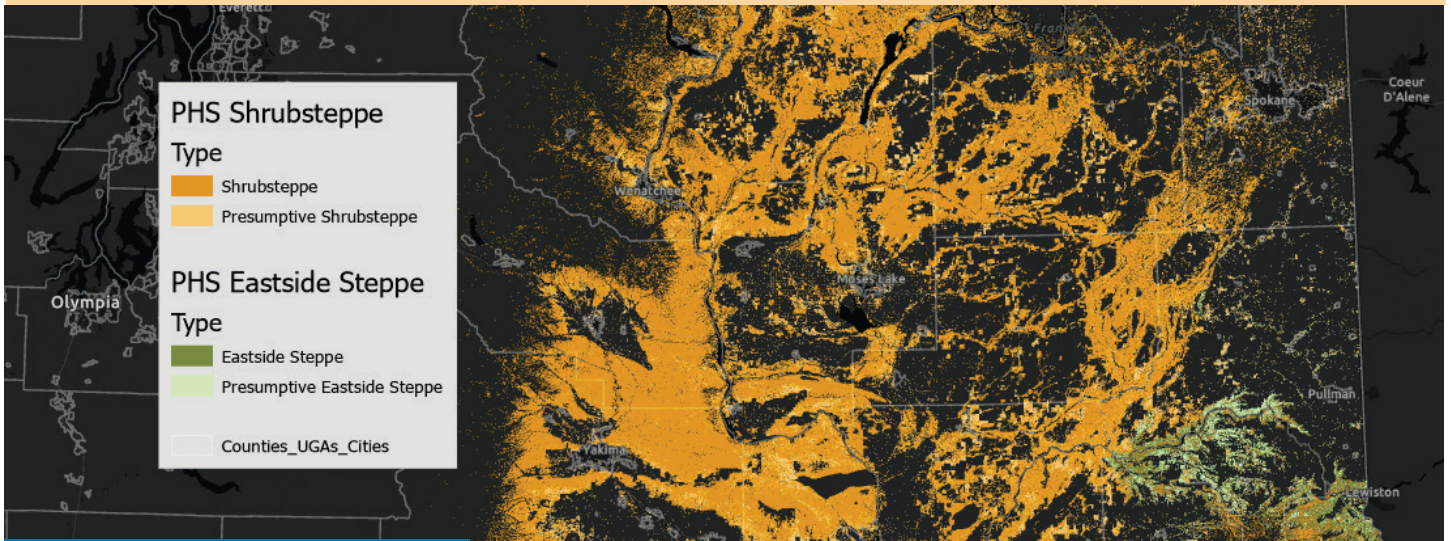


Priority Habitats and Species Local Government User Guide



Shrubsteppe and Eastside Steppe Map

PHS Guidance for Local Governments

PHS Mission: To effectively communicate WDFW's conservation priorities via data driven maps, guidance, and technical assistance to influence terrestrial and aquatic land use decisions such that Priority Habitats and Species are protected and perpetuated.



Washington
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Individuals who need this information in an alternative format or language may request accommodations at wdfw.wa.gov/accessibility/requests-accommodation, by phone at 360-902-2349, TTY (711), or email Title6@dfw.wa.gov.

March 30, 2023

Acknowledgements

Acknowledging the Indigenous People, Land & Culture of the Pacific Northwest: Since time immemorial, Indigenous People have graced the Pacific Northwest with rich traditions of many diverse cultures, languages, traditional knowledge expressed artistically and practically with intricate principles passed down throughout generations. As the first stewards of this land, Indigenous People from this part of the world are ancestrally engrained in the very fabric of this region that is known today as Washington State.

Washington Department of Fish and Wildlife (WDFW) acknowledges the American Indian Tribes as the original occupants of this land enjoyed today by all Washingtonians. Their historic reliance to hunt, fish, and gather traditional foods defines their inherent responsibilities to protect and steward the precious resources on the waters and landscape shared today by all Washington residents.

The very survival of the Pacific Northwest Tribes is a testament of resiliency of what they have endured and continue to endure throughout generations on this very landscape. Through scarred valor, many historical encounters of massacre, renunciation of religious freedom, systemic racism, cultural assimilation of native children through institutional residential schools, and the fight for their inherent rights and liberties, they have prevailed. Throughout this tormented history brought by colonization, abrogated treaties, infringement of civil rights, and the salmon protests of the 1960s, the Northwest Tribes and WDFW have founded a commitment of respect, unity, and alliance taught by the realities of the past.

