CONSERVATION OPPORTUNITY AREAS

Oregon's State Wildlife Action Plan

Contents

CONSERVATION OPPORTUNITY AREAS

Conservation Opportunity Areas (COAs) are places where broad fish and wildlife conservation goals would best be met. Focusing investments in these prioritized areas can increase the likelihood of long-term success, maximize effectiveness over larger landscapes, improve funding efficiency, and promote cooperative efforts across ownership boundaries.

COAs were developed to guide voluntary conservation actions in Oregon. Land use or other activities within these areas will not be subject to any new regulations. The Oregon Department of Fish and Wildlife (ODFW) COA map, dataset, and underlying profile information should only be used in ways consistent with these intentions.

For more information on what COAs are and how they were developed, see the **COA Methodology** sections.

COA METHODOLOGY

BACKGROUND

ODFW COAs were originally developed for the 2006 State Wildlife Action Plan (SWAP) with the best available information at the time and an intention for them to be updated as new information became available. The ODFW re-analyzed COA boundaries for the 2016 SWAP, using new and updated science, data, and resources. To continue the success of COAs in helping to prioritize on-the-ground conservation actions statewide, the ODFW again undertook the re-analysis of COA boundaries for the 2026 SWAP, incorporating new and updated data within the modeling analysis.

MARXAN ANALYSIS

Marxan is a planning tool that runs a cost-benefit analysis, optimizing the conservation goals (targets) while minimizing the detrimental environmental factors (costs). The output from Marxan is a solution where spatial units are selected individually based on their cost value relative to the overall targets for the region. The analysis runs on a grid scale (planning units), and Marxan allows for individual planning units to be manually seeded at the beginning of the analysis or locked in/out of the final output. The planning units that were used for this analysis were the same 1 sq. mile hexagons that were used for the previous analysis in 2015.

Main Elements of Marxan Analysis

Costs

Costs were chosen for inclusion in the analysis describing relevant factors and influences on landscape suitability for conservation. Considerations for cost factors included data availability, quality, publication date, and relevance to present conditions.

Cost factors included in analysis:

- Agricultural land presence
- Aquatic pollution
- Burn probability (annual)
- Burn severity of past fires
- Existing landscape protections (GAP status)

- Impervious surfaces (development)
- Invasive species observed presence
- Mining operations (geographic footprint)
- Modeled hotspot for detrimental climate change
- Solar field presence
- Terrestrial pollution
- Wetland drying trends

Cost factor source data were translated into the hexagon grid by calculating proportion of coverage. For each cost factor, a numerical weighting value was assigned to represent that factor's impact on the landscape. Weight values were based on feedback from ODFW staff (COA Cost Factors survey). All cost factors were compiled into a single cost value for each hexagon by multiplying each factor's proportion of coverage by its weight and then taking the sum of all the weighted factors:

$$Final\ Cost = \sum_{n=1}^{12} W_n(P_n)$$

Where P_n is the proportion of coverage for the *n*th cost factor and W_n is the respective weight for that cost factor

Targets

Marxan targets were chosen based on discussions with regional and local experts, and included consideration of the previous analysis conducted in 2015. Data availability, quality, publication date, and relevance to present conditions were also considered.

List of targets included in analysis:

- Modeled hotspot for climate stability
- Environmental Justice Index (EJI)
- Key Habitat presence (based on draft of 2025 Key Habitat map)
- Maintain layer
    - Offshoot dataset of Priority Wildlife Connectivity Areas (PWCAs). Represents areas that did not meet the criteria for inclusion in the PWCAs but are still considered to be high-value landscape for vulnerable wildlife species.
- Observed presence for each Species of Greatest Conservation Need (SGCN)

- Modeled range for each SGCN species (USGS GAP data)

Target source data were translated into the hexagon grid such that each target was considered separately (i.e., a single hexagon could have coverage for multiple, overlapping targets). Coverage was calculated based on the data type: for polygon and raster data the proportion of coverage was calculated, while for point data (SGCN species presence) a binary presence/absence value was used to represent whether the species was observed anywhere within the hexagon. The SGCN observation and range datasets and the Key Habitat datasets used for each ecoregion included only those species designated as SGCN/Key Habitat for that ecoregion.

