heavy equipment operation from several complementary Biological Opinions issued by the USFWS in response to USFS and BLM programmatic Biological Assessments.

Table 1. Nesting Habitat suitability assessment "edge" distance penetration assumptions

	Chainsaw/heavy equipment Likely to Adversely Affect (LAA)	Chainsaw/ heavy equipment Not Likely to Adversely Affect (NLAA)	Chainsaw/heavy equipment No Effect
Stand height	**within 330 feet of forest edge**	**330'-1320' from edge**	**1320+ ft from edge**
80-120 ft with no remnants	low	low	low
120-150 ft	low	moderate	high
150-200ft	moderate	high	high
200+	moderate	high	high

148 maps were created for internal agency use depicting potentially suitable marbled murrelet nesting habitat, habitat quality, and noise and tree removal restrictions based on the criteria above for each of the 166 parks within the 35-mile range defined by Oregon Administrative Rule. Since these maps depict sensitive species location information, they are not for public distribution.

The US Fish and Wildlife Service, US Forest Service, and Oregon State University have collaboratively developed a Maximum Entropy (Maxent) habitat distribution model of murrelet habitat suitability at a coarse scale. This model is focused on identifying the best available core habitat, and was not concerned with high resolution assessment of habitat suitability at a local park level. Under detailed scrutiny by OPRD, and using what was known about OPRD properties, this model was found to underrepresent presumed suitable habitat on OPRD property and to be insufficient to assess the fine-scale protection requirements of the ODFW up-listing and Survival Guidelines. OPRD did not use this USFWS model in this analysis, and opted to create its own model of habitat suitability.

OPRD ecosystem management framework relevant to marbled murrelets conservation

OPRD habitat management is guided by several elements of mission, statute, and rule that passively protect and enhance murrelets habitat. Some of the key elements of existing protection framework are detailed below and in Appendix 1.

Mission

OPRD's mission includes providing and protecting outstanding natural areas. The mission is aligned with murrelet habitat preservation and restoration rather than with commercial resource extraction. Although other aspects of the mission include recreational use and development, this preservation aspect is further governed by specific planning rules meant to protect important habitats such as the late seral coniferous forest that marbled murrelets depend on.

Administrative Rule and Policy

Several elements of OPRD administrative rules and policy define OPRD project area and development siting criteria and process. These elements are summarized below, and provided in detail in Appendix 1.

Master plans:

OPRD recreational use and development are planned within the context of master plans. Master Plans are required for development of campgrounds, parking lots, sewage treatment, and other facilities that require minor land clearing whenever those uses are not allowed under the local government land use zoning overlays in which they occur – such as exclusive farm use, or farm/forest. OPRD's master planning process is governed by extensive Oregon administrative rules that specify necessary natural resource inventory assessments, effects minimization, and siting facilities outside of sensitive areas such as marbled murrelet habitat.

Administrative rules defining OPRD forest management characteristics:

OPRD's forest management is defined by rule to be targeted to maintain or restore healthy, diverse, and sustainable native forest systems rather than to be driven by harvest value.

OPRD Forest Management Policy:

OPRD's Forest Management Policy contains a number of goals and values that can be summarized as: manage for habitat rather than economic value, provide diverse and resilient habitat for wildlife and plant species, manage for development of late-seral structure, and manage fuels to prevent catastrophic loss due to wildfire.

Oregon Parks and Recreation Department Land Covered by this Plan

This plan covers all 166 properties owned or managed by OPRD that are within 35 miles of the coastline, as depicted in Figure 1. Of these 166 properties, 95 contain suitably sized trees for murrelet nesting. These 166 properties contain a total of over 44,000 acres of land - including 19,672 acres of forest with coniferous trees over 80 feet tall.

OPRD conducted a habitat suitability analysis based on Light Detection and Ranging (LIDAR) data that characterized habitat based on tree height and proximity to "edge" features such as neighborhoods, park facilities, roads, structures, etc. Based on this analysis, 56 of these parks contain habitat of moderate-or-better habitat suitability. 43 parks contain likely high suitability habitat. 2,621 acres are apparent highly suitable habitat, 12,733 acres are moderately suitable habitat, and 4,317 acres are minimally suitable habitat. 22 of these parks have historically been known to have murrelet usage either within the park boundary or immediately adjacent to it based on OSU/USFWS data. Formally designated marbled murrelet critical habitat is present within 5 of these parks: Cape Meares Scenic Viewpoint, HB Van Duzer Forest State Scenic Corridor, Oswald West State Park, Saddle Mountain State Natural Area, and Sunset Highway. 10 other parks are adjacent to designated critical habitat on other land ownerships.

Detailed maps of these properties, their habitat values, consultation requirements, noise restrictions, known sites, and critical habitat are were created to guide internal agency operations. Due to the sensitive location information they contain, these maps are not for public distribution and are not included in this plan.

