Vacant Lands Analysis

Washington State Department of Agriculture

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As required by ESSB 5949, section 3039

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Executive Summary

The report summarizes Washington State Department of Agriculture's (WSDA) analysis of the agricultural suitability of under-utilized state-owned lands, as defined in the authorizing legislation. A total of 93 parcels were analyzed for agricultural suitability using a mix of geospatial analysis and in-person site visits. Most parcels were classified as unsuitable due to incompatible land cover or access challenges.

Eleven candidate locations were identified that offered some opportunity for agricultural production. Agricultural suitability was defined broadly, and included a range of opportunities including crop production, grazing (for pastures and rangeland), urban agriculture, and public-facing forms of agriculture (e.g. community gardens, agritourism). A wide range in characteristics, such as overall size, soil type, proximity to population, climate and growing conditions, strongly influenced the opportunities available at each location. These are described in a detailed profile of each location. While comprehensive factors were considered in the analysis of each location, further consultation will be required prior to development.

The eleven candidate locations were distributed across the state, with six located in Western Washington, four in Central Washington, and one in Eastern Washington. The total suitable open space acreage was split across the Cascades, with 46.6% of acreage in Western Washington (34.7 acres), 48% in Central Washington (35.8 acres), and 5.3% in Eastern Washington (4 acres).

The potential for agrivoltaics, defined as the dual-use of land for agriculture and solar energy generation, was also assessed for candidate locations. No location offered clear or suitable opportunities for large-scale utility-scale installations, which require a minimum installation size of 100 acres. Opportunities for smaller-scale utility-scale solar (those with at least a 1 MW or greater capacity) were found at two of the candidate locations. Community-scale agrivoltaics installations under 1 MW represent the most likely opportunity for candidate locations in this analysis; these were present at four locations with varying levels of suitability. Factors such as connectivity to existing electrical infrastructure, habitat value, and slope played key roles in determining overall suitability for agrivoltaics.

STUDY LIMITATIONS

WSDA determined the agricultural suitability of under-utilized surplus state lands by investigating agronomically relevant factors. However, this assessment does not constitute a recommendation for agricultural development of these parcels. Other priorities and values — such as conservation, recreation, or culture — may override their agricultural potential. Similarly, the agencies that own these lands may hold them for reasons unknown to WSDA even after extensive investigation. Competing priorities are described where possible, though an in-depth investigation was beyond the scope of this work. Additional engagement with Tribes, affected communities, and agencies is required.

One candidate location, Location #5, is situated within the Puyallup Indian Reservation. The remaining candidate locations exist across ceded lands, usual and accustomed lands, and/or Tribal areas of interest. WSDA recommends the involvement of Tribes prior to the assessment of any location for any specific use.

To the knowledge of the authors of this report, the only similar in-depth analysis is conducted annually by the Department of Commerce, to determine the suitability of state-owned under-utilized lands for the development of affordable housing. No overlap exists between the candidate parcels identified in WSDA's analysis and those deemed suitable for affordable housing by Commerce.

Where possible, agricultural uses that complement and preserve existing location uses are described.

The initial list of candidate parcels was largely developed by drawing on Commerce's State Surplus Lands inventory. Upon consultation with specific agencies, however, WSDA found that some listed parcels were no longer considered suitable for surplus, or had been included in the inventory in error. Still other parcels may not have been included at all. Therefore, the initial 93 candidate parcels should be considered a list based on the best available information, though not necessarily the most accurate. Future iterations of this work should include direct outreach to specific state agencies.

Authorizing Legislation

This analysis was conducted to fulfill section 3039 of ESSB 5949.

" [the Department of Agriculture is provided with funds] to perform an assessment of unused and underutilized state-owned, unimproved lands to determine the suitability of such lands for agricultural purposes, including grazing. For the purposes of this section, "underutilized state-owned lands" means lands that do not assist in meeting the goals of the state agency that owns or manages the land and that are already being considered for sale or surplus. "Underutilized state-owned lands" does not include state-owned lands held under lease, held in trust, or that are otherwise intended for specific purposes.

(2) $100,000 of the climate commitment account—state appropriation is provided solely for the department to incorporate into the assessment an examination of the use of such lands for agrivoltaics. For the purposes of this section, "agrivoltaics" means the use of land that intentionally integrates agriculture and solar photovoltaic energy generation.

(3) The department must complete the assessment by June 1, 2025, and must submit it to the governor, the commissioner of public lands, the director of the Washington State University energy program, the director of the department of commerce, and the committees of the legislature with jurisdiction over agricultural matters."

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Acronym Dictionary

Acronym	Definition
CRP	Conservation Reserve Program
DES	Department of Enterprise Services
DNR	Department of Natural Resources
DOC	Department of Corrections
DSHS	Department of Social and Health Services
ECY	Department of Ecology
EPA	Environmental Protection Agency
FEMA	Federal Emergency Management Agency
GWIS	Graphical Water Information Systems
MRSC	Municipal Research and Services Center
NCED	National Conservation Easement Database
NPL	(Superfund) National Priorities List
NRCS	National Resource Conservation Service
OSU	Oregon State University
PARKS	State Parks and Recreation Commission
SSURGO	Soil Survey Geographic Database
UGA	Urban Growth Area
USDA	United States Department of Agriculture
WDFW	Washington Department of Fish and Wildlife
WSDA	Washington State Department of Agriculture
WSDOT	Washington State Department of Transportation
WSP	Washington State Patrol
WSU	Washington State University

A list of definitions for terminology used in the report can be found in Appendix A.

Methodology

SURPLUS PARCELS

The Washington State Department of Agriculture (WSDA) identified surplus parcels owned by state agencies using the inventory developed by the Department of Commerce (hereafter referred to as Commerce) as part of their State Surplus Program. This inventory serves to determine the suitability of underutilized state-owned land for affordable housing as required by RCW 43.63A.510.

RCW 39.33.015 governs the disposition of property for public benefit and provides additional clarification around the definition of surplus property. Surplus public property is defined by RCW 39.33.015(8)(c) as "excess real property that is not required for the needs of or the discharge of the responsibilities of the state agency, municipality, or political subdivision."

Commerce publishes reports on this inventory annually and displays surplus parcels from the following agencies on a publicly available web map:

- Washington State Patrol (WSP)
- State Parks and Recreation Commission (PARKS)
- Department of Natural Resources (DNR)
- Department of Social and Health Services (DSHS)
- Department of Corrections (DOC)
- Department of Enterprise Services (DES)
- Washington State Department of Transportation (WSDOT)

WSDA also obtained a list of surplus parcels directly from the Washington Department of Fish and Wildlife (WDFW). In addition to surplused parcels, WDFW provided a subset of parcels that may be surplused dependent on future policy decisions, and a subset that may be surplused if a proper replacement property is identified.

When combined, the Commerce and WDFW inventories resulted in 93 surplus parcels from four agencies (WSDOT, WDFW, PARKS, and DNR) for WSDA analysis.

DEFINITION OF AGRICULTURAL USE

WSDA's analysis employed a broad definition of potential agricultural use, including cropland, grazing, and rangeland opportunities for private or publicly-oriented forms of agriculture including agritourism and demonstration plots. It also considered agricultural opportunities across a full range of scales, from large-scale production to small, urban parcels particularly suited for community gardens.

Certain forms of agriculture can occur independent of the agricultural suitability of a location. For example, livestock facilities or indoor mushroom cultivation (mycoculture) can be installed on land that is otherwise unsuitable for agriculture. The limiting factors for these operations are linked primarily to land use regulations and distance to inputs or feedstocks. The WSDA analysis focused on the suitability of the land, and did not actively consider such forms of agriculture.

METHODOLOGICAL APPROACH

WSDA developed a hybrid approach utilizing Geographic Information Systems (GIS) and in-person site visits outlined in Figure 1. The GIS approach allowed for the rapid screening of 93 parcels for factors that disqualify them from agricultural use or classify them as "marginal," meaning agricultural use is possible, but substantial barriers exist.

Any parcels not eliminated or classified as marginal during the geospatial analysis were then visited by WSDA staff. During site visits, on-site factors led to the elimination of additional parcels. As a final elimination step, state agencies were provided an opportunity to review WSDA's assessment and provide additional feedback about the locations.

All remaining parcels constituted the final candidate pool and were evaluated for their agricultural and agrivoltaic suitability.

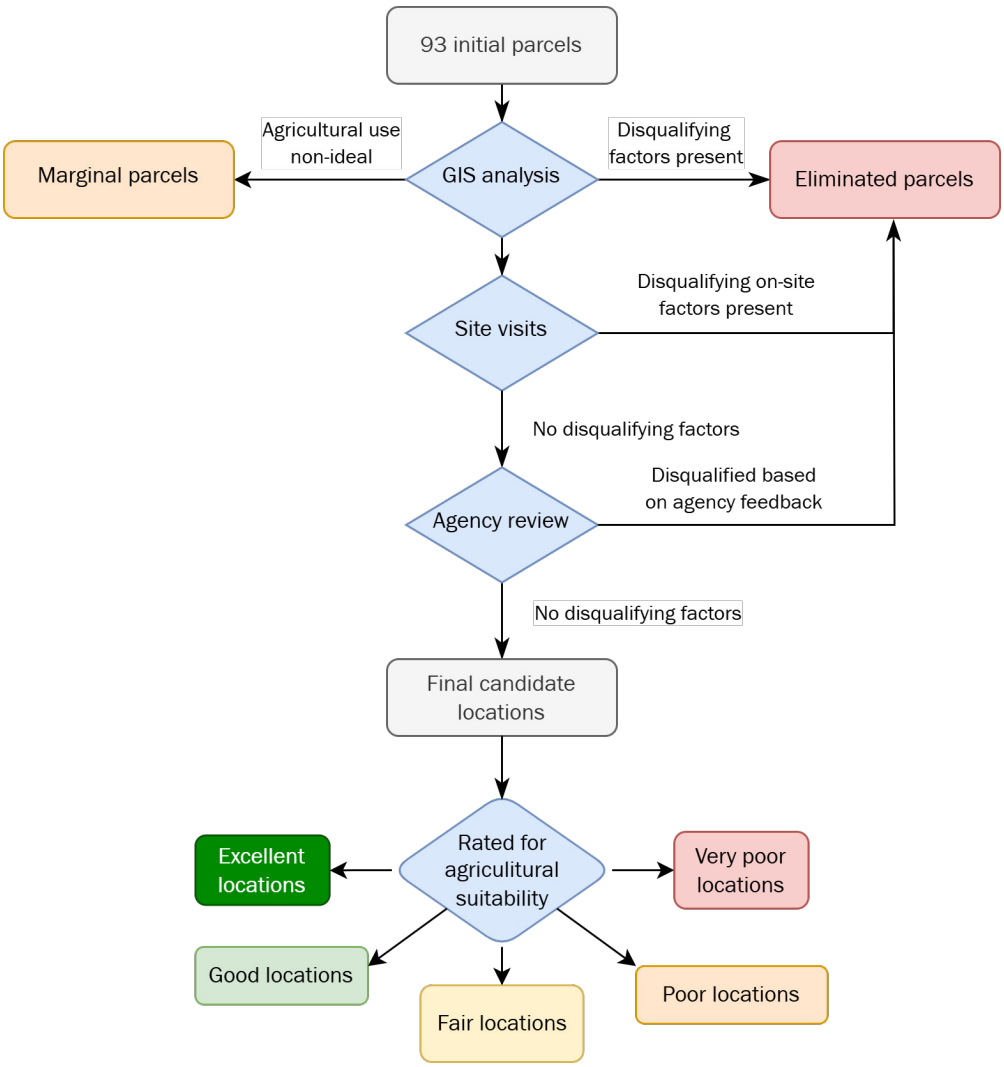


Figure 1. Flowchart of methodology used for classifying parcels and determining final candidate locations.

Disqualifying Factors

Certain characteristics of a parcel can render it unsuitable for all or some kinds of agricultural use. These may include lack of access, zoning restrictions that prohibit agricultural use, extreme slopes, or lack of soil. Wherever possible, a geospatial approach was taken to identify disqualifying factors. Where a non-GIS approach was taken, it is noted in the table of disqualifying factors (Table 1). Parcels eliminated as a result of disqualifying factors are listed in Appendix C.

Factor	Data	Source(s)
Accessibility or distance from the road network	Road networks, satellite imagery	County GIS departments, WSDOT
	In-person site visits	WSDA staff
Zoning	Zoning layers	County and municipal GIS layers and maps
Wetlands[i]	National Wetland Inventory	U.S. Fish and Wildlife Service
Existing tree canopy or buildings	Visual approach, DSM DTM minus layer	LIDAR data from DNR LIDAR Portal
Incompatible land cover	National Hydrological Dataset, satellite imagery	Department of Ecology, Basemap layers
Depth to bedrock	SSURGO	NRCS

Table 1. List of disqualifying factors considered in analysis.

ACCESSIBILITY OR DISTANCE FROM ROAD NETWORKS

Public access is necessary for agricultural use of a parcel. For each parcel, overlays of satellite imagery and county-maintained road layers, where available, were reviewed to determine accessibility. WSDA also evaluated ownership of adjacent parcels. If a public agency owned land adjacent to the parcel — and where topography and existing roads allowed — it was assumed that the parcel was accessible.

In many cases, only part of the property was suitable for agriculture. In these instances, accessibility to the particular portion of the parcel was considered. In some cases, barriers within the parcel prevented full access to all areas of the parcel (see Figure 2).

[i] Wetlands that meet the classifications of "Prior Converted Croplands" may be farmed. For more information, see: https://ecology.wa.gov/water-shorelines/wetlands/regulations/state-wetland-regulations/prior-converted-croplands. The classification of wetlands was considered in this analysis.

Figure 2. Parcel southeast of Kittitas, WA demonstrating a within-parcel barrier (Cascade Canal).

In a few instances, parcels were eliminated on the basis of being extremely remote. While access was technically possible, the distance and quality of roads posed significant challenges for agricultural use.

ZONING

Certain zoning categories, particularly in urban settings, prohibit agriculture. In cases where zoning was the disqualifying factor, the relevant county or municipal code is listed in Appendix C. The zoning in a particular city or county may change over time, along with the regulations associated with a particular zone. All zoning restrictions or allowances listed in this report are those in place at the time of the analysis.

WETLANDS

Areas classified as wetlands were not considered suitable for agriculture. Following guidance from Department of Ecology[1], the National Wetlands Inventory (NWI) was used to examine parcels in Eastern Washington. County-level wetland layers, where present, were used to evaluate parcels in Western Washington.

EXISTING TREE CANOPY OR BUILDINGS

Approximately one-third of all parcels were removed from consideration due to extensive forest cover. While trees could potentially be logged to clear a parcel for agricultural use, it was assumed in this analysis that existing tree cover would be maintained.

To disqualify parcels due to tree canopy cover, LIDAR elevation data was obtained for all parcels except one in Douglas County. This parcel lacked tree cover due to the arid climate, but was nevertheless eliminated due to lack of public access. For all other parcels, Digital Surface Model (DSM) datasets were subtracted from their counterpart Digital Terrain Model (DTM) datasets to create an estimate of canopy height of trees or buildings (Figure 3). Areas with < 10 ft. difference between DSM and DTM resulted in footprints for each parcel lacking forest and buildings. An 8 ft. buffer was generated around all areas with > 10 ft. difference in DSM and DTM to provide the necessary space for agricultural activities. This buffer was also extended from the boundaries of each parcel. The final “open space” acreage for each parcel was determined by removing areas with trees, buildings, wetlands, zero minimum depth to bedrock, and space contained within the 8 ft. buffer.

Figure 3. DTM (Digital Terrain Model) is subtracted from DSM (Digital Surface Model) to create a layer which estimates the height of trees and buildings (left) above the ground. By removing areas of tree and building cover, it is possible to demarcate and quantify areas of open space on a parcel, marked in green (right).

For select parcels in Eastern Washington, dispersed ponderosa pine exists at a density that allows grasses to grow in the understory (Figure 4). These parcels, while unsuitable for row crops or orchard crops, could still support some level of grazing. Supplemental feed is highly recommended in these situations to reduce the risk of livestock consuming ponderosa pine needles which can prove toxic to livestock, particularly to pregnant cattle. Due to the limitations of such parcels, they were classified as marginal parcels and were not considered in the final pool of candidate locations. A full list of marginal parcels can be found in Appendix D.

[ii] More information about Ponderosa pine (*Pinus ponderosa*) toxicity potential for livestock is available at: https://extension.wsu.edu/animalag/content/selected-poisonous-plants-of-the-pacific-northwest/

Figure 4. An example of terrain with dispersed ponderosa pines and grasses in the understory located near Nine Mile Falls, WA.

INCOMPATIBLE LAND COVER

Select parcels were located entirely or largely within bodies of water as illustrated in Figure 5. Other parcels were located in zones adjacent to bodies of water and contained land types that were incompatible with agricultural use, such as tidal land or gravel bars. Parcels disqualified for reasons of incompatible land cover are listed in Appendix C along with the reason for their elimination.

Figure 5. Select parcels contained land types incompatible with agriculture (Moses Lake, WA).

