



Columbia Quiet Waters Conservation Plan

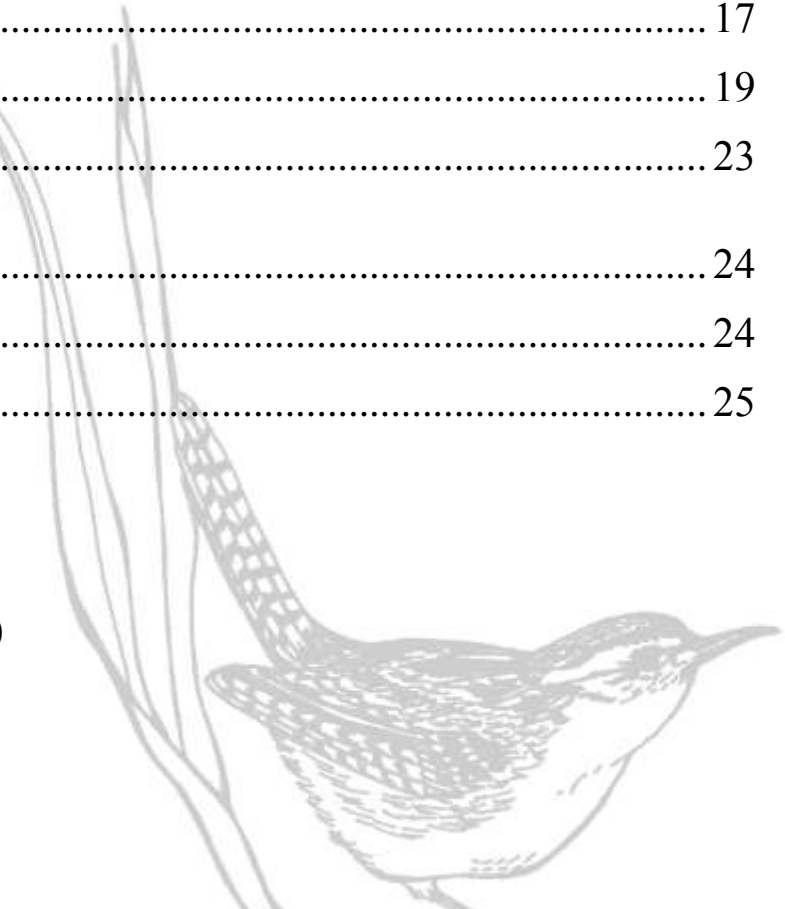
NORTH
COAST
LAND
CONSERVANCY



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Executive Summary

Ours is a common goal: to conserve and protect land for current and future generations. The North Coast Land Conservancy (NCLC) was founded on the belief that we are all a part of Oregon's coastal landscape: the people, wildlife, plants, water, open space, and infrastructure. We are all active participants in the ecosystem and we all share the responsibility of stewardship now and into the future. Since its beginnings in 1986, NCLC has served as a resource for northwestern Oregon coastal communities and landowners to conserve and protect land in perpetuity for its ecological and cultural values.

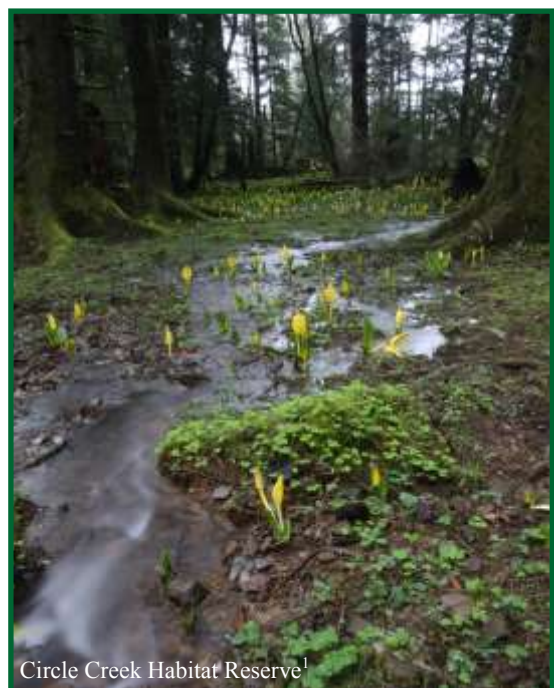
NCLC strives to build strong, lasting community relationships that not only build NCLC's capacity for conservation but build the community's capacity for stewardship of the North Oregon Coast. Whether discussing with property owners the economic benefits of protecting land through donation, assisting other organizations to preserve ecologically sensitive areas, or offering public symposia on unique aspects of the coast, NCLC holds conservation at its core. NCLC's conservation strategy focuses on creating a system of green infrastructure that facilitates the connectivity needed to support wildlife populations and ecological processes.

NCLC's service area covers more than 2,600 square miles from the Columbia River south to Lincoln City, from the peaks of the Coast Range to the near-shore ocean. As of 2013, NCLC has directly conserved more than 2,100 acres on more than 50 properties and has worked with partners to facilitate the protection of over 1,000 additional acres. In order to focus our land conservation efforts within such a large and diverse service area, NCLC has developed six initiatives targeting key habitat types or ecological values within different regions of our service area. Each initiative has a unique conservation plan to guide future projects, including a system for identifying areas of high priority for conservation.

The conservation plans build on existing criteria used to select potential conservation projects by developing a system for ranking criteria using data

acquired from county, state, and federal agencies. Using these data and geographic information systems (GIS) software, we can create maps that focus our future conservation efforts on areas that meet specific criteria. These maps are used in combination with local knowledge from NCLC staff and committee members, government agencies, and community groups, and site visits to assist in the processes of evaluating projects with high conservation values. They are utilized both proactively and in response to projects proposed by landowners or other organizations.

This conservation plan focuses on NCLC's Columbia Quiet Waters initiative, which targets land in northern Clatsop County. Specifically, this initiative concentrates on interdunal wetlands within the Urban Growth Boundary of the City of Warrenton and wetlands associated with the lower Skipanon River and Tansy and Alder Creeks. The Sitka spruce forested wetland and swamp communities found here are globally rare.¹ Warrenton is an area of rapid population growth and land development, making it an area of particular interest for conservation. Our goals in this unique landscape are to conserve this rare ecosystem and to maintain and promote ecological connectivity.



Circle Creek Habitat Reserve¹



Background

Since 1986, North Coast Land Conservancy has worked to conserve and connect the landscape of the North Oregon Coast. The mission of NCLC is to serve as a resource for northwestern Oregon coastal communities and landowners to conserve and protect land in perpetuity for its ecological and cultural values. NCLC recognizes the need to approach land conservation with the goals of landscape scale ecological connectivity and community partnership. Understanding the communities in our service area, including cultural, economic, and environmental values and concerns is critical to the land conservancy's mission.

We further our mission through land acquisition, conservation easements, and stewardship made possible through partnerships with county, state, and federal agencies, watershed councils, individual property owners, and other public and private entities, and the support of our donors and funders. The successes that NCLC has had and will experience in the future depend on our capacity to create and maintain partnerships and engage the community in stewardship of the North Oregon Coast.



Where & How We Work

NCLC’s service area covers more than 2,600 square miles from the Columbia River south to Lincoln City, from the peaks of the Coast Range to the near-shore ocean (Figure 1). As of 2013, NCLC has worked to conserve more than 2,100 acres on more than 50 properties in Clatsop, Tillamook, and Lincoln counties and has facilitated the protection of over 1,000 additional acres by our partners.

Within this large and diverse service area, NCLC approaches land conservation and acquisition strategically. We look to establish links in the landscape that will help maintain the health of ecosystems by meeting the habitat and range requirements of species and allowing plants and animals to move across the landscape, thereby promoting local migration and healthy populations.



Figure 1. The North Coast Land Conservancy’s service area (yellow) extends from the Columbia River south to Lincoln City, Oregon and from the Coast Range into the near-shore ocean.

This conservation concept has been referred to as conserving green infrastructure. The Conservation Fund defines green infrastructure as our natural life support system—an interconnected network of waterways, wetlands, wildlife habitats, and other natural areas that support native species, maintain natural ecological values and processes and provide associated benefits to human populations. Similar to the pipes and systems of grey infrastructure where roadways connect, large areas are reserved for water storage, and sewage is filtered, our green infrastructure is designed to protect ecological processes such as wildlife migration, water storage and filtration, and carbon sequestration. Streams, wetlands, parks, and other conserved lands could be considered the veins and arteries of the system, and priority should be given to conserving lands that provide the connectivity needed to support wild-life populations and ecological processes.