Although L.L. Stub Stewart State Park is technically outside of the 35-mile range specified for this plan by ODFW OAR, a map of the park, its habitat suitability, and no-cut/seasonal restrictions are included in habitat quality and disturbance restriction mapping developed for internal agency use and reference. LL Stub Stewart is less than 1 mile outside of the 35-mile range at its closest point. The habitat acreage statistics for the park, however, are not included in the totals reported in the executive summary or two paragraphs above in this section.

Banks-Vernonia State Trail is partially within the 35-mile range, and is included (in its entirety) in both the internal agency reference mapping and in the acreage statistics reported in the executive summary and this section.

OPRD Properties within the 35 mile Murrelet Inland Range Defined by ODFW Rule

Oregon Parks and Recreation Dept.
725 Summer St. NE, Suite C
Salem OR, 97301

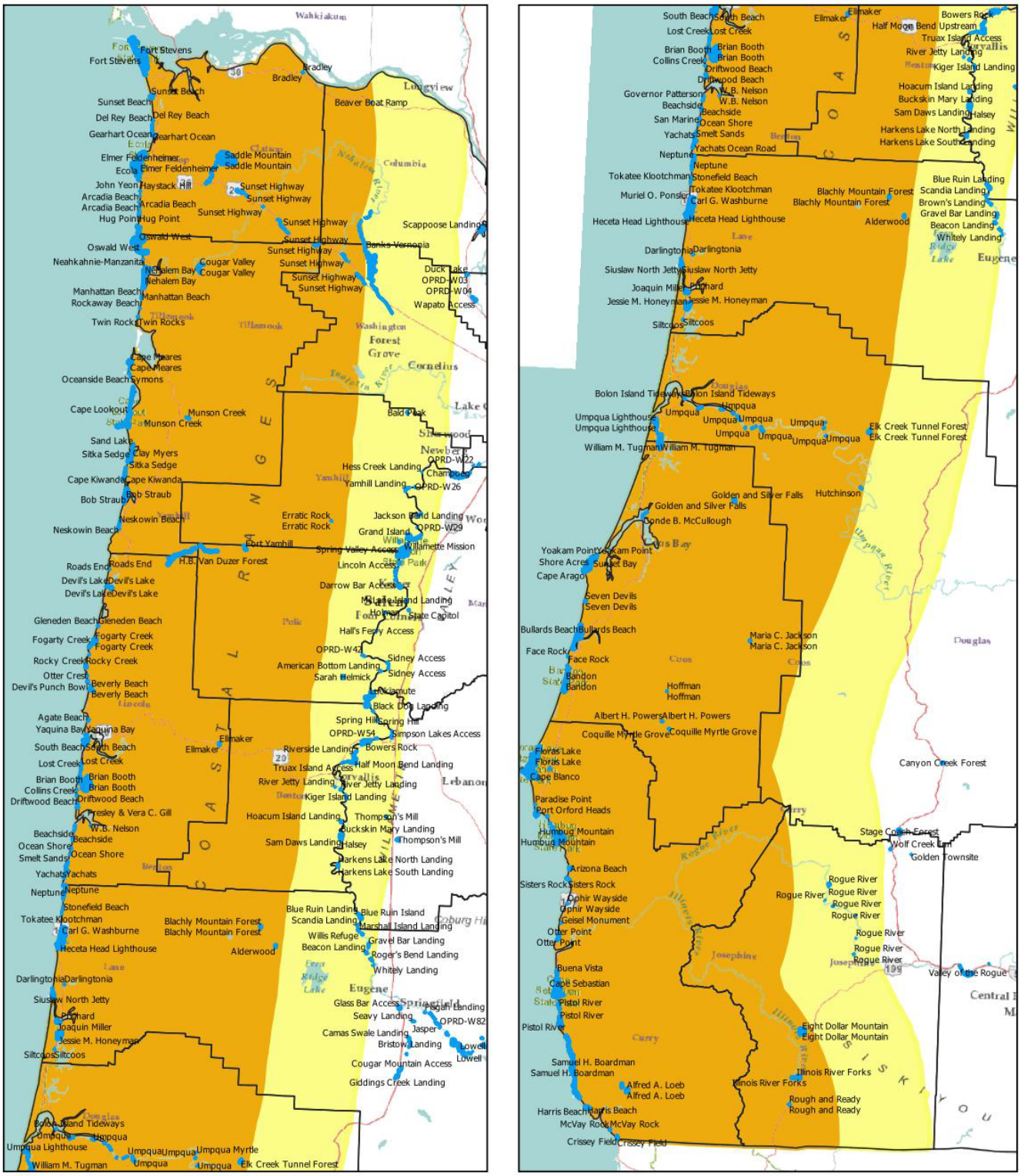

Figure 1. OPRD properties within the inland range of the marbled murrelet as defined by the criterion of 35 miles from the coastline defined in Oregon Administrative Rule 635-100-0137 (11)(l)