Today tribal governments and WDFW work collaboratively to conserve and manage aquatic and terrestrial resources across the State and practice sound science to ensure successful resource management decisions. The Tribes and WDFW work together to ensure the sustainability of fish, wildlife, ecosystems, and culture for the next seven generations and beyond.

Reviewer acknowledgment: Many people were involved with mapping Priority Habitats and Species (PHS) Shrubsteppe and Eastside Steppe Priority Habitats. The project authors extend our sincere appreciation to the following individuals that played important roles during development and/or review of the Shrubsteppe and Eastside Steppe map:

- WDFW Habitat Program: Jeff Azerrad, Amanda Barg, Scott Downes, Perry Harvester, Mary Huff, Amber Johnson, Mike Ritter, and Elizabeth Torrey.
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While we acknowledge and appreciate all the review and comments provided by these advisors, this report's authors bear responsibility for this document and any errors contained herein.

User acknowledgment: The Washington Department of Fish and Wildlife (WDFW) recognizes and appreciates the significant role that local governments, tribes, conservation organizations, and others play in accomplishing our agency's mission. Indeed, we are certain that without these concerted efforts to designate and protect Shrubsteppe and Eastside Steppe ecosystems that are essential for many of the state's at-risk wildlife species, WDFW would be unable to fulfill its mandate on behalf of Washingtonians.

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The recommended citation for the Shrubsteppe and Eastside Steppe Map:

Washington Department of Fish and Wildlife. 2022. PHS Shrubsteppe and Eastside Steppe Map. Available from the Washington Geospatial Open Data Portal www.geo.wa.gov (Accessed <date>).

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Acronyms

BAS	Best Available Science
CAO	Critical Areas Ordinance
CAR	Critical Area Report
DNR	Department of Natural Resources (Washington State)
ESOC	Ecological Systems of Concern
EVT	Existing Vegetation Type
FAQ	Frequently Asked Question
HGCN	Habitats of Greatest Conservation Need
GMA	Growth Management Act
GIS	Geographic Information System
HMP	Habitat Management Plan
PHS	Priority Habitats and Species
RCW	Revised Code of Washington
SEPA	State Environmental Policy Act
SMA	Shoreline Management Act
SMP	Shoreline Master Plan
SWAP	State Wildlife Action Plan
TAG	Technical Advisory Group
UGA	Urban Growth Area
USGS	United States Geological Survey
VSP	Voluntary Stewardship Program
WAC	Washington Administrative Code
WDFW	Washington Department of Fish and Wildlife
WSDA	Washington State Department of Agriculture
WSDOT	Washington State Department of Transportation

About PHS Local Government User Guides

WDFW recognizes local governments' authority and responsibility to manage land use – including for purposes beyond protecting fish and wildlife habitat. The agency deeply appreciates the significant role that local governments have in protecting habitat and species – without which it would be impossible for WDFW to fulfill its mission¹ on behalf of all Washingtonians. WDFW also appreciates the complexity local governments face when designating and protecting habitats and species; the agency takes seriously its responsibility to provide supportive technical assistance.

PHS Local Government User Guides are intended to augment the technical assistance Area Habitat Biologists provide to local governments in support of the many land use responsibilities the Legislature has given local governments in the Growth Management Act (GMA, [RCW 36.70A](#)), Shoreline Management Act (SMA, [RCW 90.58](#)), Voluntary Stewardship Program ([VSP](#)), and State Environmental Policy Act (SEPA, [RCW 43.21C](#)).

The details of Critical Area Ordinances (CAOs), Shoreline Master Programs (SMPs), and other development regulations varies from jurisdiction to jurisdiction. For purposes of this *PHS Local Government User Guide*, we assume that a jurisdiction's CAO contains the following common provisions:

- (a) PHS Priority Habitats and Priority Species are designated and protected as Fish and Wildlife Habitat Conservation Areas (FWHCAs),
- (b) PHS maps are adopted and incorporated by reference,
- (c) for projects that potentially disturb FWHCAs, applicants are required to complete a critical area report (aka habitat management plan) to delineate and evaluate the FWHCA, and
- (d) the planning department has the discretion to require a screening level critical area report (in lieu of a more extensive report) when warranted.

This *PHS Local Government User Guide* describes how the PHS Shrubsteppe and Eastside Steppe maps can help inform land use decisions. In our assessment, the maps and associated *PHS Technical Report: PHS Shrubsteppe and Eastside Steppe Map* meet the definition of Best Available Science (BAS). This User Guide is a guidance document that incorporates WDFW's assessment of BAS from the maps and technical report, but it is not BAS itself. It describes key features and limitations of the map. The appendix contains several Frequently Asked Questions for local government planners, policy makers, and citizens. For case-specific applications of the ideas contained in this User Guide, users are encouraged to contact local Area Habitat Biologists. [This website](#) provides their contact information.