DEPTH TO BEDROCK

In some locations, particularly those in more mountainous locations, portions of the parcel had exposed bedrock. Data from the Natural Resource Conservation Service's (NRCS) Soil Survey Geographic Database (SSURGO) was used to extract the minimum depth to bedrock for map units. Areas which had a 0 ft. minimum depth to bedrock were considered unsuitable for agriculture. These portions were removed from the parcel's total area of land considered and reported as "open space" acreage.

OTHER FACTORS

Other factors introduced special considerations or unique opportunities for potential agriculture. These factors were not used to disqualify parcels from consideration (Table 2).

Factor	GIS Layer(s)	Agency
Parcel size	Legally defined acreage	Various county assessor databases
	Determined from parcel layers (where legal acreage not available)	Various counties
Proximity to other crops	Determined from WSDA Agricultural Land Use Layer	WSDA
Slope	Calculated from LIDAR	DNR
Flooding	Flood Hazard Zones	FEMA
Saturation or ponding	SSURGO	USDA NRCS
Irrigation access	Graphical Water Information Systems (GWIS)	DOE
	Irrigation District boundaries	Washington State Water Resources Association
	Special Purpose Districts Overview	MRSC
Soils	SSURGO	USDA NRCS
Contamination	Dirt Alert Layers (Tacoma Smelter Plume, Everett Smelter Plume, Former Orchard Lands, Upper Columbia River Lake Roosevelt Cleanup Site)	DOE
	Superfund National Priorities List (NPL) Sites	EPA
Easements	National Conservation Easement Database (NCED)	US Endowment for Forestry and Communities
	NRCS Easement Layer	USDA NRCS

Table 2. Additional (non-disqualifying) factors considered relevant to agricultural use.

Parcel Size

The size of a parcel and the proportion of agriculturally suitable land is an important factor in determining the likely agricultural opportunities for a location. Large parcels, particularly those in existing agricultural regions, may provide opportunities for production in line with surrounding parcels. Small parcels may be suitable for community gardens or urban farms in urban areas.

The size of the parcel and the quantity of open land is provided in each parcel profile. The legal acreage, where defined by the respective county's assessor database, is provided where available. Where legal acreage information is missing from the county's records, acreage was calculated in ArcGIS Pro from the respective county's GIS parcel layer.

Proximity to Other Crops

The type of agriculture located within a 5-mile radius of each parcel was considered (Figure 6), since

this can inform suitable land uses at each location. Furthermore, the presence of nearby agriculture can indicate existing infrastructure that supports agriculture (agricultural supply stores, farm equipment repair, etc.), and the minimum range of crop types that can grow in the area.

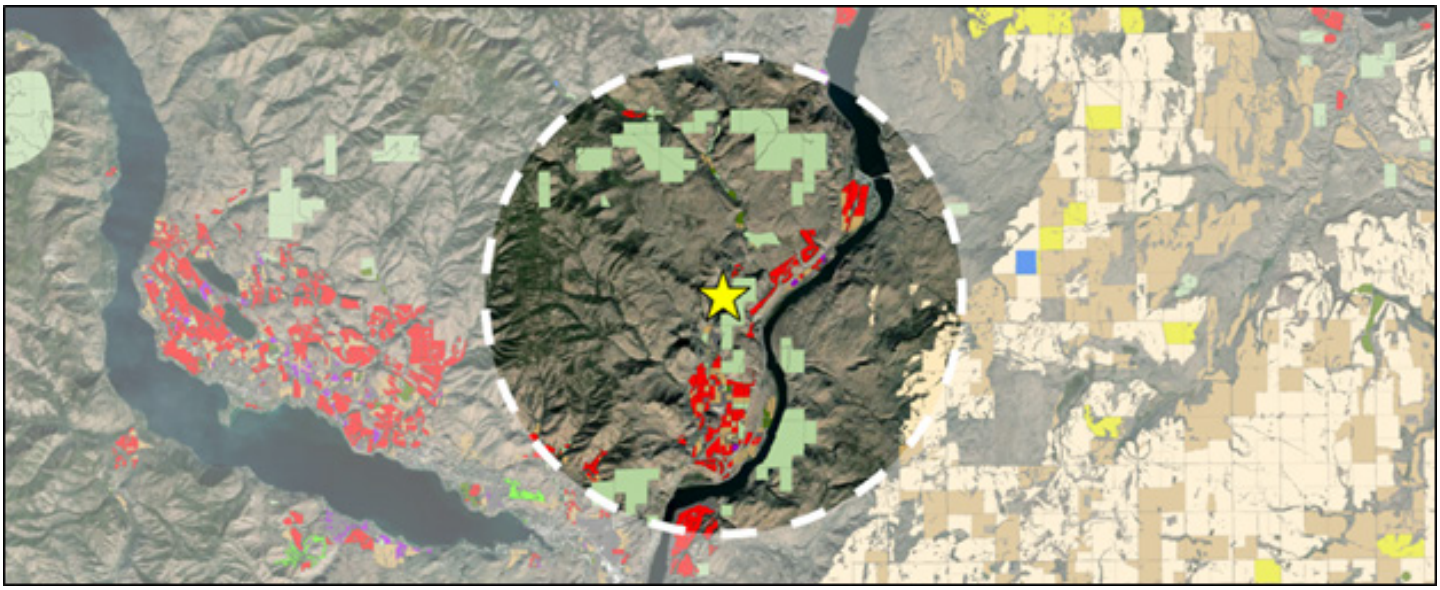


Figure 6. Cropland in WSDA's Agricultural Land Use layer was summarized within a 5-mile radius of each location. The star represents Location 4 in Chelan County.

Slope

Slope is an important consideration, since different slopes can support different land uses.

High slopes can increase erosion risk for field crops subject to regular tillage. These lands may be more suitable for perennial crops such as tree fruit or vineyards. However, slopes greater than 10% may pose challenges to operating machinery[2]. Some livestock species can graze land at slopes up to 45%[3], though others may prefer and only graze land at lower slopes. High slopes may also pose some landslide risk and/or limit on-site agricultural infrastructure.

An approach was taken to categorize slopes on each parcel into discrete categories. The resulting maps (Figure 7) informed site visits and the consideration of agricultural use for each final candidate parcel.

Figure 7. Example slope map of a parcel.

Flooding

Flooding can pose risk to on-site agricultural infrastructure, and certain ordinances may place restrictions on agricultural activities in flood zones. To determine the risk of on-site flooding, parcels were compared against FEMA's Flood Hazard Layer. Any overlap with Flood Hazard Zones with a 0.2 annual flood hazard risk or greater

was considered significant. The location and extent of these hazard zones was noted for each parcel.

Saturation or Ponding

Ponding refers to the buildup of surface water from rainfall in a location due to the inability for it to drain away. This phenomenon can lead to saturated soils and anaerobic conditions. Depending on the length of saturation, this can lead to yield declines or even make an area unsuitable for overwintering crops or perennials.

Parcels were screened for the presence of map units that had a ponding frequency of greater than 50% in the SSURGO dataset.

Irrigation

Locations across Washington state have a general trend of low summer precipitation. This is true even in locations west of the Cascades, which generally have high annual precipitation. While unirrigated lands can still support pastures and certain dryland crops such as small grains, this means that irrigation is needed to support the full range of crops for many locations.

This need is illustrated in Figure 8. Monthly precipitation and the net irrigation requirements for field corn are shown for a location west of the Cascades (Centralia, WA) with high annual precipitation and an arid location east of the Cascades (Sunnyside, WA). Both locations show a distinct minimum in precipitation from July — August, coinciding with the time of greatest irrigation need.

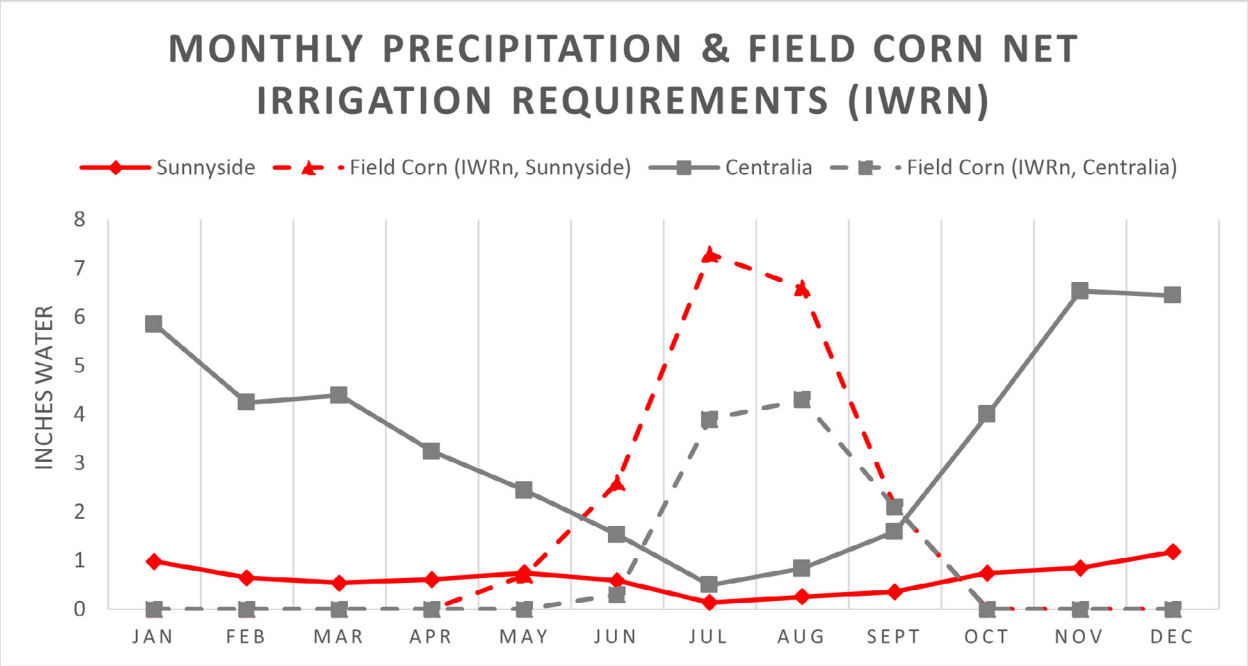


Figure 8. Monthly mean precipitation for a relatively wet location in Western Washington (Centralia, station USC00451276) and a dry location in Central Washington (Sunnyside, station USC00458207). Data sources: National Climate Data Center (NCDC), NOAA; WSU.

For a parcel to be irrigated, there must be a valid water right or access to water through an irrigation district. The validity and presence of water rights is a complex topic beyond the scope of this analysis. In

cases where a parcel is currently irrigated or where the parcel is in an irrigation district, this is noted in the parcel profile.

Small urban parcels, which are often most suitable for urban agriculture or community gardens, may be located within Urban Growth Areas (UGAs) or cities served by municipal water systems. Additionally, smaller parcels may also have on-site permit-exempt wells. According to RCW 90.44.050, use of 5,000 gallons per day (gpd) is allowed for industrial uses, which has been interpreted as usable for small-scale commercial agriculture[4]. This could allow for irrigation of smaller parcels of land.

On even smaller scales, such as small urban lots for community gardens, it may be possible for limited use of rainwater collection where infrastructure costs are feasible and annual precipitation is sufficient. Any water collection must avoid impacts to instream flow or existing water rights[5].

Soils

The NRCS's SSURGO database was used to determine the following for each parcel: the type and extent of each soil type, its Available Water Supply, Farmland Classification class, Root Zone Depth, and Capability Class and Subclass (both irrigated and non-irrigated). These attributes and their agricultural relevance are discussed in additional detail in the subsequent section titled Example Profile.

Contamination

Some areas of Washington state have high levels of soil-born contaminants. This includes former orchard locations where lead arsenate was historically applied and locations near plumes from the Asarco Smelter in Tacoma and the Teck Smelter in Southeast British Columbia.

All GIS layers from the Department of Ecology relating to contamination were overlaid against surplus boundaries. Only two locations in Pierce County showed overlap, each with the Asarco Smelter Plume. These locations were in the lowest risk category, with a predicted arsenic concentration of below 20 ppm. No overlap was found between any of the surplus parcels and entries on EPA's National Priorities List (NPL), often referred to as "Superfund sites". Further on-site investigation is required to entirely rule out contamination at any site.

While the GIS analysis did not find any overlap with known contamination sources, it is still possible that locations have undetected contaminants on site. Some locations have been subject to dumping which could represent a potential contaminant source.

Easements

Easements may limit the use of a parcel. Depending on the type of easement, this could exclude or require or require agricultural production. Limited easement data is available in GIS form. Parcels were compared against the National Conservation Easement Database (NCED) and NRCS's Easement dataset. These represent the two largest and readily available data layers for easements. No parcels from the final candidate list overlapped with easements shown on those two layers.

Site Visits

WSDA staff conducted site visits to the final candidate parcels from September to October 2024, to determine additional characteristics relevant to agricultural use not detected in the GIS analysis.

REPEATABILITY OF ANALYSIS

The geospatial portion of the analysis was constructed using ArcGIS Pro ModelBuilder models and ArcPy scripts. Each component of the workflow has been documented to enable efficient iteration of the analysis in the future. All scripts and models are available upon request.

Results

Of the 93 initial parcels, 74 were eliminated from consideration as detailed in Figure 9.

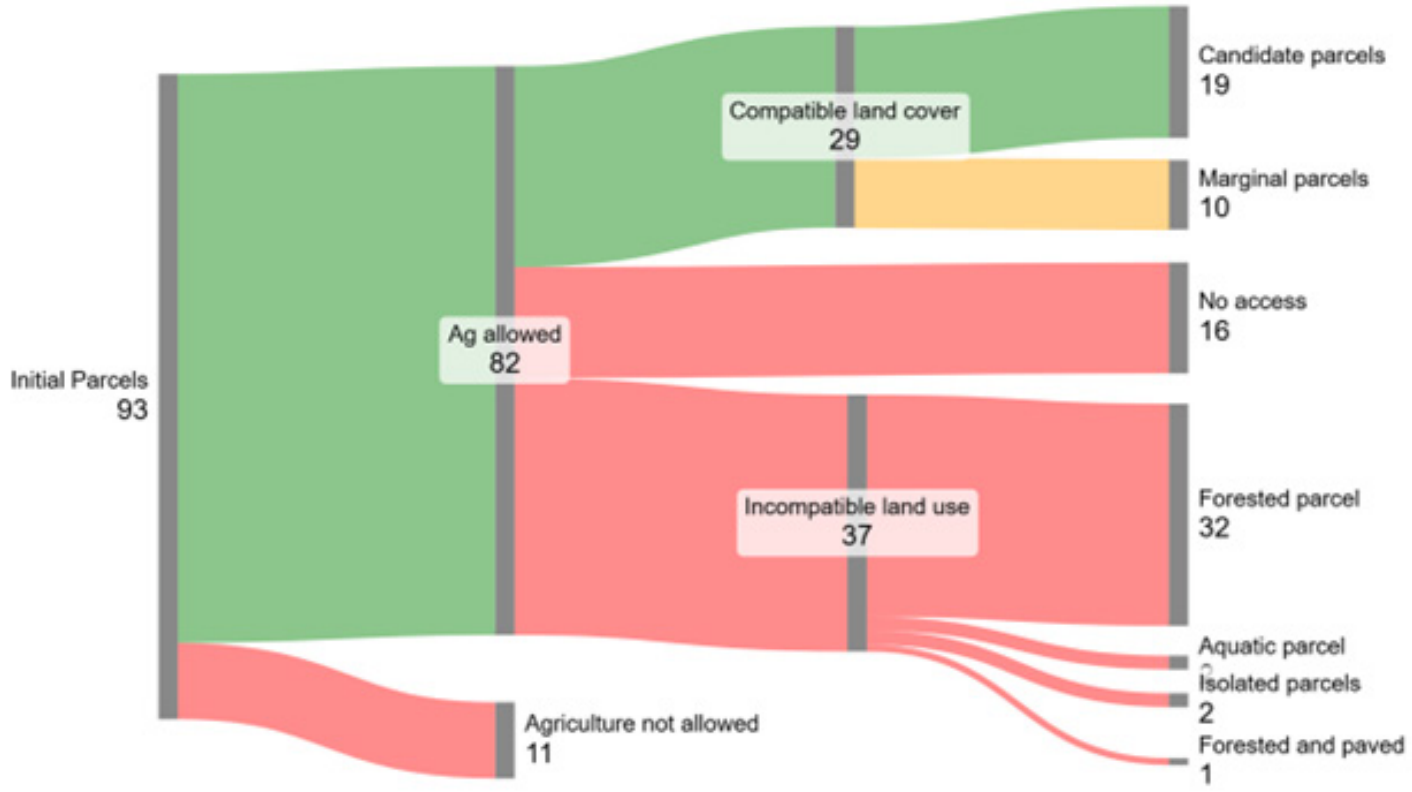


Figure 9. Sankey diagram showing screening process for initial 93 parcels.

DISQUALIFIED PARCELS

Eleven parcels, predominately located in urban areas, were eliminated from consideration because zoning restrictions prevent agricultural use. An additional 37 parcels were eliminated due to incompatible land cover, and 16 were removed due to a lack of public access. These parcels, along with references to the relevant zoning codes, can be found in Appendix C.

MARGINAL PARCELS

Ten parcels were listed as “marginal” due to the presence of substantial barriers to agricultural use. A full list of marginal parcels is provided in Appendix D.

