Management Plan for
North Bay Natural Area Preserve

(DRAFT – April 2025)

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2025 Management Plan for
North Bay Natural Area Preserve

Why Create a Management Plan for North Bay NAP?

The North Bay Natural Area Preserve (NAP) Management Plan provides functional guidelines for the site manager and other Washington State Department of Natural Resources (DNR) staff, as well as conservation information for partners, neighbors, interested parties and the public. This plan helps to identify priorities for management of natural features and access at the site. The plan demonstrates how DNR is applying statutory and policy requirements to specific management activities for the DNR-managed area within the preserve. The management objectives, actions and provisions outlined in this plan apply only to the DNR-owned lands within the preserve.

How Might the Management Plan Change Over Time?

Once approved by DNR, the plan guides future conservation land management actions within North Bay NAP, in combination with any related implementation prescriptions or more detailed site inventory or analysis later adopted as appendices to this plan. Plans will be periodically updated when site conditions change significantly or when a site boundary is updated. Appendices 2 and 3 are “living” work plans and will be updated by DNR from time to time as changes arise with the routine management of the site and as projects are implemented or economic factors (such as inflation) cause changes. Future updates to Appendices 2 and 3 will be in conformance with the policy guidance and land management goals of the plan, including any future adopted appendices.

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Glossary of Acronyms

DNR	Department of Natural Resources
NAP	Natural Area Preserve
NRCA	Natural Resources Conservation Area
RCW	Revised Code of Washington
WAC	Washington Administrative Code
HCP	Habitat Conservation Plan
SEPA	State Environmental Protection Act
GMA	Growth Management Act
GEO	Governors Executive Order
CPL	Commissioner of Public Lands
WRIA	Watershed Resource Inventory Area
WDFW	Washington Department of Fish and Wildlife
EGC	European Green Crab
WWRP	Washington Wildlife and Recreation Program
YEOP	Youth Education and Outreach Program (DNR)
EIA	Ecological Integrity Assessment
EO	Element Occurrence
DAHP	Department of Archaeological and Historic Preservation

General Natural Area Information

North Bay Natural Area Preserve Location

North Bay Natural Area Preserve (NAP) (Figure 1a,b,c) is located along the northern shore of the North Bay of Grays Harbor in Grays Harbor County. It extends from the tide flats of North Bay on the south, inland to State Route 109, and forested lands on the north. The preserve is bounded on the east and west sides by single family residences, agriculture and undeveloped land. The preserve is located in:

T: R: S: Most of Section 18, and a portion of the southwest ¼ of section 17, Township 18 North, Range 11 West, and a portion of the eastern ½ of Section 13, Township 18 North, Range 12 West, Grays Harbor County, Willamette Meridian.

Quad: Copalis Crossing, Washington, 7.5 minute Quadrangle Map (U.S.G.S 1973)
Ecoregion: Northwest Coast

Figure 1a. North Bay Natural Area Preserve Approved Boundary and Ownership

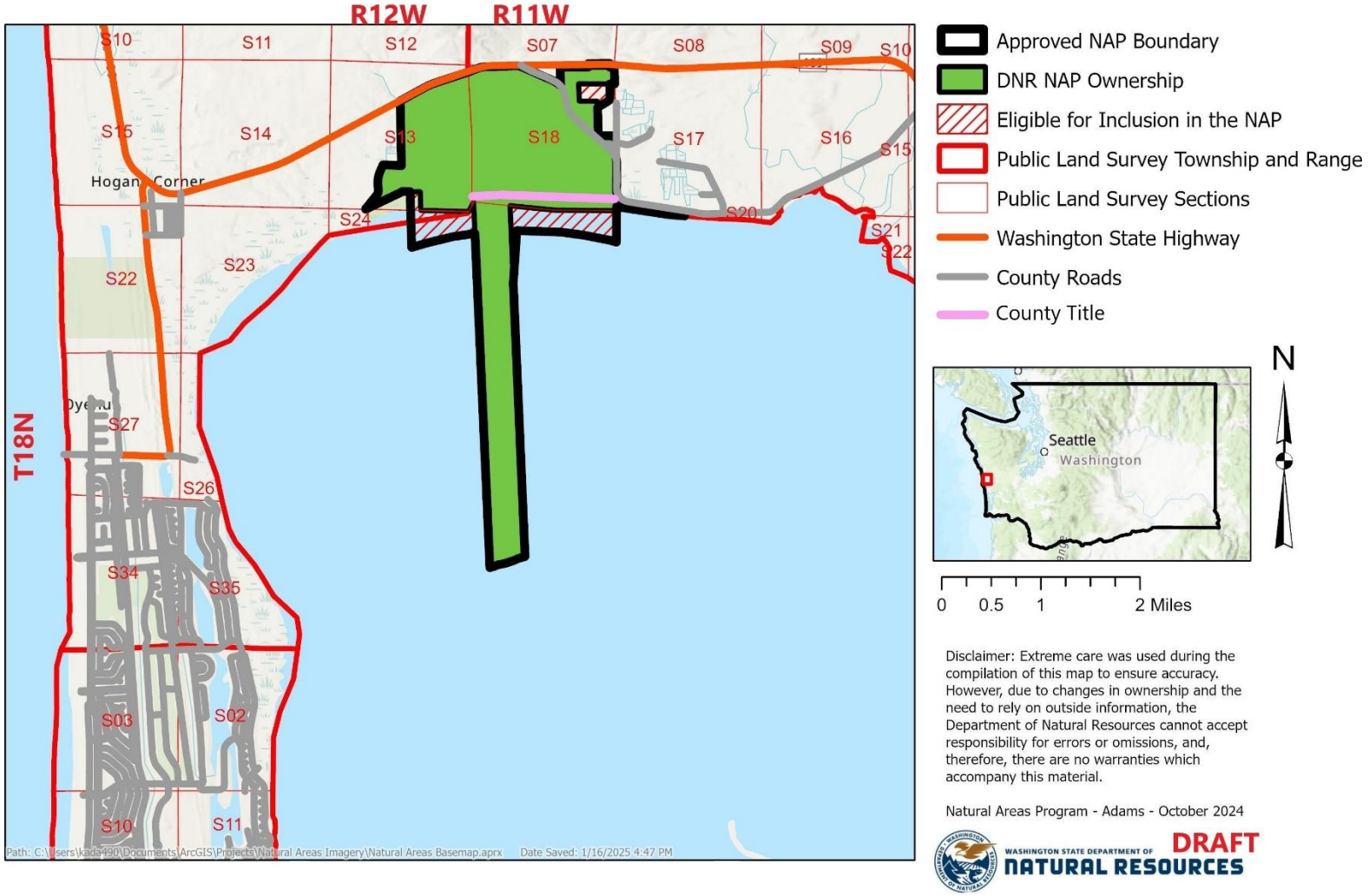
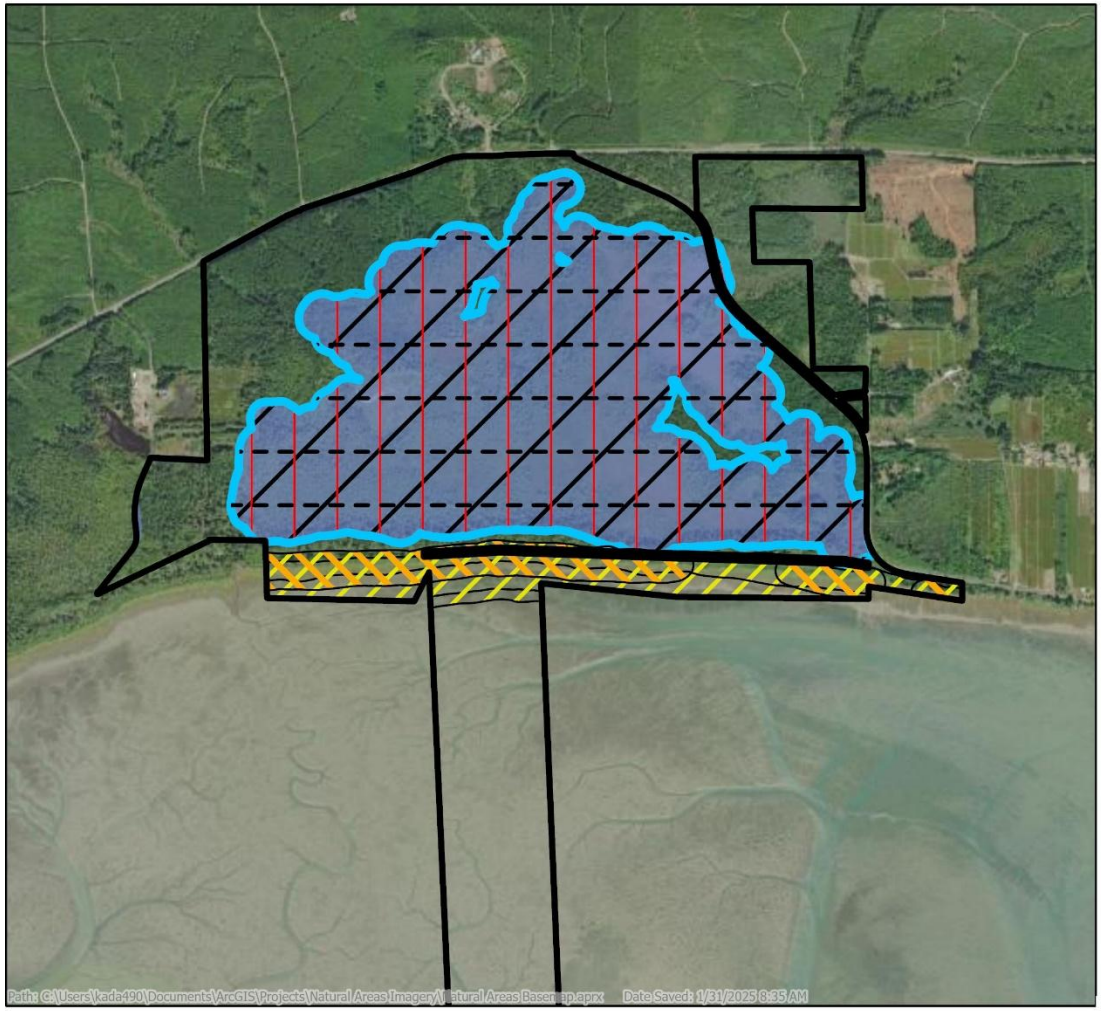


Figure 1b. Primary features protected by the establishment of North Bay Natural Area Preserve in 2002



DNR NAP Ownership

Bog Labrador-tea - Sweetgale / Sphagnum spp. Shrub Bog

Shore Pine - Western Redcedar / Sweetgale / Sphagnum spp. Treed Fen

Sweetgale - (Sitka Sedge, Northwest Territory Sedge) Fen

Sweetgale / Great Burnet / Sphagnum spp. Fen

Sweetgale / Skunkcabbage Shrub Swamp

Tufted Hairgrass - (Lyngby's Sedge - Saltgrass) Salt Marsh

Tufted Hairgrass - Pacific Silverweed Salt Marsh

N

0 0.23 0.45 0.9 Miles

Disclaimer: Extreme care was used during the compilation of this map to ensure accuracy. However, due to changes in ownership and the need to rely on outside information, the Department of Natural Resources cannot accept responsibility for errors or omissions, and, therefore, there are no warranties which accompany this material.