This landscape scale approach has led us to focus our conservation efforts on projects that promote the following initiatives:

- Columbia Quiet Waters
- Estuaries
- Coastal Edge
- Neacoxie Wildlife Corridor
- Necanicum Wildlife Corridor
- Highway 101 Scenic Byway



Our Initiatives

Each initiative has a unique conservation plan to guide future projects, including a system for identifying areas of high priority for conservation. Every three years NCLC creates a new strategic plan refocusing our goals and evaluating initiatives.

Columbia Quiet Waters:

A rare forested wetland system

This initiative focuses on interdunal forested wetlands within the City of Warrenton and the wetlands associated with the lower watersheds of the Skipanon River and Alder and Tansy Creeks. Some of the most intact and ecologically functioning Sitka spruce wetland forest and swamp communities in the world are found here. This globally rare habitat is a high priority for protection.

Estuaries:

The heart of the coast

Ecologically speaking, estuaries are the beating heart of all major coastal watersheds and some of the most productive ecosystems in the world. They are where rivers and streams meet the sea and where fresh and saltwater mix. As key elements of green infrastructure, functioning estuaries are essential to healthy watersheds, and vice versa. NCLC focuses its conservation efforts on the Necanicum, Nehalem, and Sand Lake estuaries.

Neacoxie Wildlife Corridor:

Connecting the landscape and the people in the Clatsop Plains

The unique coastal habitat that has developed here over the past 5,000 years began as a series of parallel sand dunes. Groundwater trapped in dune swales created wetlands, lakes and streams, and the landscape evolved to include native prairie, treed shelterbelts, and other habitats associated with Neacoxie Creek and Sunset Lake. The lands here serve as a corridor for migrating birds and other species and are essential habitat for the threatened Oregon silverspot butterfly.

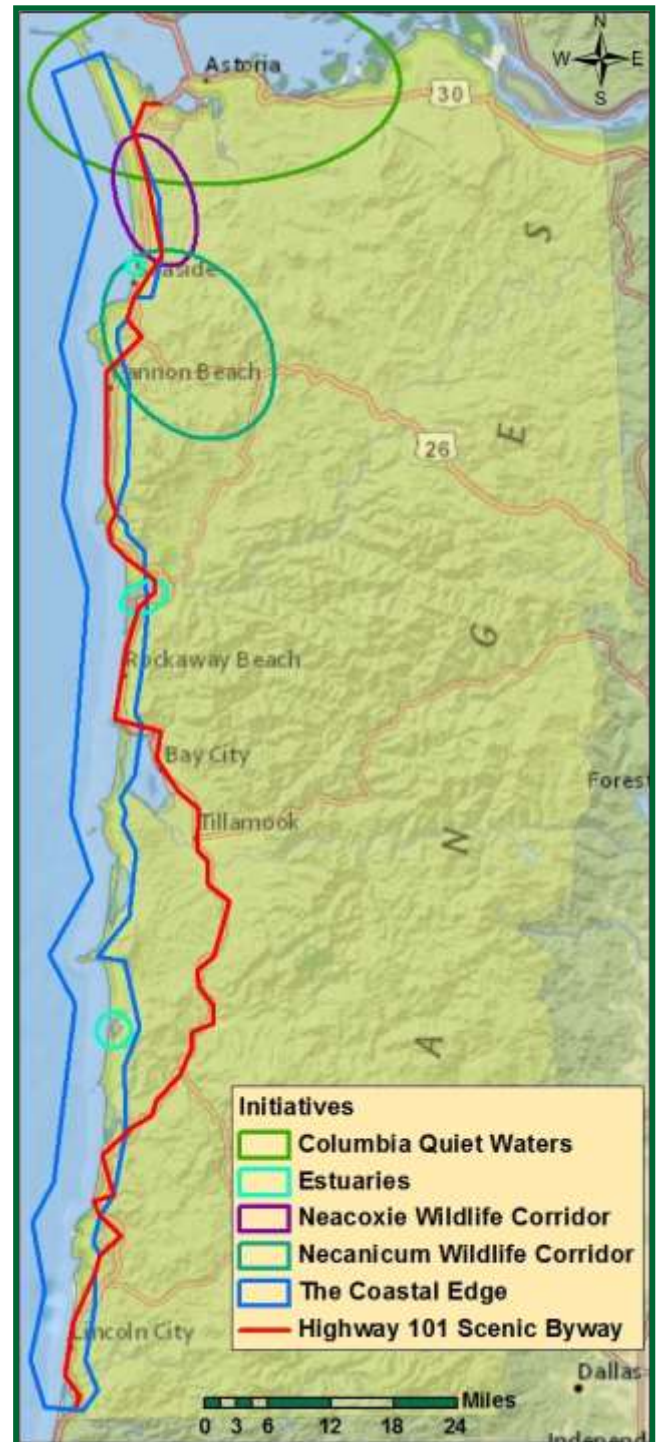


Figure 2. The North Coast Land Conservancy focuses its conservation efforts on six initiatives within its service area.

Necanicum Wildlife Corridor: *Connecting a coastal watershed*

This initiative focuses on the 85 square mile Necanicum watershed and its connection to the Necanicum estuary and the ocean. An important artery in the region's green infrastructure, the Necanicum watershed includes important wildlife habitat and serves as a corridor and spawning ground for endangered salmon species. The watershed provides the municipal water source for the City of Seaside, and tributaries and floodplains shield downstream lands from flooding.



Elk at Circle Creek Habitat Reserve¹

Highway 101 Scenic Byway: *A bioregion's common cultural connection*

Running through the many regions of the North Coast and tying together all the communities in our service area is U.S. Highway 101. More than just a road, Highway 101 is a national scenic byway and a federally designated All-American Road. The initiative serves to value scenic and culturally significant landscapes within both a community and ecological context.

The Coastal Edge: *The interface between land and sea*

The interface between land and sea is not limited to the estuary. The intertidal zone and temperate rainforest, together with coastal estuaries, add up to a diverse and intensely productive biological hotspot. The Coastal Edge initiative allows us to prioritize some key North Coast ecosystem components that might otherwise be missed. They include smaller watersheds that empty directly into the ocean and, while lacking an estuary, nonetheless harbor anadromous species such as salmon, steelhead, and lamprey.



View from Angora Peak³

Purpose of the Plan

NCLC's land and conservation easement acquisition decisions are guided by a series of selection criteria reflecting NCLC's mission and goals (see Appendix A). A property's location, natural resource value, condition, and size are some of the factors that influence the review process. The conservation plans are meant to add additional tools to NCLC's toolbox for selecting properties for conservation.

The conservation plans build on existing criteria used to select potential conservation projects by developing a system for ranking criteria using data acquired from county, state, and federal agencies. Using these data, we can build a model using geographic information systems (GIS) software which identifies specific areas that advance the conservation goals and priorities of NCLC.

The maps created using the model highlight priority conservation areas, which act as a starting point for evaluating projects proactively or, in cases where landowners approach NCLC, NCLC will consult this plan and determine if a property meets basic criteria. However, nothing can replace visiting the land and speaking with landowners to understand the ecological and cultural significance of the property. This conservation plan is a communication tool that allows NCLC to share its goals and establishes a basis and rationale for habitat conservation within the Warrenton area. The plan is used as an initial step in gauging the land trust's interest in a property by assessing how the property advances our overall goals within the initiative.



Introduction to the Columbia Quiet Waters Area



This conservation plan focuses on one of NCLC’s six conservation initiatives: Columbia Quiet Waters. The Columbia Quiet Waters initiative targets land in northern Clatsop County, largely focusing on interdunal forested wetlands within the Urban Growth Boundary of the City of Warrenton and the wetlands associated with the lower watersheds of the Skipanon River and Alder and Tansy Creeks. The Sitka spruce (*Picea sitchensis*) wetland forest and swamp communities found here are considered globally rare.¹ It has been estimated that 77% of the tidal forested and scrub-shrub wetlands in the Columbia River Estuary existing in the late 1800s was lost by the 1980s.² Of the remaining Sitka spruce forested swamps along the Pacific coast, those along the lower Columbia River are the largest and southernmost.³

Within the Columbia Quiet Waters initiative area NCLC has conserved approximately 467 acres of land comprised by 13 properties varying in size from less than one acre to 121 acres. Our goals in this unique landscape are to conserve this rare and declining wetland ecosystem and maintain and promote wildlife corridors and ecological connectivity through a green infrastructure approach.