¹ WDFW Mission: To preserve, protect, and perpetuate fish, wildlife, and ecosystems while providing sustainable fish and wildlife recreational and commercial opportunities.

Background

Shrubsteppe is an arid ecosystem found in Eastern Washington and other western states. As one of Washington's most diverse ecosystems, shrubsteppe provides habitat for species found nowhere else in the state, such as the greater sage-grouse, sagebrush sparrow, and burrowing owl. With an estimated 80% of historic shrubsteppe lost or degraded to development and agriculture since the arrival of non-native settlers, protecting remaining shrubsteppe habitats is more important than ever.

Washington is at the northern extent of the great "Sagebrush Sea" that once sprawled across much of the American West. A growing collaboration between agencies, Native American tribes, conservation organizations, local landowners, and other partners seeks to preserve and restore shrubsteppe ecosystems while supporting cultural and economic values.

Despite impacts from severe wildfires and habitat fragmentation, recovery programs are underway for species such as the greater sage-grouse, pygmy rabbit, sharp-tailed grouse, and pronghorn antelope, while efforts including the Arid Lands Initiative and Conservation Reserve Program foster constructive partnership for the future of Washington's shrubsteppe.

Shrubsteppe Conservation at WDFW

Washington Department of Fish and Wildlife's (WDFW, we/our) seeks to protect Shrubsteppe and closely related Eastside Steppe vegetation due to its importance for numerous sagebrush obligate species and steep declines in these habitat types. WDFW conserves these habitats through agency-owned lands, scientific research, education, and the Priority Habitats and Species (PHS) program.

PHS Mapping of Shrubsteppe and Eastside Steppe

WDFW recently changed its approach to mapping Shrubsteppe and Eastside Steppe. Starting in November 2021, PHS began using US Geological Survey's (USGS) [Landfire Existing Vegetation Types](#) (EVT) dataset. This dataset uses satellite imagery from Landsat to identify vegetation types and permits a comprehensive, systematic, and efficient approach to identifying Shrubsteppe and Eastside Steppe throughout Eastern Washington.

The map identifies Shrubsteppe and Eastside Steppe vegetation by reclassifying Landfire vegetation types into more general categories as described in [PHS Technical Report: PHS Shrubsteppe and Eastside Steppe Map](#).

Eastside Steppe is a designated Priority Habitat that is closely related to Shrubsteppe. Landfire does not map this unique, local vegetation type explicitly. Our Technical Advisory Group advised that PHS's Eastside Steppe Priority Habitat occurs commonly within the Palouse Prairie region of the state and only rarely elsewhere. To map this unique vegetation type, they recommended classifying select Landfire vegetation types as Eastside Steppe when they occurred within the Palouse Prairie ecoregion and the same vegetation types as PHS Shrubsteppe when they occur outside the Palouse Prairie ecoregion.

Shrubsteppe in PHS

Shrubsteppe is a WDFW Priority Habitat due to its importance for numerous species. For Shrubsteppe, PHS provides:

- A technical definition ([PHS List](#), page 268)
- A [report](#) with delineation protocols
- Summaries for [long-range planners](#) and [current planners](#).
- A [Shrubsteppe restoration](#) manual with identification guides and data forms.
- New in 2020: Pollinator resources.

PHS Mapping of Presumptive Shrubsteppe/Eastside Steppe

The map identifies two subclasses of vegetation: “Presumptive Shrubsteppe” and “Presumptive Eastside Steppe” based on several degraded or altered vegetation types in the Landfire dataset. These include *ruderal* (i.e., non-native or invasive vegetation), *introduced* (i.e., non-native, cultivated vegetation), and *urban* (i.e., located within an urban setting) vegetation classes. Our Technical Advisory Group concluded that these degraded or altered vegetation types **may** include Shrubsteppe or Eastside Steppe vegetation or may indicate locations with degraded Shrubsteppe or Eastside Steppe vegetation that would benefit from restoration. Consequently, the PHS map sub-classifies six *ruderal* EVT, three *introduced* EVT, and one *urban* EVT as “Presumptive.”

Key points about Presumptive Shrubsteppe/Eastside Steppe:

- We have less certainty that locations classified as “Presumptive Shrubsteppe” or “Presumptive Eastside Steppe” contain Shrubsteppe or Eastside Steppe vegetation than we do in locations identified as Shrubsteppe or Eastside Steppe. In other words, it is *less likely* that locations identified as “Presumptive” actually contain Shrubsteppe or Eastside Steppe vegetation.
- The Shrubsteppe or Eastside Steppe vegetation that is present in “Presumptive” locations may be degraded by non-native or introduced vegetation.