Natural Areas Program - Adams - October 2024

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WASHINGTON STATE DEPARTMENT OF NATURAL RESOURCES

Figure 1c. Primary features protected by the establishment of North Bay Natural Area Preserve in 2002 (Map 1 of 2)

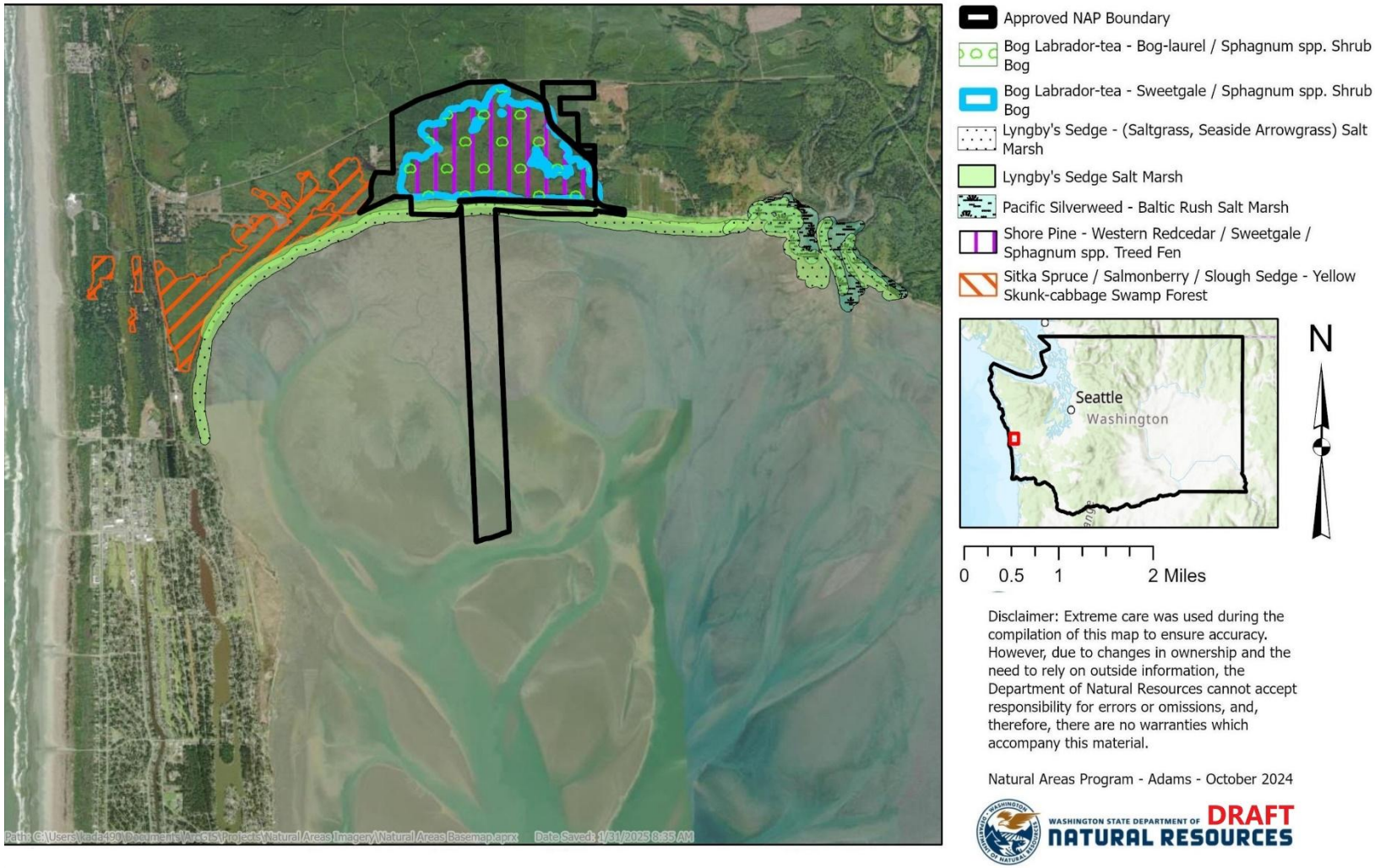
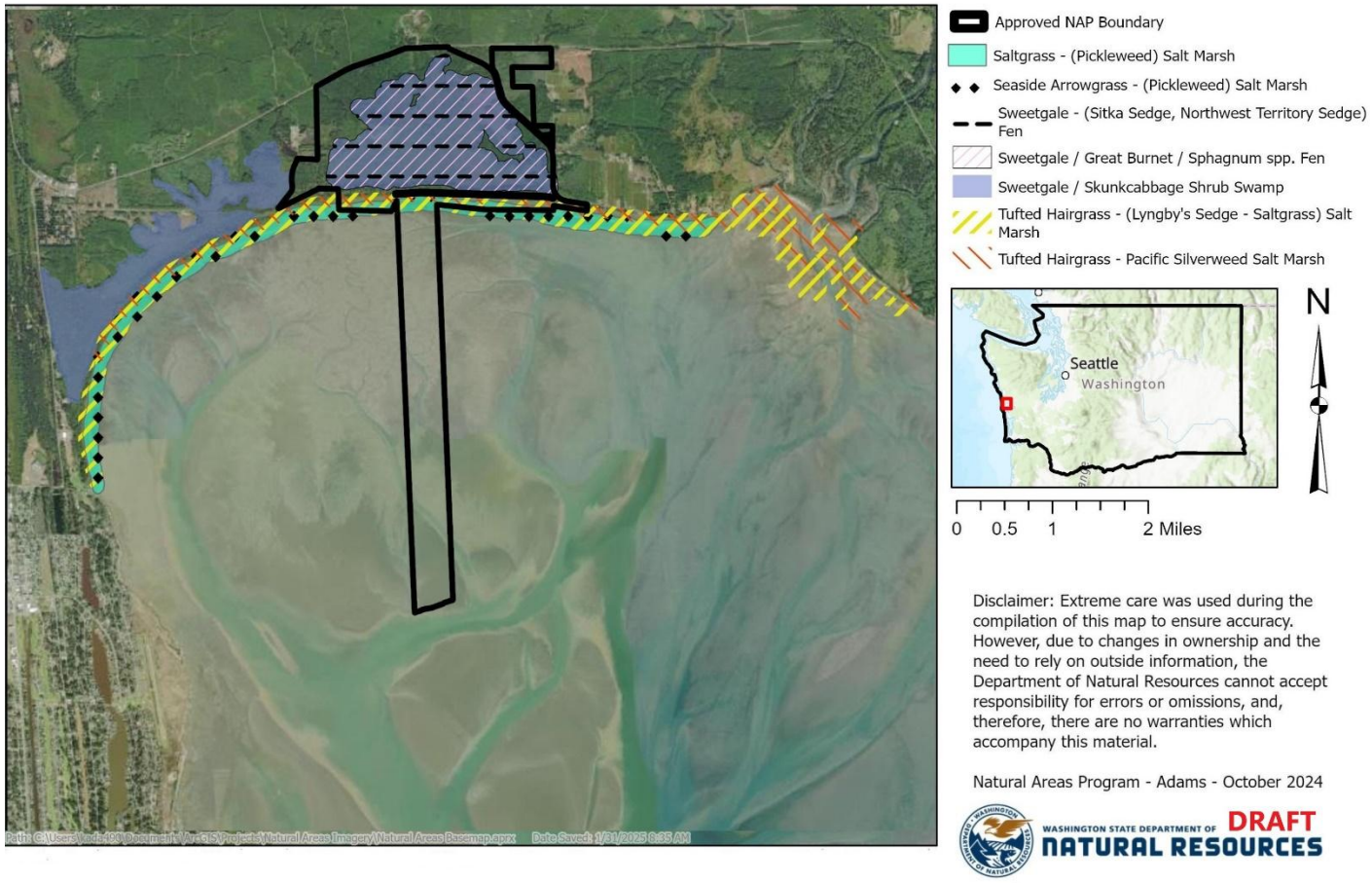


Figure 1d. Landscape context and extent of rare ecosystems contiguous with North Bay Natural Area Preserve (Map 2 of 2)



Natural Area Designation

This site was designated in 2002 as a natural area preserve (NAP) (Figure 1a, 1b) under Revised Code of Washington (RCW) Chapter 79.70, the Washington Natural Area Preserves Act. The NAP is owned and managed by the Washington State Department of Natural Resources.

Natural area preserves (NAPs) are established to protect the highest quality remaining examples of natural Washington's biodiversity. The collection of natural areas across the state (referred to as the statewide register of natural areas) provides protection for the best remaining examples of each of Washington's native ecosystems and rare species populations, as a way of preserving our natural heritage. Designated natural areas are intended to provide adequate representation of targeted species and ecosystems, provide opportunities for research and education, and contribute to the overall conservation of those species and ecosystems. Sites generally become candidates for NAP status with the discovery of a place that supports exemplary examples of Washington's ecosystems or is extremely valuable for the continued existence of a rare species. Sites are assessed for their overall ecological condition and long-term conservation viability, in comparison with other known examples of the same species or ecosystem.

The preserve boundary (Figure 1a) represents the area within which DNR can purchase private lands from willing sellers. The boundary contains approximately 1,415.20 acres (upland and wetland), with 1,230.95 acres currently owned by DNR (including 372.5 acres of state-owned aquatic lands).

Overview of Natural Area Features

This NAP protects one of the highest quality coastal freshwater, sphagnum bog, and fen systems remaining in Washington, as well as high quality coastal saltmarsh. The site supports the State-candidate Makah Copper Butterfly (*Tharsalea mariposa spp.*) species and the State Sensitive Olympic Mudminnow (*Novumbra hubbsi*) and contains seven wetland plant communities that are in excellent condition (Figure 1b, Table 1). The preserve also protects 5 additional sensitive plant communities (Figure 1c, 1d, Table 1), which extend outside of the NAP. The preserve also supports shorebird and waterfowl concentration areas identified as a priority habitat in Washington Department of Fish and Wildlife's Priority Habitats and Species web map (PHS on the Web, accessed January 2025), and a marine mammal pupping and haulout site (Jeffries et al, 2000).

North Bay NAP Management Planning Process

The North Bay NAP Management Plan provides functional guidelines for the site manager and other DNR staff, as well as conservation information for neighbors, interested parties and site visitors. The plan helps to identify priorities for management of natural features and access to the site. The plan demonstrates how the Natural Areas Program is applying policy and statutory requirements to specific management activities.

Tribal governments of the Quinault Indian Nation, the Hoh Tribe, and the Chehalis Tribe were invited to participate in the planning process for the development of the North Bay NAP Management Plan.

Limits of the North Bay NAP Management Plan

The management objectives, actions and provisions outlined in this plan apply only to the DNR-managed lands. DNR will implement the management actions as resources become available. The basis of future budget requests for maintenance, monitoring and operations will reflect the objectives and actions of this plan. To develop the management plan for the NAP, DNR staff conducted ecological integrity assessments and inventories, and collected comments and input from area residents, agencies and Tribes.

Agency Overview

The Washington State Department of Natural Resources (DNR) manages 5.7 million acres of forest, range, agricultural, commercial, conservation, and aquatic lands in trust for the people of Washington. State-owned upland trust lands are managed to produce revenue for various trust beneficiaries, including schools, state facilities and, in some cases, local government services. Forested trust lands within the range of the Northern Spotted Owl are managed under a multi-species habitat conservation plan (HCP). This HCP affords incidental take under the Endangered Species Act for permitted management activities while providing fish and wildlife habitat, clean and abundant water, and access to outdoor recreational opportunities. The HCP makes ecosystem-based recommendations to guide management in a way that protects habitat for at-risk species. The multispecies conservation strategy outlined within the HCP is directed at providing habitat for animal species of concern as well as unlisted animal species and special landscape features identified as uncommon habitats or habitat elements. The conservation strategy identifies three objectives to provide habitat that:

- Maintains the geographic distribution of species that have small annual or breeding season home range areas.
- Contributes to the support of species with large home ranges on federal forest reserves, and
- Facilitates the dispersal of species among federal forest reserves.

DNR-managed natural areas within the range of the Northern Spotted Owl, including the North Bay NAP, are covered by the Trust Lands HCP. DNR-managed natural areas provide certain ecosystem services in the form of protection of specific types of habitat and conservation values that benefit the HCP's conservation objectives.

As of 2024, DNR manages 169,465 acres of conservation land at 97 natural areas throughout the state within the Natural Areas Program. Primary management objectives in DNR-managed natural areas include conservation, research and environmental education, as well as low-impact recreation where appropriate. DNR manages two types of conservation lands, Natural Area Preserves (NAPs, under RCW Chapter 79.70) and natural resources conservation areas (NRCAs, under RCW Chapter 79.71). DNR-managed natural areas contribute to meeting the requirements of the HCP for state-owned trust lands. NAPs and

NRCAs provide habitat and/or support one or multiple life stages for various species of concern protected under the HCP.

DNR Natural Areas Program
After a site has been designated and acquired as a natural area, it is managed by the DNR Natural Areas Program, which works to fulfill DNR policies and legislative provisions under RCW 79.70 and RCW 79.71. Management objectives seek to protect the primary natural features of each natural area and provide opportunities for research, environmental education, and other access that is compatible with conservation. Active management is necessary in many natural areas to ensure the long-term viability of the priority species and ecosystems protected within them.

State of Washington Natural Heritage Program
The Washington State Legislature recognized the need for a systematic and objective approach to guide inventory and protection efforts in order to protect natural features most at risk, and to efficiently focus scarce conservation resources. As a result, the Washington Natural Heritage Program was established in 1987 to provide a scientific approach to the process of identifying candidate sites for the natural areas system and to gather and share data about the state's imperiled species and ecosystems for environmental assessment, conservation planning, and land management purposes.

The program creates a biennial *State of Washington Natural Heritage Plan* that establishes the framework for a statewide register of natural areas and identifies conservation priority species and ecosystems for broader decision making.

Natural Heritage Advisory Council
The Natural Heritage Advisory Council, established by the Natural Area Preserves Act (RCW 79.70), advises DNR and other state agencies on the establishment and management of NAPs.

The Council reviews and approves or rejects natural area nominations, recommends sites to the Commissioner of Public Lands or the agency directors for Washington State Parks and Recreation Commission and the Washington Department of Fish and Wildlife, and works with DNR or other state agency staff to develop management plans for established Natural Area Preserves. The Council advises DNR on management practices for the preservation and maintenance of high-quality natural areas.

Applicable Local, State, and Federal Regulations

The following plans and regulatory processes may shape and limit activities or projects that are proposed within the North Bay NAP Management Plan.