CANDIDATE PARCELS

Nineteen parcels were considered candidates for potential agricultural use. Adjoining contiguous parcels were grouped together to make a total of 16 locations. Based on feedback from agencies, five locations were removed from consideration. The final group of 11 candidate locations are shown in Figure 10 and listed in Appendix B.

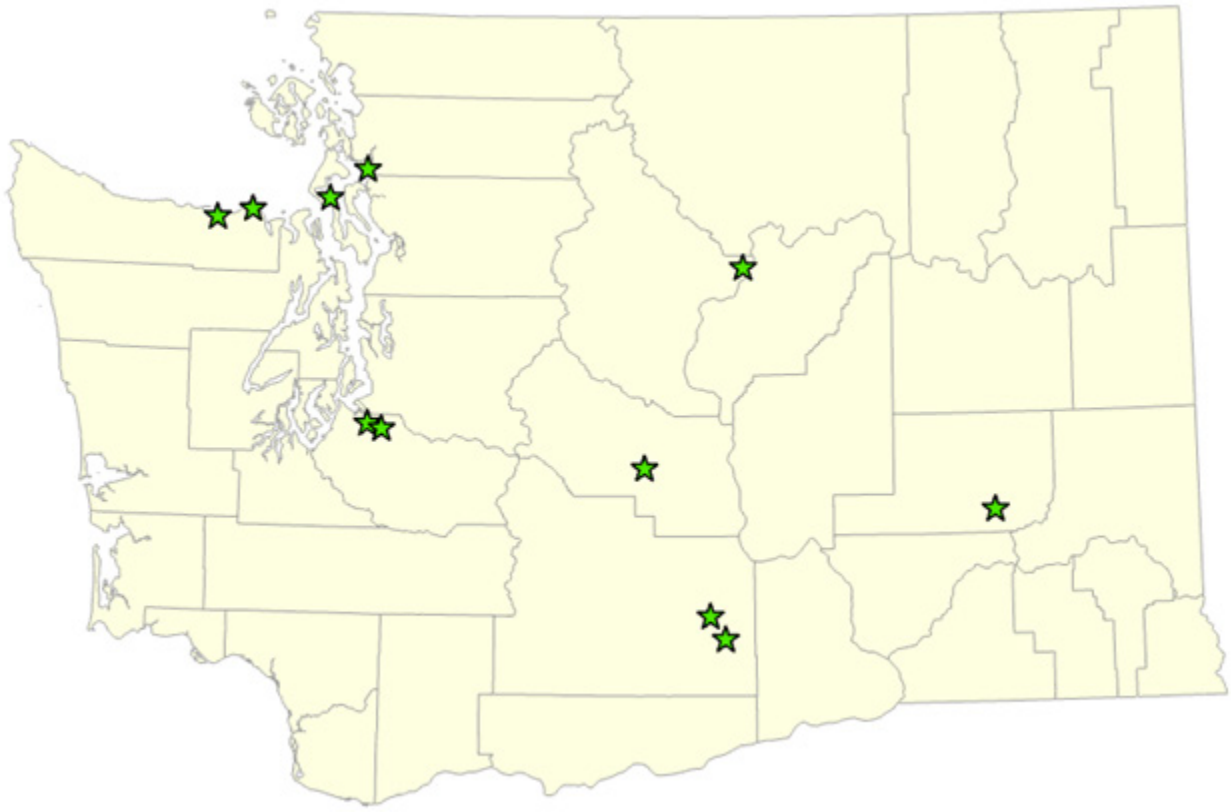


Figure 10. Locations of parcels which may be suitable for agricultural use.

Location Profiles

A location profile for each of the 11 candidate locations describes the factors used to determine its suitability for agriculture and agrivoltaics. An example profile is included below.

EXAMPLE PROFILE

Suitability	
Agricultural Suitability	Rates the overall suitability of each parcel for agricultural use, from excellent to very poor.
Agrivoltaics Suitability	The Solar Development Suitability Ranking, as determined by methodology outlined in Least-Conflict Solar Siting on the Columbia Plateau. A breakdown of all suitability rankings from this report is provided in Appendix F.

Factor	Description
Location	Municipality (if applicable) and county of location.
Site Address/Street	Provided where available. If no street number is associated with the parcel, the street along which the parcel is located is given. In such situations, the latitude and longitude may be better for precisely locating parcels.
Latitude & Longitude	The latitude and longitude coordinates for the parcel.
Current Owner	The state agency which owns the parcel(s).
Parcel Number	The ID(s) used to identify the parcel(s). Some counties may use alternative terms like Parcel ID. Others may maintain multiple IDs, like GeoID and Property ID. All IDs maintained by the county of location for a given parcel are included with their appropriate names.
Zoning	The zoning category for this parcel or parcels. Zoning can be determined either at the county or municipal level. Where possible, a link is provided to the zoning category entry in the appropriate county or municipal code.
Size	The size of the overall parcel. The legal acreage according to the assessor's description is provided if available. If this is not available, then acreage is calculated from the parcel boundary from that county's GIS layer.
Open Space (acres)	The area of the parcel lacking tree cover or buildings. This also excludes areas mapped as having 0 ft. min. depth to bedrock. This acts as an upper limit to agricultural land on the parcel.
Most Common Crop Types (5 mi. radius)	The top three crop types by acreage located within a 5 mile radius of this location, as recorded in the 2023 WSDA Agricultural Land Use layer.

Relevant agroclimatic variables.

Climate	
Growing Season Length[iii]	The mean length in days without frost. It represents the time between the Mean Last Frost Date in spring and the Mean First Frost Date.
Mean Last Frost Date[8]	The average calendar date of the last frost of the year. This date typically marks the beginning of the growing season, most often in spring or late winter.
Mean First Frost Date[8]	The average calendar date of the first frost of the year. This date typically marks the end of the growing season, most often in fall.
Growing Degree Days (GDD)[8] (Base 32°F/40°F/50°F)	Accumulated heat throughout the growing season. This measurement influences what crops best grow in that climate (e.g. Base 50°F GDDs for corn, Base 41°F GDDs for alfalfa, and Base 32°F GDDs for winter wheat.[8])
USDA Hardiness Zone (Temperature)[IV]	Frost zones are grouped into 5°F categories and provide a reference for frost exposure and frost tolerance for perennial species. Boxes are colored using the color scheme established by the 2023 USDA Plant Hardiness Zone Map. After each zone classification, the mean extreme annual minimum temperature for the location is provided.
Köppen-Geiger Climate Classification[v]	Groups areas of similar climate characteristics. Most Western WA locations have an oceanic (Cfb) or dry-summer temperate climate (Csb). Locations in the Columbia Basin have either steppe (BWk) climates or, where rainfall is plentiful, continental climates (Dfb or Dfa). Some milder areas with hot summers may have a Mediterranean climate (Csa). Boxes are colored according to their climate category, following the color scheme used by Peel et al. (2007).

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Mean Max. (°F)	34	40.3	50.4	59.8	69.6	76.5	86.6	86.3	76.7	60.9	44.2	34	59.9
Mean Min. (°F)	22.3	24.8	29.8	34.4	41.8	47.5	53.7	53.5	45.7	36.2	28.1	22.5	36.7
Precipitation (in)	1.6	1.1	1.3	1	1.1	0.9	0.3	0.3	0.4	1	1.5	1.7	12.3

The 30-year climate normal (1991-2020) for each location. This was determined for each location by sampling Oregon State University's (OSU) PRISM dataset in ArcGIS Pro. Values represent interpolated data, due to the long distances of many locations from established weather stations.

[iii]Sampled for each location from datasets from climatetoolbox.org and represent historical simulations for 1971-2000.
[iv]Sampled for each location from the University of Oregon's PHZM dataset.
[v]Calculated from PRISM climate data following the climatic parameters in the journal article: "Updated world map of the Köppen-Geiger climate classification"[9]

Agronomically relevant soils information for the Open Space portions of the parcel. All figures outside of extent are from the NRCS's SSURGO dataset.

NRCS's formal classification of farmland rates its usefulness for crop production. Categories of farmland are formally defined in 7 CFR Part 657.

The Capability Class rates soils for use in agricultural production by accounting for factors such as slope, soil depth, and drainage.

Classes are separated by irrigated and non-irrigated, and ranked 1-8 with higher numbers indicating more limitations. Subclasses are denoted by the letters 'e, w, s, and c' to reference specific challenges with erosion; water; shallow, droughty, or stony characteristics; or climate.

Map Unit	Extent	Farmland Classification	AWS (0-100 cm)	Root Zone Depth	Capability Class	
					Irrigated	Non-irrig
Emdent silt loam	5.83 acres	Not prime farmland	7.5 in (19 cm)	59.1 inches (150 cm)	No rating	6
Ritzville silt loam	0.13 acres	Farmland of statewide importance	7.1 in (18 cm)	44.9 inches (114 cm)	No rating	4

The Available Water Supply (AWS) refers to the amount of water stored in the soil for use by plants. This analysis includes AWS from the top 100 cm (39.4 inches) of soil.

AWS is useful for comparing the water storage capacity of different soil types, or for irrigation planning purposes.

The Root Zone Depth measures the depth within the soil profile that commodity crop roots can effectively extract water and nutrients for growth.

If is no barrier given, this analysis defaults to 59.1 inches (150 cm).

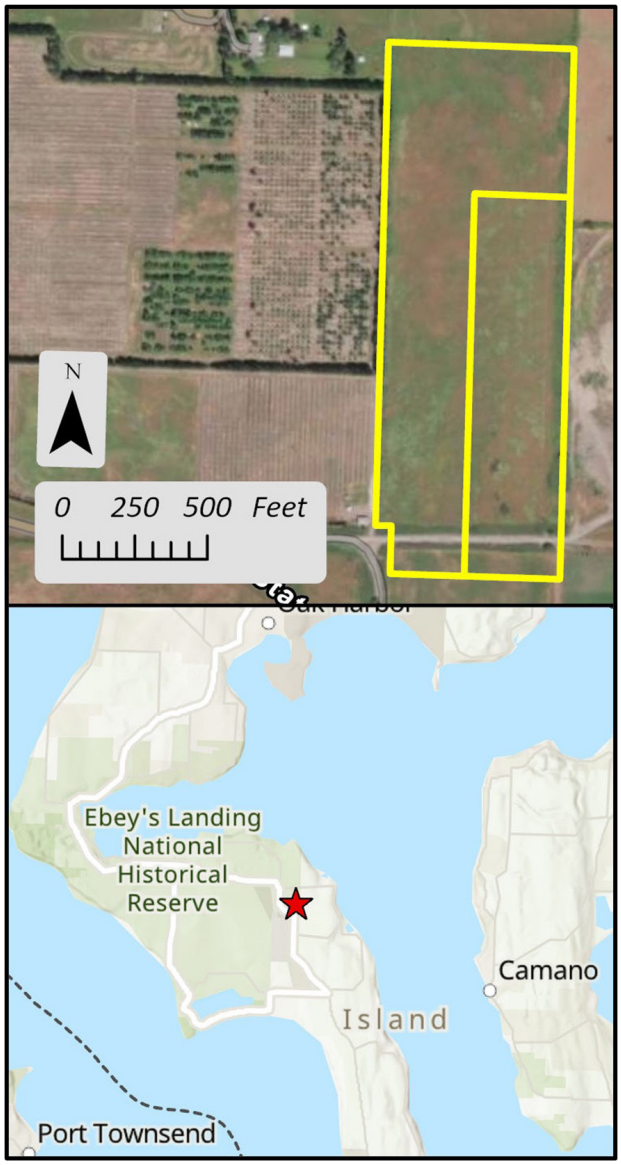
The Root Zone Depth is useful for comparing the rooting depths for common Washington crops (see Washington Irrigation Guide, Table 3-4 for figures). If the Root Zone Depth is shallower than the typical effective rooting depth for a crop, this soil may limit root development.

LOCATION #1

Suitability	
Agricultural Suitability	Excellent

Factor	
Location	Unincorporated Island County
Latitude & Longitude	48.2013, -122.6254
Current Owner	WDFW
Geographic ID	West parcel: R13101-185-2780 East parcel: R13101-143-3100
Property ID	West parcel: 1571 East parcel: 1517
Zoning	Rural
Legal Acreage	25.74 acres
Open Space (acres)*	24.1 acres
Most Common Crop Types (5 mi. radius)	Alfalfa/Grass Hay, Grass Hay, Pasture

*Reduced from GIS estimate after site visit.



Climate	
Growing Season Length	282 days
Mean Last Frost Date	February 21st
Mean First Frost Date	November 30th
Growing Degree Days (Base 32°F/ 40°F / 50°F)	6870 / 3729 / 1457
USDA Hardiness Zone	8b (17.1°F)
Köppen-Geiger Climate Classification	Csb (warm, dry summer temperate)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Mean Max. (°F)	45.9	48.1	52.2	56.5	62.1	65.3	69.2	69.9	66.7	58.7	50.2	45.3	57.5
Mean Min. (°F)	35	34.7	36.9	39.9	44.8	48.8	51.7	51.7	47.8	42.5	37.9	34.7	42.2
Precipitation (in)	2.8	2	2.3	2	1.7	1.4	0.8	0.7	1.3	2.2	3.4	3	23.5

Narrative

This location is comprised of two adjacent parcels located just northeast of Hwy-20, 2.5 miles southeast of Coupeville. The surrounding land uses are agriculture, aggregate mining, and low density residential activity.

This parcel is currently used for seed-stock and/or nesting habitat. If this parcel were surplused, it would require replacement with another parcel of equivalent value under the Pittman Robertson Act.

Soils

Map Unit	Extent	Farmland Classification	AWS (0-100 cm)	Root Zone Depth	Capability Class	
					Irrigated	Non-irrig
San Juan sandy loam, 2 to 8 percent slopes	23.0 acres	Prime farmland if irrigated	2.7 inches (6.9 cm)	59.1 inches (150 cm)	4-s	4-s
Snakelum-San Juan complex, 0 to 2 percent slopes	1.1 acres	Prime farmland if irrigated	3.4 inches (8.71 cm)	59.1 inches (150 cm)	3-s	3-s

Due to its position within the Olympic rain shadow, this location receives noticeably less precipitation than other areas of Western Washington. Without precipitation, the area could support dryland pasture or hay land. Winter or spring grains could also be grown without irrigation. The area has seen a resurgence in interest for local grains. While grain production now largely occurs east of the Cascades, the area once claimed world record wheat yields[10].

A wide range of other crops such as vegetables or vegetable seed could be grown with adequate irrigation water.

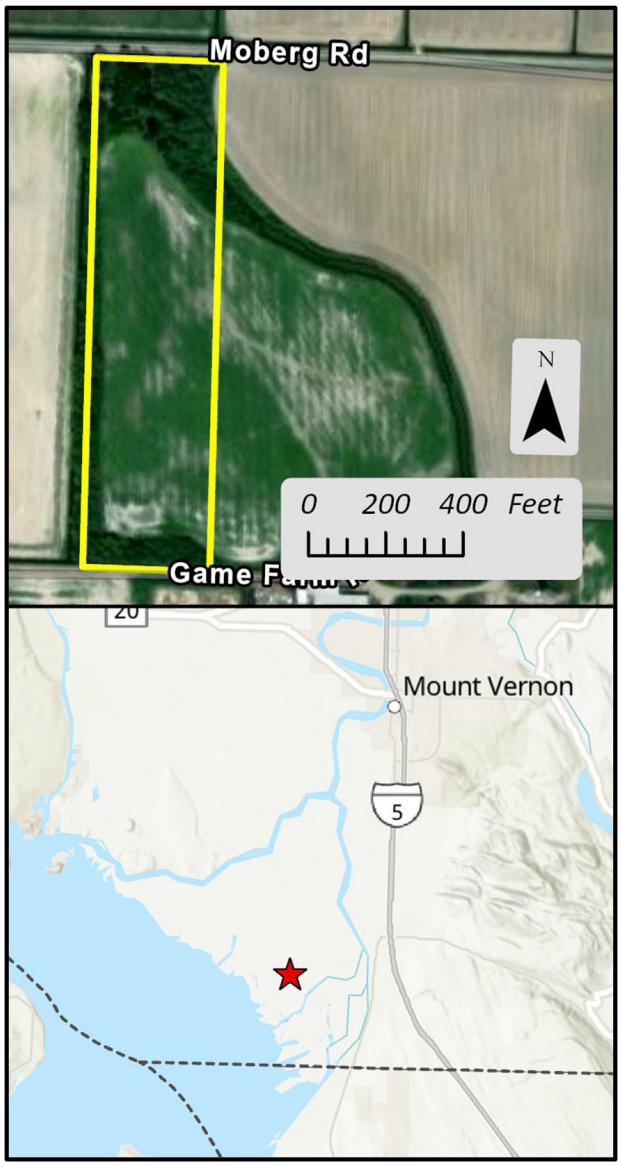
This location sits within the Brassica Seed Production District #1 and is in a county in WA state's Crucifer Seed Quarantine. For more information see Appendix E.