Despite this greater uncertainty, we include these “Presumptive” vegetation types to err on the side of over-identifying potential Shrubsteppe and Eastside Steppe critical areas (an error which can be often be corrected with a rapid site visit or review of aerial photography) as opposed to under-identifying Shrubsteppe and Eastside Steppe critical areas (an error likely to result in the loss of critical areas if these are not “caught” in the project review process).

Figure 1 shows the 2022 map of PHS Shrubsteppe and Eastside Steppe. This data layer is available to the public via PHS on the Web and via the Washington State Geospatial Portal at geo.wa.gov by county and as a full statewide dataset. To learn more about how this map was created, please refer to the companion document [PHS Technical Report: PHS Shrubsteppe and Eastside Steppe Map](#).

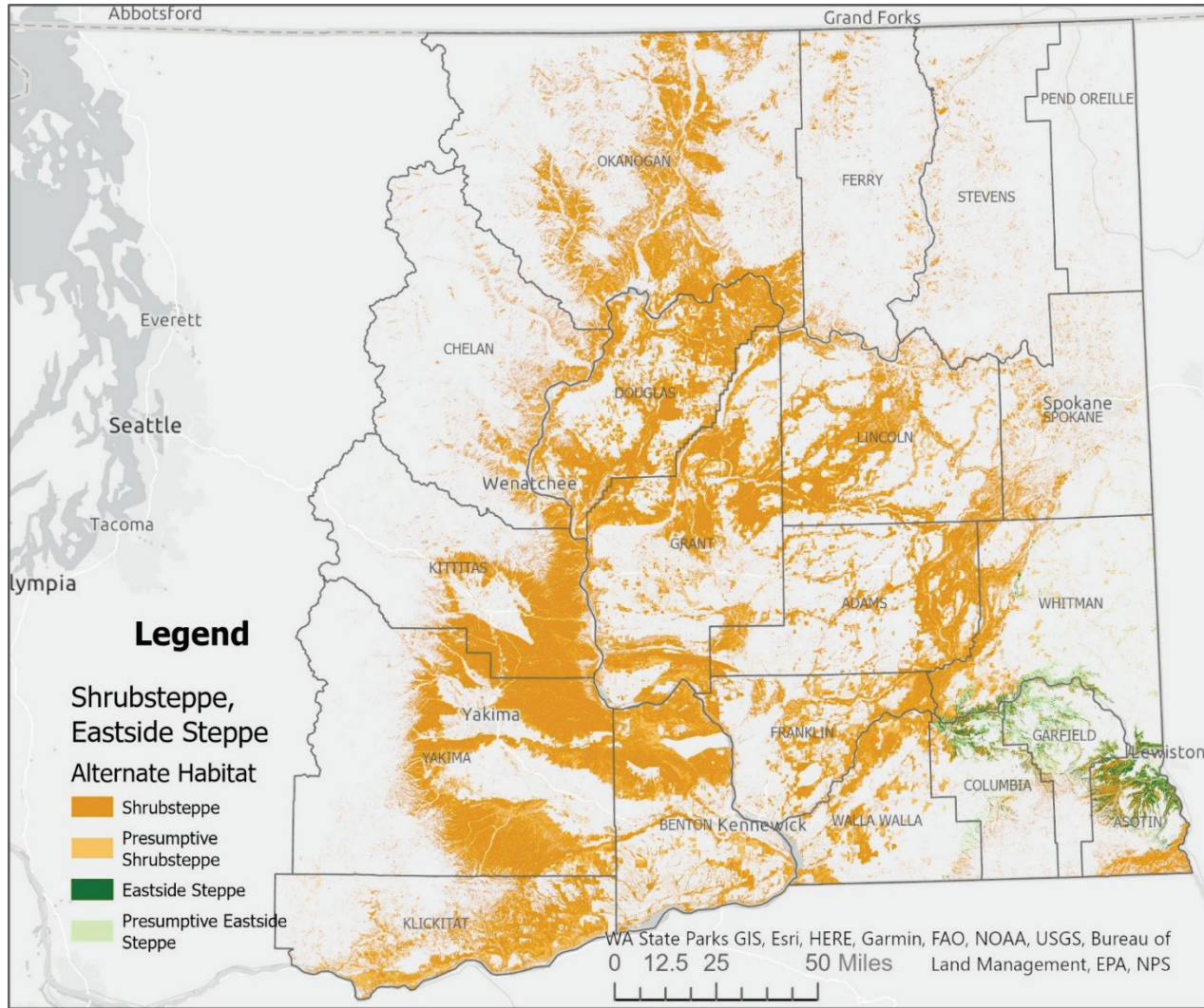


Figure 1: PHS Shrubsteppe and Eastside Steppe

Intended Use of the PHS Shrubsteppe and Eastside Steppe Map

The PHS Shrubsteppe and Eastside Steppe map is intended to be flagging tools to identify locations where Shrubsteppe or Eastside Steppe vegetation is likely to be present rather than a survey of known Shrubsteppe or Eastside Steppe locations. If land use changes or impacts are proposed in these locations, the flagging tool can help identify where site surveys are needed to verify and/or delineate the presence and location of Shrubsteppe or Eastside Steppe vegetation.

Satellite data are useful for evaluating vegetation type and condition over large areas. However, as with any remotely sensed data, these maps have important limitations at a parcel or site scale.

USGS' carefully worded statement on use limitations for this data says in full:

Although LANDFIRE products are delivered as 30-meter pixels, they should not be used at the individual pixel level or on small groups of pixels. LANDFIRE products were designed to support 1) national (all states) strategic planning, 2) regional (single large states or groups of smaller states), and 3) strategic/tactical planning for large sub-regional landscapes and Fire Management Units (FMUs) (such as significant portions of states or multiple federal administrative entities). The applicability of LANDFIRE products to support fire and land management planning on smaller areas will vary by product, location, and specific use.

Further investigation by local and regional experts should be conducted to inform decisions regarding local applicability. However, it is the responsibility of the local user, using LANDFIRE metadata and local knowledge, to determine if and/or how LANDFIRE can be used for particular areas of interest. LANDFIRE products are not intended to replace local products, but rather serve as a back-up by providing wall-to-wall cross-boundary products. It is the responsibility of the user to be familiar with the value, assumptions, and limitations of LANDFIRE products. ***Managers and planners must evaluate LANDFIRE data according to the scale and requirements specific to their needs.*** (emphasis added)