The Role of OPRD Land in Conservation of the Marbled Murrelet

Oregon Administrative Rules related to Endangered Species Management Plans for marbled murrelets require that agencies self-define their lands' roles in conservation of the species. The rules allow for choice between the categories of (at least) "Take avoidance", "Contributions to Conservation", and "Conservation" - but no definitions are given to understand the difference between them. In the absence of firm definitions, different agencies have interpreted these categories in different ways. The following definitions are what OPRD used to decide its roles:

a) "Take avoidance" = do the minimum to protect the species and manage resources according to priorities other than habitat conservation – i.e., resource extractions, generation of revenue, development, and continuation of existing uses that are not fully aligned with species needs
b) "Contributions to Conservation" = long term management goals are generally in line with the needs of murrelet, but no significant investments or active enhancement commitments are being made to specifically benefit murrelets at this time
c) "Conservation" = investments and commitments are being made specifically for the benefit of marbled murrelets

OPRD staff consulted ODFW staff regarding these assumptions and their acceptability to ODFW. These definitions were seen as reasonable and sufficient.

Agency Selected Role

OPRD's management is split between "Contribution to conservation" (in the majority of the OPRD property acreage) and "take avoidance" (in areas where development and intensive recreational use are occurring or are planned to occur, as well as in buffer areas around those intensive recreational use areas).

OPRD is interested in investigating the possibility of entering into a Habitat Conservation Plan (HCP) with the US Fish and Wildlife Service. Preliminary investigation of funding opportunities and existing examples will begin in 2023. It is possible that OPRD may elect to pursue the "Conservation" role in some properties in the future in the context of the details of a Habitat Conservation Plan with the US Fish and Wildlife Service.

Method for OPRD determination of Agency Role

OPRD determined the roles of its properties through convening special assessment teams of managers and staff. These teams discussed land use needs and opportunities for conservation in the context of meeting other mission elements and agency goals. Once it was determined that OPRD was not in a position to pursue a dedicated conservation role at this time, the assignment of "take avoidance" and "contributions to conservation" allocations was easily formulated by description. No maps were created for this role zoning in the interest of space since the developed areas are known and obvious, and 148 pages of maps would be required. "Take Avoidance" areas are defined as all areas within approximately 50 feet of facilities, intensively used areas, or areas that are slated for recreation facility development. The remaining suitable forested habitat is allocated to the to the "Contributions to Conservation" zone. Non-forest and unsuitable habitat were not assigned a role in murrelet conservation.

OPRD Management Practices, Management Zones, and Consultation Processes Prescribed to Meet Agency Role

As described in the background section of this plan, as well as in the appendix on rules and policies, OPRD's management is largely and passively in line with the needs of marbled murrelets. Recreation management and operation of developed facilities such as campgrounds, parking areas, picnic areas, roads, trails, and administrative areas are sometimes slightly averse to the species' needs. The following discussion of management is split between the agency's two self-defined roles of "Take Avoidance" in the vicinity of developed facilities, and "Contributions to Conservation" in natural areas and minimally developed areas.

Take Avoidance Areas

These areas include campgrounds, picnic areas, parking areas, trailheads, day use areas, and roads. There are a number of management practices and sideboards OPRD is investigating to limit negative effects to marbled murrelets:

1) Reduction of predator attraction through improved garbage and food waste management. OPRD is working with American Bird Conservancy (ABC) to investigate adoption of something similar to the "Crumb Clean" campaign on a wider-scale basis. This campaign is in wide usage in the murrelet zone of California already, and OPRD has participated in some early pilot efforts in Oregon. ABC is working with OPRD to identify parks where improvements are needed. OPRD is also coordinating with ODF in investigation of a possible multi-agency Crumb-Clean rollout.
2) Use of reduced noise equipment such as electric mowers, blowers, chainsaws, and vehicles. Parks are actively transitioning to these types of equipment currently. Lower noise equipment should reduce disturbance potential in areas near suitable murrelet nesting habitat.
3) Improved coordination and timing of hazard tree removal activities. While some hazard tree and emergency fallen tree removal will undoubtedly arise unpredictably through the year due to fire, windstorms, etc., OPRD is working with hazard tree assessors to proactively survey and manage hazards outside of the nesting season to reduce potential for needed work inside the nesting season.
4) Pre-project surveys for murrelet presence and usage. OPRD is conducting surveys through consultants to determine murrelet presence prior to major projects that could occur within disturbance distances of suitable habitat.