The Washington Natural Area Preserves Act: (RCW 79.70) In passing the Natural Area Preserves Act, the Legislature recognized the need for, and benefits of, permanently designating areas explicitly for conservation of biodiversity and geological features,

research, and education. The Natural Area Preserves Act authorizes DNR to establish and manage a statewide system of natural areas (the Natural Areas Register) through cooperation with federal, state and local agencies, private organizations and individuals. These designated natural areas are intended to provide critical habitat for rare and vanishing species, conserve representative examples of the state's ecosystems, and ensure the availability of places for scientific research and education. Today, this system consists of lands managed by numerous federal and state agencies as well as private conservation organizations. Because they retain much of their natural character, these natural areas serve as reference sites to learn how ecosystems function and to document ecological change in relation to natural ecological processes thereby providing a baseline from which changes resulting from human-induced stressors or management activities (such as resource production or extraction, or outdoor recreation) can be compared.

The State Environmental Policy Act (SEPA): (RCW 43.21) SEPA requires governmental agencies to consider the environmental impact of proposals before making project decisions. Future management activities, which have the potential to impact the environment, such as development of educational or recreational facilities, may require SEPA review.

The Washington Growth Management Act (GMA): Passed by the Washington State Legislature in 1990, the GMA requires all urban counties and cities to develop and adopt comprehensive plans and regulations to implement these plans. The plans include county-wide planning policies, land use designations (including zoning), urban growth boundaries, etc. The plans are used to guide growth and development for residents living in unincorporated areas of the counties. The two areas of the Comprehensive Plan that are of primary relevance to North Bay NAP are zoning and the Critical Areas/Resource Ordinance (see below).

Grays Harbor County Critical Areas/Resource Ordinances: Grays Harbor County's Critical Areas Ordinance regulates land use within ecologically sensitive areas, including wetlands and riparian areas. The GMA requires the development of regulations, based on best available science, to protect critical environmental resources and avoid natural hazards. These "Critical Areas" include, but are not limited to, aquifer recharge areas (where water infiltrates to aquifers), geologic hazard areas (such as steep slopes prone to landslides), important wildlife habitats and species, frequently flooded areas (such as floodplains and surfacing groundwater) and wetlands.

Grays Harbor County Comprehensive Parks and Recreation Plan: Grays Harbor County has a Parks and Recreation plan with the objectives of assuring that publicly owned land that is appropriate for recreational use, especially state or federal land that may be declared surplus, be designated for recreational use. Natural Area Preserves are specifically designated by DNR for the conservation of key natural features. Allowable uses are generally focused on research and education, which may include low impact use where appropriate. The small size and sensitive nature of the wetland ecosystems in North Bay NAP requires careful consideration of allowable low impact use.

Grays Harbor County Zoning: The Grays Harbor County is a partially planning county with critical areas and natural resource lands plan updates slated for 2027. The land use designated by the county for the NAP is “Undeveloped Land”, and has been zoned for General Development, which allows agricultural/silvicultural practices and the development of a wide range of uses appropriate for rural areas at densities consistent with the available facilities and services and the physical characteristics of the area. The zoning district includes provisions to encourage compatibility between neighboring land uses. The property surrounding North Bay NAP includes resource lands designated as Forest Land along the northern border across SR 109. To the east and west, the properties are a mix of single family residential, agricultural, and undeveloped land.

Washington State Shoreline Management Act (SMA): The SMA requires all counties and most towns and cities with shorelines to develop and implement Shoreline Master Programs. The Act was passed by the Washington State Legislature in 1971 "to prevent the inherent harm in an uncoordinated and piecemeal development of the state’s shorelines." The SMA applies to all marine waters, streams and rivers with a mean annual flow of more than 20 feet per second, lakes 20 acres in size or larger, uplands within 200 feet landward from the edge of these waters, wetlands connected to these water bodies, and some or all of the 100-year floodplain. The SMA calls on counties and fully planning cities to develop Shoreline Management Programs that outline policies for shoreline use, environmental protection within shorelines, and access.

Grays Harbor County Shoreline Management Program (SMP): The Grays Harbor County SMP encourages the development of recreational opportunities on shorelines of the state in a manner that protects the shoreline ecological function. Their policy states that the location of recreational development should be consistent with the character of the shoreline and availability of utilities, facilities and services. The shoreline designation within the NAP is “Natural Environment” and includes the wetland footprint within the preserve. Natural Environments protect those areas that are relatively undisturbed, ecologically intact, or minimally degraded, and/or retain value because of their scientific, educational, or historic interest. The county policy (2.9.3 of the Shoreline Master Program, 2023) is to prohibit development or uses that degrade ecological functions or areas of scientific, educational, or historic interest. The county does allow activities to restore or improve ecological function, and development related to scientific, historical, cultural, educational, or research activities if the action results in no ecological impacts.

Washington Governor’s Executive Order (GEO) 21-02: GEO 21-02 requires agencies to consult with the Washington Department of Archaeology and Historic Preservation and affected Tribes on the potential impacts of a project on cultural resources. The order covers state-funded construction, restoration, or acquisition projects that will not undergo Section 106 review under the National Historic Preservation Act of 1966 (Section 106). It also includes grant and pass-through funding that will culminate in construction or land acquisitions.

National Historic Preservation Act (NHPA) Section 106: Any project at North Bay NAP with a federal nexus (such as funding through federal funds) will be required to undergo a

Section 106 consultation. In a Section 106 consultation, the federal agency serves as the lead agency for the purposes of the consultation process. Section 106 of the NHPA requires that each federal agency identify and assess the effects that their actions or projects may have on historic buildings, structures, districts, objects, and archeological sites. The Section 106 consultation process begins when the lead agency consults with the State Historic Preservation Officer and the affected Tribes. During the consultation, key determinations include 1) identification of historic and cultural resources that may be affected by the project, 2) determination of any adverse effects to these resources that may occur as a result of the project, and 3) how to resolve those adverse effects by avoiding negative adverse effects and mitigating for any adverse effects that will or do occur as a result of the project.

Commissioner of Public Lands Order on Tribal Relations #201029: The Commissioner's Order recognizes that Native American culture is characterized by an intimate relationship with natural resources and that DNR shares a commitment with Tribes in protecting natural resources. The order seeks to build inter-governmental relationships based on trust and mutual respect as guided by six principles: Respect for Sovereignty, Interdependence, Sustainable Use, Sound Science, Transparency, and Respect for Traditional Knowledge and Cultural Values.

The Watershed Management Act: The Watershed Management Act of 1998 (ESHB 2514, and RCW 90.82) required local governments to develop watershed plans for managing water resources and protecting existing water rights. The collaborative effort among city, county and state agencies resulted in the development of management policies and recommendations for water quantity, water quality, aquatic habitat and instream flow. Water Resource Inventory Areas delineate the management units, following ecological and political boundaries within a watershed. North Bay NAP is within the Lower Chehalis Water Resource Inventory Area (WRIA 22).

Salmon Recovery Funding Board (SRFB): In 1999 the Washington State Legislature developed the SRFB to allocate funding for salmon recovery. Volunteer organizations comprised of local organizations called "lead entities" contract with the Washington Department of Fish and Wildlife to set priorities for salmon recovery in the watershed. These priorities are presented annually to the SRFB for funding. The Chehalis Lead Entity evaluates salmon recovery priorities for 13 subbasins, including the Humptulips watershed and Grays Harbor Estuary where North Bay NAP is located.

Aquatic Species Restoration Plan: In 2007, the Chehalis Basin Strategy, guided by the Office of Chehalis Basin and the Chehalis Basin Board, took a two-pronged approach to protect people and wildlife from flood damage, planning for a resilient future in the face of climate change. The Aquatic Species Restoration Plan (ASRP Steering Committee, 2023) is the strategic component developed to protect and restore aquatic habitat in the basin for the benefit to people and wildlife, and to restore ecosystems to proper function. It guides the prioritization and funding of habitat restoration. North Bay is located west of the mouth of the Humptulips drainage in the Chehalis River Estuary, which has restoration priorities and strategies unique to the ecoregion.

Preserve Description

Preserve Purpose
North Bay NAP contains one of the highest quality coastal salt marsh, freshwater wetland, and peatland ecosystems remaining in Washington. The site contains seven wetland plant communities that are in excellent condition (Table 1).

The preserve also supports the Makah Copper Butterfly, a "Species of Greatest Conservation Need" and a candidate for listing as "Threatened" or "Endangered" by WDFW. The Olympic Mudminnow, another species listed as "Sensitive" by WDFW, is supported in slow freshwater habitats such as those found in the streams and wetlands of the NAP. Shorebird and waterfowl concentration areas identified as a priority habitat by WDFW are also protected in North Bay NAP.

Natural Area Design
The NAP boundary is designed to protect some of the highest quality salt marsh and peatland (bog and fen) ecosystems left in Washington state (Table 1). A DNR Commissioner's Order, signed by the Commissioner of Public Lands, delineated the boundary of North Bay NAP in 1988. Within the approved boundary, DNR owns 1,230.95 acres managed as a natural area preserve. The boundary also includes approximately 184.25 acres of privately owned lands that may be acquired by DNR in the future, as noted below. These privately held parcels are owned by businesses, individuals, and family trusts, as well as a narrow strip of land running east to west on the eastern side of the NAP that is owned by Grays Harbor County.

A natural area boundary is a designation of lands eligible for inclusion within a state-owned natural area. Lands located within the boundary only become part of the natural area if they are acquired by DNR. The boundary is simply an administrative tool to indicate where DNR will work with willing-seller property owners, and it imposes no change in land use zoning or any other restrictions on landowners. Acquisition from potentially willing sellers within a boundary is based on market value as determined by independent, third-party appraisals.

Adjacent Land/In-holdings: The NAP boundary currently includes approximately 200 acres that are held in private ownership and therefore not managed by DNR. These privately owned lands within the boundary are currently zoned mostly for general development and agricultural purposes, and most of the landscape is still forested.

Natural Area Preserve
The NAP design includes representation of a continuum of coastal wetland systems from saltwater mud flats, through salt and freshwater marshes, to peatlands, and uplands. A natural berm separates the freshwater wetlands from estuarine influence and supports a second growth forest dominated by red alder (*Alnus rubra*) and Sitka spruce (*Picea sitchensis*). The peatland communities are in excellent condition with very few invasive plants, and only one human intrusion into the bog in the form of a 100-foot-long remnant of

a logging road (Appendix 4). While the road fill is pervious, allowing water exchange from one side to the other, the dead trees on the upstream side of the road indicate that it does impede flow and impounds more water longer than before the road was installed. Burrows Road crosses the wetland in the northeast corner, with a culvert that provides connectivity between the peatlands on either side of the road.

The current ownership within the NAP encompasses a total of 1,214.92 acres. It is bounded on the north by Highway 109, on the east by Burrows Road, the north bay of Grays Harbor Estuary on the south, and to the west by undeveloped wetland contiguous with the NAP owned by a combination of private landowners and Forterra, a conservation-based land trust. Across highway 109, the parcels are zoned as Resource–Designated Forest Land. The land across Burrows Road is broken into smaller parcels and supports single family residences and Agricultural Use. The Grays Harbor County Audubon Society owns much of the Resource designated lands across Burrows Road (Grays Harbor County Parcel Map, accessed January 2025).

Preserve Acquisition
Following a recommendation to create the North Bay NAP in 1988, the Commissioner of Public Lands established the site boundary and DNR began land acquisition in 1991. Acquisition is from willing sellers only; DNR cannot condemn private property for inclusion in the NAP. Landowners may also be interested in retaining ownership and selling a conservation easement on their property. DNR will work with landowners who may not wish to sell by seeking their participation in joint management of the unique wetlands and forests connected to the NAP, or by pursuing the listing of their lands in the voluntary Washington Register of Natural Areas. To date, DNR has made 11 acquisitions totaling 1,214.92 acres at North Bay NAP.

Natural Features Description

North Bay NAP Primary Natural Features
At the time of site establishment, the 1987 Natural Heritage Plan recognized one Priority 1, three Priority 2, and two Priority 3 plant communities for protection in natural areas (Appendix 4). Table 1 lists the plant associations and species considered to be the "primary features" of the site (Figure 1b) as well as five other sensitive plant communities found on the site that extend beyond the NAP boundary (Figure 1c, 1d):

Table 1. Primary features priorities, with associated NatureServe Element Codes, found at North Bay NAP (NatureServe Explorer). * Indicates additional sensitive native wetland plant associations found onsite.