History & Geology

The Columbia Quiet Waters initiative is situated in the northern region of a series of stabilized parallel dune ridges known as the Clatsop Plains (Figure 3). The Clatsop Plains are bordered on the west by the Pacific Ocean, on the north by the mouth of the Columbia River, on the east by the foothills of the Coast Range, and on the south by the Necanicum River estuary. While dune formation began thousands of years ago, the landscape we see today is primarily an artifact of three relatively recent human alterations: (1) the south jetty construction at the mouth of the Columbia River, (2) dune stabilization efforts,^{4,5} and (3) alterations to stream hydrology.⁶

(1) Jetty Construction

In 1792, the discovery of a route that enabled large ships to access the river opened the Columbia River up to shipping and trading.⁵ However, crossing the mouth of the Columbia River was and still is today the most treacherous bar crossing in the world. To improve navigation and access to the river, construction of the south jetty began in 1885 with the north jetty construction to follow a couple years later.⁷ After the south jetty was in place, sand accretion and subsequent dune formation along the North Coast dramatically increased.⁷ The influence of sand deposition from the Columbia River in dune creation now exceeded influences from offshore sand deposits.⁷

(2) Dune Stabilization

The Clatsop Plains area was dominated by rolling grasslands when Lewis and Clark arrived, but is now mostly covered by the introduced invasive species, Scotch broom (*Cytisus scoparius*) and European beach grass (*Ammophila arenaria*), as well as native shore pines (*Pinus contorta*) that were planted to stabilize blowing sand. Inland dune ridges, which were historically stabilized with native coastal prairie plants, became pasture for grazing cattle. Since native prairie plants are shallow-rooted, heavy grazing by cattle began to break down

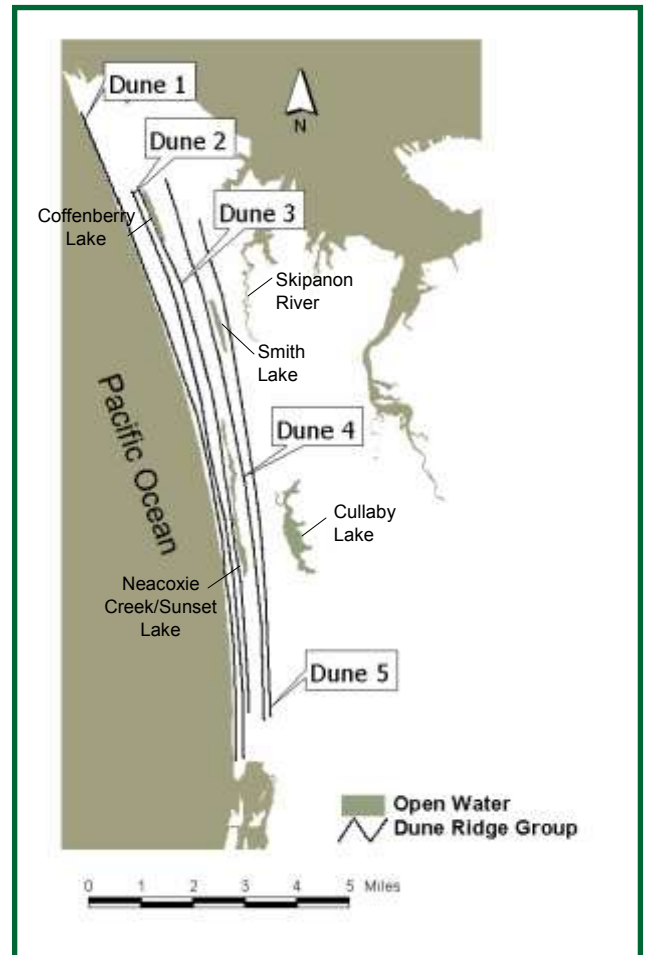


Figure 3. The Clatsop Plains region is characterized by five main dune ridges and many interdunal lakes.⁵



the root structure, destabilizing the dune ridges and causing the sand to begin blowing farther inland. Land managers ultimately determined that the establishment of vegetative cover on open sand offered the best approach for permanently stabilizing dune ridges throughout the Clatsop Plains. In lieu of native vegetation, a series of non-native species were introduced for dune stabilization, including Scotch broom and European beach grass. The area now supports some grazing but is primarily being developed for destination resorts, golf courses, and rural residential home-sites.

(3) Hydrological Alterations

Historically, the forested dune ridges and associated wetlands of the Clatsop Plains were connected hydrologically to Neacoxie Creek and the Neawanna-Necanicum riverine system. However, the construction of dikes to control flooding, stream piracy and channel abandonment for irrigation and other purposes, segmentation of channels into dune lakes and swamps, and filling of marshes with sand mined from local dune ridges have greatly affected hydrological and ecological connectivity.⁶



Climate

Along Oregon's North Coast, the difference between the mean temperature during the warmest and coldest months is small, varying by less than 20°F, with average high temperatures of 50.9°F and 67.1°F in January and July, respectively. Annual precipitation for the Clatsop Plains region averages 76.2 inches,⁸ with an average of 11.35 inches of rain in January and declining to an average of 1.27 inches in July, the driest month. Coastal fog, which occurs in the warmer months, reduces the moisture loss that would typically occur during the summer. Freezing temperatures and snow fall are infrequent and of short duration. Winds are generally from the northwest during the summer and from the southwest during the winter, bringing heavy precipitation with gales reaching velocities in excess of 74 miles per hour. Some severe winter storms, such as the 2007 storm, attain velocities of 85-120 miles per hour, and are an important disturbance regime for coastal habitats. These high velocity winds move enormous quantities of sand inland and the dunes of the Clatsop Plains are formed predominately during these winter storm events.^{9,4}



Highway 101 flooding⁵



Haystack Rock¹



Stormy Pacific Ocean⁶

Population & Planning

The Columbia Quiet Waters initiative encompasses nearly the entire Urban Growth Boundary of the City of Warrenton. Warrenton is an area of rapid population growth, experiencing an approximately 20% increase in population between 2000 and 2012.^{10,11} With a growing population base comes development pressure that can alter land use patterns. In the City of Warrenton this has resulted in the filling of native wetlands, diking and conversion of historic farms to commercial and residential uses.

In order to achieve our mission and collaborate with cities and counties facing difficult challenges, North Coast Land Conservancy works within the framework of statewide planning goals and local Comprehensive Plans to implement conservation objectives. State law requires Comprehensive Plans to be consistent with Oregon's 19 statewide planning goals, which were first adopted in 1973. These goals are meant to express the state's policies on land use and address topics such as citizen involvement, housing, and natural resources.¹² Focusing on these goals North Coast Land Conservancy works with the City of Warrenton and Clatsop County to implement their Comprehensive Plans.

NCLC focuses on the following state wide planning goals:

- **Goal 4:** Forest Lands
- **Goal 5:** Natural Resources Scenic and Historic Areas, and Open Space
- **Goal 6:** Air, Water, and Land Resources Quality
- **Goal 8:** Recreational Needs
- **Goal 16:** Estuarine Resources
- **Goal 17:** Coastal Shorelands
- **Goal 18:** Beaches and Dunes
- **Goal 19:** Ocean Resources

For a review of these statewide planning goals please see the Oregon Department of Land Conservation and Development website (<http://www.oregon.gov/LCD/Pages/goals.aspx>).



Conservation Goals & Prioritization Strategy

Broadly, the conservation goals of NCLC are to conserve green infrastructure by protecting lands that contribute to a fully functioning coastal landscape where healthy communities of people, plants and wildlife all thrive. We are dedicated to conserving the diversity of habitats that exist within our service area, and maintaining connectivity between them through a green infrastructure approach. This plan outlines NCLC’s conservation goals and prioritization strategy for the Columbia Quiet Waters initiative. In order to prioritize and visualize our conservation strategies, within the Columbia Quiet Waters initiative, we established a system for ranking priority habitats, ecological connectivity, and land use patterns (see Appendix B for ranking system).

Priority Habitat Types

NCLC’s service area encompasses a wide array of habitats within the Coast Range Eco-region, stretching from coastal prairie to temperate rainforest and from estuaries to headwater streams. With this diverse landscape in mind, NCLC has developed a systems level approach to our initiatives targeting key habitat types within the context of broad ecological values (e.g., wildlife corridors and connectivity) within different regions of our service area.