Our Technical Advisory Group has determined that it is appropriate to use the map at the parcel scale to identify whether Shrubsteppe or Eastside Steppe vegetation are likely to occur on site. However, users should be aware that:

- In all cases, site verification of the presence/absence and locations of Shrubsteppe or Eastside Steppe is necessary to identify the true presence/absence, location, and condition of Shrubsteppe or Eastside Steppe vegetation.
- We have less confidence that locations classified as “Presumptive” will have Shrubsteppe or Eastside Steppe vegetation types on site compared to locations classified as Shrubsteppe or Eastside Steppe. In addition, if these vegetation types are present in these locations, vegetation quality may be degraded by non-native or invasive species.
- Users can have greater confidence that large areas of contiguous Shrubsteppe or Eastside Steppe in the map will have Shrubsteppe or Eastside Steppe on the ground. By contrast, small areas of Shrubsteppe or Eastside Steppe interspersed with other vegetation or cover types in the map are more prone to classification errors.

At a regional scale, it is appropriate to use the map to:

- Estimate the amount of Shrubsteppe or Eastside Steppe within a region.
- Evaluate connectivity (or fragmentation) of Shrubsteppe or Eastside Steppe.
- Identify areas with restoration potential. For example, by identifying locations adjacent to existing large areas of Shrubsteppe or Eastside Steppe or currently classified as “Presumptive.”

Sources of Error

Users of this data should be aware of the following sources of error that may lead to discrepancies between PHS mapped Shrubsteppe and Eastside Steppe locations and on-the-ground conditions. Details on these sources of error can be found in the [PHS Technical Report: PHS Shrubsteppe and Eastside Steppe Map](#).

Resolution. Satellite data are mapped based on square pixels. Each pixel is given a single value even though there may be several vegetation types present within that pixel (for Landfire data each pixel has a

30-m resolution and is ~0.22-acres in area). Individual pixels classified as Shrubsteppe or Eastside Steppe may not be entirely composed of those vegetation types. Conversely, Shrubsteppe or Eastside Steppe may be present in locations that are not classified as Shrubsteppe or Eastside Steppe in the PHS map.

In addition, the square pixels may result in jagged boundary lines in the Shrubsteppe and Eastside Steppe map. These jagged lines are not intended to represent the true Shrubsteppe or Eastside Steppe boundaries. A field survey is needed to delineate the true boundary.

Misclassification and GIS mapping error. Landfire classifies vegetation and land cover types using a mix of computer algorithms and human oversight; inevitably, some pixels will be misclassified. Details on classification errors can be found in the [PHS Technical Report: PHS Shrubsteppe and Eastside Steppe Map](#).