In total, the Marxan analysis involved over 300 separate data layers statewide.

Calibrations

Ecoregion-specific targets and target goal values

Target data sets were tailored to each ecoregion such that the SGCN observation datasets, SGCN range datasets, and the Key Habitat datasets used for an ecoregion included only those species or habitat designated as SGCN or Key Habitat for that ecoregion. For each target, a goal value was also set. The goal value represents the desired proportion of the target's total presence in the ecoregion. For example, the Western Toad's goal value was 20%.In the Coast Range, where it is considered a SGCN species, the Marxan output (the full set of chosen hexagon units) was required to include at least 20% of its range within that ecoregion. Goal values were based on the goals established during the 2015 analysis.

Boundary Length Modifier and Number of Iterations

The Boundary Length Modifier value is a measure of the area-to-perimeter ratio of the overall Marxan output (few large patches vs many small patches). The Number of Iterations value represents the number of randomly selected comparisons that Marxan will make during each modeling run (100 runs per analysis). Each ecoregion was calibrated separately for each of these values, to optimize the results without compromising the total cost or the data processing efficiency.

Refining Results

The Marxan analysis was run for each ecoregion independently. The raw results were refined using an iterative process that considered several sources of additional information, and made edits accordingly:

- Filtering to exclude GAP 1 areas: This was done primarily because on-the-ground work is typically prohibited in GAP 1 lands, so they don't have much function as places that are appropriate for the development of conservation projects. Additionally, these areas have permanent protection from conversion of natural land cover.
- Overlaying 2025 Marxan results with 2015 Marxan results: Hexagons from the 2025 Marxan results that were overlapped the 2015 Marxan results were flagged for automatic inclusion in the final 2025 COA boundaries based on the inference that two analyses, taken 10 years apart, selected those hexagons so they likely have consistently high conservation value. Hexagons were flagged for inclusion pending reviewer feedback.
- Overlaying 2015 final COAs with 2015 and 2025 Marxan results: Hexagons from the 2015 final COAs that were NOT overlapping either the 2015 or the 2025 Marxan results were flagged for automatic exclusion from the final 2025 COA boundaries. This was based on the inference that two analyses, taken 10 years apart, did not select those hexagons so they likely have consistently low conservation value. Hexagons were flagged for inclusion pending reviewer feedback.
- Incorporating feedback from April 2025 COA review survey: respondent comments that were relevant to COA boundaries were considered, and specific areas that were mentioned were edited based on the information provided in the respective comment. In the cases where reviewer feedback that provided detailed, local knowledge of landscape suitability for SGCN species ran counter to the results from the other refinement methods, the reviewer feedback was considered the authoritative information source.
  Incorporating feedback from May/June 2025 COA review web map: Similarly to the April 2025 COA review feedback, in places where the web map feedback provided detailed, local knowledge of landscape suitability for SGCN species (or other relevant factors) that ran counter to the results from the other refinement methods, then the reviewer feedback took precedent.

REVISED COAs

REVISED MAP

Figure 1 shows the draft version of the updated 2026 Conservation Opportunity (COA) boundaries, prepared by ODFW for the State Wildlife Action Plan (SWAP) update, for consideration by the public and partners. This set of draft COA boundaries was produced using Marxan, a cost-benefit analysis tool, coupled with the ODFW staff feedback. The ODFW staff performed an extensive cost-benefit analysis involving over 250 data layers to delineate the draft boundaries. Marxan optimizes target conservation goals while minimizing detrimental cost factors, identifying locations across the state that balance these elements. The analysis considered various cost factors including impervious surfaces, climate change, and wetland drying trends, among others. Targets included elements such as Key Habitat presence, presence and modeled range for Species of Greatest Conservation Need (SGCN), climate stability, and others. These output boundaries were then reviewed by the ODFW staff and edits were made based on staff feedback to create the draft boundaries shown on this map. Figure 2 shows the final draft updated COA boundaries, incorporating all comments submitted through July of 2025 by public, partners, and staff. Detailed geospatial information is viewable through a webmap viewer: ODFW Conservation Opportunity Areas (2025 SWAP Revision).