Contributions to Conservation Areas

These areas include undeveloped forest areas, natural buffers to suitable habitat, and forest restoration areas in which OPRD forest management is attempting to accelerate development of late seral forest character in second growth forest acquired by the agency. Where actions are needed in these areas, OPRD sideboards may include:

1) Pre-project consultation and scoping with ODFW and USFWS
2) Assessment of suitability of habitat and potential effects
3) Optimal timing of actions to reduce noise and disturbance effects
4) Surveys to establish presence/absence/usage of the area by marbled murrelets.

Updates to Provisional Survival Guidelines Criteria

OAR 635-100-0137 sets out provisional Survival Guidelines that are anticipated to be superseded by completed agency-specific Endangered Species Management Plans. These rules also allow for ODFW to allow deviations from the Survival Guidelines "for reasons of forest health or public safety, or when the approval is consistent with USFWS advice".

On several occasions since the up-listing of the murrelet, OPRD has worked with both ODFW staff and USFWS staff on project-level consultations to assess superficially minimally-suitable habitat (as defined by tree size and platform presence alone per the Survival Guidelines). Our interagency project-level consultations evaluated site-specific details that influence habitat suitability based on other factors and sources of adjacent disturbances. Several of these consultations found that the Survival Guidelines were too restrictive in degraded areas adjacent to neighborhoods, highways, campgrounds and other sources of "edge" effects that would preclude murrelet nesting and successful fledging in these areas. After consultation on these projects, both USFWS and ODFW ultimately agreed that the projects were consistent with murrelet conservation due to local site conditions despite being superficially in conflict with the Survival Guidelines - and the projects were allowed to proceed.

In preparing this Endangered Species Management Plan, OPRD informally consulted with the USFWS and ODFW regarding a more nuanced approach to determination of suitable habitat that incorporates disturbance context. The result was a more refined method for mapping habitat suitability. Building on these refined habitat suitability criteria, OPRD has further assessed areas where: 1) the Survival Guidelines restrictions on tree removal and noise disturbance continue to make sense and where OPRD shall apply them on a permanent basis (until superseded by a potential HCP); and, 2) where the Survival Guidelines restrictions do not make sense in the landscape context. The analysis resulted in mapping of areas where seasonal noise restrictions will be observed and where no tree cutting will be allowed without ODFW/USFWS consultation. Internal agency-use maps of these restrictions were created for each of the 166 park properties within the 35-mile administrative range for the species defined in ODFW OAR, and an illustrative example is included below in Figure 2. It is important to note that in the areas where OPRD has removed ODFW interim Survival Guidelines default consultation requirements and noise restriction zone mapping, these areas are still governed by OPRD's mission, rules and policy for forest management - which are resource-preservation-focused, restoration-minded, and directed to minimize removal of trees except where forest has encroached on a more valued habitat type associated with other species (e.g. western snowy plover, Oregon silverspot butterfly, silvery phacelia, etc.). In most cases, removals of trees in these areas will be for small numbers of trees, hazards, fuels reduction, etc. If, upon field inspection in project scoping, OPRD biologists recognize important nesting platforms and suitability, OPRD staff will consult with ODFW in more detail.

Habitat suitability criteria are given in Table 1. Restriction zone mapping based on this habitat suitability matrix also included further assessment of edge as follows:

1) Suitable habitat 328 feet or more from development, highways, facilities, neighborhoods, etc. was given a no-tree-cutting-without-ODFW-consultation buffer of 328' per the Survival Guidelines and existing USFWS programmatic biological opinions.
2) Suitable habitat in the moderate and high habitat suitability classes occurring less than 328 feet from development, etc. was not given an additional buffer, but these areas themselves were mapped as no-cut-without-ODFW-consultation areas. Low quality habitat was not given a no-cut designation.
3) Suitable habitat at least 328 feet from development, etc. was given a 1320-foot (1/4 mile) seasonal noise restriction buffer per Survival Guidelines and existing USFWS programmatic biological opinions
4) Suitable habitat less than 328 feet from development, etc. was given no seasonal noise restriction buffer

Although this ESMP programmatically sets refined seasonal noise restriction zones and consultation requirement zones that are under the ODFW purview, this plan does not suffice for USFWS Section 9 Take Avoidance coverage or consultation. Within the USFWS-specified 50-mile inland range, OPRD will continue to work with USFWS to review projects for federal take avoidance. ODFW may be consulted as well in situations that would normally be outside of either the ESMP consultation-required zones, or outside of the 35-mile ODFW-specified range in cases of high ecological significance.