Plant Association / Species	Scientific Name (Element Code)	Conservation Status
Shore Pine-Western Red Cedar / Sweetgale / Sphagnum Treed Fen	*Pinus contorta var. contorta-Thuja plicata / Myrica gale /*	Threatened

	Sphagnum spp Treed Fen (CEGL001691)	
Bog Labrador Tea-Sweetgale / Sphagnum spp. Shrub Bog	*Ledum groenlandicum-Myrica gale / Sphagnum spp.* Shrub Bog (CEGL003335)	Endangered
Sweetgale / Sedge Fen	*Myrica gale / Carex (aquatilis var. dives, utriculata*) Fen (CEGL003376)	Threatened
Sweetgale / Great Burnet / Sphagnum Fen	*Myrica gale / Sanguisorba officinalis / Sphagnum spp* Fen (CEGL003419)	Endangered
Sweetgale / Skunk Cabbage Shrub Swamp	*Myrica gale / Lysichiton americanus*Shrub Swamp (CWWA000109)	Endangered
Tufted Hairgrass – Lyngby's Sedge, Saltgrass Salt Marsh	*Deschampsia caespitosa-(Carex lyngbyei, Distichlis spicata* Salt Marsh (CEGL003357)	Threatened
Tufted Hairgrass – Pacific Silverweed Salt Marsh	*Deschampsia caespitosa-Argentina egedii* Salt Marsh (CEG003383)	Threatened
Makah Copper Butterfly	*Tharsalea mariposa spp.*	Species of Greatest Conservation Need
Olympic Mud Minnow	*Novumbra hubbsi*	Species of Greatest Conservation Need
* Bog Labrador-tea - Bog-laurel / Sphagnum spp. Shrub Bog	*Ledum groenlandicum - Kalmia microphylla / Sphagnum spp. Shrub Bog (CEGL003414)*	Sensitive
*Lyngby's Sedge - (Saltgrass, Seaside Arrowgrass) Salt Marsh	*Carex lyngbyei - (Distichlis spicata, Triglochin maritima) Salt Marsh (CEGL003285)*	Sensitive
*Lyngby's Sedge - Pacific Silverweed Salt Marsh	*Carex lyngbyei - Argentina egedii Salt Marsh (CEGL003289)*	Sensitive
*Seaside Arrowgrass - (Pickleweed) Salt Marsh	*Triglochin maritima - (Salicornia depressa)*	Sensitive

	Salt Marsh (CEGL003381)	
*Saltgrass - (Pickleweed) Salt Marsh	*Distichlis spicata - (Salicornia depressa) Salt Marsh (CEGL003356)*	Sensitive

Appendix 4 (available online at www.dnr.wa.gov/north-bay-natural-area-preserve) contains the Natural Heritage Program recommendation that includes information on site topography, geology, soils, hydrology, and additional conservation features. The State of Washington Natural Heritage Plan, which describes the conservation methodology for Natural Area Preserves, is available online at the State of Washington DNR Natural Heritage website.

A list of plant species known to occur on the site is included in Appendix 5 and for animals/birds in Appendix 6 (available online at www.dnr.wa.gov/north-bay-natural-area-preserve).

Primary Plant Communities: The North Bay site is located along the shore of the north bay of Grays Harbor, extending from the tidal mud flats of the North Bay inland to forested wetlands (Figure 1c) at an elevation of 60 feet. The freshwater wetland and peatland communities are not easily distinguishable from one another, as many of the plant species occur in both. The
Shore Pine-Western Red Cedar / Sweetgale / Sphagnum Treed Fen is located across much of the peatlands, especially in the western and central portions of the site. Forested swamps dominated by western red cedar *(Alnus rubra*), salal (*Gaultheria shallon*), and skunk cabbage occur in other portions of the site. The shrub wetlands are a mosaic of Sweetgale / Skunkcabbage Shrub Swamp, Sweetgale / Sedge Fen, Sweetgale / Great Burnet / Sphagnum Fen, and Bog Labrador Tea - Sweetgale / Sphagnum spp. Shrub Bog. The southeastern portion of the site is dominated by spirea (*Spirea douglasii*) and willow (*Salix spp*). A stream flows into the peatland from the northeast, with periodic pools of nearly still water occurring along its reach. The Sweetgale / Great Burnet / Sphagnum Fen and Bog Labrador Tea - Sweetgale / Sphagnum spp. Shrub Bog association are dominant in these areas. The wettest portions of the peatlands support pond lily (*Nuphar polysepala*), buckbean (*Menyanthes trifoliata*), and cottongrass (*Eriophorum chamissonis; E. angustifolium*). The natural berm is forested with cottonwood (*Populus trichocarpa*), Sitka spruce, and red alder. South of the berm, the vegetation forms distinct bands, reflecting the influence of the salinity gradient and hydroperiod. The Tufted Hairgrass – Pacific Silverweed Salt Marsh occurs immediately south of the berm while the Tufted Hairgrass – Lyngby's Sedge, Saltgrass Salt Marsh is found closer to the bay in wetter and more saline areas. Between this and the mudflats, is the low salt marsh, supporting a structurally diverse plant community driven by elevation differences created by the mounds of seaside arrowgrass (*Triglochin maritima*), interspersed with tidal channels, salt marsh, and salt pannes. This diverse habitat supports a mosaic of plant species dominated by pickleweed (*Salicornia* spp.), seaside arrowgrass, tufted hairgrass, and Lyngby's sedge. Find a more detailed description of these plant communities in Appendix 5. Global summaries of these communities can be found by searching the NatureServe Element Code found in Table 1 at

https://explorer.natureserve.org/Search#q. Contact the Natural Heritage Program manager for Washington-specific descriptions.

Key Fish Species

The small tributary entering the NAP from the northeast is presumed to provide about 2.4 miles of habitat that supports rainbow trout, most of which is protected by the NAP. The NAP also provides potential habitat suitable to support the Olympic Mudminnow, a species listed as State Sensitive by the Washington Department of Fish and Wildlife and a "Species of Greatest Conservation Need" in Washington's State Wildlife Action Plan (Washington Department of Fish and Wildlife, 2015). The shoreline of the NAP provides rearing habitat for a variety of other shellfish and finfish and at least five federally threatened anadromous salmonids (Sandell et al, 2015) including Steelhead (*Oncorhynchus mykiss*), Fall Chinook salmon (*Oncorhynchus tshawytscha*), Fall Chum salmon (Oncorhynchus keta), Coho salmon (*Oncorhynchus kisutch*), and Coastal cutthroat trout (*Oncorhynchus clarki clarki*).

Key Bird Species

With upland forest, wetlands and shoreline habitats of various types, North Bay NAP is home to a diversity of bird species. No formal surveys have yet been conducted on the NAP. Based on species lists obtained through the eBird website there are at least 162 species likely to be spotted at the NAP or in the surrounding area. Three species are identified as conservation priorities in the State Wildlife Action Plan, including Common Loon (*Gavia immer*), Peregrine Falcon (*Falco peregrinus*), and Purple Martin (*Progne subis*).

Amphibians and Reptiles

No formal amphibian surveys have been completed within the NAP; however the NAP is within the ranges and has habitat supporting common species like Western Toad, (*Anaxyrus boreas*), Coastal Tailed Frog, (*Ascaphus truei*), and Northern Red-legged Frog (*Rana aurora*), to name a few.

Ecoregional Context

North Bay NAP is located within the Northwest Coast Ecoregion, a long narrow ecoregion along the coastline between the Coast Range mountains and the Pacific Ocean. The ecoregion extends from the southern border of Oregon to the northern end of Vancouver Island, British Columbia, Canada. Within Washington state, this ecoregion encompasses the western edge of the Olympic Peninsula (Vander Schaff et al., 2006).

This ecoregion contains a diversity of landscapes and ecosystems across seven distinct sections (Vander Schaaf et al., 2006). The Olympic Mountains have peaks that reach approximately 8,000 feet in elevation and support nearly dozens of glaciers. The coastal plain in the north is built on glacial till and is up to 20 miles wide in some places. To the south, major estuaries cut through the coastal plain, contributing to a siltier soil that supports Sitka spruce in the low, wetter sites, and western hemlock and western redcedar on the higher ground.

Climate

The Northwest Coast Ecoregion experiences a climate that varies with elevation and latitude. This area is considered to be a temperate rainforest, with average annual precipitation ranging from 60 to 120 inches (Vander Schaaf et al., 2006). Most of the precipitation falls as rain from November through April. Winter season snowfall ranges from 10 to 30 inches in the lower elevations. In the lower elevations around North Bay NAP, snow melts quickly and depths seldom exceed 6 to 15 inches.

Along the coastal plain and adjacent hills and valleys, fog and cool summer temperatures are important climatic factors that allow the unique ecosystems of this ecoregion to persist. The average maximum temperature in July is near 70° F along the coast and 75° F in the foothills, and minimum temperatures are near 50° F.

The coastal plains and the Willapa Hills to the south of the Chehalis River experience heavy rains and high winds generated from the winter storms moving inland from the Pacific Ocean. The winds can reach 90-100 miles during 100-year events in the lowlands, and annually on the ridgetops of the Willapa Hills. Summers are mostly cool, with the coastal fog generally persisting during the days and average highs in the mid-70s. North Bay NAP is located on the coastal plain on the shoreline of the Chehalis River Estuary in between the Olympic Mountain range to the north, and the Willapa Hills to the south.

Climate Change

Climate change has the potential to alter important variables in the North Bay NAP environment, key among them being temperature and water regime which drive plant and animal community composition and species distribution (Chang et al., 2023). Over the last 100 years, the average annual temperature in the Pacific Northwest has increased by 1.3 degrees, and temperatures are expected to increase by between 3 and 10 degrees by 2100, with the largest increases anticipated in summer temperatures (Snover et al., 2013).

Climate change is predicted to bring warmer and longer dry seasons to the Pacific Northwest, and warmer, wetter winters. Rising temperatures, changes in the timing of precipitation, and decreased soil moisture during the growing season make wetland ecosystems more vulnerable to change. Many coastal wetlands may decline in quality and extent as a result of sea level rise and changing hydroperiods, especially where habitats cannot shift due to topographic or human made physical barriers (Mote et al, 2014).

The watershed feeding North Bay NAP is small at 1,670 acres. Given the low elevation of the watershed, snowpack does not contribute to the hydraulic condition of the site. Without this source of stored water released during the dry season, wetland plant communities are vulnerable to longer periods of dry conditions. Intact bog and fen ecosystems, such as those found in the preserve, may be resilient to natural disturbances, maintaining carbon and water storage functions over hundreds or even thousands of years if their primary water sources remain intact (Alexandrov et al., 2020). Waterlogged conditions and a relatively stable water table maintain the anoxic conditions that contribute to peat formation in these ecosystems, resulting in significant local carbon sequestration (Loisel and Gallego-Sala, 2022). Most of the peatlands at North Bay NAP are groundwater supported fens. Changes in local aquifers

and shallow groundwater movement could result in changes in the timing and duration of saturation across the peatland which could result in alterations to vegetation composition as well as carbon dynamics (i.e. increased decomposition). The range of existing ecosystems and communities at North Bay NAP are likely to shift in the future, and novel systems and communities are likely to develop over time. In 2012, Natural Heritage ecologists noticed significant die-back of western red cedar populations throughout the peatland at North Bay and other regional peatlands. These trees ultimately exhibited sprouting and regrowth but given the widespread occurrence of this phenomenon across western Washington, in a variety of hydrological conditions (from upland to peatland sites), there is speculation that this may have been induced by rising temperatures.

Changes in the hydrological regime of North Bay's peatland resulting from longer dry seasons may result in increased peat oxidation and subsidence, as well as surface fire. Peat fires not only result in the release of significant stores of carbon dioxide but also alter vegetation structure and composition through the release of nutrients. Although local Tribes are known to have intentionally used fire in regional peatlands (Anderson 2009), such activity was likely minimal in the North Bay peatlands due to groundwater keeping the peatland saturated through most of the year.

Longer dry seasons will reduce freshwater inputs into the estuary, resulting in increased salinity exposure in the wetlands along the margin of the bay. Additionally, sea level rise may result in longer inundation periods and contribute to wetland communities moving up or down gradient on the shore depending on their tolerance to higher salinities in the dry season, and changes in inundation due to sea level rise.

Managing natural areas like North Bay NAP to protect biodiversity and support rare species and habitats in a time of climate change will help provide refuge, and connectivity and corridors to species. Natural areas will provide shelter and a place for species to relocate or adapt with climatic changes. The importance of maintaining an intact bog and fen habitat will contribute to local carbon sequestration. Additionally, these minimally disturbed sites serve as baselines where natural processes dominate and from which we can observe and compare how a natural ecosystem responds to the impacts of climate change and other human influences on the landscape (Noss et al., 2024).

The ecological changes driven by climate change are having profoundly negative impacts on Tribal cultures and traditional and spiritual practices by reducing or eliminating traditional foods and medicines and weakening connections with the ecosystem through reduction or absence of plant and animal populations and reduced environmental quality. Conserving natural areas will protect natural resources and ecosystems that are at the core of Tribal cultures. Protected from direct disturbance, these ecosystems may persist longer in natural areas, even in the face of climate change, than in the surrounding landscape. DNR acknowledges not just the intrinsic ecological value of the sites, but also the deeper values held for these ecosystems by Tribal partners.

Historical and Current Uses of the Preserve

Historical and Current Native American Tribal Use

North Bay NAP falls within the traditional territories of the Chinook, Chehalis, Wishkah, Humptulips and Copalis peoples who speak dialects of Southern Lushootseed (Suttles and Lane, 1990), who lived and collected resources in the landscape that includes North Bay NAP for thousands of years. Coast Salish communities are small, kinship-based groups that interacted for a variety of purposes including commerce and intermarriage. Prior to the arrival of non-Native people, many resided in multiple villages during their lifetime, and many villages incorporated members from different language or cultural groups (Boxberger 1990). Southern Coast Salish subsistence is centered around marine assets including clams, mussels and crabs, though salmon has traditionally been the most significant food (Ruby and Brown 1992; Suttles and Lane 1990). Camas was also harvested regionally, and while the plant was native, camas growth was promoted by indigenous land use practices. Regarding access to subsistence resources, Boxberger (1990:396) reports that the Coast Salish villages were autonomous and held control of specific resource areas. It is important to note, however, that while resources could be attributed to a specific village they were also readily available to those in the kinship network. Resource access and use knowledge could be passed down, and in many instances, along gender lines (Boxberger 1990).