The habitat types that NCLC has prioritized for conservation are aligned with those identified in the Oregon Department of Fish and Wildlife’s Oregon Conservation Strategy,¹³ Pacific Coast Joint Venture’s Lower Columbia Plan,¹⁴ the Oregon Department of Land Conservation and Development’s Oregon Statewide Planning Goals¹² and various local Comprehensive Plans. The Oregon Conservation Strategy designated more strategy habitats in the Coast Range eco-region than any other eco-region, highlighting the importance of conservation efforts within NCLC’s service area. Below is a list of strategy habitat types from the Oregon Conservation Strategy of particular interest to NCLC within our Columbia Quiet Waters initiative, from highest to lowest priority.

- Wetlands, including depressional forested wetlands
- Freshwater aquatic and riparian areas
- Late successional mixed conifer forests
- Coastal dunes
- Coastal prairie
- Estuaries



Descriptions of Priority Habitats

Depressional Wetland Forest and Shrublands

Despite covering less than 2% of Oregon,¹⁵ the ecological and economical value provided by wetlands is disproportionately great. In addition to providing critical plant and animal habitat, wetlands protect water quality. Acting as “nature’s kidneys,” wetlands filter out sediment, excess nutrients, and pollutants. Through their ability to store water, wetlands protect the natural and manmade environment by attenuating floodwaters and storm surges.

In Oregon, wetland acreage has declined by more than 1/3 in the last 200 years.¹⁵ It has been estimated that more than 3/4 of the tidal forested and scrub-shrub wetlands in the Columbia River Estuary existing in the late 1800s were lost by the 1980s.² The Sitka spruce wetland forest and swamp communities found here are now considered globally rare.¹ Because of the quality and frequency of declining wetland types within the Columbia Quiet Water initiative, forested wetlands are our top habitat protection priority.



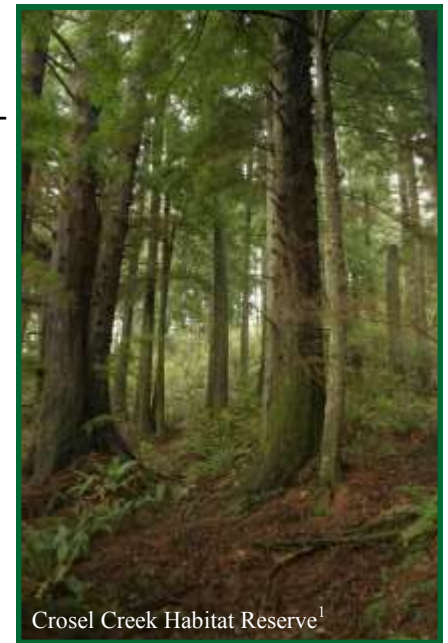
Freshwater Aquatic & Riparian Areas

Freshwater aquatic habitats include freshwater ponds, freshwater emergent wetlands, and riverine habitats. Within the Lower Columbia River region the U.S. Fish and Wildlife Service has identified nearly 2,000 acres of freshwater aquatic habitat as critical for protection.¹⁴ Riparian areas, which are transition zones between aquatic and terrestrial habitats, provide critical habitat to many species by providing refuge, mitigate runoff and erosion, and provide many other ecosystem services.



Late Successional Forest

Most late successional forests within the Columbia Quiet Waters initiative are located on stabilized dune ridges. These forests can best be described as dominated by Sitka spruce and with lesser occurrences of western red cedar (*Thuja plicata*). The understory is most often comprised of salmonberry (*Rubus spectabilis*), evergreen (*Vaccinium ovatum*) and red huckleberry (*Vaccinium parvifolium*), sword fern (*Polystichum munitum*), deer fern (*Blechnum spicant*), and salal (*Gaultheria shallon*), with hardwoods such as Pacific crabapple (*Malus fusca*) and cascara (*Rhamnus purshiana*) appearing in light gaps and windthrow areas. Many forested areas in the region have been logged, making late successional forests a rare habitat.



Coastal Dunes

Coastal dunes include foredunes, sand spits, and active to stabilizing back dunes. Coastal dunes provide important transition zones and edge habitat for a variety of species. Portions of older stabilized dunes, dominated by Sitka spruce, have been lost to sand mining and development within in the Clatsop Plains.

Coastal Prairie

Coastal prairie habitat within the Columbia Quiet Waters initiative is found mostly in the Clatsop Plains area where much has been lost to rural residential development. Where coastal prairie remains, species composition has often been altered by human activities.



Estuaries

Estuaries are the grand interface of freshwater and saltwater, where rivers and streams meet the ocean. These transition zones serve as key habitats for myriad species, including salmonids and various types of shellfish. Estuary conditions can be greatly influenced by the condition of the associated watershed. The Columbia estuary is fed by the Columbia River, which drains portions of seven states and two Canadian provinces. Because of the number of other conservation groups working within the Columbia River estuary, NCLC focuses on other habitats within the Columbia Quiet Waters initiative.

Mapping Methodology

The conservation plan focuses on wetlands (Figure 4), land use/land cover (Figure 5), parcel size (Figure 6), and zoning (Figures 7 and 8) to model the most appropriate places to focus NCLC’s conservation efforts within our Columbia Quiet Waters initiative. To better understand and visualize our initiative we used current data from U.S. Fish and Wildlife, the City of Warrenton, Clatsop County, the U.S. Geologic Survey, and the U.S. Department of the Interior to map the current land use and habitat distributions using ArcMap 10.1 GIS software.

To concentrate our efforts in areas that not only meet NCLC’s goals, but those of Clatsop County, the City of Warrenton, Oregon Statewide Planning Goals and our many partners, we ranked each dataset to support comprehensive plans and NCLC’s conservation goals (rankings can be viewed in Appendix B).

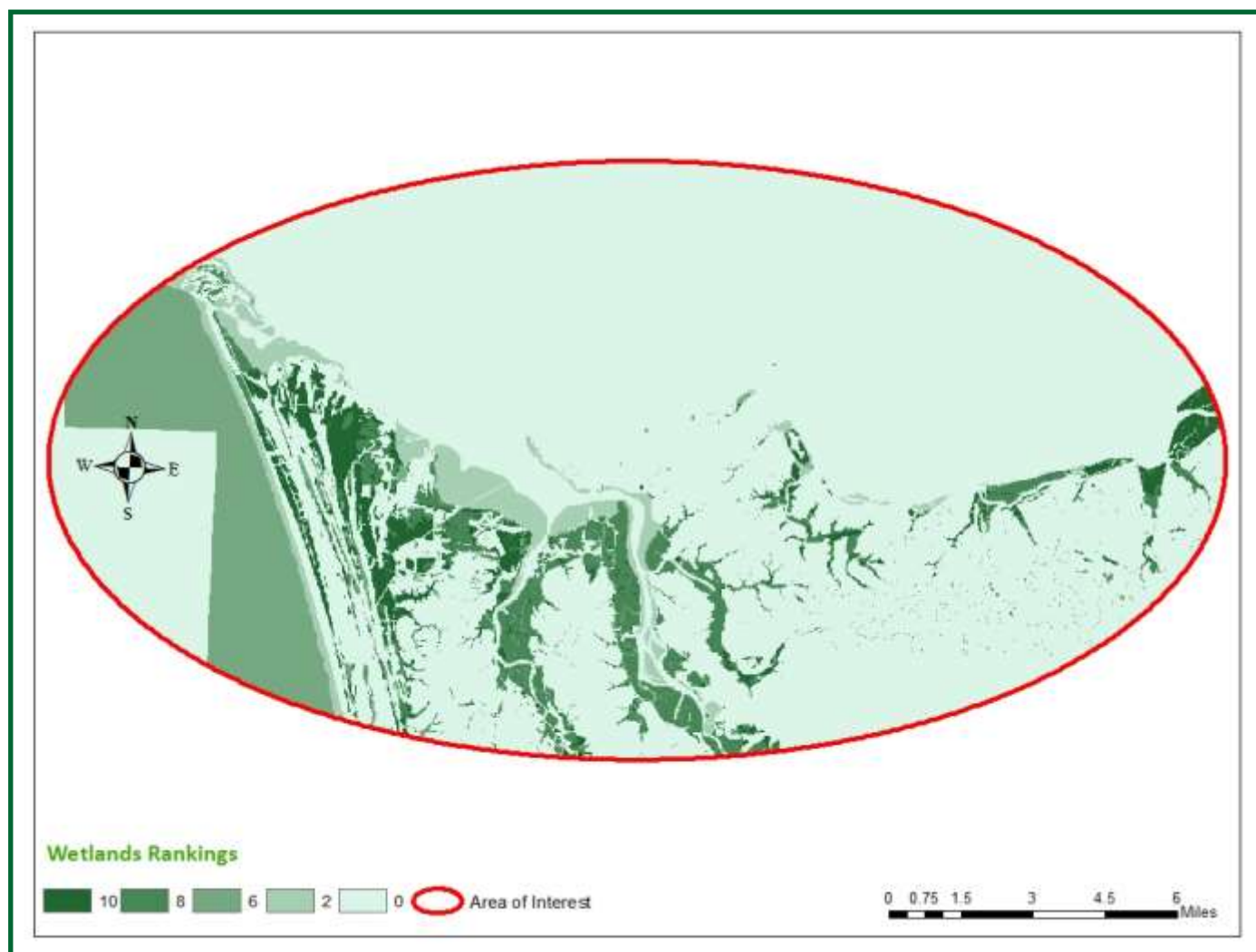


Figure 4. Wetlands data was ranked based upon seven categories with scores ranging from 0 to 10: estuarine and marine deep water (0), uplands (0), estuarine and marine (2), freshwater pond/lake (6), freshwater emergent (8), riverine (8), and freshwater forested/shrub (10) (no category was scored (4)).