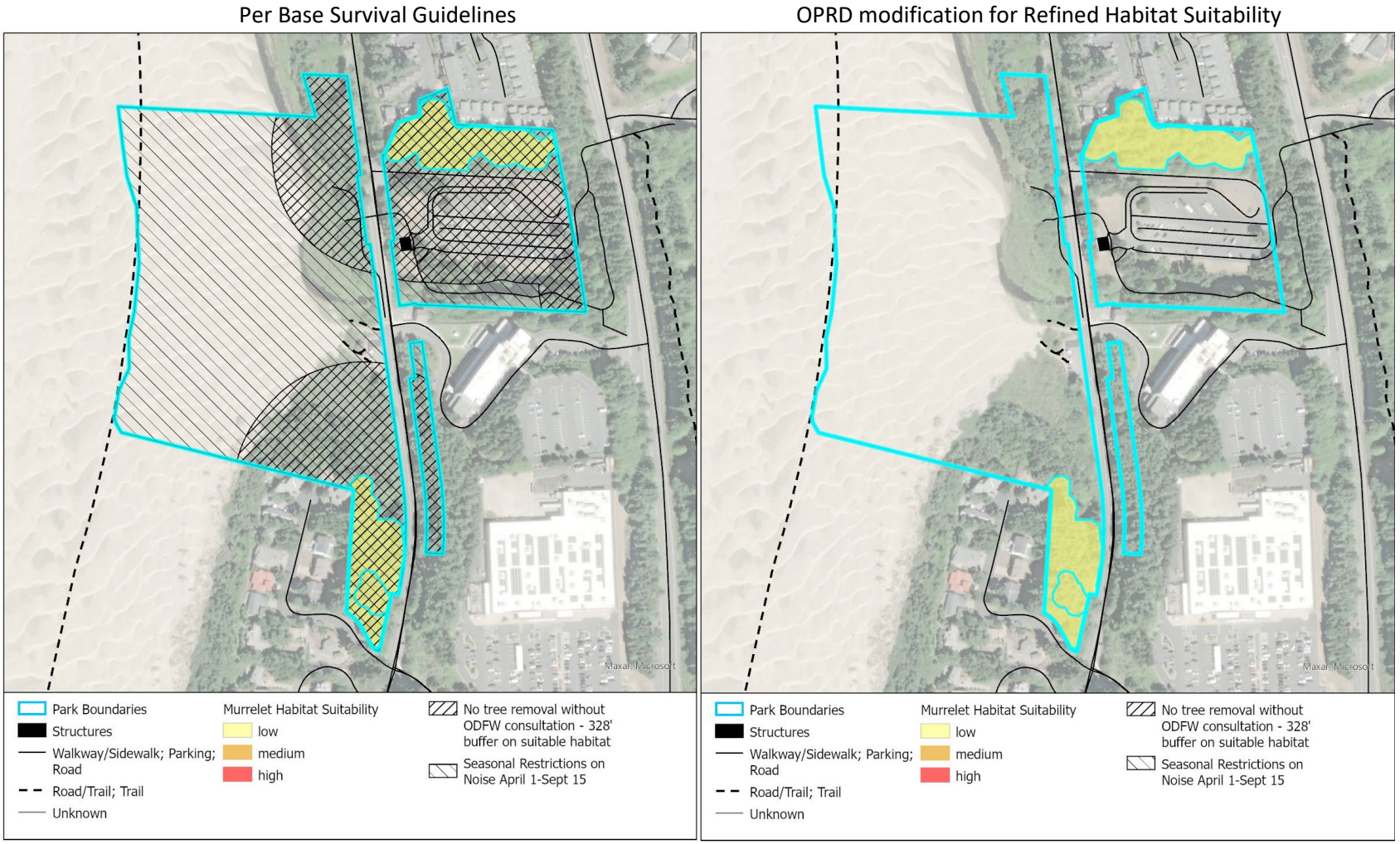

Figure 2. Comparison of raw Survival Guidelines requirements and OPRD-modified criteria for tree removal and seasonal restrictions. Agate Beach State Park.

Note that the park is surrounded and permeated by human uses. To the south and north, neighborhoods and intensively developed residential areas. To the east, parking lots, a picnic area, a large hotel, a highway and industrial uses; to the west, a very intensively used beach for recreation. Corvid populations are high. The forested portions of the property were mapped as low suitability based on proximity to sources of disturbance and "edge", but the forest itself is also degraded by extensive homeless camping. Murrelet nesting in this park is extremely unlikely given the landscape context. Seasonal noise restrictions and no-cut buffers seem unnecessary.

Monitoring implementation of the Endangered Species Management Plan

Because OPRD's management actions to be completed under this plan are primarily existing, long-term programs and passive efforts that do not include specific measurable proposals for habitat manipulation directly targeted for murrelet effects, the agency does not plan to monitor implementation of the ESMP.