In addition to Landfire classification errors, there will also be errors associated with the roads, agricultural lands, buildings, waterbodies, railroads, and airport data, which were used to refine the Shrubsteppe and Eastside Steppe map. Sources of error for these datasets include:

- New infrastructure, developments, or land use changes that occur after the data were created will not be reflected in the map.
- Estimates of road and railroad width and buffers around building footprints do not reflect the actual boundaries of these features.
- Errors in digitization and projection standard to any GIS mapped data.

Applying the PHS Shrubsteppe and Eastside Steppe Map in Land Use Decision Making

Growth Management Act

This map provides tools to help local land use decision makers designate and protect Shrubsteppe and Eastside Steppe critical areas.

Current Planners

For current planners, the Shrubsteppe and Eastside Steppe map identifies the likely presence of these Priority Habitats, and therefore flag locations for more detailed critical areas review. ([PHS on the Web](#) has a “search by parcel number” function and can auto-generate a useful PHS Report. See the [online user guide](#) for tips on using PHS on the Web.) This flagging function can be used during the following activities:

- A project preapplication meeting.
- Permit intake and review.
- Permit processing.

If the map shows the project parcel as overlapping with PHS Shrubsteppe and/or Eastside Steppe vegetation types, we recommend the following actions:

- Conduct a rapid, screening-level report to determine if Shrubsteppe and/or Eastside Steppe are present.
- If the rapid, screening-level report shows no Shrubsteppe or Eastside Steppe is present, no further action is needed.
- If the rapid, screening-level report shows the parcel has some Shrubsteppe or Eastside Steppe, a full critical area report (CAR, aka habitat management plan, HMP) is likely warranted.

PHS management recommendations can provide details on how to delineate the extent and determine the quality of Shrubsteppe and what measures are necessary to avoid, minimize, and provide compensatory mitigation for unavoidable harm so that the project results in no net loss of ecological functions and values. For further questions or guidance, consult WDFW's local area Habitat Biologist.

If the map shows that the site contains only "Presumptive Shrubsteppe" or "Presumptive Eastside Steppe", or small scattered fragments of Shrubsteppe or Eastside Steppe, then there is a greater likelihood that the rapid, screening-level report will determine the absence of Shrubsteppe or Eastside Steppe vegetation on the site negating the need for a CAR/HMP.

Long-range Planners

In long-range planning, the PHS Shrubsteppe or Eastside Steppe map can inform the following actions to help avoid or minimize impacts to Shrubsteppe or Eastside Steppe:

- Expansion of Urban Growth Areas (UGAs)
- Changes in zoning density (e.g., up-zoning from Rural 20 to Rural 5, or from Rural 5 to Commercial)
- Siting of large-scale projects (e.g., a 200-acre solar facility, a new transmission line, or a large new road).

Incorporating PHS Shrubsteppe or Eastside Steppe into Critical Areas Ordinances

In the context of the Growth Management Act, local jurisdictions can incorporate PHS Shrubsteppe or Eastside Steppe into their Critical Areas Ordinance in the following ways:

1. Use the PHS definitions for Shrubsteppe and Eastside Steppe as the performance standards for designating these Priority Habitats as Fish and Wildlife Habitat Conservation Areas (FWHCAs).
2. Incorporate current PHS maps by reference.
3. For projects that potentially disturb Shrubsteppe, require applicants to provide a CAR that utilizes PHS Shrubsteppe Management Recommendations.
4. Give planners the discretion to require a rapid, screening-level report to determine if a full CAR/HMP is warranted.

Shrubsteppe or Eastside Steppe Map's Status as Best Available Science (BAS)

This map was created through a valid scientific process, and meet the requirements for BAS as set out in [WAC 365-195](#), the GMA rules on BAS, which says that a valid scientific process:

produces reliable information useful in understanding the consequences of a local government's regulatory decisions and in developing critical areas policies and development regulations that will be effective in protecting the functions and values of critical areas.

The map was assembled and reviewed by qualified experts and therefore is consistent with this defining characteristic of BAS. For more information on the methodology used to create the map, please refer to the companion document [PHS Technical Report: PHS Shrubsteppe and Eastside Steppe Map](#).

Other Land Use Settings

Shoreline Management Act (SMA). The PHS Shrubsteppe and Eastside Steppe map fulfills a similar function for land use decisions pursuant to the SMA. Current planners can use the map for development within shoreline jurisdiction as outlined above for GMA use. Long-range planners can refer to the map when considering changes to Shoreline Environment Designations.