Tribal people have strong ties to the land and water that inform the management and harvest techniques of the natural resources under their stewardship. The many plant and animal species in their traditional territory provided everything needed to thrive, from clothing and shelter to common and ceremonial tools. The Tribes maintain an interest in, and practice stewardship of, the land within their traditional territories, which includes North Bay NAP. DNR recognizes sovereign Tribal rights and authorities and maintains government-to-government relations with all twenty-nine federally recognized Indian Tribes residing in the state of Washington, as well as other Tribes with rights in the state. DNR also recognizes the vital knowledge Tribal peoples have of our shared natural resources and operates under an order from the Commissioner of Public Lands to ensure management of state-owned lands is accomplished in collaboration with the twenty-nine federally recognized Tribes of Washington state.

European-American Settlement

Although early explorers, trappers and traders were the first Europeans to explore the region, the settlement of Grays Harbor and the Chehalis River estuary by white settlers was most likely set into motion when members of the Wilkes expedition, which was the first U.S. government sponsored expedition (Feipel, 1914), surveyed the harbor in 1841, followed by English, Scottish, and Irish settlers arriving in the 1840s as subsistence farmers (Wilma, 2006). The first true settlement was established by William O'Leary in 1848 on the south shore of the bay at what is now O'Leary Creek. In the 1860s, larger towns established around the timber and milling industry, starting with Hoquiam in 1867, Aberdeen in 1884,

and Westport as late as 1912 (Wilma, 2006). Farming and, to a lesser extent, fisheries and fish canning also contributed to a thriving economy after settlement.

Recent History and Use

Over the last century, billions of board feet of lumber have been processed and shipped out of Grays Harbor, either by sea to Asia, or by land to support the expansion and construction of cities in the Midwest and East Coast. The lumber industry experienced economic boom and bust cycles during the 1900s, as did the fishing industry. As old growth timber was depleted for harvest, Weyerhaeuser established the first tree farm near the Grays Harbor County seat of Montesano in 1941. The second half of the 1900s saw advances in technology, shifts in demand, and depleted resources to draw from, resulting in economically challenging times and a reduction in population as people migrated out of the county to look for work. At the turn of the 21st century, while some lumber mills were still in operation, the economy of Grays Harbor County began to shift to new opportunities, including alternative power and tourism.

The Washington Natural Area Preserves Act (RCW 79.70) designates preserves for conservation of lands, resources and ecosystem functions, use as outdoor classrooms, as sites for scientific research and, as appropriate to each site, for other low impact uses including Tribal access for cultural and spiritual practices, so long as the conservation goals of the site are met.

North Bay NAP was designated in 1988, and the land was acquired through land transactions purchased at market value, from willing sellers, with funding from grants awarded to the Natural Areas Program from the state Washington Wildlife and Recreation Program and federal National Coastal Wetlands Conservation Grants Program. The preserve holds significant wetland acreage which makes it a difficult place for construction. Within the area of the preserve ownership, the freshwater wetland, bog and fen typically receive almost no use, while the berm and salt marsh have been used seasonally by duck hunters. At the time of DNR's acquisition of North Bay NAP, the upland and mesic forests were used for timber production and were generally clear-cut and left to natural regeneration. The forests in the preserve are all at least second growth trees. The most recent harvest occurred between 2003 and 2005 prior to sale to DNR. The landowner conducted a 15-acre harvest to remove 50–100-year-old hemlock, red cedar, spruce and shore pine from the western portion of the site. This harvest included a 4-acre area of forested wetland where western red cedar was removed.

In addition to timber extraction, a local hunt club maintains an easement for a small cabin outside of the boundary on southwestern corner of the property. The hunt club experimented in the past with planting to encourage ducks use of the site. This included the introduction of non-native and invasive species including Reed Canarygrass (*Phalaris arundinacea*) which continues to dominate in the freshwater portions of the site around the hunting club cabin. Today, use of the cabin is infrequent. Impacts to the site mostly arise from the presence of the building itself and maintenance of the access road. The persistence of these features creates a simplified habitat structure and provides an entry point for the establishment of invasive species. Other neighboring properties have been managed for timber, and for

cranberry farming and peat extraction. Peat extraction and the ditching of the wetlands alter the drainage and the hydroperiod of the wetland. Since establishment, peat extraction appears to have ended, however the previously existing drainage ditch system is still maintained to some degree.

Current Uses

North Bay NAP currently offers access in the form of research and guided environmental education opportunities. There currently is no allowable recreational use within the NAP. Sanctioned activities occurring within the NAP are in support of site management and restoration or contribute to research and environmental education. To help conserve the ecology of this preserve during research and educational uses, bicycles and pets (except for leashed service animals) are not allowed. For a map of low-impact recreation opportunities on DNR-managed land, use DNR's statewide interactive recreation map or the DNR GO! Map online to find other sites to recreate in this area.

There has been recurring evidence of unauthorized use of the NAP, including extensive dumping at historic logging access points, non-Tribal activity removing cedar bark from live trees, unauthorized and extensive damaging harvest of cedar boughs from trees on the interior of the buffer around the wetland, and unauthorized harvest of salal, evidenced by the missing plants and the dumped excess harvest at the access point. Addressing these abuses to the site is discussed below in the management policies, goals and actions section, as well as the near-term work plan.

Science, Research and Monitoring

Public and private universities, other research institutions and individual researchers may contact DNR to propose a research project or site visit at North Bay NAP. If you are interested in pursuing research at North Bay, please contact the Natural Areas Program statewide ecologist (Appendix 12). Educational visit requests will be evaluated for approval by the region natural areas manager on a case-by-case basis. DNR reserves the right to limit use to protect the value of the NAP. Educational site visit requests can be approved by phone, letter or in person. DNR may, at its sole discretion, require that DNR staff accompany groups or individuals during site visit(s).

Research proposals must follow Natural Areas Program Research Guidelines, which are available from the DNR Olympic Region office or the statewide natural area program ecologist. Official letters of project approval or denial, including any specific conditions, will be issued within approximately two weeks of receipt of a proposal. Multi-year projects will be re-evaluated and notified of approval or denial to continue on a yearly basis.

North Bay NAP serves as a research site for studies related to the preserve's natural features. A list of past projects can be found in Appendix 8.

Environmental Education

Currently, no formal educational programs are available at North Bay NAP. The DNR Olympic Region natural areas manager may consult with DNR's Youth Education and Outreach Program (YEOP) to identify suitable opportunities to provide environmental

education in partnership with local education entities (schools, skills centers, non-profit partners, extra-curricular programs, etc.). Additionally, YEOP staff may coordinate with the natural areas manager to host access to North Bay NAP for environmental education programming through activities such as field trips, site stewardship, data collection, and monitoring projects in collaboration with local education partners. YEOP staff specialize in working with formal and non-formal educators to develop curriculum appropriate to the students and the site and provide consultation and training for DNR staff outside the YEOP Program to lead these kinds of events themselves. For more information about educational visits to North Bay NAP, contact the DNR Olympic Region natural areas manager (Appendix 12). For more information about environmental education opportunities on DNR lands, contact the DNR YEOP Program Manager (Appendix 12).

Volunteer and Stewardship Opportunities

Volunteers help with a variety of activities on natural areas in Washington, including invasive species control, ecological restoration and monitoring projects. Volunteer and stewardship opportunities like these are often well suited for youth groups, engaged through DNR's Youth Education and Outreach Program. If you are interested in volunteer and stewardship opportunities at North Bay NAP, please contact the DNR Olympic Region natural areas manager. For more information about these opportunities on DNR Lands, contact the DNR YEOP Program Manager (Appendix 12).

General Management Guidance

The Washington Natural Heritage Program identifies natural area preserves (NAPs), as defined in RCW 79.70, through a scientific inventory process. The purposes of NAPs are:

- To protect outstanding examples of rare or vanishing terrestrial or aquatic ecosystems, rare plant and animal species and unique geologic features;
- To serve as baselines against which the influences of human activities in similar, but differently managed ecosystems can be compared; and
- To provide areas that are important to preserving natural features of scientific or educational value.

Limited Intervention in Natural Processes: Preserve ecosystems are susceptible to a variety of insects and other pathogenic organisms. Native insects and other pathogenic organisms are part of each preserve's natural ecological conditions and processes. As such, no management intervention will occur when infestations and diseases are the result of native organisms and natural process, unless they pose a threat to human life or adjacent landowner property and require treatment by law. Non-native insects or other pathogens, or other impacts that threaten key natural features of a preserve, such as accidents that result in chemical or material spills affecting North Bay NAP, will be controlled to the extent possible.

Public Access Policy: Access and allowable uses in natural areas are defined by the Natural Area Public Access Policy (Policy 013-002, DNR), consistent with Washington Administrative Code (WAC) 332-52 for Public Access and Recreation on DNR-managed lands, and consistent with Revised Code of Washington (RCW) 79.70 for the establishment of NAPs. Uses within NAPs are limited to low impact non-consumptive uses, focused on scientific study or environmental educational purposes (including use of designated trails and facilities developed to encourage learning about a preserve's features), or traditional established aboriginal rights. As part of ongoing site management, the DNR region natural areas manager will work with the natural areas statewide program ecologist in consideration of opportunities to provide low impact access as funding and staffing allow. Access at North Bay NAP is challenging given its wetland setting. Creating access paths through bogs, fens and perpetually wetted substrate is highly disruptive to basic ecological processes in this sensitive wetland type. Uses at North Bay NAP are limited to scientific monitoring and research endeavors and guided environmental education opportunities.

Access for research or education projects must be consistent with the site management goals and require written authorization signed by the natural areas manager or the natural areas program ecologist. Individuals granted permission to access the site beyond adjacent public rights of way are required to have one copy of the written authorization signed by the natural areas manager or the natural areas program ecologist displayed on the dash in their parked vehicle and another copy with them while on site conducting those activities. Contact the

DNR Olympic Region natural areas manager to request consideration of a research or education project at North Bay NAP.

Activities and use in the NAP should not compromise the site's integrity, ecological, geological, scenic, historic or archaeological values. Activities should be constrained in a manner to leave vegetation, animal behavior, soil and water relatively unaffected. North Bay NAP will be monitored, and the allowable uses at the site revised if the protected values of the site are negatively impacted by use in a way that affects the site's integrity as measured by an Ecological Integrity Assessment (See Management Goal 1, and Appendix 10). The Natural Areas Program *NAP Public Access Policy* is found in Appendix 7 (or available via the internet at the North Bay NAP webpage). For a map of low-impact recreation opportunities on DNR-managed land in the area, use DNR's statewide interactive recreation map or the DNR GO! Map online to find other sites to recreate on state lands.

Goal 1: Protect Primary Features

As a natural area preserve, the purpose of land management at North Bay is to protect the primary features of conservation significance from human-induced stressors (Table 1 in the Natural Features Description, Figure 1b). Any activity or management action taken at the site should first consider whether it would risk the viability or ecological integrity of these primary features.

Objective: Address Research Needs in Support of Primary Features

Research provides key insights into the ecological drivers of site conditions and relationships between species and their environment. There are often specific needs for data collection and research to inform adaptive management of the site. These needs are site specific and may evolve over time as we identify shifts and impacts driven by climate change or other cumulative stressors. Research should be conducted in collaboration with the natural areas manager and staff, under permit approved by the natural areas program ecologist to successfully support and protect the priority features at North Bay NAP. See Appendix 9 for the current and upcoming research needs for North Bay NAP. DNR's Natural Heritage Program scientists should also be engaged when research is focused on the primary features identified in the Washington State Natural Heritage Plan.

Objective: Follow Management Guidance for Primary Features

The guiding principle for managing the North Bay NAP is to permit natural ecological and physical processes to predominate, while controlling activities and unnatural events and processes that directly or indirectly modify them. Exceptions may occur when a primary feature would be jeopardized without active intervention.

Management activities will maintain the site in the best ecological condition possible. Removal or alteration of vegetation, soil, or rock is not allowed except where specifically authorized by DNR under the framework of this plan. Goals for preserve management include:

- Protecting the site's primary natural features, including ecosystem processes

- Monitoring threats to the natural features and the health of natural systems
- Managing non-native and invasive plant or animal species
- Protecting cultural and archeological sites
- Facilitating environmental education and research on the preserve
- Providing access when it is compatible with the preserve's conservation goals, including Tribal access for cultural practices

The overarching management goal is to maintain the ecological integrity of natural areas such that they do not deteriorate below the ecological condition at the time of natural area establishment, or that they reflect a restored Ecological Integrity Assessment (EIA) condition rank of at least B or better in cases where their initial ranking is below a B. An EIA condition assessment should be conducted on an approximately 5-year rotation to provide relevant data for decision making and respond in a timely manner to changes in ecological integrity of the site. Additionally, EIAs should be conducted after any event that could drive change in an ecosystem. Examples of such events are extreme weather events, natural disturbances (fire, flood, invasive species establishment, or others), development of adjacent parcels, significant restoration work, or impacts to the preserve's features from upstream or off-site events. Monitoring for specific components or processes of ecosystem features (such as water levels, water quality, tree growth rates), or for other features (such as species of conservation interest like the Makah Copper Butterfly at North Bay NAP), may be necessary and will be added to Appendix 10 as needed. Key background and goals for the management of primary features is established in this plan, with additional detail provided in Appendix 10.