LOCATION #2

Suitability	
Agricultural Suitability	Excellent

Factor	
Location	Unincorporated Skagit County
Site Address	Moberg Rd, Conway, WA
Latitude & Longitude	48.3282, -122.3849
Current Owner	WDFW
Parcel Number	P16041
Zoning	Agr-NRL (Agricultural-Natural Resource Lands)
Legal Acreage	7.77 acres
Open Space (acres)	6.9 acres
Most Common Crop Types (5 mi. radius)	Grass Hay, Potato, Field Corn

Climate	
Growing Season Length	281 days
Mean Last Frost Date	February 22nd
Mean First Frost Date	November 30th
Growing Degree Days (Base 32°F/ 40°F / 50°F)	6962 / 3817 / 1547
USDA Hardiness Zone	8b (18.0°F)
Köppen-Geiger Climate Classification	Csb (warm, dry summer temperate)



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Mean Max. (°F)	46.6	48.6	52.4	56.6	62.5	66.6	71.5	72.6	67.5	58.3	51.2	45.6	58.3
Mean Min. (°F)	35.6	35.4	38	41.2	45.9	49.9	52.1	52	48.7	43.5	38.9	35.3	43
Precipitation (in)	4.1	2.8	3.1	2.7	2.2	1.7	0.9	1	1.8	3.3	4.9	4	32.4

Narrative

This parcel is located in the Skagit Valley, just north of the outlet of the south fork of the Skagit River into Skagit Bay. It is surrounded by farmland, and is near the Wiley Slough of the Skagit Wildlife Area.

A driveway on the northern end of the property, along Moberg Rd., provides public access to the parcel. A flat gravel parking lot is located on the northwest corner of the property and is currently used for equipment storage.

If this parcel were surplused, it would require replacement with another parcel of equivalent value under the Pittman Robertson Act.

Soils

Map Unit	Extent	Farmland Classification	AWS (0-100 cm)	Root Zone Depth	Capability Class	
					Irrigated	Non-irrig
Skagit silt loam	3.9 acres	Prime farmland if drained	7.9 inches (20 cm)	59.1 inches (150 cm)	No rating	4-w
Tacoma silt loam, drained	3 acres	Prime farmland if drained and either protected from flooding or not frequently flooded during the growing season	10 inches (25.4 cm)	59.1 inches (150 cm)	No rating	3-w

This location is one of the few already under agricultural production. Due to its existing use for agriculture, and dry location for equipment storage, this site is particularly ideal for agricultural use.

This parcel has been leased to neighboring farmers and has been planted to a crop rotation of grass, corn, potatoes, and seed crops. The Skagit silt loam and Tacoma silt loam soils found on this parcel support a diverse range of crop types in the surrounding area, including those regularly grown at the site. Thirty-six crop types can be found on these soil types in the surrounding five-mile area. The most common of these are potato (24.4%), field corn (21.3%), and grass hay (13.9%).

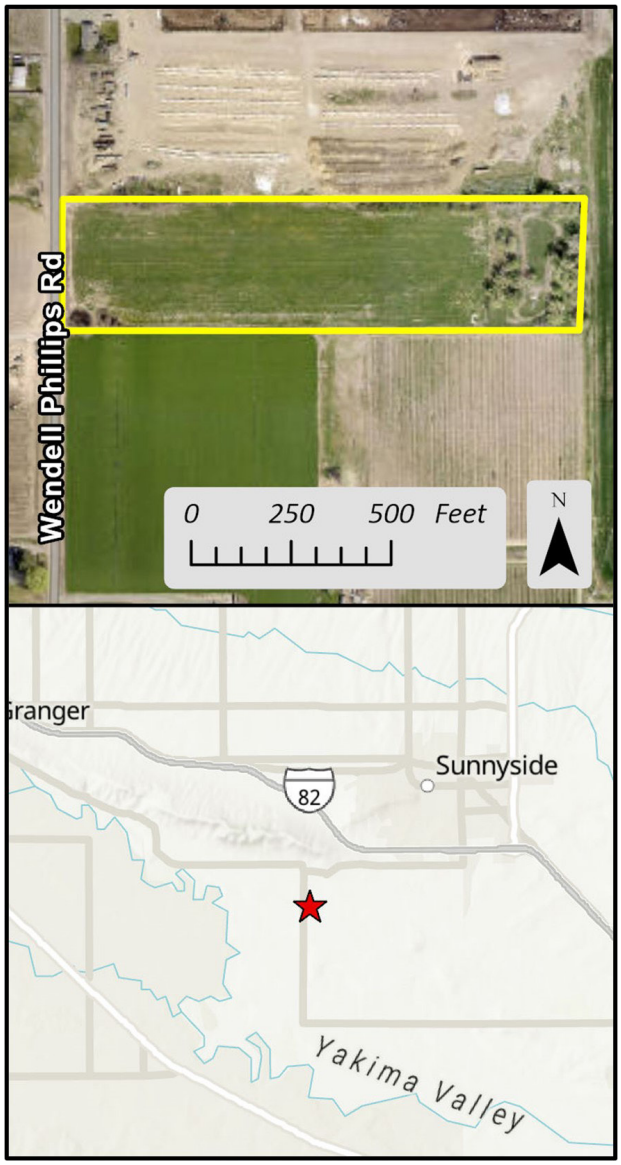
Skagit County is a major production area for vegetable seed. This location sits within the Brassica Seed Production District #1 and is in a county in WA state's Crucifer Seed Quarantine. For more information see Appendix E.

LOCATION #3

Suitability	
Agricultural Suitability	Excellent
Agrivoltaics Suitability	High

Factor	
Location	2 mi. SW of Sunnyside, Yakima County
Site Address	Wendel Phillips Rd
Latitude & Longitude	46.2909, -120.0596
Current Owner	WDFW
Parcel Number	22090333001
Zoning	AG
Legal Acreage	9.84 acres
Open Space (acres)	7.9 acres
Most Common Crop Types (5 mi. radius)	Field Corn, Alfalfa Hay, Hops

Climate	
Growing Season Length	175 days
Mean Last Frost Date	April 22
Mean First Frost Date	October 14
Growing Degree Days (Base 32°F/ 40°F / 50°F)	7800 / 5073 / 2957
USDA Hardiness Zone	7a (4.2°F)
Köppen-Geiger Climate Classification	BWk (semi-arid)



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Mean Max. (°F)	39.9	47.6	57.1	64.9	74.1	80.7	89.7	88.3	79.4	65.3	50	39.2	64.7
Mean Min. (°F)	25.9	27.1	31.7	36.5	44.6	50.5	55.2	53.7	46.1	37.1	29.5	25.3	38.6
Precipitation (in)	1	0.7	0.6	0.6	0.7	0.6	0.2	0.2	0.3	0.8	0.8	1.1	7.4

Narrative

This parcel is located to the southwest of Sunnyside, WA in Yakima County. This parcel is currently used for seed-stock and/or nesting habitat, and was planted to field corn during a visit in October 2024. If this parcel were surplused, it would require replacement with another parcel of equivalent value under the Pittman Robertson Act.

Soils

Map Unit	Extent	Farmland Classification	AWS (0-100 cm)	Root Zone Depth	Capability Class	
					Irrigated	Non-irrig
Hezel loamy fine sand, 0 to 2 percent slopes	0.01 acres	Farmland of statewide importance	5.2 inches (13.23 cm)	59.1 inches (150 cm)	3-e	6-e
Quincy loamy fine sand, 0 to 10 percent slopes	4.8 acres	Farmland of statewide importance	4.1 inches (10.51 cm)	59.1 inches (150 cm)	3-s	4-e
Warden fine sandy loam, 2 to 5 percent slopes	3.1 acres	Farmland of statewide importance	7.3 inches (18.52 cm)	59.1 inches (150 cm)	2-e	6-e

This location is one of the few currently in agricultural production (Figure 11).

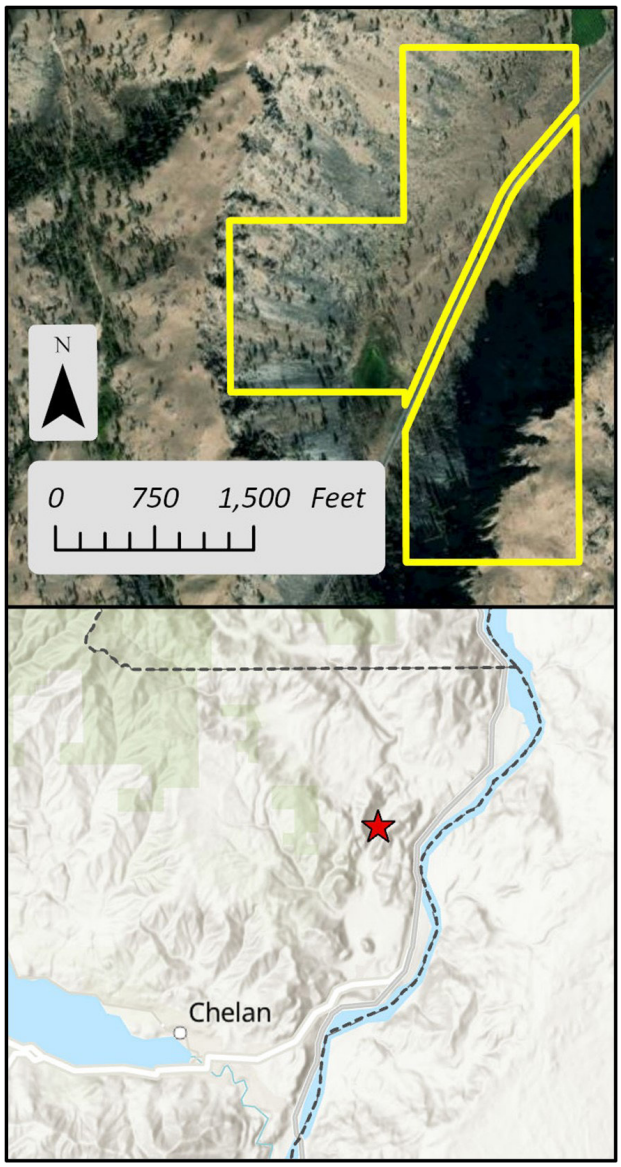
Figure 11. View across the location looking east, showing corn and wheel line infrastructure.

LOCATION #4

Suitability	
Agricultural Suitability	Good

Factor	
Location	Unincorporated Chelan County, 6 mi. NW of Chelan
Site Address	Apple Acres Rd.
Latitude & Longitude	47.9109, -119.9357
Current Owner	Parks and Recreation
Geographic ID	282322000050
Property ID	51347
Zoning	RR20
Legal acreage	160 acres
Open Space (acres)	23.5 acres*
Most Common Crop Types (5 mi. radius)	Pasture, Wheat fallow, Apples

*Due to a recent fire that has killed many trees on site, this number could increase slightly if trees were cleared.



Climate	
Growing Season Length	166 days
Mean Last Frost Date	April 28
Mean First Frost Date	October 11
Growing Degree Days (Base 32°F/ 40°F / 50°F)	6373 / 4080 / 2302
USDA Hardiness Zone	7a (2.9°F)
Köppen-Geiger Climate Classification	Csa (Hot, dry-summer temperate)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Mean Max. (°F)	33.3	40.3	50.5	60.2	69.9	76.4	85.9	85.7	76.2	60.1	43.5	33.4	59.6
Mean Min. (°F)	22.5	24.7	30.6	37.1	44.9	51.2	57.7	56.9	48.4	38.1	29.7	23.1	38.7
Precipitation (in)	1.7	1.2	1.2	0.7	1	0.8	0.4	0.3	0.3	1	1.5	2	12.1

Narrative

This property, known commonly as the Ice Caves State Park property, is located northeast of the city of Chelan and north of Chelan Municipal Airport. The property contains two large parallel ridges running from north to south, separated by a central low-lying valley which is the main agricultural area of interest on the property.

Areas adjacent to the ridges are characterized by talus, transitioning into flatter boulder-strewn terrain. Apple Acres Rd runs north to south through this valley, bisecting it and providing the main means for access.

A site visit from WSDA staff in September 2024 found that much of the property had been subject to a fire in the recent past. Many of the trees on site were charred.

Soils

Map Unit	Extent	Farmland Classification	AWS (0-100 cm)	Root Zone Depth	Capability Class	
					Irrigated	Non-irrig
Chelan bouldery sandy loam	23.0 acres	Farmland of unique importance	15.47 cm (6.1 in)	59.1 inches (150 cm)	6-s	6-s
Supplee very fine sandy loam	0.29 acres	Farmland of unique importance	16.42 cm (6.5 in)	59.1 inches (150 cm)	4-e	3-e

Most of the parcel's area contains rock outcrops, and any agricultural potential is limited to the narrow central valley where Chelan sandy loam and Supplee very fine sandy loam is present. While this parcel is one of the largest at 160 acres, it only contains approximately 24.09 acres of farmland.

Both Chelan and Supplee loam soils are classified as "farmland of unique importance." In the surrounding area (measured as farmland in a 5-mile radius), agriculturally cultivated areas with Chelan and Supplee soils largely support orchard crops (54% of total area) and pasture (19% of total area).

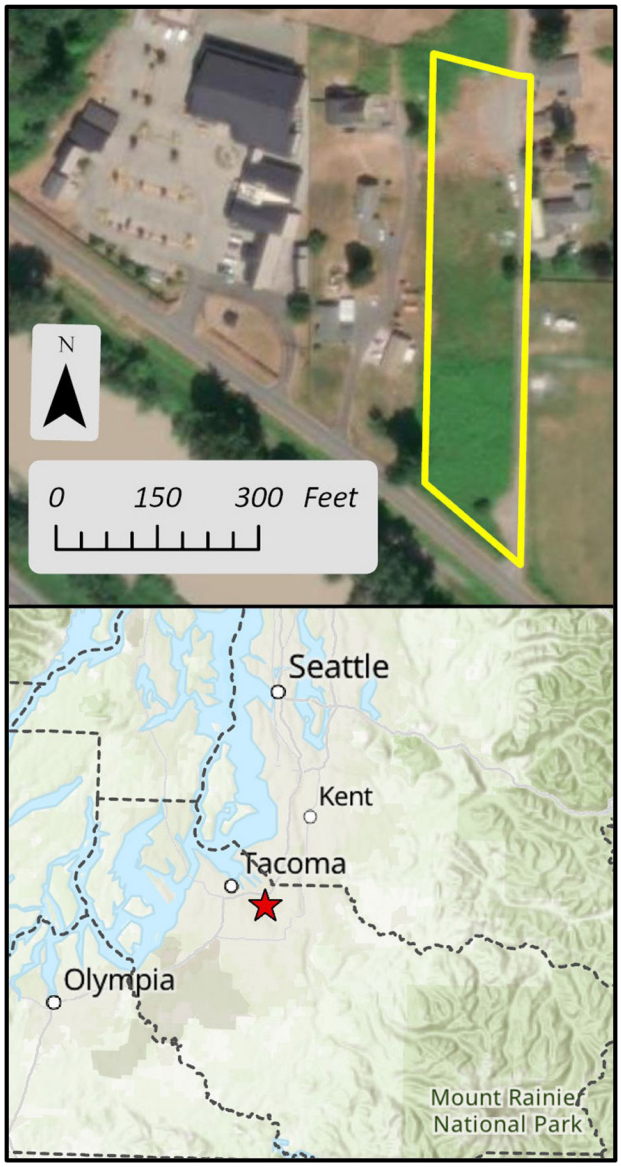
The parcel has not been under irrigation and is not located within an irrigation district. There is no overlap between this parcel and the mapped area of use for any water rights documents in GWIS. One small lake, Green Lake, is present on the southern end of the property, although its use water would require water rights. Without irrigation, the main opportunity would be for dryland grazing, although some source of stock water would be required. If irrigation could be established, it may be possible to establish orchard crops like those grown in the surrounding area. Alternatively, irrigation could significantly increase forage yields on any pasture or hay field established on this site.

LOCATION #5

Suitability	
Agricultural Suitability	Good

Factor	
Location	Puyallup Indian Reservation; Fife, Pierce County
Site Address	59th Ave Ct E, Fife, WA
Latitude & Longitude	47.2212, -122.3505
Current Owner	WDFW
Parcel Number	0420182031
Zoning	PF (Public Facilities)
Legal Acreage	2.28 acres
Open Space (acres)	2.1 acres
Most Common Crop Types (5 mi. radius)	Pasture; Fallow, Idle; Market Crops

*Excludes all areas with tree cover and buildings. Exact acreage suitable for agriculture may be smaller dependent on other factors.



Climate	
Growing Season Length	251 days
Mean Last Frost Date	March 8th
Mean First Frost Date	November 14th
Growing Degree Days (Base 32°F/ 40°F / 50°F)	7556 / 4451 / 2087
USDA Hardiness Zone	8b (18.6°F)
Köppen-Geiger Climate Classification	Csb (Warm, dry summer temperate)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Mean Max. (°F)	47.9	50.3	54.6	59.4	66	70.8	77	77.3	71.5	61.1	52.7	47.1	61.3
Mean Min. (°F)	35.9	35.8	38.1	41.6	47	51.5	55	55	50.9	44.7	39	35.6	44.2
Precipitation (in)	5.8	4	4.6	3.4	2.1	1.7	0.6	0.9	1.5	3.9	6.2	6	40.8

Narrative

The parcel is located along N. Levee Rd., although the ground is relatively steep between the road and the south end of the property.