State Environmental Policy Act (SEPA). When completing a SEPA checklist, the PHS Shrubsteppe and Eastside Steppe map can be used when filling out the items for plants and land and shoreline use. The map is also helpful when reviewing a SEPA checklists submitted by others to verify that they are considering potential impacts to Shrubsteppe or Eastside Steppe critical areas.

Voluntary Stewardship Program (VSP). The PHS Shrubsteppe and Eastside Steppe map can identify likely areas of Shrubsteppe or Eastside Steppe vegetation in VSP watersheds. In conjunction with field verification, the map can provide a more accurate accounting of the location and amount of Shrubsteppe and Eastside Steppe on VSP lands. WDFW Area Habitat Biologists can provide guidance for workgroups who want to use this map to help identify these vegetation types on VSP lands.

Future Updates

WDFW intends to correct consequential errors to this dataset as improved information becomes available. The datasets used to prepare this map are periodically updated. We anticipate updating this map to reflect these changes. When significant updates occur, this technical report will be updated as will the metadata provided with the map.

Appendix A: Frequently Asked Questions

Why does WDFW update their Priority Habitats and Species (PHS) mapping?

Growth Management Act (GMA) rules advise counties and cities to consult PHS when designating and protecting Fish and Wildlife Habitat Conservation Areas (FWHCAs, [WAC 365-190-130\(4\)](#)). Counties and cities expect that WDFW will help them map important habitat areas ([WAC 365-190-130\(4\)\(b\)](#)). The GMA encourages WDFW to provide counties and cities with technical assistance regarding Critical Area Ordinances (CAOs; [RCW 36.70A.130\(6\)\(d\)](#)). Since its inception in 1990, PHS has provided mapping assistance to local governments. PHS maps are updated weekly with new habitat survey data; periodically, WDFW updates the technology and methods used to make the maps. Updated PHS maps are provided as a service to local governments and the public as in keeping with WDFW's mission to preserve, protect, and perpetuate fish, wildlife, and ecosystems while providing sustainable fish and wildlife recreational and commercial opportunities.

Where can I see a map of PHS Shrubsteppe or Eastside Steppe?

You can see a map of PHS Shrubsteppe or Eastside Steppe through PHS on the Web (geodataservices.wdfw.wa.gov/hp/phs/). The data layer is also available from the Washington State Geospatial Portal (geo.wa.gov) either as a single file or by county.

What is this map's primary intended use?

The PHS Shrubsteppe and Eastside Steppe map is intended to be flagging tools to identify regions where Shrubsteppe or Eastside Steppe vegetation is likely to be present rather than a survey of known locations. If land use changes or impacts are proposed in these locations, the flagging tool identifies where site surveys are needed to verify and/or delineate the presence and location of Shrubsteppe or Eastside Steppe vegetation.

What is the difference between "Shrubsteppe/Eastside Steppe" and "Presumptive Shrubsteppe/Eastside Steppe"?

The source data used to identify these Priority Habitats (Landfire Existing Vegetation Types, EVT) differentiates between "natural" vegetation and places with altered vegetation. Landfire classifies places with non-native, invasive vegetation as *ruderal*; places with non-native, cultivated vegetation as *introduced*; and vegetation found within an urban setting as *urban*. In our mapping we sub-classify six *ruderal* EVT, three *introduced* EVT, and one *urban* EVT as "Presumptive Shrubsteppe/Eastside Steppe."

We have less certainty that locations classified as "Presumptive Shrubsteppe" or "Presumptive Eastside Steppe" contain Shrubsteppe or Eastside Steppe vegetation than we do in locations identified as Shrubsteppe or Eastside Steppe. In other words, it is *less likely* that locations identified as "Presumptive" actually contain Shrubsteppe or Eastside Steppe vegetation.

The Shrubsteppe or Eastside Steppe vegetation present in "Presumptive" locations may be degraded by non-native or introduced vegetation.

We include these "Presumptive" vegetation types to err on the side of over-identifying potential critical areas (an error which can be corrected with a rapid site assessment) as opposed to under-identifying critical areas (an error likely to result in the loss of critical areas).

Does this map reflect the quality of Shrubsteppe or Eastside Steppe?

No. Currently the only reliable way to assess Shrubsteppe or Eastside Steppe quality is through a site-scale assessment. In 2020, the Department of Natural Resources published a [manual for conducting Rapid Ecological Integrity Assessments](#) for Shrubsteppe and other ecological systems. In 2020, PHS updated our [site-scale assessment methods](#) for assessing Shrubsteppe to include consideration for recently burned Shrubsteppe. Please use these resources to delineate and assess the quality of Shrubsteppe.

Is this map best available science?