Various information sources describing reference conditions (i.e. the natural range of variability of composition, structure, and ecological processes) for the ecosystems has been consulted and should continue to be used to help guide management (see details in Appendix 10).

Freshwater Wetlands (including Shore Pine-Western Red Cedar / Sweetgale / Sphagnum Treed Fen, Bog Labrador Tea-Sweetgale / Sphagnum spp. Shrub Bog, Sweetgale / Sedge Fen, Sweetgale / Great Burnet / Sphagnum Fen, Sweetgale / Skunk Cabbage Shrub Swamp)

The various freshwater wetlands at North Bay NAP are currently in good ecological condition. The most important action to ensure the protection of the primary features is to acquire the remaining parcels within the approved boundary. Once acquired by DNR, this prevents these areas from being logged, converted to other uses (such as cranberry farms), or otherwise impacted. All of the adjacent forests have been logged in the past, and some have been recently clear cut, demonstrating the risk of harvest that would exist if remaining lands are not acquired. Currently, there are commercial cranberry bogs immediately east and west of the preserve boundary, demonstrating the risk that unacquired lands may be converted to such uses.

The hydrology of the wetlands should be monitored, as it is affected by surrounding roads with associated ditches and culverts, as well as peripheral ditching at the western end including Kurtz Slough which appears to be a largely artificial drainage feature. The

downstream end of the wetland is crossed by a two-lane road with a culvert that likely restricts water flows significantly.

Monitoring of water quality in the preserve should also be conducted to determine if the various chemicals used in cranberry production are entering the preserve's wetlands. The effects of these chemicals on species like the Makah Copper Butterfly are unknown. Invasive plant species could potentially invade the preserve if not controlled. Recently, Natural Heritage and Natural Areas staff found saplings of dawn redwoods (*Metasequoia glyptostroboides*) planted on the edge of the preserve's peatland. Although a rare species in its native range in China, this species could have become problematic in the preserve's peatlands.

No formal EIA has been conducted; however, the rank for the forested and shrub bogs, fens, and wetland types is estimated at B (good ecological integrity).

Various information sources describing reference conditions (i.e., the natural range of variability of composition, structure, and ecological processes) for the ecosystems have been consulted and should continue to be used to help guide management goals (see details in Appendix 10)

Management Goal:

- Maintain these communities in Ecological Integrity condition rank of B or better, with a focus on maintaining or improving the rating for hydrology, species composition and structure, and invasive species cover.

Tidal Salt Marsh Wetlands (Including Tufted Hairgrass – Lyngby's Sedge, Salgrass Salt Marsh, Tufted Hairgrass – Pacific Silverweed Salt Marsh)
The salt marsh communities are in fair to good ecological condition. Invasion by exotic weeds such as common reed (*Phragmites australis*), spartina (*Spartina alterniflora*) and Reed Canary grass (*Phalaris arundinaceae*) threaten to affect the ecological integrity of the site. Although none of these species pose significant threat to the peatland communities, they are problematic in other portions of the NAP, especially the salt and brackish marshes. Spartina colonizes tidal flat areas and affects the geomorphology and hydrology of an area by trapping fine sediment and forming high meadows and can displace native salt marsh species. These stands reduce tidal water flow through intertidal regions. Intertidal areas are important for shellfish and are used by fish as spawning and nursery habitat. Reed canary grass is problematic in freshwater wetlands but generally does not enter the peatlands.

No formal EIA has been conducted; however, the rank for the salt marsh types is estimated at BC (good to fair) with lower elevation portions in excellent condition and higher elevation portions more degraded by invasive species.

Various information sources describing reference conditions (i.e., the natural range of variability of composition, structure, and ecological processes) for the ecosystems have been

consulted and should continue to be used to help guide management goals (see details in Appendix 10)

Management Goal:

- Maintain these communities in Ecological Integrity condition rank of B or better, with a focus on maintaining species composition and structure and diversity of these communities and removing or reducing invasive species.

Goal 2: Provide and Manage Access

The Natural Areas Program, under the DNR *NAP Public Access Policy* in Appendix 7 (available online at www.dnr.wa.gov/north-bay-natural-area-preserve), maximizes the educational value of natural areas through conservation management to preserve natural features for scientific research and environmental education. Where appropriate in terms of location, intensity, timing and type of access, certain non-consumptive and non-damaging recreational uses may be considered, predominantly in buffer areas of preserves or in previously impacted locations.

Activities in the NAP should not compromise a site's integrity, ecological, geological, scenic, historic or archaeological values. Activities should be constrained in a manner to leave vegetation, animal behavior, soil and water relatively unaffected. North Bay NAP will be monitored in accordance with WAC 332-52-100, and the allowable uses at the site revised if the protected values of the site are negatively impacted by these activities in a way that affects the site's integrity as measured by direct observation of site condition or an Ecological Integrity Assessment (See Management Goal 1, and Appendix 10).

Objective: Offer Access for Education and Teaching

DNR staff will continue to offer educational access, as available, throughout the site where it can be safely provided. The DNR region natural areas manger may coordinate with DNR's Youth Education and Outreach Program to facilitate access and engagement opportunities to local youth. Key opportunities for classroom and community educational projects and activities may include:

- Guided school outings
- Native plant and bird groups
- Volunteer activities

Objective: Offer Access for Research and Monitoring

Research projects are approved by DNR following review and with site protection stipulations. Additionally, DNR conducts monitoring at natural areas. Natural Areas Program staff conducting research or monitoring within natural areas may draw upon the resources available within DNR's Youth Education and Outreach Program and similar community-based educational or scientific organizations. Advanced educational research or student internships may be available for hands-on learning opportunities in the fields of conservation land management and ecological restoration.

Objective: Collaborate to Ensure that Tribal Practices are Consistent with Conservation Goals.
Together with our interested Tribal partners, an assessment will be conducted to determine whether and how specific traditional practices can be accommodated at the site while staying consistent with the site's conservation goals.

Objective: Clearly Outline Limitations on Uses
Prohibited uses and activities within North Bay NAP determined by DNR to be inconsistent with the conservation purpose of the Natural Area Preserves Act as outlined in RCW 79.70 are considered incompatible with conservation management and are not approved uses. DNR's existing law enforcement policies will apply. DNR will comply with applicable regulations in the management of North Bay NAP and will cooperate with local and state enforcement agencies when necessary to curb unauthorized use.

Prohibited uses at North Bay NAP, as well as activities determined by DNR under this management plan to be in conflict with conservation land management goals, include the following:

Creation of Unauthorized Social Trails – The sensitive wetland nature of North Bay NAP is not conducive to recreational access. There are no infrastructure or parking to support access, and the ground surface is saturated to inundated across most of the site for much of the year. In accordance with WAC 332-52-405(1), the creation of unauthorized trails within the NAP is not an appropriate use. Social trails open up bare ground to invasive plants, create paths for water to travel and erode localized areas, and can lead to habitat fragmentation which can inhibit wildlife movement across the landscape. Unauthorized trails are not known to site managers and therefore are not patrolled, maintained, or monitored. A lack of monitoring and maintenance results in significant negative impacts to the vegetation on and adjacent to the trail as it becomes worn down and widened, including damage to or loss of sensitive plants.

Pets – Due to the sensitive nature of the plants and soils, and the potential for negative impacts and disturbances upon wildlife species, pets are not permitted within the preserve boundary, except for service animals (WAC 332-52-140(1)), which must be leashed at all times on any future designated trails or developed interpretive areas.

Dumping – In accordance with WAC 332-52-120 dumping is not allowed within North Bay NAP. Dumping has resulted in trampled vegetation at the site and creates a sanitation risk. Natural areas managers continually remove significant amounts of trash and excess material illegally harvested from the unsanctioned access points at Burrows Road and SR 109.

Hunting and Trapping – Hunting and trapping are not approved uses for Washington's NAPs. DNR does not allow hunting or trapping on NAPs unless it is necessary for management purposes. As mentioned above, the guiding principle for managing the NAP is to permit natural ecological and physical processes to predominate. The ecological relationships between predator and prey, or grazers and vegetation are dynamic and naturally fluctuate to a degree. While humans are a part of this dynamic in natural systems, the level of interest in hunting within this small NAP is high. The pressure applied by

opening this small NAP to hunting would exceed limits of acceptable change and put at risk those features the site was designated to protect. Additionally, hunting can negatively impact ecological research by violating assumptions about the influence of natural process on study results, introduce variation to the analyses, and potentially damage or eliminate monitored populations or plots from the sample.

Exceptions may occur when a primary feature would be jeopardized without active intervention. Should the need to use hunting as a management tool arise, the DNR natural areas manager will consult with the Washington Department of Fish and Wildlife to define the parameters under which animal control methods would be allowed.

Removal and Harvest of Plant or Mineral Material – In accordance with WAC 332-52-115(1a, b), the harvest and removal of any amount of plant or mineral material is not an allowable use, other than by DNR land managers for conservation purposes or with written permission from the natural areas manager or the natural areas program ecologist. Common theft of materials from this site includes the removal of mushrooms, firewood, tree boughs, and cuttings from shrubs.

Removal or Damage to Historical and Archaeological Objects, Features and Sites – Significant archaeological and cultural resources are protected by state law concerning Archaeological Sites and Resources (RCW 27.53), the National Historic Preservation Act (P.L. 89-665 as amended) and the Archaeological and Historic Preservation Act of 1974 (P.L. 93-291). The removal or alteration of archaeological materials including artifacts, features, sites, and structures from DNR managed lands is not allowed, other than when carried out by DNR cultural resources staff or authorized individuals to protect the resource from loss or harm, or conduct scientific analysis.

Other Uses Not Outlined Above – Uses and activities within North Bay NAP determined by DNR to be inconsistent with the conservation purpose of the Natural Area Preserves Act as outlined in RCW 79.70 are considered incompatible with conservation management and are not approved uses. DNR's existing law enforcement policies will apply. DNR will comply with applicable regulations in the management of North Bay NAP and will cooperate with local and state enforcement agencies when necessary to curb unauthorized use.

Goal 3: Manage the Site in Response to a Changing Climate

Natural areas play a significant role in ecological climate resilience. Natural areas are considered a key component in mitigating climate impacts and play a strategic role in protecting the biodiversity and natural heritage of Washington state. They provide environmental services, such as sequestration and storage of carbon, provision of habitat refugia for rare species, maintenance or improvement of water quality and watershed processes, and protection of rare plant communities and ecosystems.

Objective: Review and Adapt Management Practices as Needed to Address Impacts of Climate Change

In recognition of the importance of considering climate change in conservation planning, land management approaches may need to adjust to continue to preserve protected elements in state natural areas. At North Bay NAP, natural areas managers and ecologists regularly review and consider existing approaches to the following:

- Collaborate with interested Tribal specialists and Washington Natural Heritage Program staff to inventory culturally significant plants in the NAP and determine their vulnerability and response to climate change
- Review the adequacy of the NAP boundary to protect primary features against climate change
- Consult available climate change vulnerability assessments applicable to the primary features of the site to identify primary concerns and potential management actions. The Natural Heritage Program's Climate Change Vulnerability Index assessments for rare plants and Habitat Climate Change Vulnerability Index assessments for ecosystems (https://www.dnr.wa.gov/NHPclimate) are primary resources
- Review invasive species management practices (see Natural Heritage Program's invasive species ecological impact reports)
- Monitor the hydraulic conditions of the peatland ecosystems to inform risk of wetland type conversion and degradation
- Review the balance between inherent ecological and scientific value and recreational use and update policies as needed
- Monitor the shoreline of North Bay for changes in the integrity of the berm that might result in saltwater intrusion
- Monitor sea level changes to inform probability of shifts in salt marsh communities
- Review restoration targets informed by shifting climatic conditions. (see above, climate change vulnerability assessments)
- In consultation with Natural Areas Program and Natural Heritage Program scientists, review the use of certain species in restoration projects in light of ongoing climate changes to plants and insect pests (i.e. reduction in use of species that are not doing well with climate change for restoration purposes)
- In consultation with Natural Areas Program and Natural Heritage Program scientists, as well as the Natural Heritage Advisory Council, review the potential need for assisted migration of near-by native plant and animal species

Goal 4: Minimize Impacts of Wildfire Management

Wildfire suppression in North Bay NAP focuses on protecting life, resources, and property, and will be conducted to the degree possible with Minimum Impact Suppression Tactics to minimize impacts to conservation features. See Appendix 1 for the Wildfire Management Strategy for North Bay NAP.

Objective: Follow the Wildfire Management Strategy Emphasizing Minimum Impact Suppression Tactics

In the course of wildfire management, sensitive areas identified on maps should be avoided whenever possible, particularly for use of retardants or heavy equipment. After fires have

been suppressed, site restoration will be supervised by the region natural areas manager in consultation with the natural areas program ecologist.