Endangered Species Management Plan Review and Update

OPRD will revisit the ESMP's effectiveness and compatibility with management needs every 5 years unless superseded by preparation of an HCP. Revisitation of the text of the plan may result in changes when:

1) Aspects of understanding of species biology change
2) Catastrophic fire, disease, blowdown, or other disturbances change forest habitat structure from suitable to less suitable or unsuitable for murrelet nesting.
3) Adjacent land uses, development, and disturbance introduce new edge areas that change the interior forest habitat characteristics previously mapped, and which degrade habitat suitability
4) Natural stand development has new stands "growing into" more suitable nesting habitat suitability that affects mapping.
5) New properties are acquired
6) Properties are sold, traded, or otherwise leave OPRD ownership or management

The internal, agency-usage map series depicting restriction zones may be edited on an as-needed basis to account for changes listed above without requirement for revisitation of the text of the plan.

Revisitation of the ESMP will include:

1) Editing the property tabulations and revising internal-agency-use reference maps according to acquisitions or dispositions of property
2) Update of internal-use maps of suitable habitat, survey results, known nest sites, and presumed habitat
3) Creation of any maps necessary to depict changes in zoning of "contributions to conservation" vs "take avoidance" according to changing land management needs and plans, murrelet survey results, etc.

Process for ESMP update:

1) Special assessment teams review
2) Draft edits
3) Comprehensive outreach to and vetting by the management hierarchy.
4) Preparation of vetted internal drafts
5) Outreach to ODFW for discussion
6) Finalization

How OPRD's ESMP Relates to Other State Agency, Federal Recovery Plans and State and Other Recovery Efforts

OPRD's ESMP is not targeted to directly interact with the actions of any other agency's specific management areas. As a passive plan without specific murrelet habitat acquisition, manipulation, or strategic allocation targets, this plan does not afford opportunities for specific coordinated landscape ecology. It does, however, include collective coordination related to coast-wide state agency adoption of the Crumb Clean campaign or an adaptation of it. State agencies have discussed this program and intend to coordinate development of signage and other outreach in coordination with American Birds Conservancy (ABC). OPRD and ODF are co-sponsors of elements of Crumb-Clean research being spearheaded by ABC.

OPRD may pursue a Habitat Conservation Plan with USFWS. If so, that plan will investigate opportunities for collective, strategic, and specific management actions that may interact with other agencies' efforts to provide regional conservation coordination and collective strategy.

OPRD's ESMP is broadly consistent with the Recovery Plan for this species. OPRD and individual OPRD properties have no specified actions or roles in the Recovery Plan.

OPRD Plan Development Process

In July 2022 OPRD Natural Resource staff presented the background, need and proposed process for murrelet management planning to the agency Executive Team. The Executive Team directed that NR staff work with the Deputy Director for Operations and the Field Services Deputy Director to investigate the makeup of special review teams for agency-wide transparency and vetting. NR staff and the deputy directors defined the makeup of the special teams, and NR staff facilitated two special teams meetings to discuss the background, opportunities, and needs. The special teams were made up of the Region Directors, District Managers, Operations Support Managers, and Regional Park Resource Managers. These teams found consensus on the proposed content of the ESMP, which was then presented to OPRD Leadership Group for further outreach and transparency. After Leadership Group review, the concept circled back to the Executive Team for final decision. Executive team approved the concept and directed NR staff to prepare a draft ESMP. After preparation of the draft, NR staff provided a review copy to all of the previous reviewers as well as all affected Park Managers and regional Natural Resource staff to assure the product met expectations of the teams and was widely understood. Upon final review and edits, the plan was submitted to ODFW for inclusion in Commission review.

References

ESRI 2011. ArcGIS Pro: Release 2.7. Redlands, CA: Environmental Systems Research Institute.

Lorenz, et al. 2021b. Maxent model for marbled murrelet habitat suitability. GIS data. From Lorenz et al, 2021.

Lorenz, T.J.; Raphael, M.G.; Young, R.D.; Lynch, D.; Nelson, S.K.; McIver, W.R. 2021. Status and trend of nesting habitat for the marbled murrelet under the Northwest Forest Plan, 1993 to 2017. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station. 64 p.

Lorenz, et al. 2021b. Maxent model for marbled murrelet habitat suitability. GIS data. From Lorenz et al, 2021.

Maurice, Kevin. US Fish and Wildlife Service. Personal communication. Various dates, 2022.

Nelson, Kim. GIS data for known and historic occurrences of marbled murrelet. Oregon State University, Department of Fisheries, Wildlife, and Conservation Sciences. Emailed by Kim Nelson December 2022.

Nugent, Martin. Oregon Department of Fish and Wildlife. Personal Communication. Various dates, 2022.

Oregon Department of Fish and Wildlife [ODFW]. 2021. Biological Assessment of the Marbled Murrelet (Brachyramphus marmoratus) in Oregon and evaluation of criteria to reclassify the species from threatened to endangered under the Oregon Endangered Species Act. Report prepared for the Oregon Fish and Wildlife Commission, June 2021. Oregon Department of Fish and Wildlife, Salem, Oregon.