Scoring Manipulation

Using the data listed above, NCLC’s staff and Conservation Committee reviewed and ranked each dataset on a scale of -2 to 10 based upon the current land condition, type of habitat, and parcel size that best reflect priorities within the Columbia Quiet Waters initiative.

In our first analysis, the datasets were all weighted equally, overlaid, and their ranks summed. Analysis of the initial outputs demonstrated that by scoring larger parcels higher, parcel size was outweighing important habitat types. In order to compensate for this NCLC weighted zoning, land use/land cover and wetlands type 2:1 over parcel size. Devaluing parcel size in our model prevented critical areas that were undeveloped, but heavily parcelized, from being scored too low, while not allowing small, developed parcels to skew the final results (Figure 9). Another reason for devaluing parcel size was because our model could not account for large contiguous parcelized areas with common ownership. The maps derived from NCLC’s analysis are one step toward defining the green infrastructure of the area, prioritizing larger intact hubs and the wildlife corridors that connect them.

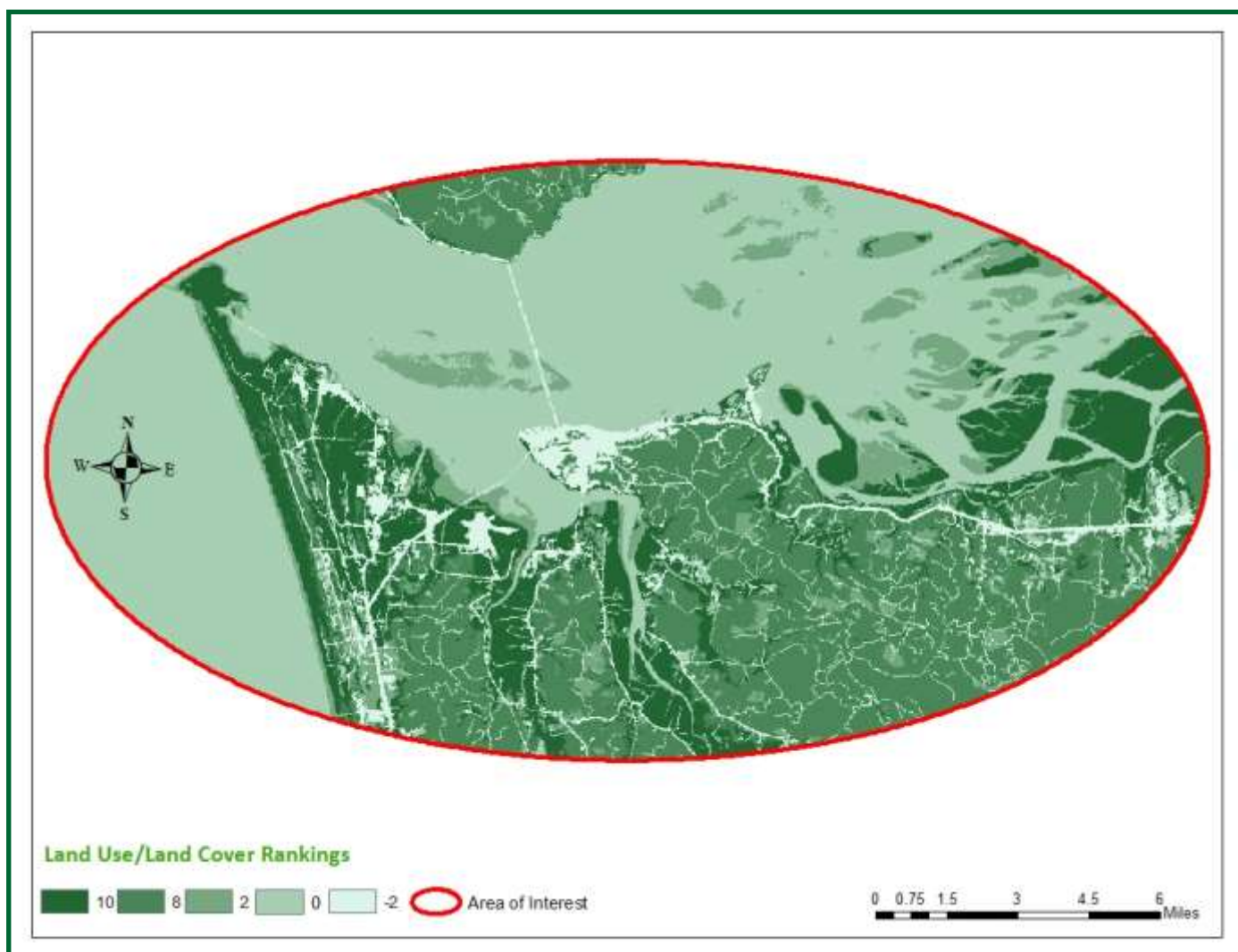


Figure 5. Land use/land cover data was ranked based upon six categories with scores ranging from -2 to 10: developed (-2), open water (0), agriculture (0), rock/sand/clay (2), grasslands/herbaceous (2), forest (8), and wetlands (10) (no category was scored (4) or (6)).

Success and Limitations

GIS analysis has become a method commonly used by land conservation groups to visualize and develop conservation plans. These maps are an important piece of NCLC's initiative-driven conservation planning model, which help prioritize and focus our work. The maps not only highlight high value areas already known to NCLC through field work and working with landowners, but also highlight high conservation potential in areas that NCLC has not worked. The maps allow NCLC to take a step back and visualize, at a landscape level, how we might be better able to build wildlife corridors or prioritize individual parcels within our Columbia Quiet Waters initiative. Though not explicitly modeled, the proximity of high ranking parcels to other conserved lands is valued highly in NCLC's site evaluation process. Focusing on properties adjacent or close to public parks, existing NCLC properties, and other protected natural areas promotes the ecological connectivity NCLC strives for.

While the maps contained in the report display potential wildlife corridors and parcels, NCLC is a conservation organization that is firmly rooted in the ground and nothing can replace the importance of on the ground site visits and the detailed knowledge of the land that is derived from these visits.