The main obstacle to agricultural use is the heavy growth of Himalayan blackberries on the southern half of the parcel. The northern half of the parcel is absent of Himalayan blackberries but appears to be subject to some level of dumping.

The land dips too steeply from North Levee Road to allow vehicular access. A private road runs along the eastern end of the property. If use of this road could be negotiated, this would provide easy access along the length of the parcel. Alternatively, a driveway could be constructed from N. Levee Rd.

This location is located within the Puyallup Indian Reservation. On its northern end, the parcel adjoins land owned by the Puyallup Tribe, which is contiguous with the Puyallup Tribe Youth Center. Any assessment process for a particular use or development of this parcel should involve the Puyallup Tribe of Indians from the beginning.

According to WDFW, a policy decision would be required in order for this parcel to be surplused.

Soils

Map Unit	Extent	Farmland Classification	AWS (0-100 cm)	Root Zone Depth	Capability Class	
					Irrigated	Non-irrig
Puyallup fine sandy loam	2.1 acres	Prime farmland if irrigated	4.2 inches (10.61 cm)	59.1 in (150 cm)	3-w	3-w

Nearby farmland hosts a wide range of diverse crops also growing on the Puyallup fine sandy loam soil series. The most significant barriers to agricultural use would be removal of Himalayan blackberries and cleanup of dumping that has occurred on the northern end of the parcel.

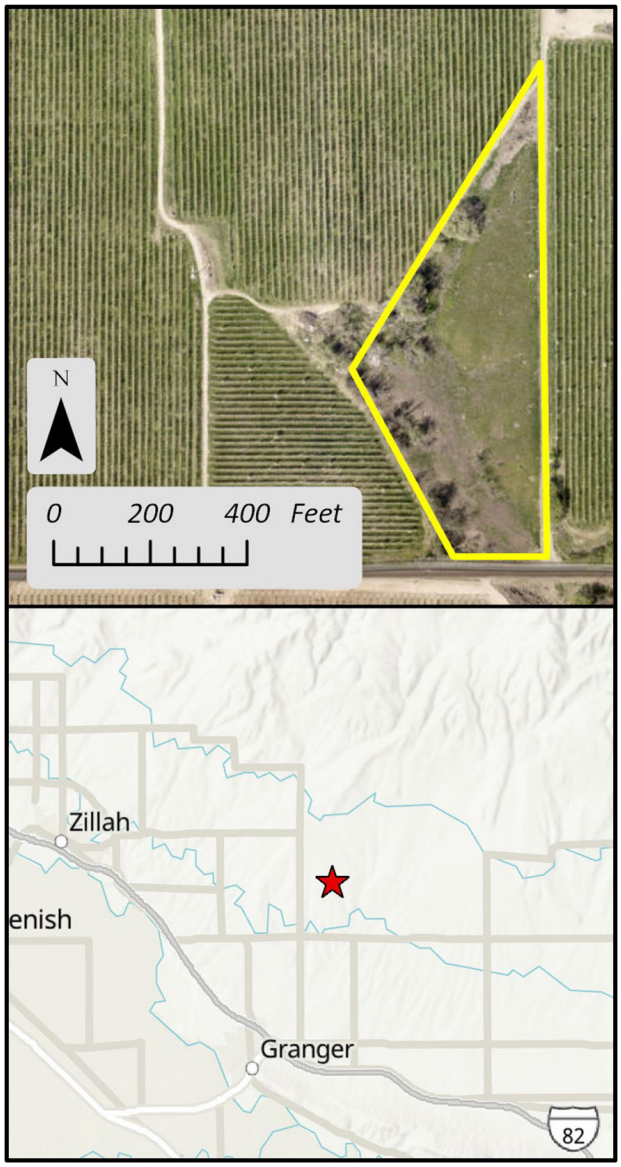
Irrigation is required to grow a number of crops through the seasonally dry summer season. Some source of water would need to be secured to realize the site's full potential of cropping options. Without irrigation, the site could still support pasture, hayfield, grains, or winter annual crops.

LOCATION #6

Suitability	
Agricultural Suitability	Good
Agrivoltaics Suitability	High

Factor	
Location	4 miles NE of Granger, Yakima County, WA
Latitude & Longitude	46.3909, -120.1548
Current Owner	WDFW
Parcel Number	21113543001
Zoning	AG
Legal Acreage	5.53 acres
Open Space (acres)	3.9 acres
Most Common Crop Types (5 mi. radius)	Pasture, Field Corn, Apple

Climate	
Growing Season Length	164 days
Mean Last Frost Date	May 1
Mean First Frost Date	October 12
Growing Degree Days (Base 32°F/ 40°F / 50°F)	7343 / 4682 / 2668
USDA Hardiness Zone	7b (5.4°F)
Köppen-Geiger Climate Classification	BWk (semi-arid)



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Mean Max. (°F)	39.3	46.7	55.9	63.7	73	79.6	88.5	87.2	78.5	64.4	49.1	38.4	63.7
Mean Min. (°F)	25.9	28.3	32.8	37.6	45.2	50.9	56.2	55	47.7	38.6	30.3	25.3	39.5
Precipitation (in)	1.1	0.7	0.6	0.6	0.8	0.6	0.2	0.2	0.3	0.8	0.9	1.2	7.9

Narrative

This small 5.5 acre parcel is roughly triangle in shape. It is surrounded by apple and hop orchards.

Much of the vegetation on the parcel is cheatgrass (*Bromus* spp.), although some Great Basin wildrye is present on the higher, northern end of the parcel (Figure 12). There are some trees located on the western end of the parcel where some dumping has also occurred.

This parcel is currently used for seed-stock and/or nesting habitat. If this parcel were surplused, it would require replacement with another parcel of equivalent value under the Pittman Robertson Act.

Figure 12. View looking north across Location #6 (NE of Granger, WA).

Soils

Map Unit	Extent	Farmland Classification	AWS (0-100 cm)	Root Zone Depth	Capability Class	
					Irrigated	Non-irrig
Warden silt loam, 2 to 5 percent slopes	0.4 acres	Farmland of statewide importance	7.6 inches (19.3 cm)	59.1 inches (150 cm)	2-e	6-e
Warden sil loam, 8 to 15 percent slopes	2.9 acres	Farmland of unique importance	7.6 inches (19.3 cm)	59.1 inches (150 cm)	4-e	6-e
Warden silt loam, 15 to 30 percent slopes	0.6 acres	Farmland of unique importance	7.6 inches (19.3 cm)	59.1 inches (150 cm)	6-e	6-e

Due to the sloping nature of the land, this parcel is likely best suited for perennial crops. Nearby farmland is predominantly planted to orchard crops. This parcel is located in the Roza Irrigation District which is a potential source of irrigation water.

The National Wetlands Inventory (NWI) shows a narrow section of wetland, classified as a Palustrine emergent wetland, seasonally flooded (PEM1C) traversing the property and bisecting it in half. A culvert was observed near the wetland, though no water was present at the time of visit in October 2024. Any agricultural activity would need to consider the presence of this wetland.

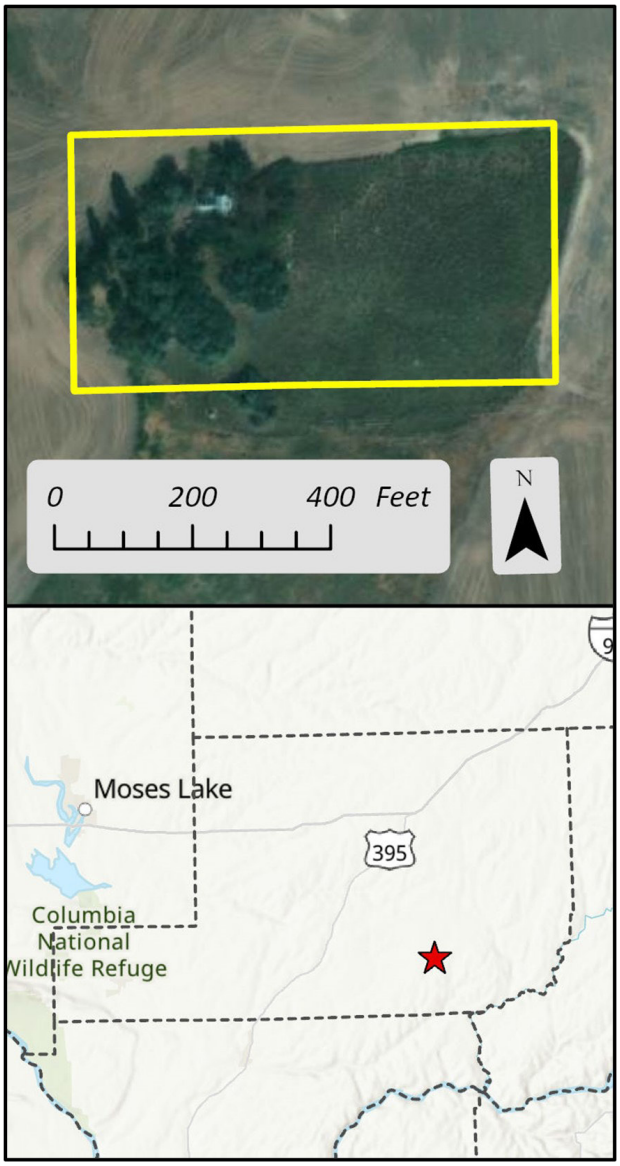
LOCATION #7

Suitability	
Agricultural Suitability	Fair
Agrivoltaics Suitability	Slightly High

Factor	
Location	Roughly 7 mi. N of Washtucna, Unincorporated Adams County
Site Address	Ellenger Rd, Washtucna, WA
Latitude & Longitude	46.8432, -118.3378
Current Owner	WDFW
Parcel Number	2636300410309
Zoning	Prime Agriculture
Size	5.96 acres*
Open Space (acres)	4.0 acres
Most Common Crop Types (5 mi. radius)	Wheat, Wheat Fallow, Conservation Reserve Program (CRP) Land

*GIS calculated acres

Climate	
Growing Season Length	156 days
Mean Last Frost Date	May 5th
Mean First Frost Date	October 8th
Growing Degree Days (Base 32°F/ 40°F / 50°F)	6823 / 4259 / 2365
USDA Hardiness Zone	7a (1.1°F)
Köppen-Geiger Climate Classification	BSk (Semi-arid)



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Mean Max. (°F)	36.9	43.1	52.3	60.7	70.2	77.3	87.5	86.9	77.4	62.2	46.1	36.1	61.4
Mean Min. (°F)	25	27.2	31.3	35.2	41.9	47.5	53.7	53.4	46.3	37	29.7	24.5	37.7
Precipitation (in)	1.6	1.1	1.3	1	1.1	0.9	0.3	0.3	0.4	1	1.5	1.7	12.3

Narrative

This property is located approximately 7 miles north of Washtucna in the low to intermediate rainfall zone of the Columbia Basin. Most of the surrounding agriculture is in the form of large, dryland wheat farms. The parcel lies outside any irrigation district.

The parcel contains a number of trees on its eastern edge. A house is located in the northwestern corner of the property and is in significant disrepair. A large open area approximately 4.0 acres in size in present on the eastern two-thirds of the property and is currently vegetated with bunchgrasses. The property is fairly even, lacking severe slopes.

Soils

Map Unit	Extent	Farmland Classification	AWS (0-100 cm)	Root Zone Depth	Capability Class	
					Irrigated	Non-irrig
Emdent silt loam	5.83 acres	Not prime farmland	7.5 in (19 cm)	59.1 inches (150 cm)	No rating	6
Ritzville silt loam	0.13 acres	Farmland of statewide importance	7.1 in (18 cm)	44.9 inches (114 cm)	No rating	4

This site is mostly comprised of the Emdent soil series. A Washington State University (WSU) fact sheet characterizes Emdent soils as saline-alkali soils and suggests soil tests be taken to confirm sodicity and salinity[vii]. A soil test was taken to reveal soil salinity (ECe) to be 2.68 mmhos/cm, and the Exchangeable Sodium Percentage (ESP) to be 21.7%, confirming slightly saline and sodic soil conditions. Potassium was unusually high at 1878 ppm.

The most significant barrier for crop production on this site is the sodic soils. Sodic soils pose multiple challenges for agricultural use such as impaired drainage, pH-induced nutrient deficiencies, and sodium toxicity. Remediation of sodic soils requires the addition of gypsum and significant quantities of irrigation water. Some grass species can tolerate sodic soil conditions. The most suitable from of agriculture for this site is likely dryland grazing.

The high potassium levels are particularly concerning for grazing, since high levels of potassium can lead to a condition known as grass tetany. Soil and forage testing can help monitor potassium levels. Management strategies for preventing grass tetany can be found in the *Inland Pacific Northwest Pasture Calendar (PNW 708)*[11] and Nutrient Management for Pastures: *Western Oregon and Western Washington (EM 9224)*[12].

[vii] Soil Guide Sheet: EMDENT (EM 3166): https://rex.libraries.wsu.edu/view/pdfCoverPage?instCode=01ALLIANCE_WSU&filePid=13333012780001842&download=true

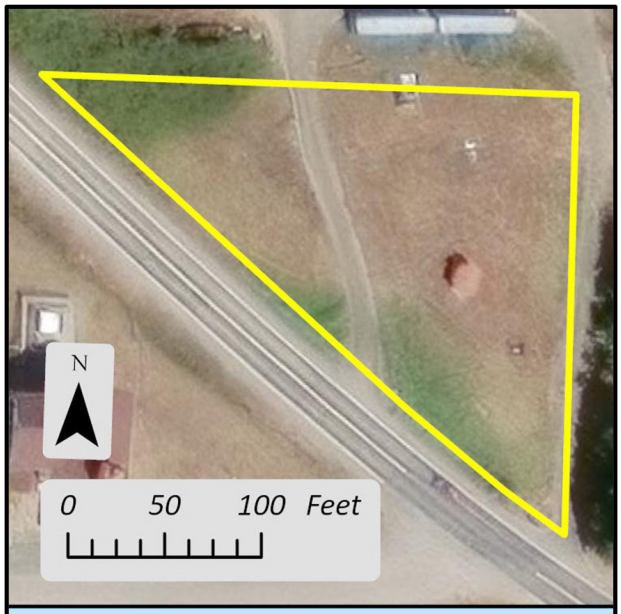
LOCATION #8

Suitability	
Agricultural Suitability	Poor

Factor	
Location	4 mi. NNE of Sequim, Unincorporated Clallam County
Site Address	E Anderson Rd, Sequim, WA
Latitude & Longitude	48.1429, -123.1277
Current Owner	WDFW
Geographic ID	043136150250
Property ID	45236
Zoning	R5 (Rural Low)
Acreage**	0.74 acres
Open Space (acres)*	0.67 acres
Most Common Crop Types (5 mi. radius)	Grass Hay; Pasture; Fallow, Idle

*Reduced from original estimate in GIS after site visit, accounting for driveway

**GIS calculated acres



Climate	
Growing Season Length	255 days
Mean Last Frost Date	March 10th
Mean First Frost Date	November 20th
Growing Degree Days (Base 32°F/ 40°F / 50°F)	6287 / 3187 / 1130
USDA Hardiness Zone	8b (18.3°F)
Köppen-Geiger Climate Classification	Csb (warm, dry summer temperate)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Mean Max. (°F)	46.4	47.8	50.7	54.3	59.8	63.1	67.2	67.8	64.5	56.7	50.5	46.3	56.3
Mean Min. (°F)	35.6	35.5	37.2	40.5	45.5	49.9	52.1	52.1	48.9	43.2	38.2	35.3	42.8
Precipitation (in)	2.5	1.8	1.6	1.3	1.2	0.9	0.5	0.6	0.9	1.8	3	2.5	18.7

Narrative

This small parcel is located near the Dungeness River, directly north of Anderson Rd. and across from the Old Dungeness Schoolhouse.

Much of the parcel is covered by Himalayan blackberries. A gravel driveway splits the parcel in two. This driveway is meant to act as parking for the nearby Dungeness River, roughly 250 ft. to the northwest, though it has not yet been developed for that purpose.

If this parcel was used for other purposes, RCO and NPS rules require a replacement parcel to provide continued public access.

Soils

Map Unit	Extent	Farmland Classification	AWS (0-100 cm)	Root Zone Depth	Capability Class	
					Irrigated	Non-irrig
Lummi silt loam	0.67 acres	Prime farmland if drained	6.3 inches (15.92 cm)	59.1 inches (150 cm)	No rating	5-w

Removal of the invasive Himalayan blackberries would be a main initial step to prepare this parcel for agricultural use.

Due to the Olympic rain shadow, annual precipitation is low at an estimated 18.7 inches. Pasture, hay land, and small grains could be grown without irrigation, but some form of irrigation would be required to grow the full potential range of crops. Though this parcel is located between the Dungeness Irrigation District and Cline Irrigation District, it is unserved by either. Water access would need to be established through a water right or permit-exempt well.

This parcel is comprised of Lummi silt loam soil, a hydric soil with a minimum annual depth to the water table of 5.9 inches (15 cm). The frequency of ponding — measured as the percentage area that is subject to the soil surface — is 90%. Ponding can pose a challenge to winter annuals or perennials, depending on the length of time of saturation.