U.S. Department of the Interior, Fish and Wildlife Service [USDI FWS]. 1997. Recovery plan for the threatened marbled murrelet (Brachyramphus marmoratus) in Washington, Oregon, and California. Portland, OR. 203 p

U.S. Department of Fish and Wildlife Service [USFWS]. 2009. Marbled Murrelet (Brachyramphus marmoratus): 5-year review. U.S. Fish and Wildlife Service, Washington Fish and Wildlife Office, Lacey, Washington.

U.S. Department of Fish and Wildlife Service [USFWS]. 2016. Memorandum/Biological Opinion on: "Biological Assessment Regarding Habitat Modification Projects that are Not Likely to Adversely Affect the Northern Spotted Owl (Strix occidentalis caurina), the Marbled Murrelet (Brachyramphus marmoratus), or their Critical Habitats within the North Coast Province, FY 2017-2018, proposed by the Northwest Oregon District, Bureau of Land Management and the Siuslaw National Forest". 288p.

U.S. Department of Fish and Wildlife Service [USFWS]. 2021. Endangered Species Act – Section 7 Consultation: Supplemental Aquatic Restoration Biological Opinion for Activities in the States of Oregon, Washington and portions of California, Idaho and Nevada (ARBO II Supplement). [FWS reference: 01EOFW00-2021-F-0244]. Biological Opinion. 183 p.

USFWS Critical Habitat Mapping. GIS data: ArcGIS feature service. Accessed December 2022. URL: https://services.arcgis.com/QVENGdaPbd4LUkLV/ArcGIS/rest/services/USFWS_Critical_Habitat/FeatureServer

QGIS.org. QGIS Geographic Information System. QGIS Association. http://www.qgis.org

Appendix 1
Further discussion of relevant OPRD Rules, Statutes, and Policies

(1) Oregon Administrative Rule 736-018-0010
Purpose of State Park Master Plans

(a) The purpose of state park master plans is to plan for protection and public enjoyment of state park resources. Master plans identify and provide for protection of important natural, cultural and scenic resources within state parks, and provide for the most appropriate recreation-related uses for the parks based on resource opportunities and constraints, development opportunities and constraints, public recreational needs and the Department's role as a public recreation provider. Master plans also set forth natural, cultural and scenic resource management goals, objectives and guidelines for the parks. The master planning process provides a forum for public and agency participation in the completion of each master plan. State park master plans and master plan amendments are completed on a priority basis to address impacts on resources and resource management needs, to address critical and current recreational use levels and to plan for future use based on assessments of future recreation needs. The master planning process may include the identification of lands desired by the Department for acquisition in relation to the park being master planned, and identification of any potential new endowment properties within the parks.

(b) Summary of process:
  (i) Use inventory and overlay process to identify natural, cultural, scenic, and recreational opportunities and constraints
  (ii) Development is allowed in areas where resources are not sensitive.
  (iii) Trail development can sometimes occur in sensitive areas with careful planning and public process
  (iv) Areas with significant natural resource constraints such as murrelet habitat or occurrences are excluded from development concepts by rule.
  (v) Planning may develop resource enhancement prescriptions and targets for sensitive and non-sensitive habitats

2) 736-018-0050
Management of State Park Forests: Policy

i) The State Parks and Recreation Division shall manage forest resources to provide for the public's enjoyment and to protect the natural resources. The Division shall determine the sensitivity of a forest where management needs are identified, and use the least disruptive practice feasible to accomplish management objectives. The Division shall involve the public in significant forest management programs. In emergencies, the Division may take the appropriate action and follow up with necessary evaluation after the action.

3) 736-018-0060
Management of State Park Forests: Objectives

i) Protect the natural qualities of sensitive forest resources.
ii) Manage forests to control fire and destructive pests, improve growth and vigor, rehabilitate damaged areas, and create desirable conditions.
iii) Manage forests for safe, attractive, and compatible recreation opportunities.

iv) Revenue generation is not an objective of park forest management, except in areas designated through publicized processes as being surplus to park needs.

4) OPRD's Forest Management Policy

To support its goals of effective forest management, OPRD is committed to the following:

(i) Actively manage forestlands to maintain or restore healthy, diverse, and sustainable native forest systems today and in the future.

(ii) Develop and implement structure-based management prescriptions to accelerate the development of older stage forest systems where appropriate and promote biodiversity at various levels of scale.

(iii) Implement "best management practices" that conserve, protect or enhance soil productivity, water quality, fish and wildlife habitat, and air quality.

(iv) Promote forest ecosystems that maintain function, diversity and resiliency within the context of natural disturbance.

(v) Promote active fuels and vegetation management, where appropriate, to minimize risk of loss due to wildfire.

(vi) Promote timely restoration and recovery of forestlands burned by wildfire.

(vii) Monitor forest conditions to study the effectiveness of management strategies and share the knowledge gained.