Yes. This map provides WDFW's [best available science](#) regarding the general location of Shrubsteppe or Eastside Steppe in Washington. It has been reviewed by subject matter experts, who each concluded that in their best professional judgment, this map reflects the best available information. The associated technical report (*PHS Technical Report: PHS Shrubsteppe and Eastside Steppe Map*) describes the scientific process used to create this map. The recommended citation for that report:

Folkerts, K. E., T. P. Johnson, and J. L. Michalak. 2023. PHS Shrubsteppe and Eastside Steppe Map: PHS Technical Report. Habitat Program, Washington Department of Fish and Wildlife, Olympia, Washington.

Why does this map show Shrubsteppe or Eastside Steppe with squared off edges?

This map uses data from several sources. One source is [satellite images](#) that have a resolution of 30-meter pixels (0.22 acres). The square pixels may result in jagged boundary lines in the Shrubsteppe and Eastside Steppe map provides only an estimated boundary location. A field survey is needed to delineate the true boundary.

Appendix B: Key Resources

General Resources

Priority Habitats and Species

- PHS homepage: wdfw.wa.gov/species-habitats/at-risk/phs
- PHS List: wdfw.wa.gov/species-habitats/at-risk/phs/list
- PHS on the Web: geodataservices.wdfw.wa.gov/hp/phs/
 - PHS on the Web User Guide: wdfw.wa.gov/species-habitats/at-risk/phs/maps/using
- PHS Shrubsteppe Management Recommendations: wdfw.wa.gov/publications/01335
- WDFW shrubsteppe ecosystem page: wdfw.wa.gov/species-habitats/ecosystems/shrubsteppe

Washington Department of Fish and Wildlife

- WDFW Habitat Biologist areas of responsibilities map: wdfw.maps.arcgis.com/apps/MapJournal/index.html?appid=48699252565749d1b7e16b3e34422271
- WDFW values: wdfw.wa.gov/about
- WDFW conservation goals: wdfw.wa.gov/about/administration/strategic-planning

GIS Data

- Landfire Existing Vegetation Types (EVT) data viewer: landfire.gov/viewer/
- NatureServe Explorer (Ecological Systems): explorer.natureserve.org/
- Washington State Geospatial Portal: Homepage: www.geo.wa.gov

Laws, Rules, Guidance

Revised Code of Washington (RCW):

- Growth Management Act (GMA): RCW 36.70A: apps.leg.wa.gov/rcw/default.aspx?cite=36.70A&full=true
- Shoreline Management Act amendments RCW 90.58.100: app.leg.wa.gov/RCW/default.aspx?cite=90.58.100
- State Environmental Policy Act (SEPA, RCW 43.21C): apps.leg.wa.gov/rcw/default.aspx?cite=43.21C&full=true

Washington Administrative Code (WAC)

- Fish and Wildlife Habitat Conservation Areas (WAC 365-190-130): app.leg.wa.gov/WAC/default.aspx?cite=365-190&full=true#365-190-130
- Protection of critical areas; No Net Loss (WAC 365-196-830): app.leg.wa.gov/WAC/default.aspx?cite=365-196&full&full=true#365-196-830
- GMA Best available science (WAC 365-195-905): app.leg.wa.gov/WAC/default.aspx?cite=365-195&full=true#365-195-905
- Energy Facilities Site Evaluation Council, Fish and wildlife (WAC 463-62-040): app.leg.wa.gov/WAC/default.aspx?cite=463-62-040

PHS Local Government User Guide: Shrubsteppe and Eastside Steppe Map

- SMA Amendments (WAC 173-26-210): apps.leg.wa.gov/WAC/default.aspx?cite=173-26&full=true#173-26-201

Washington State Department of Commerce Guidance

- Critical Areas Handbook: www.commerce.wa.gov/wp-content/uploads/2016/08/gms-ca-handbook-critareas-2007.pdf

Washington State Conservation Commission

- Voluntary Stewardship Program: www.scc.wa.gov/vsp/background

SEPA Checklist:

- Plants: ecology.wa.gov/Regulations-Permits/SEPA/Environmental-review/SEPA-guidance/SEPA-checklist-guidance/SEPA-Checklist-Section-B-Environmental-elements/Environmental-elements-4-Plants
- Animals ecology.wa.gov/Regulations-Permits/SEPA/Environmental-review/SEPA-guidance/SEPA-checklist-guidance/SEPA-Checklist-Section-B-Environmental-elements/Environmental-elements-5-Animals
- Land and Shoreline use: ecology.wa.gov/Regulations-Permits/SEPA/Environmental-review/SEPA-guidance/SEPA-checklist-guidance/SEPA-Checklist-Section-B-Environmental-elements/Environmental-elements-8-Land-shoreline-use