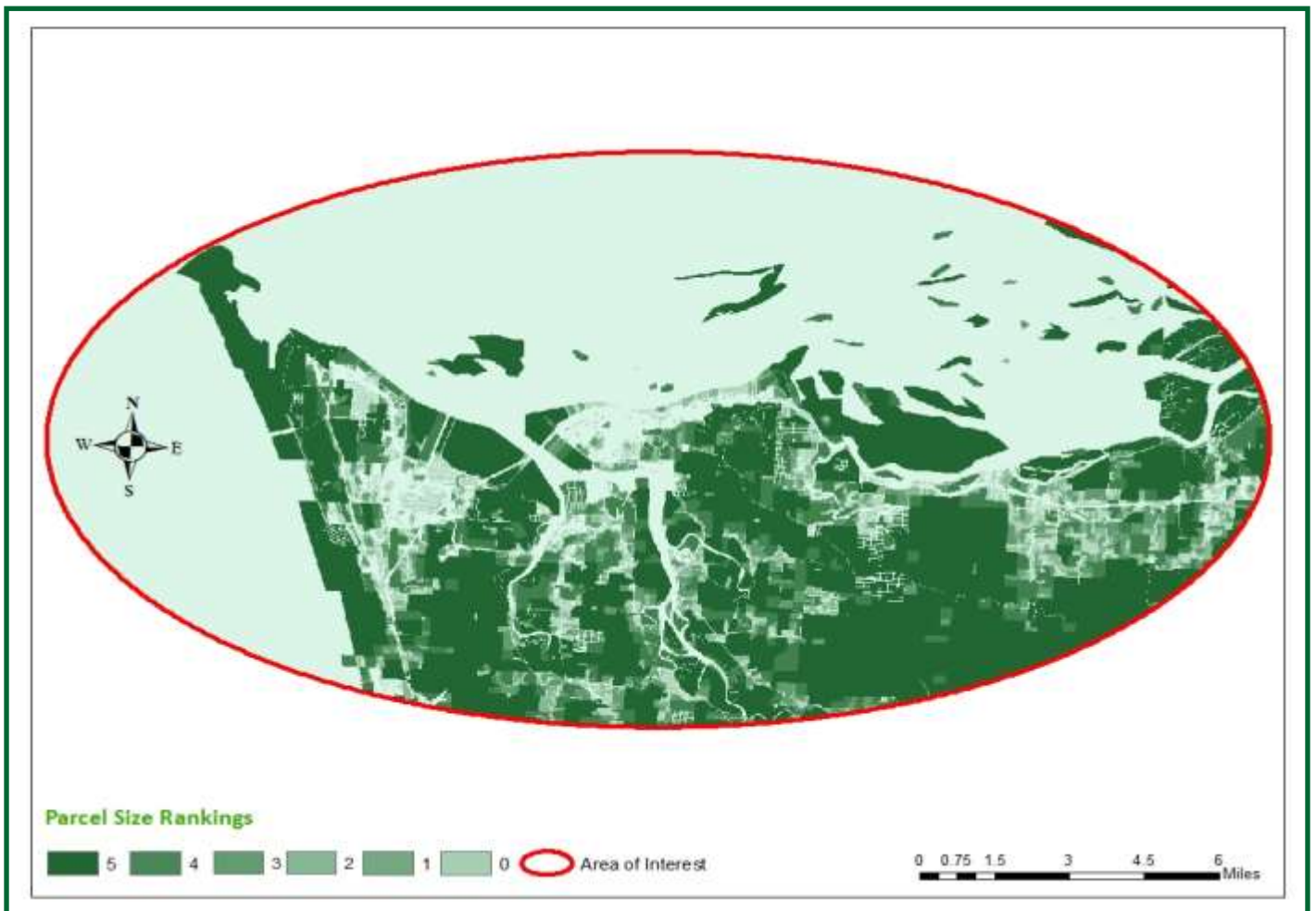


Figure 6. Parcel size data was ranked based upon six categories with scores ranging from 0 to 5: under 1 acre (0), 1.1-5 acres (1), 5.1-10 acres (2), 10.1-20 acres (3), 20.1-50 acres (4), and over 50 acres (5).

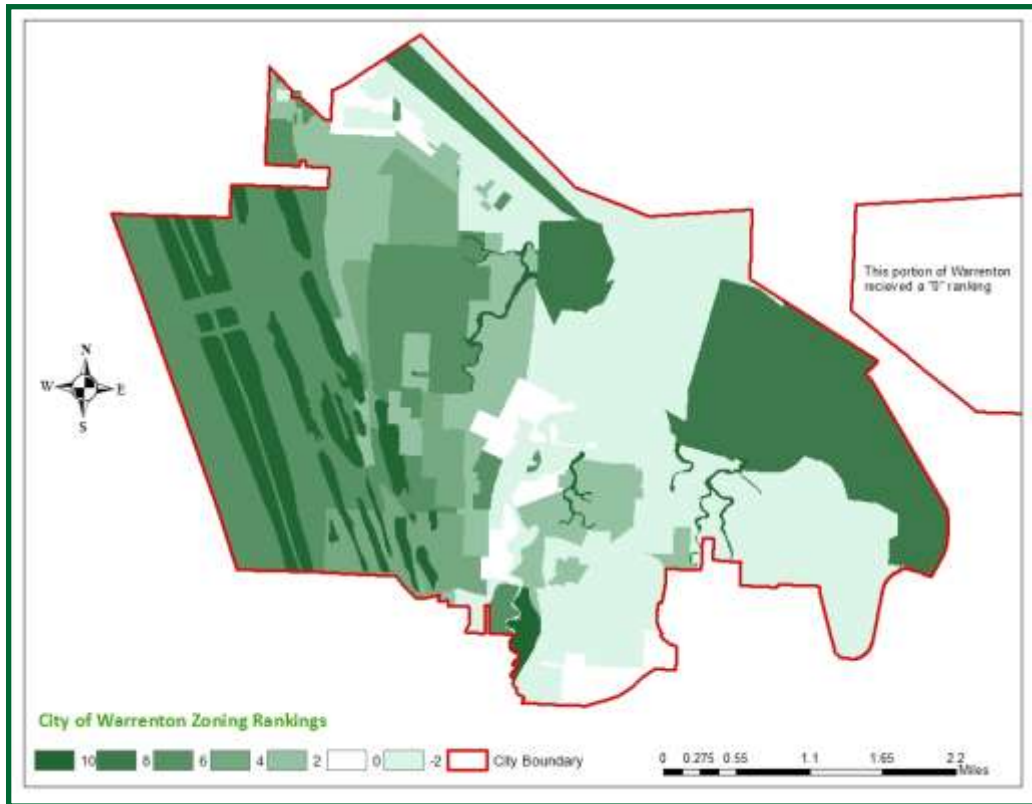


Figure 7. Warrenton zoning data were ranked based upon eleven categories with scores ranging from -2 to 10: general industrial (-2), aquatic development (-2), water dependent industrial/commercial (-2), recreational commercial (0), high density residential (0), intermediate/medium density residential (2), low density residential (4), open space institutional (6), growth management (6), aquatic natural (8), and lake/freshwater wetlands (10).

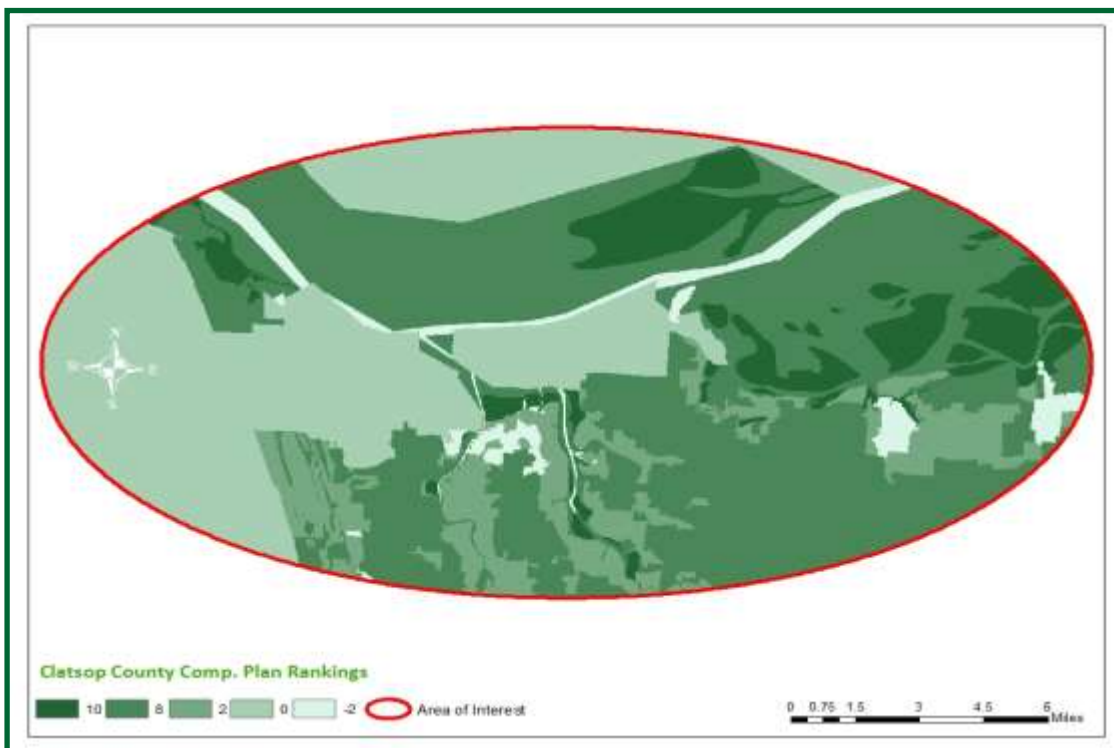


Figure 8. Clatsop County Comprehensive Plan goals data were ranked based upon five categories with scores ranging from -2 to 10: development (-2), rural lands/rural agricultural (2), conservation resources (8), conservation forest lands (8), and natural lands (10) (no category was scored (4) or (6)).