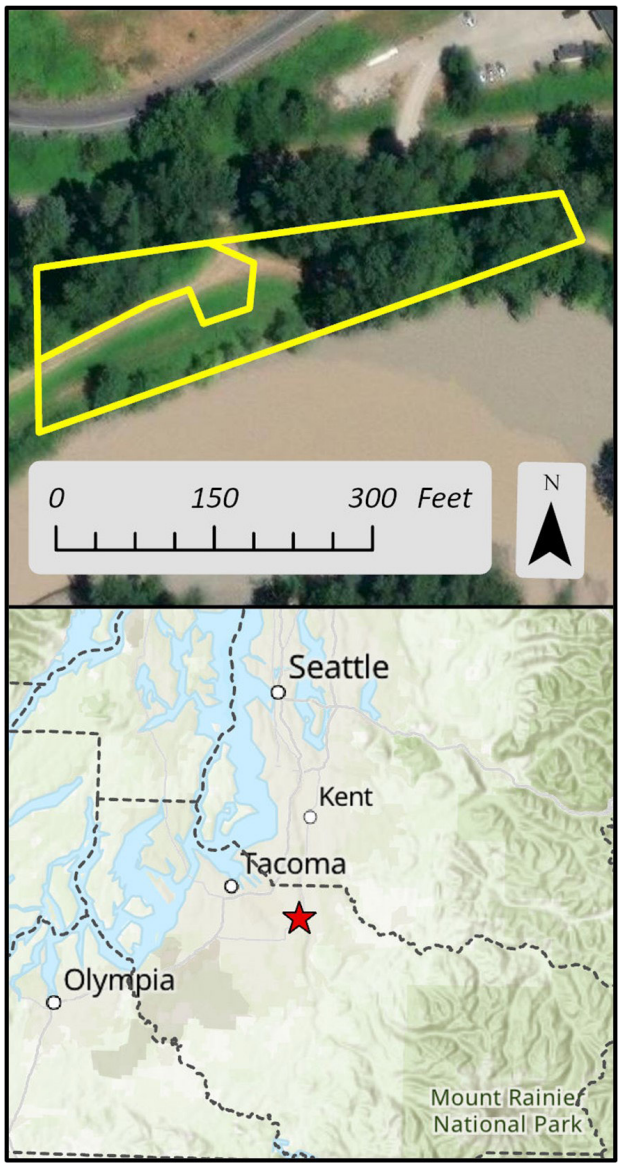
The location's small size and distance from populated areas limits meaningful use. However, its location directly across from an existing museum opens the potential for public-facing agricultural use such as agritourism or use as a demonstration site.

LOCATION #9

Suitability	
Agricultural Suitability	Very Poor

Factor	
Location	North Puyallup, Unincorporated Pierce County
Site Address	Houston Rd. E., North Puyallup, WA
Latitude & Longitude	47.2002, -122.2595
Current Owner	WDFW
Parcel Numbers*	0420234078, 0420234133
Zoning	MSF (Moderate Density Single Family)
Size	1.59 acres
Open Space (acres)*	Approximately 0.14 acres (6,100 sq ft.)
Most Common Crop Types (5 mi. radius)	Fallow, Idle; Market Crops; Rhubarb

*Adjusted downward from original GIS-determined estimate after site visit.



Climate	
Growing Season Length	239 days
Mean Last Frost Date	March 17
Mean First Frost Date	November 10th
Growing Degree Days (Base 32°F/ 40°F / 50°F)	7344 / 4265 / 1974
USDA Hardiness Zone	8b (18.3°F)
Köppen-Geiger Climate Classification	Csb (Dry-summer temperate)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Mean Max. (°F)	47.8	50.1	54.4	59.3	65.9	70.7	76.9	77.4	71.4	61.1	52.5	46.9	61.2
Mean Min. (°F)	35.7	35.4	37.9	41.3	46.7	51.3	54.8	54.9	50.7	44.5	38.7	35.3	43.9
Precipitation (in)	5.9	3.8	4.4	3.2	2.2	1.7	0.7	0.9	1.6	4.1	6.4	6.1	40.9

Narrative

This location is comprised of two irregularly shaped parcels located directly north of the Puyallup River near its confluence with the White River. A third parcel is also owned by WDFW and located just to the east of parcel 0420234133. Due to the heavy forest cover, this parcel is not considered here.

WSDA staff conducted a site visit to this location in September 2024. The site has access on its northern end from Houston Rd. E., which is controlled by a gate. The Old Cannery levee, which is topped by a gravel pathway, runs east to west along these two parcels parallel to the Puyallup River.

The main area of open ground was located on a terrace just south of the gravel pathway, on the south end of the levee (see Figure 13). This area lies within a 1% annual chance flood hazard zone.

The vegetation is Himalayan blackberries, grasses, and assorted forbs. Some knotweed is present between the pathway and the road, and should be controlled to prevent spread to the remaining area of the parcel.

Figure 13. View looking west across Location #9 (North Puyallup, WA), showing the narrow terrace of land between the Puyallup River and pathway along the Old Cannery levee.

Soils

Map Unit	Extent	Farmland Classification	AWS (0-100 cm)	Root Zone Depth	Capability Class	
					Irrigated	Non-irrig
Pilchuck fine sand	0.12 acres	Prime farmland if irrigated and either protected from flooding or not frequently flooded during the growing season	2.9 inches (7.27 cm)	59.1 inches (150 cm)	No rating	4
Puyallup fine sandy loam	0.1 acres	Prime farmland if irrigated	4.2 inches (10.61 cm)	59.1 inches (150 cm)	3	3

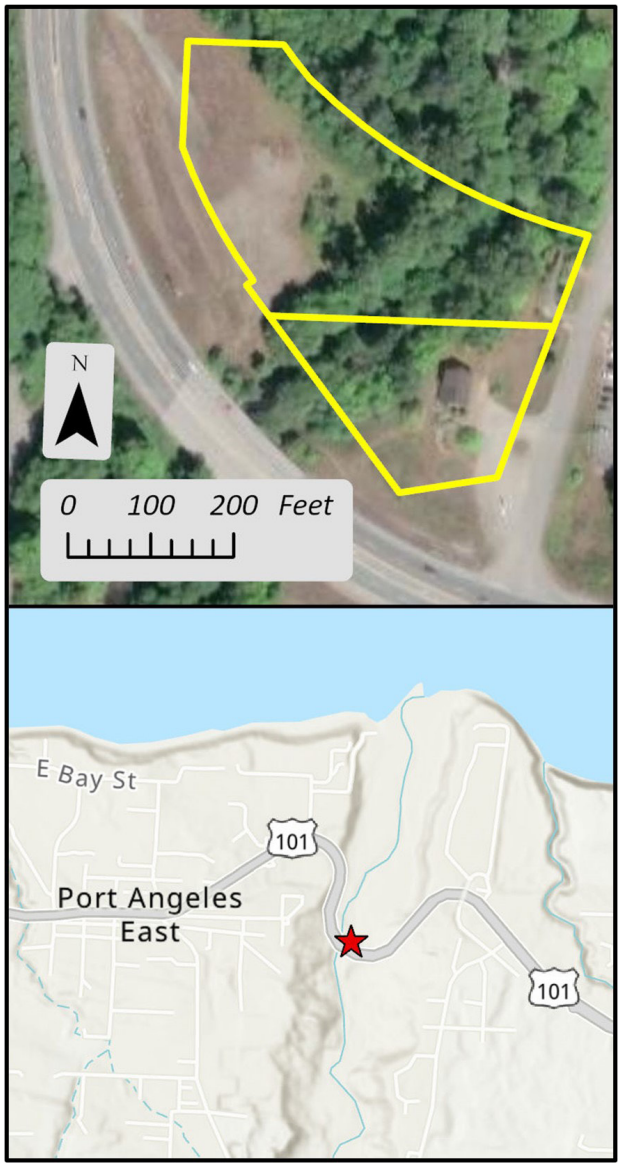
A multifunctional riparian forest buffer (MRFB) might provide the most site-appropriate agricultural use for this area. MFRBs incorporate food-producing native species, while providing the traditional functions of riparian forest buffers[13]. The riverbank on the southern end of the terrace has relatively fewer trees than adjacent areas. Additional potential uses are strongly limited by the small size of the parcel and its location in the floodplain.

LOCATION #10

Suitability	
Agricultural Suitability	Very Poor

Factor	
Location	Morse Creek Wildlife Area, Unincorporated Clallam County
Site Address	33 Strait View Drive Port Angeles, WA
Latitude & Longitude	North parcel: 48.1045, -123.3571 South parcel: 48.1037, -123.3558
Current Owner	WDFW
Geographic IDs	North parcel: 053008501925 South parcel: 053008502220
Property IDs	North parcel: 48661 South parcel: 48667
Zoning	R1 (Rural)
Legal Acreage	4.69 acres
Open Space (acres)*	0.8 acres
Most Common Crop Types (5 mi. radius)	Pasture; Grass Hay; Fallow, Idle

*Acreage reduced from initial GIS estimate after site visit.



Climate	
Growing Season Length	255 days
Mean Last Frost Date	March 13th
Mean First Frost Date	November 23rd
Growing Degree Days (Base 32°F/ 40°F / 50°F)	6446 / 3379 / 1269
USDA Hardiness Zone	8b (19.7°F)
Köppen-Geiger Climate Classification	Csb (warm, dry summer temperate)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Mean Max. (°F)	45.6	47.1	50.3	54.5	60.1	63.8	67.8	68.1	65.4	57	49.9	45.5	56.3
Mean Min. (°F)	35.5	35.4	37	40.2	45.1	49.4	52.2	52.2	48.8	43.2	38.1	35.2	42.7
Precipitation (in)	4.1	2.6	2.6	1.5	1.2	1	0.5	0.7	1.2	2.7	4.6	4.2	26.9

Narrative

This location is comprised of two parcels, both located north of Hwy-101 in the Morse Creek Wildlife Unit. Morse Creek runs between the two parcels in a steep canyon. Both parcels are adjacent to the Morse Creek Trestle Bridge Trailhead, as well as multiple on-site interpretive signs.

Both parcels are either forested, very steep, or contain gravel roads for site access or parking. As such, there is little open space. Due to RCO rules, a replacement parcel would be required that could provide habitat and continued public access.

Soils

Map Unit	Extent	Farmland Classification	AWS (0-100 cm)	Root Zone Depth	Capability Class	
					Irrigated	Non-irrig
Carlsborg-Dungeness complex, 0 to 5 percent slopes	0.8 acres	Not prime farmland	3.4 inches (8.66 cm)	59.1 inches (150 cm)	6	6

Due to the small amount of open and evenly sloped land, the potential for agricultural use of this location is limited. The heavy traffic along Hwy-101 limits easy access to agricultural equipment on the eastern parcel where the largest proportion of open land sits (Figure 14).

Figure 14. The largest area of open space on Location #10 (Port Angeles, WA), with Highway 101 visible in background.

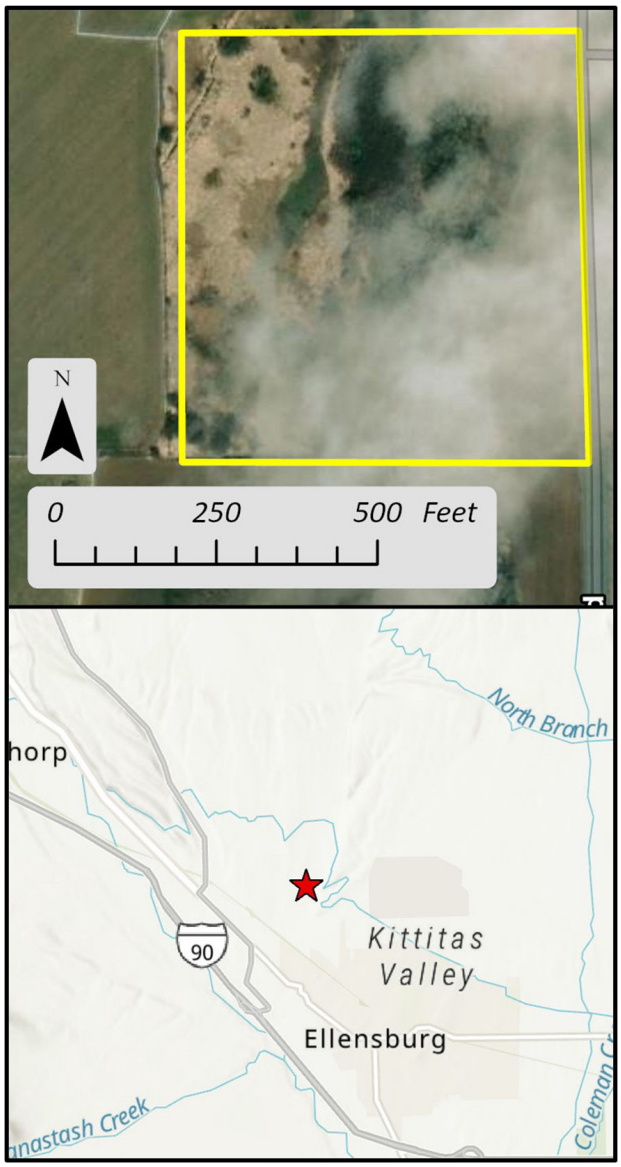
Signs on the western parcel provide background on the environmental significant of the location, and information about the watershed. Some form of educational-based agricultural use congruent with this current use seems the most likely form of agriculture for this location.

LOCATION #11

Suitability	
Agricultural Suitability	Very Poor
Agrivoltaics Suitability	Very High

Factor	
Location	1 mi. NW of Ellensburg, Unincorporated Kittitas County
Latitude & Longitude	47.0366, -120.5730
Current Owner	WDFW
Map Number	18-18-22020-0004
Zoning	Commercial Agriculture
Legal Acreage	10 acres
Open Spaces (acres)*	0.5 acres
Most Common Crop Types (5 mi. radius)	Pasture, Timothy, Grass Hay

*Calculated in GIS after site visit



Climate	
Growing Season Length	150 days
Mean Last Frost Date	May 7
Mean First Frost Date	October 3
Growing Degree Days (Base 32°F/ 40°F / 50°F)	6237 / 3853 / 2098
USDA Hardiness Zone	6b (-1.0°F)
Köppen-Geiger Climate Classification	BSk (Semi-arid)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Mean Max. (°F)	35.5	42.6	51.5	59.5	68.7	74.9	84.3	84.3	75.7	61	45.5	35.4	59.9
Mean Min. (°F)	22.5	24.7	29.3	34.7	42.6	48.8	54.5	53.5	45.3	35.6	27.8	22.5	36.8
Precipitation (in)	1.2	0.7	0.8	0.7	0.8	0.5	0.3	0.2	0.3	0.7	1	1.4	8.7

Narrative

This location is split into two sections by Currier Creek which runs north to south through the parcel. The western section represents roughly two-thirds of the area and is mostly wetlands and trees. While the western section contains areas that lack both trees and wetlands where agriculture activity could occur, it is inaccessible from any road. As such, this section is not considered in the open space acreage for this location.

The eastern section is accessible from Reecer Creek Rd. and was visited by WSDA staff in October 2024. It contains a few scattered areas of non-forested land where agricultural activity could occur These areas sit in between the substantial riparian tree corridor around Currier Creek, visible in the background of Figure 15, and Reecer Creek Rd. All agricultural areas on the parcel are within the 1% annual chance flood hazard.

Figure 15. View of Location #11 from Reecer Creek Rd., looking west to the largest section of agriculturally suitable land.

If this parcel were surplused, it would require replacement with another parcel of equivalent value under the Pittman Robertson Act.

Soils

Map Unit	Extent	Farmland Classification	AWS (0-100 cm)	Root Zone Depth	Capability Class	
					Irrigated	Non-irrig
Nack-Brickmill complex, 0 to 5 percent slopes	0.5 acres	Prime farmland if irrigated and drained	3.4 inches (8.69 cm)	59.1 inches (150 cm)	4-w	4-w

Due to the relatively small size of agricultural land, this location has limited agricultural opportunities. At 0.5 acres, is the parcel is well below the amount of pasture needed for a single cow, given typical stocking rates for this area.

Overall Assessments

ACREAGE

Of the 11 candidate locations totaling 234.1 acres, 74.5 acres, or 32%, were determined to be open space and potentially suitable for agricultural use.

Location

By number, parcels were split fairly evenly across the Cascade divide, with 6 locations in Western Washington and 5 locations in Central and Eastern Washington (Figure 16, left). East of the Cascades, most locations were located in Central Washington. Location #7 in Adams County was the sole candidate parcel in the eastern third of the state.