(viii) Develop adaptive management actions as forest conditions change over time and knowledge is gained.

(ix) Promote cooperative forest management strategies among adjacent landowners.

(x) Integrate forest management planning with the development of comprehensive park plans.

(xi) View sheds that benefit adjacent landowners will only be considered within the context of forest management strategies or if view enhancement provides public benefit based on established or traditional views.

(xii) Implement an active hazard tree management program, which ensures a safe recreational experience for park visitors.

(xiii) Provide leadership in the management and stewardship of public forestlands in Oregon.

(xiv) Under the over-arching goal is practicing good forest stewardship, optimize revenue for cost-effective forest management.

(xv) Promote continuous learning and application of knowledge gained.

APPENDIX 2
Modeling and Mapping Methods

General flow:

1) Lidar analysis
    a. Extract Height-Above-Ground (HAG) rasters of each park's vicinity using a buffer around park boundaries of the 1320-foot (1/4 mile) buffering criterion for no-effect of chainsaws and heavy equipment operation within the nesting season. Write these to a directory for park-wise analysis iteration
    b. Iterate stand aggregation based on height above ground using the model depicted in the figure below. Work conducted with ArcGIS Pro 2.7 Model Builder and Arc GIS 10.7 Toolbox through Arc 10.7 Catalog
        i. Stands are aggregated according to height ranges of 0-8 ft, 8-12ft, 12-20ft, 20-40ft, 40-80ft,80-120 ft, 120-150 ft, 150-200ft, and 200+ feet tall.
        ii. Model creates binary selections of pixels that are within the specified ranges, then uses focal statistics to create heat maps, that are then reclassified to binary classes of regions of pixels with values above the stand membership threshold value. Binary heat group membership region-grouped rasters are then reduced to group sizes that exceed the minimum mapping unit threshold. After repeating this process for each height range, the results are stacked with tallest classes on top such that lower height class stands are overwritten by taller classes where they are present. After stacking, some fragmentation of the minimum mapping unit size occurs, and the stack is then region grouped and filtered for groupings larger than the minimum mapping unit size. Holes in the filtered result are filled by Euclidean allocation
2) Convert stand aggregation rasters to polygon
3) Create layers of sources of "edge" and disturbance
    a. Select neighborhood and residential, industrial uses within 1320 feet of parks from statewide tax lot data
        i. Manually fine tune around each park
    b. Park facilities – hard surface, roads, structures, campgrounds, parking lots, etc.
    c. Select openings from the classified Lidar data – stands with height less than 40 feet and create new layer and filter to those greater than 1 acre in size.
    d. Select roads and highways within 1320 feet or park boundaries from ODOT transportations system mapping
4) Buffer edge source layers from #3 (above) by 328 feet and intersect with the aggregated stands by height
5) Prune out erroneous stands of spurious tall "trees" resulting from manmade features such as bridges and powerlines. Recalculate their value to <8' tall.
6) Using a script, apply decision criteria for habitat suitability of Table 1 to create a new field in the data for habitat suitability. Nested if-then statements… for example, if stand height <80, not habitat… if stand height >80 but less than 120 and within 328 feet of development edge and large openings, calculate habitat suitability to "low", etc.
7) Select suitable stands that are 328' or farther from development edge and buffer them by 328' to create a no-cut restriction overlay.

8) Select suitable habitat stands that are 328’ or farther from development edge and buffer by 1320’ (1/4 mile) for the seasonal noise restrictions overlay.
9) Select stands within 328 feet of development edge that are mapped as high or moderate habitat suitability based on large tree size, and add them to the no-cut buffer overlay.
10) Collect Critical Habitat designation and known historic site mapping from USFWS/OSU and create maps of known sites figures for the plan using QGIS 3.16 Atlas
11) Create a map book of maps displaying restriction areas and habitat suitability, and export for figure for the plan using ArcGIS Pro Map Series

GIS data:

1) Raster of height class aggregated stands
2) Polygon layer version of the height aggregated stands
3) Polygon layer of developed areas from tax lot data
4) Polygon layer of park roads, hard surface, and structures
5) Polygon layer of roads within ¼ miles of park boundaries
6) Polygon layer of openings larger than 1 acre in size extracted from the height class aggregated polygon layer
7) Polygon layer of height-aggregated stands intersected with 328’ and 1320’ buffers of items 3-6, above
    a. Clipped to park boundaries
    b. Everything within ¼ mile of park boundaries
    c. Both a and b have a field for habitat suitability value calculated for the other fields in the attribute table
8) Polygon layer of no-cut areas derived from 328-foot radius intersect from 7) b. according to the scripts below
9) Item 8 clipped to park boundaries
10) Polygon layer of seasonal noise derived from ¼ mi radius intersect from 7) b. according to the scripts below
11) Item 10 clipped to park boundaries