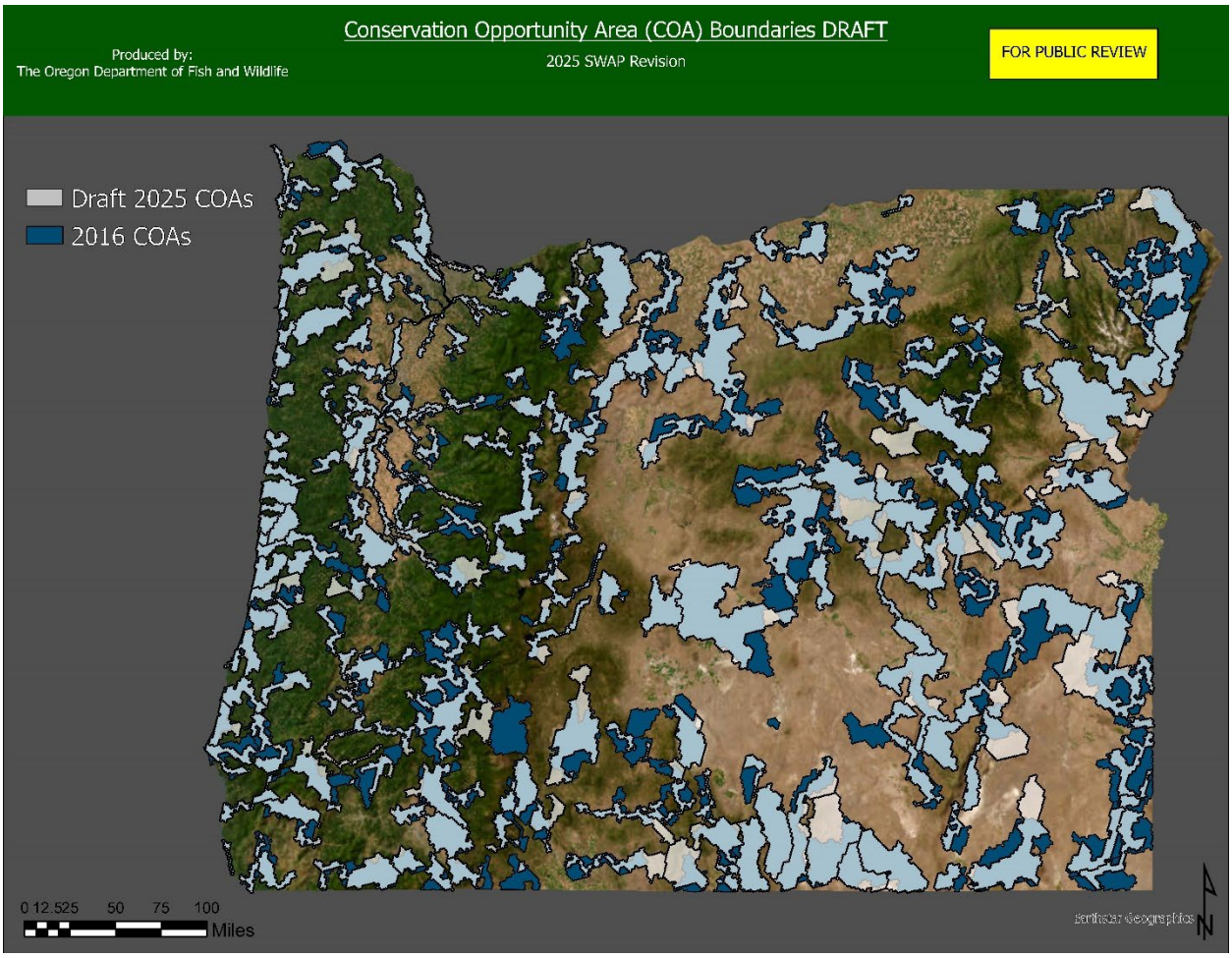
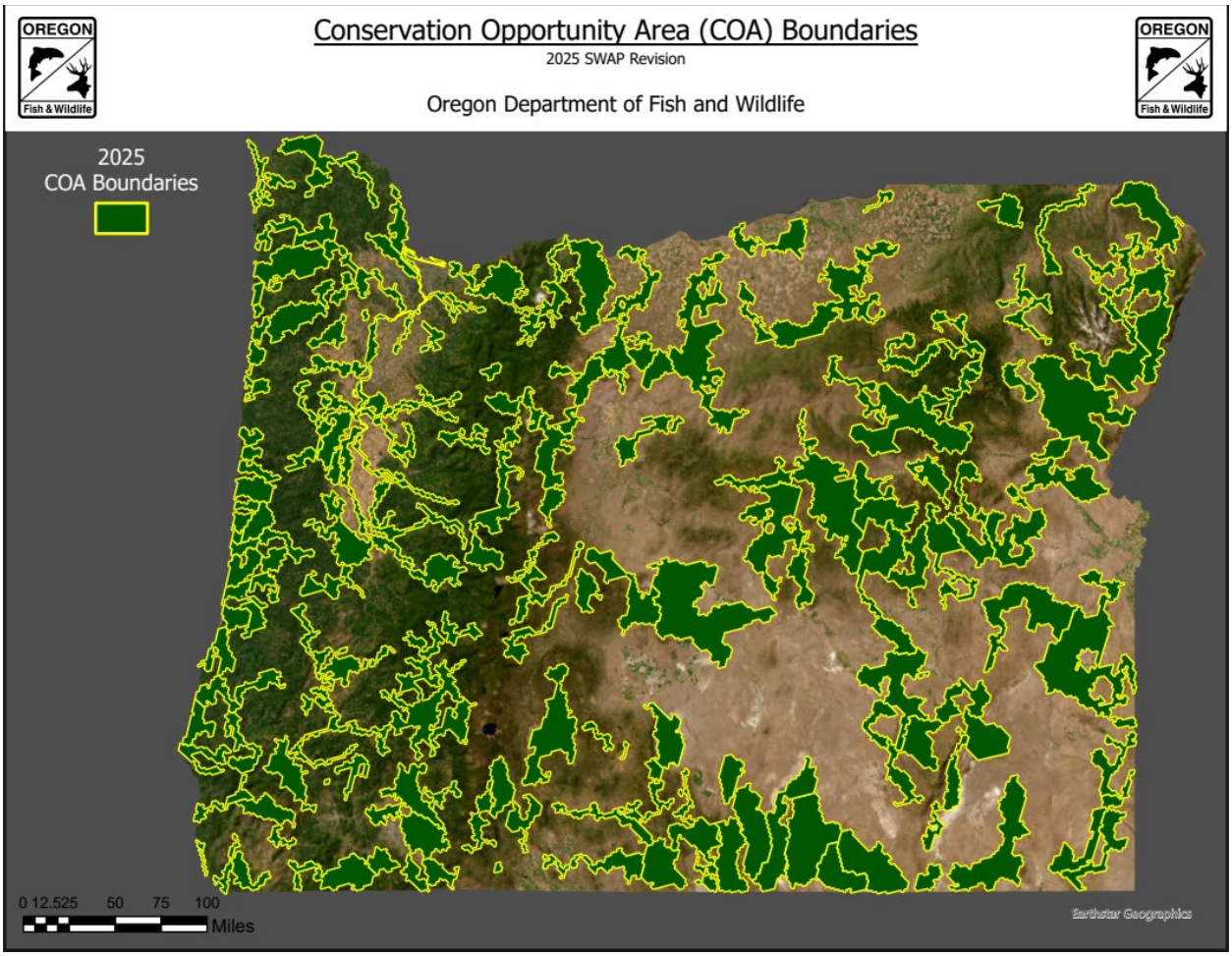


Figure 1. Draft version of the updated 2026 Conservation Opportunity Area (COA) boundaries (gray) compared to the 2016 COA boundaries (dark blue).



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