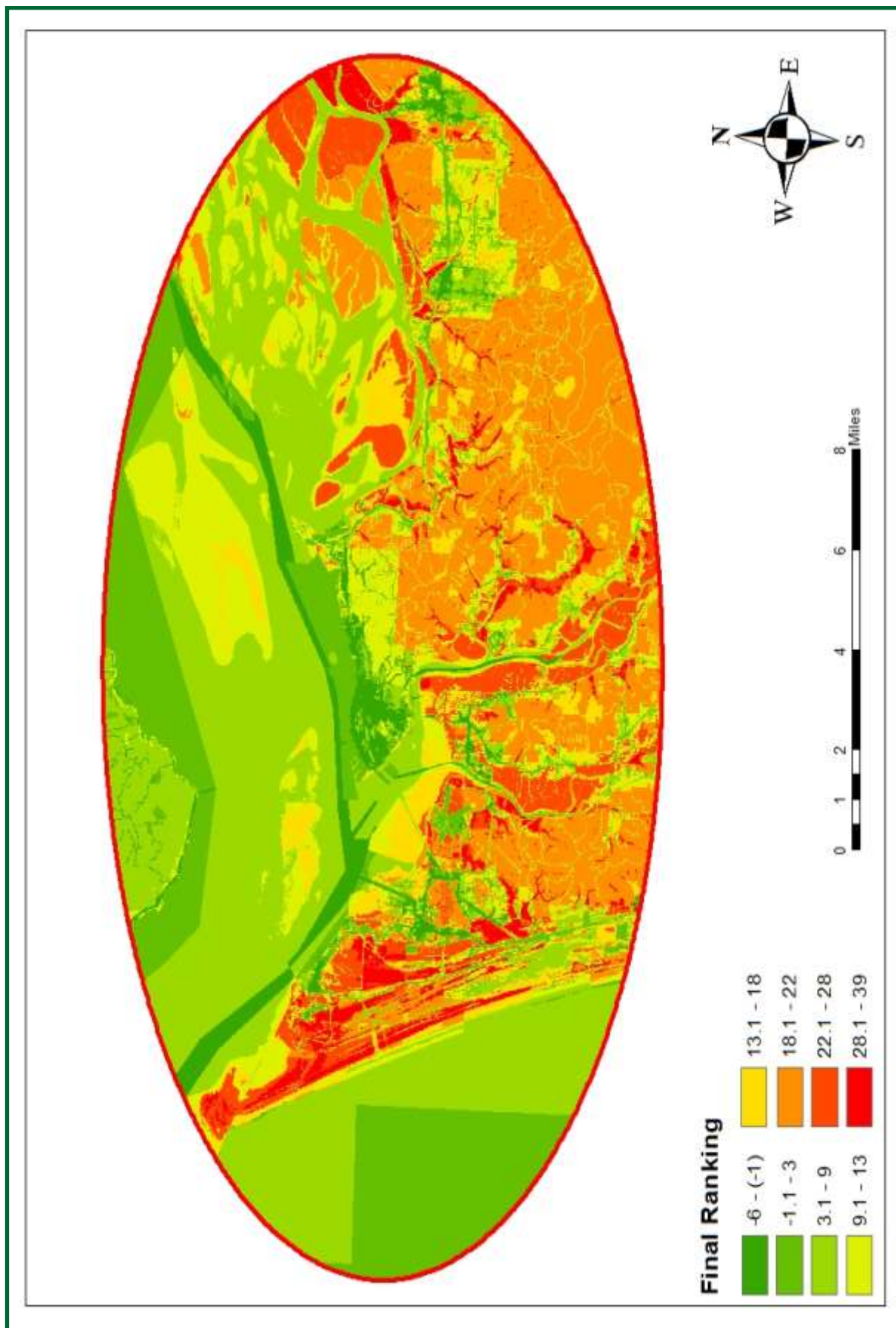


Figure 9. The final ranking map was based upon five datasets including land use/land cover, wetland type, City of Warrenton zoning, Clatsop County Comprehensive Plan goals, and parcel size. Areas with scores ranging from -6 to 9 are considered low priority, scores from 9.1 to 22 are considered medium priority, and scores from 22.1 to 39 are a high priority for protection.

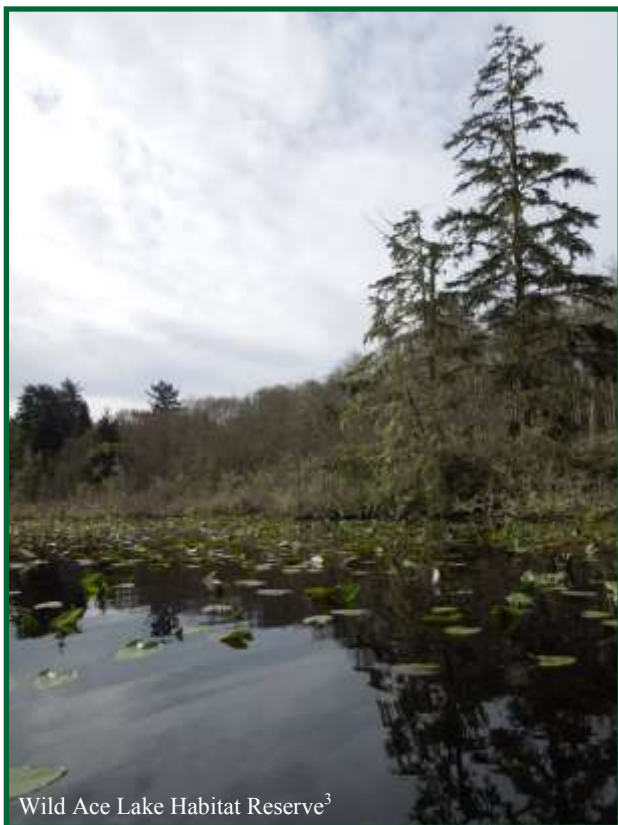
Implementing the Plan

NCLC employs a variety of strategies for land conservation and stewardship in perpetuity. Strategies vary depending on land ownership, condition of the land, including existing and potential conservation values, and other factors. NCLC selects land and easement projects through a defined process using selection criteria consistent with our mission. NCLC inspects properties before buying or accepting donations of land to ensure that they meet the organization's criteria. Before pursuing a conservation project, NCLC evaluates whether it has the necessary skills and resources to protect the property's conservation values and, if not, NCLC engages in a partnership with another qualified conservation organization to accomplish shared conservation goals.

Land Acquisition Strategies

Acquisition from Private Landowners

NCLC strives to build lasting relationships within the community that not only build our capacity for conservation but also build strong partnerships. Working with willing landowners, NCLC looks to conserve high value resource lands. This strategy not only includes fee simple acquisition of properties but also encompasses working with willing landowners on land donations.



Acquisition from Public Entities

Over the years NCLC has built relationships with the City of Warrenton and Clatsop County which have allowed the trust to acquire a large portion of land currently held in the area (e.g. Wild Ace Lake and Sand Creek). As large landowners in the region, municipalities and political subdivisions of the state are important resources and partners for a multitude of projects within the Columbia Quiet Waters initiative.

Conservation-in-Lieu

This conservation strategy is used almost exclusively within the Columbia Quiet Waters initiative. Conservation-in-lieu pertains to the process by which the Oregon Department of State Lands (DSL) and the U.S. Army Corps of Engineers (USACE) mitigate for the fill of wetlands, using the following options:

- Cash-in-lieu of mitigation;
- Enhancement of wetlands;
- Restoration of wetlands;
- Creation of wetlands; or
- Conservation-in-lieu of mitigation

NCLC will work with landowners in the wetland mitigation process, but generally only if conservation-in-lieu of mitigation is the selected mitigation option. NCLC believes conservation-in-lieu is the best mitigation option to build connectivity and protect native, intact and high functioning wetlands. However, NCLC does not participate in all conservation-in-lieu projects. Currently, conservation-in-lieu of mitigation requires the developer to protect wetlands at a 10:1 ratio (e.g. if one acre of wetlands is filled, ten acres must be protected).



Thompson Creek and Stanley Marsh Habitat Reserve³

Conservation Easements

NCLC's preference is to pursue fee simple acquisition but understands this might not always be an option for NCLC or the landowner. In certain situations NCLC will work with willing landowners to develop and place a conservation easement on their property.