Goal 5: Controlling Invasive Species

For the purposes of this management plan, an invasive species is a plant or animal species that is not native to the state of Washington and poses a threat to site management goals. Invasive species can repress or exclude native species and are widely viewed as one of the greatest threats to ecosystem health and biodiversity worldwide.

Invasive Plants

Useful sources of information on invasive species ecology, control, and ecological impacts include state and county weed control board information, Invasive Species Profiles (https://www.invasivespeciesinfo.gov/species-profiles-list), Center for Invasive Species and Ecosystem Health (https://www.invasive.org/), and the *Washington Invasive Ranking System* (Ramm-Granberg et al., 2024). This information can be used to identify species that may be potential threats to the site as well as to help prioritize species for control.

Priority weed species of concern include:

- Common reed (*Phragmites australis*) - Class B Noxious Weed
- Smooth cordgrass (*Spartina alterniflora*) – Class A Weed requires eradication
- Giant knotweed (*Fallopia sachalinensis*) - Class B Noxious Weed
- Yellow flag iris (I*ris pseudacorus*) - Class C Noxious Weed
- Purple loosestrife (*Lythrum salicaria)* Class B Designate Noxious Weed
- Reed canarygrass (*Phalaris arundinacea*) – Class C Noxious Weed

Other weed species of concern include:

- English ivy (*Hedera helix*) - Class C Weed
- English holly (*Ilex aquifolium)* - Class C Weed
- Himalayan blackberry (*Rubus bifrons)* - Class C Weed
- Scotch broom (*Cytisus scoparius*) - Class B Weed, Control Encouraged

Objective: Follow the Site Weed Management Plan to Reduce and Minimize the Persistence of Invasive Weeds

Weed management techniques will vary seasonally for the best effect based on the physiology of the target species and avoidance of unintended impacts to non-target species. Some combination of mechanical and chemical approaches will be the primary tools. Species specific approaches can be found in Appendix 11.

The other species of concern should be addressed through documentation and treatment of nascent populations and the containment and control of established populations. In addition to ongoing vegetation surveys, monitoring for invasive species should focus on roadside buffers including the access path to the adjacent hunters' cabin, forested edges and riparian areas, as well as areas affected by future management activities, especially those that will create light gaps in the overstory and soil disturbance in the understory.

Objective: Coordinate with DNR Aquatic Invasive Species Program and Partner Agencies to Control Invasive Weed Species
The natural areas manager will coordinate with DNR's Aquatic Invasive Species Program to monitor and treat invasive weed species in the NAP.

Invasive Animals

European Green Crab (*Carcinus maenas*) – This crab species, native to the northeast Atlantic Ocean and Baltic Sea, was introduced to the U.S. West Coast relatively recently. It is an able colonizer and efficient predator and has the potential to significantly alter any ecosystem it invades. This species poses a threat to native shellfish, eelgrass, and estuary habitat critical for salmon and many other species in Washington state. Potential impacts include destruction of eelgrass beds and estuarine marsh habitats, threats to the harvest of wild shellfish and the shellfish aquaculture industry, impacts on Dungeness crab populations, salmon and forage fish recovery, and a complex array of ecological impacts to food webs (https://wdfw.wa.gov/species-habitats/invasive/carcinus-maenas - Accessed December 2024).

In areas where European green crabs (EGC) have been able to establish large populations for extended periods of time, they have had dramatic impacts on other species, particularly smaller shore crabs, clams, sculpin, Dungeness crabs and small oysters. EGC prey on numerous organisms, making these crabs potential competitors for the food sources of native fish and bird species. One crab can consume 40 half-inch clams a day, as well as other crabs its own size. Their digging can have significant negative impacts on eelgrass, estuary and marsh habitats.

European Green Crabs were first detected on the preserve and vicinity in relatively small numbers in 2023 through regional trapping efforts. DNR's first trapping event at North Bay NAP occurred in February of 2023 with assistance and training provided by WDFW and Washington Sea Grant with assistance from the Grays Harbor Conservation District. During this trapping three EGC were caught. During 2023, six separate trapping efforts were conducted at the North Bay NAP by DNR Aquatic Invasive Species Program with assistance from the Quinault Indian Nation removing a total of 5,599 EGC. In 2024, eight separate trapping events were conducted by DNR Aquatic Invasive Species program and 26,875 EGC were trapped and removed from the area as part of regional control efforts conducted by DNR Aquatic Invasive Species Program. WDFW assisted with one trapping event in October 2024, where a large spike in capture rates was detected. Over 10,000 EGC were captured during this single event. DNR Aquatic Invasive Species Program followed up this trapping with another control effort in October 2024 where another 9,248 EGC were removed. By November 2024, capture rates declined most likely due to changing weather and temperature conditions.

Objective: Coordinate with DNR Aquatic Invasive Species Program and Partner Agencies to Control European Green Crab
DNR Aquatic Invasive Species Program and other partner agencies monitor and conduct the removal of invasive aquatic organisms including EGC. The natural areas manager will continue to coordinate with partnering programs and agencies to control EGC and better

understand the status, risks and control measures required to protect North Bay estuary habitats, including the salt marsh wetlands identified as a Primary Feature within North Bay NAP (Table 1). DNR Aquatic Invasive Species Program plans to conduct at least 10 trapping events a year at the North Bay NAP and respond to large increases in capture rates with follow up trappings.

Goal 6: Ensure the persistence of Habitat Structure for Wildlife

The habitat within North Bay NAP supports a rich diversity of terrestrial and aquatic wildlife, in addition to the Makah Copper Butterfly (*Lycaena mariposa charlottensis*), Olympic Mud Minnow (*Novumbra hubbsi*), Common Loon (*Gavia immer*), Peregrine Falcon (Falco peregrinus), and Purple Martin (*Progne subis*), which are designated by WDFW as priority species. More information about species location and abundance is needed to guide management actions under this plan, potentially including collaboration with WDFW biologists, volunteer site stewards or researchers. Invasive, non-native species that may require control include opossum, nutria and starlings, all of which may have adverse impacts on native species through nest depredation, preemption of nesting cavities, and destruction of vegetation. Per the adopted *NAP Public Access Policy* in Appendix 7, the removal of wildlife only occurs as a DNR-approved management action, if necessary. No access is allowed for hunting.

Objective: Ensure the Goals for Protecting Primary Features are Met

The wildlife protected in North Bay NAP are native to these natural ecosystems. Species presence may vary with diurnal, seasonal or annual cycles. Whether or not a species is documented on site at a discrete point in time, the ability for the habitat to support that species when it is present is the goal. Protecting the primary ecosystem features of the site maintains the habitat that supports a diversity of wildlife including those identified in the Washington State Natural Heritage Plan as conservation priorities.

Goal 7: Protect Archaeological and Cultural Sites

The lands in and surrounding the preserve are known to have been inhabited or used by past peoples and may include important cultural resources. In compliance with Governor's Executive Order 21-02 (GEO 21-02) and in cases where natural area projects have a federal nexus under Section 106 of the National Historic Preservation Act (NHPA), State Department of Archaeology and Historic Preservation records shall be reviewed prior to the implementation of any research, education or management activity. Any alteration to an archaeological site would require a permit from the Department of Archaeology and Historic Preservation (RCW 27.44 and RCW 27.53). Confidential cultural data is protected and exempt from disclosure under RCW 42.56.300 to prevent looting and depredation of the artifacts. All employees working at North Bay NAP should become familiar with DNR's Inadvertent Discovery Plan (Appendix 14) to understand how to proceed if an artifact is found during the course of work.

Process for Historical and Archaeological Preservation

Natural areas managers will initiate informal Tribal consultation with affiliated Tribes and work with professional archaeologists to ensure cultural resource compliance with GEO 21-02. GEO-21-02 mandates that:

- DNR shall consult with DAHP and affected Tribes on the potential effects of projects on cultural resources proposed in state-funded construction or acquisition projects. Consultation should occur early in the project planning process and must be completed prior to the expiration of state funds for construction, demolition or acquisition.
- DNR shall take all reasonable action to avoid or mitigate adverse effects to archeological sites, historic buildings or structures, traditional cultural places, sacred sites or other cultural resources
- DNR shall retain the responsibility to ensure an adequate consultation process and will be responsible for holding all records related to the Tribal consultation process. DNR will provide the records to DAHP to demonstrate completion of the Tribal consultation process.
- A cultural resources study may be needed before a project may proceed and DNR must consult with DAHP and the affected Tribes for the purpose of seeking agreement on studies.
- If an archaeological site, historic building or structure, or cultural or sacred place is identified during a study, DNR shall consult with DAHP and the affected Tribes on avoidance strategies or methods to minimize harm if the project poses a direct or indirect effect on cultural resources.
- In the case of historic buildings or structures, DNR shall develop mitigation strategies in consultation with DAHP and if requested, affected Tribes. For all other cultural resources including archaeological and historic archaeological sites or traditional and sacred places DNR may only develop mitigation strategies upon notifying DAHP and the affected Tribes that avoidance cannot be attained.
- Mitigation strategies for archaeological, cultural and sacred sites shall be identified through consultation with DAHP and the affected Tribes.

In instances where DNR works in conjunction with a federal agency or under a federal nexus, natural area managers and professional archaeologists will work with the appropriate federal agency on Section 106 requirements and compliance. Confidential cultural data is protected and exempt from disclosure under RCW 42.56.300 to prevent looting and depredation of the artifacts. Contact the DNR Olympic Region natural areas manager for more information.

Goal 8: Maintain Roads and Rights-of-Way

Grays Harbor County roads and state highways exist along the NAP boundary to the north and east of current DNR ownership. Maintenance of these roads and rights-of-way is conducted by the county and includes routine brushing and danger-tree management. Roads and a decommissioned corridor on Burrows Road are the most intrusive elements adjacent to the preserve and are the source for waste dumping and unauthorized entry, as well as the spread of noxious weeds. DNR will regularly monitor roads and manage undeveloped access points to reduce trespassing.

Objective: Natural Areas Staff will Routinely Monitor Roads and Easement Corridors for Impacts that may Affect the Natural Area if Left Unaddressed

Natural Areas Program staff will regularly monitor roads and easement corridors for encroachment of invasive weeds, impacts of weed treatment that drift beyond the right-of-way, the presence of trash, unauthorized access points, evidence of recreational fire, and other signs of activity that could threaten the integrity of the NAP.

Objective: Natural Areas Managers Will Take Action to Investigate, Identify, and Rectify Issues when Observations Indicate that Impacts on Rights-of-Way may Affect the Natural Area.

When routine monitoring of rights-of-way identifies an issue that could potentially present a risk to the ecological integrity of the site or to safety, the natural areas manager will take appropriate action to rectify it.

Management Goals, Actions and Activity Details

Table 2. Management Guidance for North Bay NAP

Goal	Management Action	Activity Detail
Protect Primary Features	• Implement a strategy to protect the site's primary features based on reference conditions defined by EIA metrics, and the global and state element descriptions,	• Maintain or improve site condition based on reference conditions defined by element descriptions and EIA Metrics (Appendix 10) • Provide and maintain guidance to protect against vandalism by installing signs and updating websites • Pursue funding and facilitate partnerships to meet site management needs • Encourage research to inform management <u>Priority Research Topics</u> • Impact of Kurtz Slough drainage, peripheral culverts, and the "Chip Road" fill on wetland hydrodynamics
	• Gather and maintain information necessary for site management	• Monitor sites commonly targeted by vandalism and associated impacts • Invasive species distribution and cover
Provide and Manage Use	• Offer Access for Education and Teaching • Offer Access for Research and Monitoring • Clearly communicate allowable low impact uses and limitations on use	• Develop sign plan for posting on site • Coordinate with DNR researchers and the Youth Education and Outreach Program to conduct research and monitoring of the site
Foster Environmental Education	• Allow and host educational use of the preserve	• Coordinate with DNR Youth Education and Outreach Program to connect with interested education groups for interpretive site visits, service projects, research and monitoring

Goal	Management Action	Activity Detail
Manage the site for Climate Change	• Address key non-climate stressors to maintain a healthy ecosystem • Regularly review site management with an eye for adapting techniques, in anticipation of the impacts of climate change. • Maintain a site-specific weed management plan • Restore areas where native vegetation has been damaged, focusing on unauthorized access points along Burrows Road and Highway 109	• Conduct invasive species control • Implement restoration where invasive species removal resulted in disturbed soils and open ground. <u>Highest Priority Monitoring Needs</u> • Ecological monitoring of forest and woodland features including EIA, and supplemental long-term plots. • Invasive species distribution <u>Additional Monitoring Needs</u> • Shoreline conditions • Makah Copper Butterfly presence, abundance, and use • Olympic mud minnow presence, abundance, and use <u>Priority Research Topics</u> • Climate change impacts • Monitor the hydrologic conditions of the bog and fen ecosystems to detect changing conditions and inform assessment of fire risk • Monitor the condition of the shoreline for risk to the integrity of the berm • Review restoration targets informed by shifting climatic conditions
Minimize Impacts of Wildfire Management	• Follow the Wildfire Management Strategy emphasizing Minimum Impact Suppression Tactics	• Coordinate with Incident Management team in event of wildfire threats to NAP • Conduct regular updates to the Olympic Region Fire Mobilization Guide
Control Invasive Species	• Create site-specific weed management plan • Restore areas where native vegetation has been	• Conduct annual surveys for priority weed species that threaten the primary features of the NAP

Goal	Management Action	Activity Detail
	damaged, focusing on shorelines • Collaborate with DNR Aquatics Division to control European Green Crab (EGC)	• Document and treat priority weed species • Coordinate airboat trips w/ DNR Aquatic Invasive Species Crew for accessing shoreline areas • Coordinate with Aquatics Division on surveys and removal of EGC
Ensure the Persistence of Habitat Structure for Wildlife	• Protect the primary features to maintain them at a high EIA Rank of B or better	• Maintain the general structure of a healthy forested and shrub peatland and marsh habitats to support the wildlife that depends on the resources of that site.
Protect Archaeological Sites and Cultural Resources	• Coordinate with Tribes to ensure that cultural sites are not disturbed and to exchange information about the preserve • Follow the process for historical and archaeological preservation outlined in Goal 7	• Establish primary contacts for outreach about DNR projects and management activities • Learn about Tribal interests and concerns • Consult with Tribes and Archaeologists on cultural resources reviews for projects • Follow mandated state and federal processes for Tribal consultation
Maintain Road Rights-of-Way	• Monitor roads and easement corridors for impacts that may affect the NAP if left unaddressed • Investigate, identify and rectify issues when observations indicate that impacts on rights-of-way may affect the NAP	• Monitor and treat roadsides to prevent establishment of new weed populations • Install or update boundary and regulatory signs • Coordinate with Grays Harbor County litter control crews and DNR Olympic Region correction crews for litter control needs and illegal dumping removal along roadsides

Routine Management Actions in Appendix 2
Routine management actions, the work required to steward the site on a daily basis, exclusive of significant project-related work that requires special fiscal appropriation, is described in Appendix 2. The cost for such work is typically associated with staff time and goods and services required to conduct the work (Appendix 2 Table 2-1).