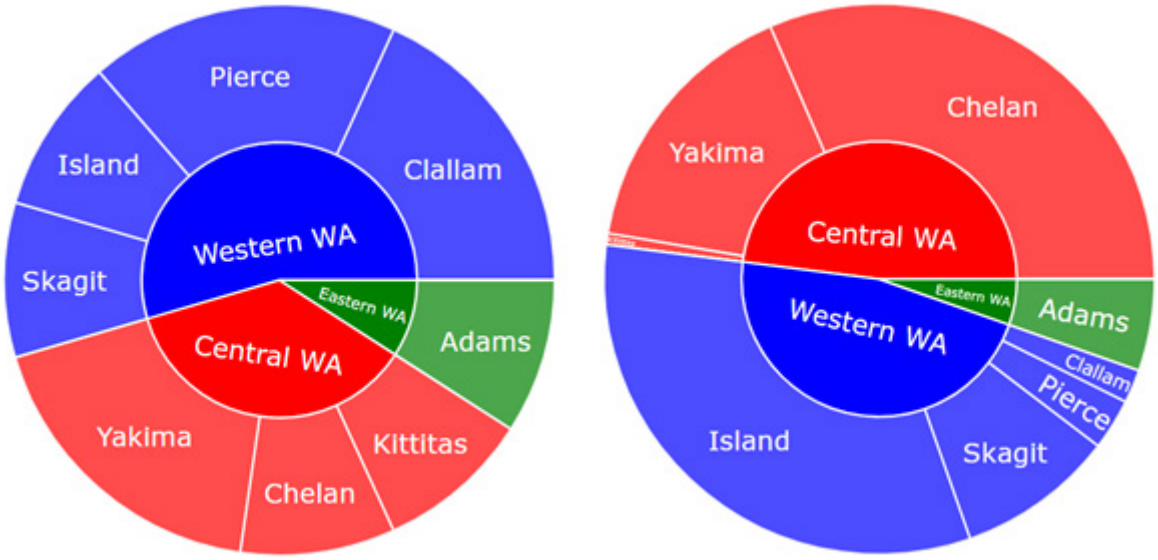


Figure 16. Distribution of locations by number (left) and by the total of open space acreage (right) split by county and region. Slices are sized proportionate to the number (left) and acreage (right) in each category.

By acreage, open space land was fairly even split across the Cascades, with 48% (35.8 acres) in Central Washington, 46.6% (34.7 acres) in Western Washington, and the remaining 5.3% (4 acres) in Eastern Washington (Figure 16, right).

Quality

A majority of candidate parcels, or 7 of 11, had a ranking of "Fair" or above. When considered by acreage, the vast majority of available land had a rating of good or excellent (Figure 17).

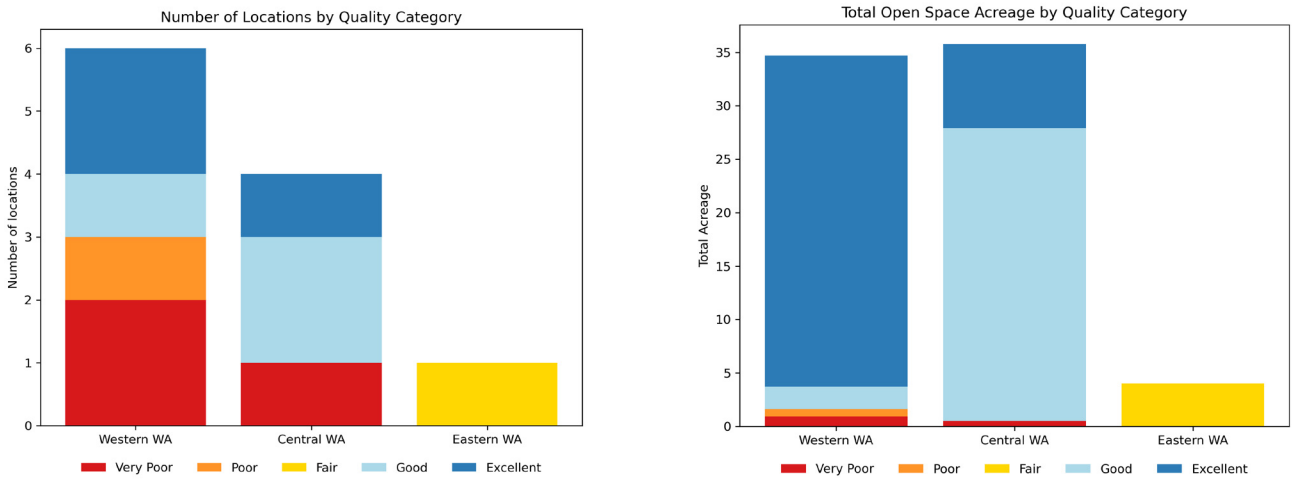


Figure 17. Agricultural quality categorizations of locations by number and region (left) and region and acreage (right).

Location Size

The most common size category for candidate parcels was between 1 and 10 acres, by both total acreage and the location's "open space" acreage where agriculture could potentially occur (Figure 18).

The location with the greatest overall location size, Location #4, was located in Chelan County, although only 23.5 of the 151.8 acres was classified as open space. Location #1, in Island County, had the largest amount of open space at 24.1 acres, just slightly ahead of the amount on Location #4.

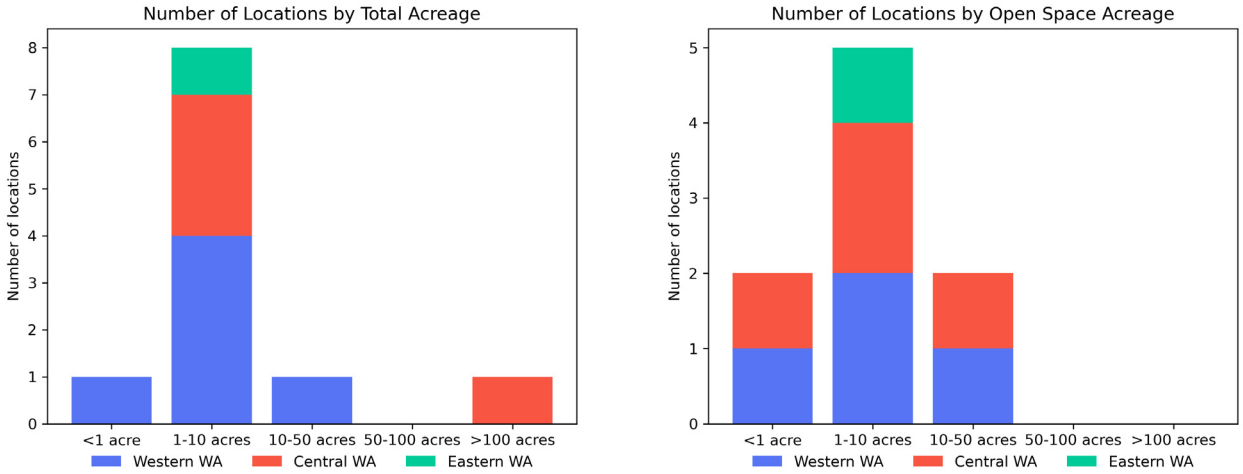


Figure 18. The number of locations falling into various size categories when considering the total size of parcels (left) and just the "open space" acreage where agriculture could occur (right).

Locations #4 and #6 were located in tree fruit production areas in Chelan and Yakima counties, respectively. With irrigation access, these locations could support tree fruit crops such as those found on adjacent parcels.

Locations #1 and 2 are located in Northwest Washington and are within Brassica Seed Production District in a major location of vegetable seed production. These locations could be suitable for vegetable seed

production subject to the requirements outlined in RCW 15.51 (see Appendix E for more details).

Agritourism and Public-facing Agriculture

Agricultural areas, often due to their location near population centers or in areas already dedicated to recreational use, may be particularly suitable for agritourism. In other examples, public-facing forms of agriculture are possible, including those that allow for some level of public use or interaction. Examples of these can include, but are not limited to, community gardens, public orchards, farm incubators, and demonstration gardens.

In this analysis, one location, Location #5, was located in the boundaries of Fife. Location #9, while located outside of any municipal boundaries, is located in close proximity to Puyallup and Sumner and sees public use as a walking trail.

Location #8 is located just across from the Dungeness Old Schoolhouse, while Location #10, the Morse Creek Wildlife Area, contains a trailhead for the Olympic Discovery Trail and educational signage about the surrounding habitat. Due to the high level of public visitors, these locations could be prime for educational opportunities for agriculture or agrivoltaics, despite their small area.

Agrivoltaics

In addition to agricultural suitability, WSDA assessed the potential of each parcel for the development of agrivoltaics projects, defined as dual for agriculture and solar energy generation.

A previous report conducted by the WSU Energy Program, *Least-Conflict Solar Siting on the Columbia Plateau*, examined the suitability for utility-scale agrivoltaics across the Columbia Basin[14]. In that analysis, rankings were determined for Solar Development Suitability, Farmland Value, Ranchland Value, and Conservation Value, on a 500 by 500-meter grid across the study area in the Columbia Basin. Only four of the 11 candidate locations from WSDA's analysis overlapped with the study area. The rankings for these candidate locations can be found in Appendix F.

In order to assess the full range of candidate locations identified across the state, a modified approach was required. The WSDA worked with WSU Energy and the Conservation Biology Institute to adapt the methods described in their original report. Each candidate location was individually assessed for agrivoltaics potential.

PHOTOVOLTAIC GENERATION POTENTIAL

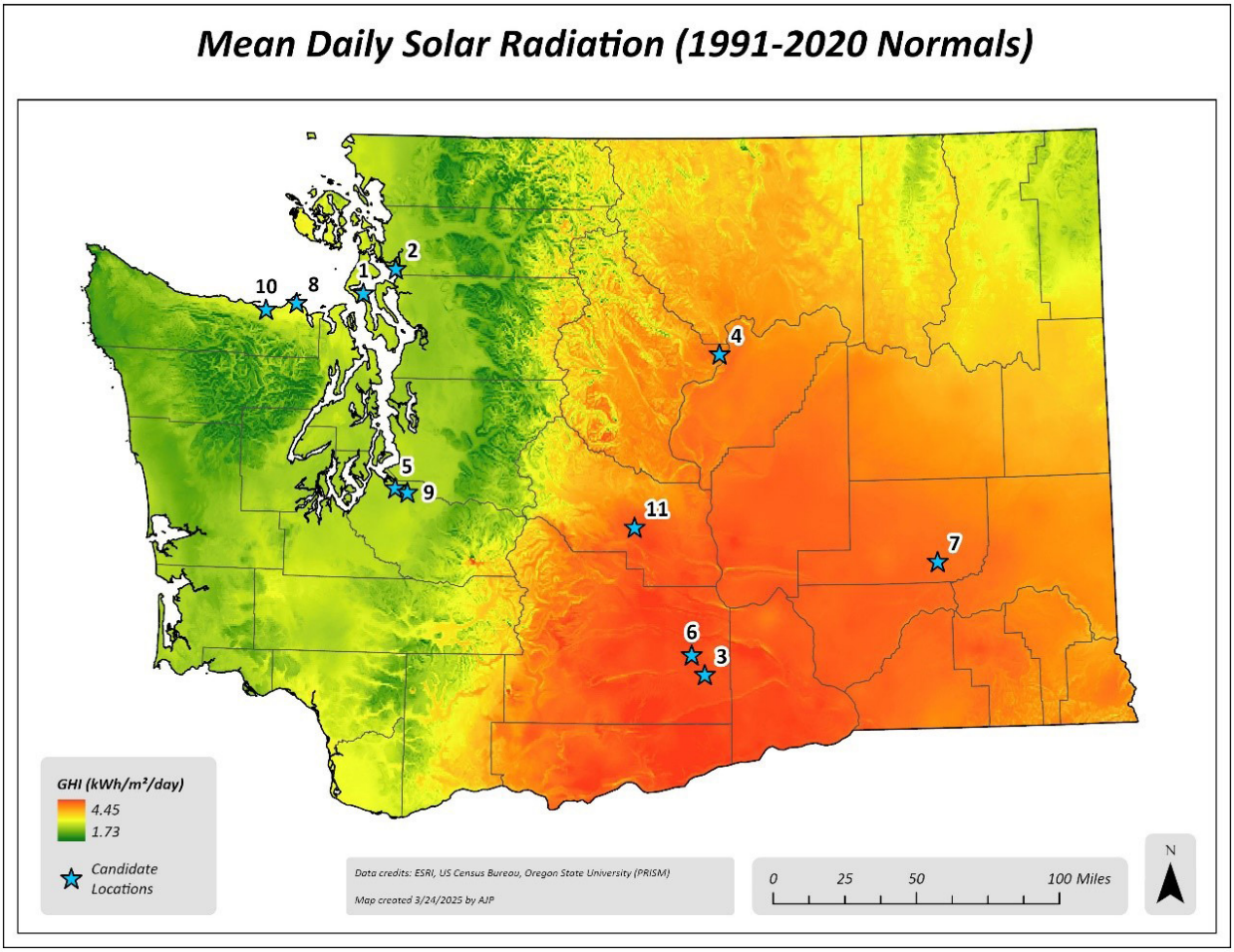


Figure 19. Mean solar daily radiation for Washington state.

Due to climatic variation across the state, there are significant differences in the generation potential from agrivoltaics (Figure 19). Candidate locations in Central and Eastern Washington had Global Horizontal Irradiance (GHI) values ranging from 4.21-4.36 kWh/m2/day, while values in Western Washington were considerably lower, ranging from 3.46-3.72 kWh/m2/day (Table 3).

Statewide values ranged from 4.45 to 1.73 kWh/m2/day, with an overall mean of 3.59 kWh/m2/day.

Region	Location	Global Horizontal Irradiance (kWh/m2/day)*	Mean Daily Solar Radiation (kWh/m2/day)**
Central WA	3	4.36	4.08
	6	4.33	4.09
	11	4.30	4.07
	4	4.21	3.96
Eastern WA	7	4.26	3.99
Western WA	8	3.72	3.36
	5	3.61	3.23
	10	3.60	3.35
	9	3.53	3.23
	1	3.47	3.34
	2	3.46	3.22

Table 3. Solar radiation measures for each candidate location.

**Source: National Solar Radiation Database, NREL*

***Source: PRISM, University of Oregon*

Utility-Scale Agrivoltaics

No locations in this analysis had sufficient open acreage for large-scale utility-scale solar agrivoltaics. Acreages of 100 acres or more are typically needed for such installations.

Other locations had smaller amounts of land available but still had generative capacity above 1 MW, generally considered as the threshold for utility-scale solar installations. Of these, Locations #1 and #3 were most suitable. Other locations were less suitable due to their habitat value or distance from grid infrastructure (Table 4).

Region	Location	Open Space Acreage	Assessment
Central WA	3	7.9	Installation capacity of >1 MW. Nearest transmission line and substation is approximately 2 miles away.
	4	23.5	Potential capacity of 2-4 MW. Nearest connection to power grid is located across the Columbia River making this location an unsuitable candidate for agrivoltaics. Installation would be compatible with pasture, but not for orchards due to tree canopy height.
Western WA	1	24.1	Potential for 2-4 MW installation. Main powerlines runs through the parcel, making connections in this feasible.
	2	6.9	Due to the distance to transmission lines and nearest substation, connection costs could be prohibitive. Potential capacity of >1 MW.

Table 4. Assessment of candidate locations for utility-scale agrivoltaics.

Community-Scale Agrivoltaics

For locations with <1 MW, the most likely opportunity for agrivoltaics would be community-scale solar. These represent smaller installations with more flexible siting requirements. For example, one of the major factors considered in the *Least-Conflict Solar Siting on the Columbia Plateau* analysis was distance to substations and transmission lines[14]. Smaller installations are often able to tie directly into the local power grid due to their lower generation capacity. The open space acreage for each location and an assessment for agrivoltaics potential is provided in Table 5.

Region	Location	Open Space Acreage	Assessment
Central WA	6	3.9	Close to powerlines. Installation capacity <1 MW.
	11	0.5	Unsuitable; small area unlikely to warrant connection costs.
Eastern WA	7	4.0	Unsuitable (high habitat value)
Western WA	8	0.67	Marginal due to small size; some potential as demonstration site.
	5	2.1	Small potential capacity (<1 MW) but close proximity to substation and power make location area feasible. Potential demonstration site.
	10	0.8	Marginal due to small size; some potential as demonstration site in line with existing educational and recreational emphasis.
	9	0.14	Unsuitable due to small size, connection cost, and shaded nature of site. Most appropriate use of site (riparian buffer) would reduce solar insolation at location.

Table 5. Assessment of candidate locations for community-scale agrivoltaics.

Agrivoltaics Possibilities

WSU Energy's report, *Dual-use Solar Opportunities for Washington State*, provides a detailed overview of the various forms of agrivoltaics involving crops and livestock[15]. While this report can provide a more detailed assessment of currently deployed forms of agrivoltaics and areas of active research, a small overview is provided in here in context of the opportunities provided by candidate locations identified in this analysis.

Crop Production

Use of agrivoltaics is particularly dependent on crop selection and regional climate. Panels can provide unique microclimates that differ from the prevailing climate. If paired with particular crops that can exploit those microclimates, this could create opportunities. For example, shade in hotter, drier climates could allow for cultivation of heat-sensitive crops and reduce heat stress.

In other situations, particularly in locations with high precipitation, solar panels would intercept rainfall. This would create dry areas beneath the panels, diverting water to adjacent areas. This could create varied microclimates that modify the usual growing conditions for a location. Depending on the location, this could open opportunities for crops that may be well matched for these modified conditions. In other cases, these changes may introduce specific management concerns, such as the need for additional irrigation in an already dry climate.

At the smaller scale, such as for community-facing agriculture, solar panels could be mounted on community garden sheds, vegetable washing stations, and other similar infrastructure. Small installations could also provide educational opportunities to the public about agrivoltaics. Multiple candidate locations in this report are already serving a public educational or recreational role and would be particularly suited for this type of installation.