Costs associated with managing North Bay NAP are expected to change over time due to general economic factors (such as inflation), identification of new land and resource management challenges, or to meet newly identified opportunities for research, environmental education or access. The Department of Natural Resources pursues a variety of state and federal grant funding to assist with land and resource management, restoration, research, and development of access and educational facilities, including development of educational curricula and materials by DNR's Youth Education and Outreach Program for use at this site.

Near-Term Project List in Appendix 3
Near-term projects, work that typically requires special fiscal appropriation beyond that available for routine operations, is described in Appendix 3. The one-time projects noted in Appendix 3 Table 3-1 should be pursued to complete necessary planning and make investments in other-than-routine land management activities or capital budget projects.

Costs estimates are expected to change over time due to general economic factors (such as inflation) or to rise to challenges during implementation. The Department of Natural Resources pursues a variety of state and federal grant funding to assist with project implementation.

Duration of this Management Plan
This management plan and the near-term actions and projects will be reviewed as necessary and updated by the DNR Natural Areas Program. Significant changes in management direction or policy guidance will include consultation with the Natural Heritage Advisory Council, and perhaps revisions to the management plan and appendices, which is expected to happen infrequently. Continuation of the management direction for North Bay NAP as stated in this adopted management plan may be incorporated into revised Appendices 2 and 3 without requiring additional review by the Natural Heritage Advisory Council.

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APPENDICES

The appendices for this document are in various stages of development and may include a placeholder for material that is in development. Note that Appendices 2 and 3 may be updated with each state budget cycle. When finalized, Appendices 4 – 14 will be available on the North Bay Natural Area Preserve website at: www.dnr.wa.gov/north-bay-natural-area-preserve.

APPENDIX 1 WILDFIRE MANAGEMENT STRATEGY FOR NORTH BAY NAP

Management Jurisdiction
North Bay NAP is within the service area of the Grays Harbor County Fire District #7, Copalis Fire District. However, fire suppression on the NAP is the responsibility of the DNR's Fire Control Program. DNR's Fire Control Program is responsible for fires on the non-federal, unimproved portions of Grays Harbor County where the NAP is located. For questions regarding the natural areas manager (Appendix 12).

Ignition Sources
Potential ignition sources include: cigarettes thrown from vehicles or by site visitors, parked vehicles, blowing cinders from nearby fires, and lightning.

Preferred Suppression Tactics
Minimum Impact Suppression Tactics (MIST) should be employed whenever possible, with specific guidelines listed below. Sensitive areas identified on maps should be avoided whenever possible, particularly for use of retardants or heavy equipment. These sensitive areas are primarily located in the wetlands and shoreline. The following are preferred fire suppression tactics:

- When safe and reasonable, use natural fuel breaks or control lines outside the NAP boundary for fire suppression.
- Water and hand tools should be used to stop the spread of wildfire, except under extreme conditions or if an improved structure is threatened. Crews should use a mist (instead of straight stream) water application where possible.
- Helicopter landing areas and fire camps should not be established within the NAP.
- Under extreme conditions or when an improved structure is threatened, foam or retardants are preferable to bulldozers. It is preferable not to use foam or retardants on the salt marsh because of negative effects to the aquatic community and fertilizing effects to the plant community.
- Fire vehicles will be confined to roads and, when applicable, bulldozed fire trails.
- Trees and snags will not be felled unless they pose a threat to firefighters.
- Location and extent of mop-up, and type of mop up activity will be determined by the Incident Commander in consultation with Natural Areas Program staff. Mop-up activities should be minimized in the sensitive areas identified on maps and soil disturbance minimized by using water as much as possible.

After fires have been suppressed, site restoration will be supervised by the region natural areas manager in consultation with the natural areas ecologist.

Site Representatives

If wildfire involves or threatens the NAP, one of the following DNR personnel shall be contacted and placed as a consultant to the Fire Incident, using the closest available person first:

Natural Areas Manager, Olympic Region
360-789-5754

Natural Areas and Recreation District Manager, Olympic Region
360-489-4986

Regional Headquarters in Forks
360-374-2800

Natural Areas Program Ecologist, *Recreation, Conservation & Transactions Division*
(360) 902-1600

Updated Natural Areas Program staff lists are available in Appendix 12

In the event that coordination with the local fire district is required, staff can coordinate with:

Grays Harbor Fire District #7, Copalis Beach/Ocean City, (360) 289-3442
For emergencies dial 911.

If the incident occurs after normal working hours, contact emergency services #911. Emergency services will contact the DNR Olympic Region standby staff, who will then contact a Natural Areas Program representative from the above list at home.
The representative will inform the Incident Commander of:

1. The purpose of the NAP;
2. The management objectives for the primary features of the NAP; and
3. The need to employ MIST fire suppression techniques when possible. The Incident Commander should contact the Region representative or the Division before beginning mop-up activities within the NAP.

Post-Fire Rehabilitation: Following wildfires, the preserve should be allowed to regenerate naturally without human intervention. Post-fire revegetation will not be undertaken unless natural revegetation is impeded or slowed to such an extent that ecological features or processes in the area will be negatively affected. Areas with significant soil disturbance due to fire suppression efforts, *e.g.* berms and fire lines, may be restored by returning soil to its original location. Soil rehabilitation and revegetation efforts will only be undertaken after consultation with the natural areas ecologist. If revegetation is necessary following wildfire, only native plants or seed of native plant species will be used for seeding or propagation of plants; exceptions may occur for the use of short-term, transient non-native plants if determined by the natural areas ecologist to be warranted.

Implementation: Ensure that Olympic Region personnel are informed of the natural revegetation policy of the Preserve. In the event of a wildfire, the natural areas ecologist will determine whether revegetation is required to protect ecological features of the preserve. Natural recolonization by native vegetation is the preferred restoration strategy when damage to vegetation has occurred. Revegetation (planting or reseeding with native vegetation) will only occur if natural recolonization is impeded by factors such as lack of seed source and proliferation of exotic weed species, or if extreme soil erosion presents a threat to natural features or processes. If revegetation is deemed necessary, a plan will be developed by the natural areas ecologist, and any restoration costs above and beyond erosion control measures typically implemented by Fire Control will be the responsibility of the Natural Areas Program.

The Role of Fire in the Development and Maintenance of this Native Ecosystem: Fire is not a common occurrence in the forest and wetland habitats of North Bay NAP. The natural fire recurrence interval is about 100 to several hundred years (USDA Forest Service 2007; Chappell et al., 2001). Although local Tribes are known to have intentionally used fire in regional peatlands (Anderson 2009), such activity was likely minimal in the North Bay peatlands due to groundwater keeping the peatland saturated through most of the year. Natural fires in this ecosystem are usually due to extreme weather events and tend to be moderate to high severity fires that leave only a partial canopy or can remove the trees entirely. This natural disturbance helps promote species diversity by reducing encroachment of trees in the wetlands and creating gaps in the canopy of the forested habitats in the NAP. Fire reduces cover of competing vegetation and allows sunlight and open space on the forest floor for a diversity of seeds to germinate and establish. A diverse plant community is an important component of healthy ecosystems, providing habitat and food resources for a diversity of insects and animals.

APPENDIX 2 Routine Management Actions for North Bay NAP

A reasonable base budget for routine management of the NAP will support Olympic Region Natural Areas Program staff including all costs related to the site such as travel and materials. Funding typically comes in the form of the Natural Areas Program biennial state budget.

Costs associated with managing North Bay NAP are expected to change over time due to general economic factors (such as inflation), identification of new land and resource management challenges, or to meet newly identified opportunities for research, environmental education or access. DNR pursues a variety of state and federal grant funding to assist with land and resource management, restoration, research, and development of access and educational facilities, including development of educational curricula and materials by DNR's Youth Education and Outreach Program for use at this site.

Table 2-1. Routine Management Activities List Created December 2024

Activity	**Description**	**Estimated Staffing and Resources Required** with Potential Fund Source
Weed Control — See map in Appendix 11	• Giant knotweed • Purple loosestrife • Yellow flag iris • English holly • English ivy • Himalayan blackberry • Reed canarygrass	2 months required per biennium for natural areas manager 1 week per biennium required per biennium for Stewardship staff 1-2 gallons of Herbicide 1-2 gallons of Surfactant Funding: Natural Areas Program budget; DNR Aquatic Resources crews and budget; Washington Department of Ecology grants; Washington Conservation Corps crew allocation
Ecological and Adverse Impacts Monitoring	• Invasive species distribution mapping and treatment monitoring • Peatland plant community monitoring (Level 2/3 EIA, overstory measurements)	4 Months per biennium for natural areas manager 2 Month per biennium for the natural area steward 2 weeks per biennium for the natural areas ecologist

Activity	Description	**Estimated Staffing and Resources Required** with Potential Fund Source
	• Makah Copper Butterfly and Olympic Mudminnow monitoring Impacts of site abuse • Impacts from unauthorized uses, such as dumping, off-roading, or theft	Funding: Program Budget
Primary Feature Condition Monitoring (EIA)	• Conduct EIA to document trends in site condition relative to management goals outlined in Goal 1	Conduct EIA every 5 years; (Currently Unfunded) 6 weeks per biennium for either Natural Areas Program or Natural Heritage Program staff

APPENDIX 3 Near-Term Project List for North Bay NAP

The one-time costs noted in Table 3-1 below should be pursued to complete necessary planning and make initial investments for site management, restoration and enhancement.

This initial project list will be updated by the Natural Areas Program as projects are implement and new activities or new costs are identified.

Table 3-1. Priority Project Needs for North Bay NAP as of Winter 2025.

Activity	**Description**	**Estimated Staffing and Resources Required** with Potential Fund Source
Property Line Survey	Survey or re-survey existing property line regarding potential encroachment (trespass) by a neighboring property	2 weeks each for 2-person DNR Land Surveyor crew 2 days for natural areas steward 3 days travel for three DNR staff members Potential Funding: Natural Areas Program budget
Sign Design and Installation	Develop, procure and install signage to prohibit access from public roads along east and north borders	One day for natural areas manager to design and order One-week natural areas manager to install Program or capital funds
Eliminate Impacts along North Border from Abandoned Haul Road	Either dig up or completely block old road spur that accesses Highway 109 on north border	Two days total including travel. DNR employee with a mini excavator (at least a 10,000 lb). If digging is not allowed, purchase of Ecology blocks or rip rap. Also, consider a contract or donated work. Program or capital funds
Web Page Updates	Provide updates on the site webpage to post information on allowable and prohibited uses.	Depends on extent of the updates. 1 week for Natural Areas Program staff to generate standardized language for website updates. 1 day for Communications Staff to update the text

(*insert map(s) related to projects in action plan above*)

APPENDICES 4 through 14 are under development

Location: www.dnr.wa.gov/north-bay-natural-area-preserve as of (Month Year)

Appendix 4: Natural Heritage Program report including info on topography, geology, soils, hydrology, and additional conservation features
Appendix 5: Plant list and detailed description of plant communities
Appendix 6: Animal list
Appendix 7: Public Access Policy.
Appendix 8: Science, Research and Monitoring History
Appendix 9: Research Needs in Support of Site Management
Appendix 10: Management Goals and Actions for Priority Features
Appendix 11: Invasive Species Treatment Plan
Appendix 12: Natural Areas Staff Contact Information
Appendix 13: Restoration History
Appendix 14: Inadvertent Discovery Plan