Grazing

Certain candidate locations were most suitable for grazing, either as rangeland or pastures. Other locations can support crops, but in the absence of irrigation, would be most suitably used for dryland grazing. Agrivoltaics with livestock often take the form of grazing rows in between installed panels, where livestock mow vegetation and reduce the need for regular mowing.

Additional opportunities could be available especially at a smaller scale in the form of roof-mounted panels on barns or livestock shelters, or covering watering areas. In remote locations where grid power is not readily available, this could also provide a source of power for any agricultural wells installed for stockwater purposes.

Solar Installations over Irrigation Canals

Select parcels were adjacent to or crossed by irrigation canals. While these parcels were disqualified for agricultural use for various reasons, they may present a unique opportunity for solar energy production. One form of agrivoltaics involves placing solar panels over irrigation canals. This helps to shade the canals and reduce evaporative water loss while simultaneously generating energy.

All 93 state-owned surplus parcels were screened for this opportunity. Three candidate parcels were found in Central Washington in Kittitas and Yakima counties (Table 6).

Parcel ID	County	Irrigation District	Description
142533	Kittitas	Cascade Irrigation District	Cascade Canal runs through the center of the property.
770133	Kittitas	Unclear; potentially both Cascade Irrigation District and Ellensburg Water District	The edge of the parcel boundary touches and may slightly overlap the Town Canal.
22101424001	Yakima	Sunnyside Valley Irrigation District	Parcel is directly north of the Sunnyside Canal.

Table 6. Parcels adjoining or containing irrigation canals.

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Appendix A: Definitions

Term	Definition
Sodic soils	Soils characterized by a high sodium content. Such soils have low infiltration and poor soil structure.
Publicly oriented agriculture	Forms of agriculture that are accessible to and/or serve the public. Examples include community gardens or orchards,
Agritourism	The dual use of land for agriculture and tourism.
Digital Surface Model	A 3-D representation of the surface of the earth. Includes the ground and any objects present on the ground such as trees, buildings, etc.
Digital Terrain Model	A 3-D representation of the ground surface.
LIDAR	A laser-based method of remote sensing used to detect distances to the earth. LIDAR data is used to generate Digital Surface Model and Digital Terrain Model datasets.
Rangeland	Land that is grazed by livestock and that typically features native vegetation. Less intensively managed than pastures.
Agrivoltaics	The dual use of land for agriculture and solar energy generation.
Easement	Easements are nonpossessory property rights. These come in many different forms and can allow or prevent particular uses of a property.
Dryland agriculture	Forms of agriculture that can occur without any irrigation.
Geographic Information Systems	A computer-based system that allows for the display, storage, analysis, and visualization of geographic data.

Appendix B: Candidate Locations

Location Number	County	Agency	Most Suitable Uses
1	Island	WDFW	Grains, pasture or hay, vegetables*, berry crops*, seed production*
2	Skagit	WDFW	Grains, pasture or hay, potatoes, vegetables*, berry crops*, seed production*
3	Yakima	WDFW	Field corn, alfalfa
4	Chelan	Parks and Recreation	Rangeland, tree fruit*
5	Pierce	WDFW	Grains, pasture or hay, vegetables*, berry crops*
6	Yakima	WDFW	Tree fruit, hops
7	Adams	WDFW	Rangeland
8	Clallam	WDFW	Publicly oriented agriculture
9	Pierce	WDFW	Multi-purpose riparian corridor
10	Clallam	WDFW	Publicly oriented agriculture
11	Kittitas	WDFW	Pasture or hay land

**Only if irrigation is available.*

Appendix C: Parcels Eliminated from Consideration

Parcel Number	County	Agency	Reason for elimination
10484300000	Benton	WDFW	No public access to the parcel.
10858202001	Benton	WDFW	Parcel largely consists of a roadway.
033021230080	Clallam	WDFW	Parcel is zoned as R4-8 (Single Family Residential). The allowed uses chart in Sequim Municipal Code 18.20.050 for this zone does not include agriculture.
0420234134	Clallam	WDFW	Parcel is forested. Neighboring parcels do contain Open Space where agriculture could potentially occur.
226493000	Clark	Parks and Recreation	Only a small section of the parcel located south of NE Palrmer Rd is subject to surplus. This section is forested and minimal in size.
WK2609002	Cowlitz	WDFW	Parcel is predominantly comprised of gravel banks and the Toutle river. A small section of land on Toutle Park Rd contains mostly trees and a minor area of open ground.
25273620001	Douglas	Parks and Recreation	Parcel is inaccessible from Hwy-2 due to a steep ravine and stream on the northern end.
110065001	Grant	WDFW	The parcels boundary lies almost entirely within Moses Lake.
727000800000	Grays Harbor	Parks and Recreation	Parcel is on the coastline and is mostly comprised of sand dunes and other beach vegetation. Unsuitable for agriculture.
791521801300	Grays Harbor	Parks and Recreation	Parcel is forested and remote.
791521802400	Grays Harbor	Parks and Recreation	Parcel is forested and remote.
102502900900	Grays Harbor	DNR	Small urban parcel in Westport, WA. Heavy tree cover. Agriculture is not listed as an allowed use for the Mixed Use/Tourist Commercial District zoning category (Westport Municipal Code 17.20A.030).

102503000100	Grays Harbor	DNR	Small urban parcel in Westport, WA. Heavy tree cover. Agriculture is not listed as an allowed use for R-1 zoning category (Westport Municipal Code 17.16.020).
102503001600	Grays Harbor	DNR	Small urban parcel in Westport, WA. Heavy tree cover. Agriculture is not listed as an allowed use for R-1 zoning category (Westport Municipal Code 17.16.020).
2041000	Jefferson	WDFW	Parcel is located on Destruction Island and has no easy access to the public.
601181002	Jefferson	Parks and Recreation	Parcel is forested
999007201	Jefferson	DNR	Parcel is forested.
0203100340	King	WDFW	Parcel is forested. Southern section of parcel is constituted and bisected by Ames Creek.
3221079003, 3221079004	King	Parks and Recreation	Both parcels are contiguous. Both parcels are mostly forested outside of a portion of open area under powerlines.
3339400495	King	WDFW	Parcel is forested.
9348900510	King	DNR	Parcel is forested.
232701-2-027-2002	Kitsap	Parks and Recreation	Only the small, forested portion of land east of Hwy-3 is open for being surplused.
362502-2-006-1005, 362502-2-005-1006, 362502-2-004-1007	Kitsap	WDFW	All three parcels are contiguous and are forested.
362502-2-018-1001, 362502-2-019-1000, 362502-2-020-1007	Kitsap	WDFW	All three parcels are contiguous and are forested.
142533	Kittitas	WDFW	No public access to the parcel.
770133	Kittitas	WDFW	Only a few open areas without hydric characteristics.
024934	Kittitas	WDFW	No public access to non-wetland portions of parcel. These areas appear to have been recently farmed from a review of recent satellite imagery. If access could be established, this section of parcel could support agriculture.
262933	Kittitas	Parks and Recreation	Parcel no longer considered surplus by agency.
019263002001	Lewis	WDFW	Parcel is forested.

122295100004	Mason	WDFW	Parcel is forested.
222220063050	Mason	WDFW	Parcel is extremely narrow, containing either beach or forest.
320023300010, 320023360020, 320027590081	Mason	WDFW	Parcels are all adjacent and are forested.
421159999999	Mason	WDFW	Parcel is comprised of multiple non-contiguous and highly narrow subsections. The northern sections are covered by N Sunnyside Rd. The southern portion is comprised of a dirt road and a portion of the Skokomish River.
3322210006	Okanogan	WSDOT	No public access to the parcel.
3427180005	Okanogan	WSDOT	No public access to the parcel.
71015063011	Pacific	Parks and Recreation	Small urban parcel in South Bend, WA. Heavy tree cover. Agriculture is not a listed allowed use for the Downtown & Commercial District zone category (South Bend Municipal Code 15.20.090).
433501340001	Pend Oreille	WDFW	Hilly and partially forested. No public roads to parcel.
433931500001	Pend Oreille	WDFW	Parcel is isolated and only accessible through forest roads.
443227039008	Pend Oreille	WDFW	No public access. Potential encroachment.
0419043042	Pierce	WSDOT	Parcel is forested.
5345000140	Pierce	DNR	The parcel is forested.
P35367	Skagit	WDFW	Parcel is separated from Josh Wilson Rd by Joe Leary Slough.
P116871	Skagit	WDFW	Small, irregularly shaped parcel. Appears to be for access purposes and includes bridge across canal.
P15367	Skagit	WDFW	Parcel is largely forested or wetlands.
30060300401200	Snohomish	WDFW	Parcel is forested.
48255.9001	Spokane	WDFW	Parcel is almost entirely forested.
26304.901	Spokane	Parks and Recreation	No public access to the parcel.
5630300	Stevens	Parks and Recreation	Parcel is forested
8000339	Stevens	WDFW	Lakeside parcel. Predominantly forested and covered by dirt roads.

13615420000	Thurston	WDFW	Parcel, known as the Glacial Heritage Unit, has historic listings of ESL listed species and is the focus of conservation efforts. Area has restricted public access.
13620430100	Thurston	WDFW	Parcel is mostly forested or wetland.
21706210200	Thurston	WDFW	Majority of parcel located within Lake St. Clair.
85411100500	Thurston	DNR	No public access from Pendleton St. Privately owned driveway on north end could provide access if an easement exists. Parcel is fenced in along with private property to the east.
3902034940980000	Whatcom	WDFW	Parcel is almost entirely forested.
4001284650850000	Whatcom	WDFW	Trees and brush along only road access (Ham Rd.) prevent access to the minimal non-wetland open areas of parcel.
4003143301410000	Whatcom	WDFW	Parcel is heavily forested.
4004061381990000	Whatcom	WDFW	Significant forest cover. Only the southern end of the parcel is accessible; the parcel is bisected in half by a stream.
3803313170570000	Whatcom	DNR	Parcel is forested.
181527-24001	Yakima	WDFW	Lack of access.
20101022455	Yakima	DNR	Parcel is subject to heavy dumping. Partial tree cover on parcel.
20101023426	Yakima	DNR	Parcel considered unsuitable for surplus by agency.
22101424001	Yakima	WDFW	No public access to the parcel. Majority of parcel is forested or has wetlands and is unsuitable for agricultural use.

Appendix D: Marginal Parcels

Parcel Number	County	Agency	Reason for marginal status
0101025003100	Lincoln	DNR	Parcel is bisected lengthwise by intermittent stream with high slopes.
122171400020	Mason	WDFW	Shoreline parcel that is predominantly forested.
433501340001	Pend Oreille	WDFW	Parcel is intermittently forested and has no clear route for public access.
02301.9002	Spokane	WDFW	Parcel has intermittent tree cover and is bisected by a creek.
17364.0502	Spokane	Parks and Recreation	Parcel consists of two noncontiguous portions. The southern section is heavily forested. The northern section is intermittently forested.
25101.0607	Spokane	Parks and Recreation	Parcel consists of two noncontiguous portions. Both are intermittently forested.
25102.1101	Spokane	Parks and Recreation	Parcel consists of two irregularly shaped and noncontiguous sections. Neither have clear access and are heavily to intermittently forested.
25102.9055	Spokane	Parks and Recreation	Intermittently forested. Adjacent to northern portion of 25102.1101. No clear path for public access.
25101.1402	Spokane	Parks and Recreation	Heavily forested.
5629600	Stevens	Parks and Recreation	Parcel has significant tree cover. SSURGO data indicates that rock outcrops underlie most of the park.

Appendix E: Brassica Seed Production Districts and Crucifer Quarantine Area

Within Washington state, five counties in Western Washington and twenty counties in Eastern Washington fall within regulated areas under WAC 16-301-490 to -580 (Figure 20). These regulations aim to protect crucifer vegetable seed crops by preventing the spread of black leg (*Xanthomonas campestris pv. campestris*) and black rot (*Phoma lingam*). They also guard against the establishment weedy persistent Brassica populations by prohibiting the planting of "dormant" seed.

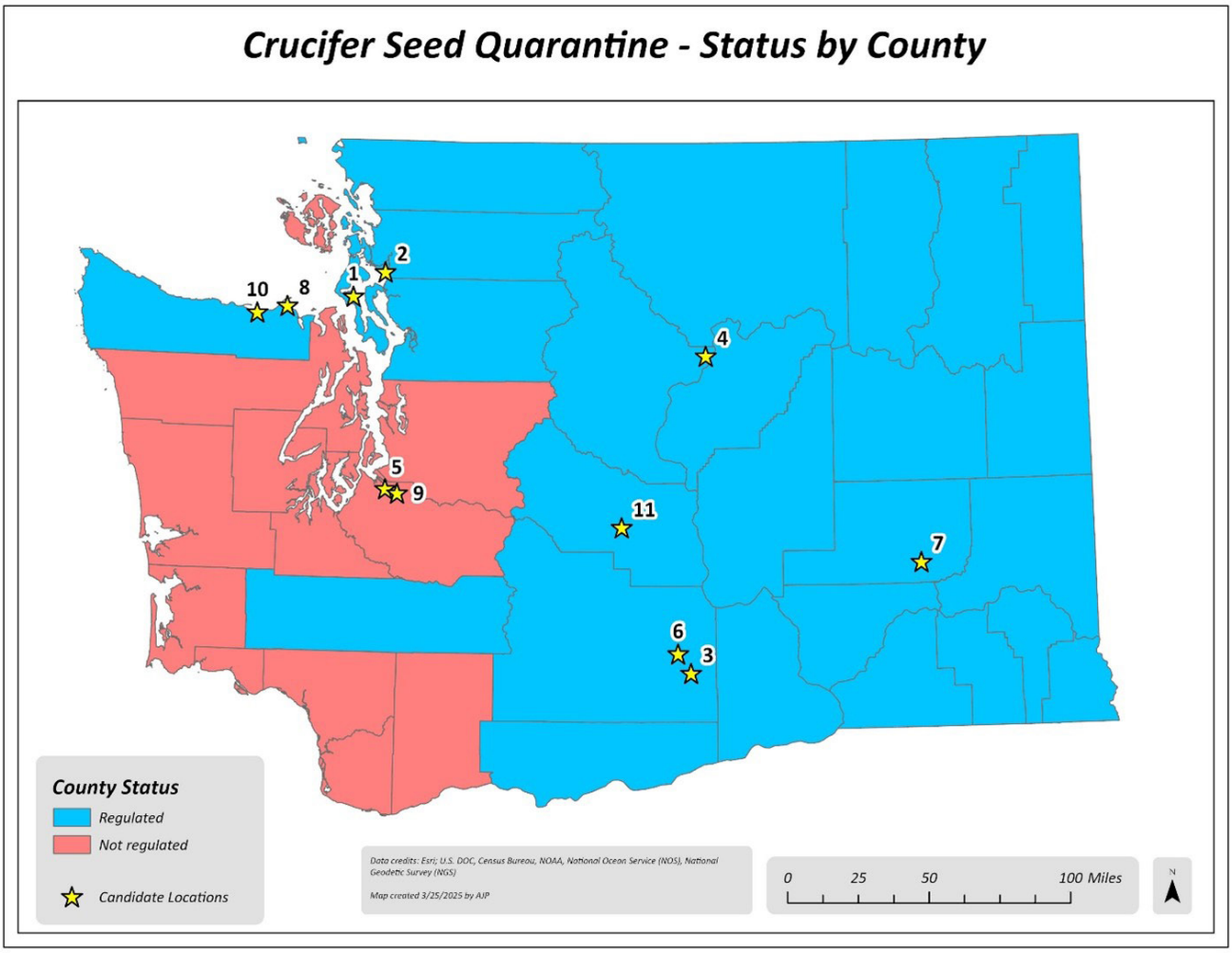

Figure 20. Counties by status under the Crucifer Seed Quarantine.

These regulations are particularly relevant to locations 1, 2, and 8, and 10, which are located within a major Brassica seed production zone in northwest Washington. This production area has been formally designated as Brassica seed production district #1 in WAC 16-326, which contains additional regulations would also apply to any on-site Brassica production at these locations.

All five candidate locations east of the Cascades were also within regulated counties under the Crucifer Seed Quarantine. The most likely scenario where these regulations would be relevant is where irrigation allows for growing cruciferous vegetable crops or cover crops.

Appendix F: Candidate Location Rankings from Least-Conflict Solar Siting on the Columbia Plateau Report

Four of the eleven candidate locations identified in this analysis overlapped with the analysis area of the Least-Conflict Solar Siting on the Columbia Plateau Report. That analysis created a 500 meter x 500 meter grid ranking locations for their suitability for solar development, farmland value, ranchland value, and conservation value.

The scores of each grid cell that overlapped each location is provided in the table below. Location 3 overlapped multiple grid squares with different rankings for Farmland Value. A majority (81%) of the parcel overlapped a grid square with high farmland value, while 19% overlapped a grid square with very high farmland value.

Location ID in WSDA report	Categories in WSU's Least-Conflict Solar Siting Report			
	Solar Development Suitability Rank	Farmland Value Rank	Ranchland Value Rank	Conservation Value Rank
3	High	High (81%), Very High (19%)	Slightly Low	Very Low
6	High	Very High	Slightly High	Very Low
7	Slightly High	Slightly High	Slightly Low	High
11	Very High	Very High	Moderately High	Slightly High