A conservation easement is one of the most traditional tools in land conservation. Also known as a conservation restriction, it is a legal agreement between a landowner and a land trust or government agency that permanently limits uses of the land in order to protect its conservation values. It allows landowners to continue to own and use their land, and they can also sell or pass the land onto their heirs.¹⁶

Stewardship Strategies & Framework

The management of NCLC's conservation lands is guided by what is ecologically appropriate and what is feasible given the human and financial resources available. NCLC considers the long-term funds and staff-time required to enhance and conserve each piece of land it considers purchasing or accepting, and does not accept properties unless the board is confident that the needed resources will be available. NCLC's stewardship program is designed to protect and enhance the conservation values of NCLC's properties and to maintain good relationships with landowners.

In order to fulfill the purposes of the stewardship program, when a property is acquired and NCLC becomes responsible for its stewardship, a management plan is created. Each management plan is guided by one of the following stewardship strategies that inform NCLC’s land management practices.

ECOSYSTEM PROTECTION by Land or Conservation Easement Acquisition

Protection by acquisition or easement is a stewardship strategy involving securing and connecting functioning, healthy ecosystems and implementing actions necessary to maintain natural functions within these systems over the long-term (e.g., protecting buffer areas). Protection can also be a management tool, providing a potential natural condition reference system to serve as a guide during the planning of enhancement activities on nearby degraded systems.

ECOSYSTEM PROTECTION by Passive Ecological Enhancement

Passive ecological enhancement is a stewardship strategy that removes all ecosystem-degrading disturbances (e.g., livestock grazing, wildlife barriers, invasive species infestations, dikes, and culverts) in order to allow an ecosystem to recover through natural processes. Allowing time for a degraded ecosystem to recover through natural processes is a tool that allows NCLC to evaluate ecosystem health and assess if there may be a need to intervene with more active habitat development.



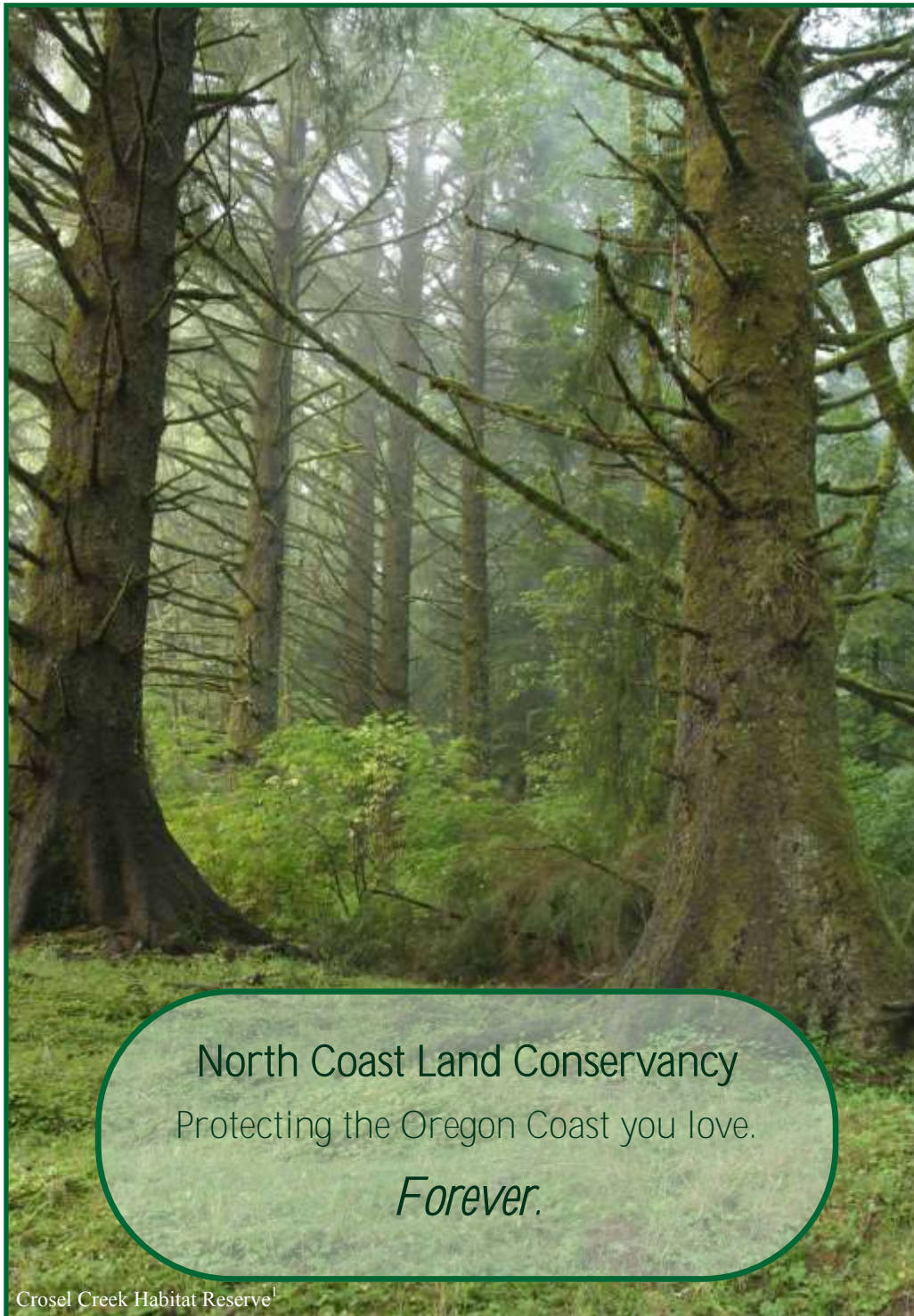
ECOSYSTEM PROTECTION by Active Habitat Development

Active habitat development may be necessary if passive ecological enhancement is unsuccessful. Using preserved, intact ecosystems as a guide, habitat development activities may include the re-introduction of native plant and animal species (e.g., keystone species, rare species) and adding structure (e.g., large woody debris).



In addition to NCLC taking on the full responsibility of stewardship by implementing one of the above strategies, we also work with partners to create a network of community support for the mission of ecosystem protection that advances stewardship of the North Oregon Coast.

The maps and the Columbia Quiet Waters Conservation Plan work to establish a basis and rationale for habitat conservation within the initiative. They should be used as a first step in gauging the land trust's interest in a property and how the property advances our overall goals within the initiative, but should not replace actual on the ground review of individual properties by staff, the Conservation Committee and/or the Board of Directors.



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- ¹³ U.S. Geological Survey (2000) Oregon: Wetland Resources. Available at: <http://or.water.usgs.gov/pubs/Online/Html/WSP2425/>
- ¹⁶ Land Trust Alliance (2013) Conservation easements. Available at: <http://www.landtrustalliance.org/conservation/landowners/conservation-easements>

Photo Sources

¹ Neal Maine, PacificLight Nature Images

² Randall Henderson, North Coast Land Conservancy board member

³ North Coast Land Conservancy staff or volunteer

⁴ http://www.coastweekend.com/coastal_life/the-sands-shift-on-the-clatsop-plains/article_3e94c2cc-5402-11e1-b932-001871e3ce6c.html

⁵ Jeremy C. Ruark, Seaside Signal

⁶ http://www.oregonlive.com/pacific-northwest-news/index.ssf/2011/03/oregon_coast_tsunami_brookings_crews_work_through_wind_and_rain_to_float_a_sunken_sailboat.html

⁷ Laura Stimely, Oregon Department of Geology & Mineral Industries

Appendix A.

Selection Criteria for Land & Conservation Easement Acquisitions

Adapted from the Land Trust Alliance's Standards and Practices Guidebook
These criteria are intended to guide rather than limit the actions of the Trust.

Mission Statement

The North Coast Land Conservancy will serve as a resource for northwest Oregon coastal communities and landowners to conserve and protect land in perpetuity for its ecological and cultural values.

Vision Statement

At the North Coast Land Conservancy, we focus our stewardship actions with a mission that holds conservation at its core. Whether we are working on land acquisition projects, facilitating habitat development or participating in outreach programs with the community, our feet remain firmly rooted to the land as we look ahead to our goal: A fully functioning coastal landscape where healthy communities of people, plants and wildlife all thrive.

Goals and Purposes

*To qualify for selection, property **must meet ALL** of these criteria:*

- Property is located within North Coast Land Conservancy's service area.
- The property is in a relatively undisturbed natural or scenic condition or has significant ecological value.
- The property is of sufficient size that its conservation resources are likely to remain intact, even if adjacent properties are developed or sufficient neighboring property is already protected.
- Protection of this property aids sound land use planning, promotes land conservation, and encourages careful stewardship of land and water resources.

Public Benefits & Natural Resource Values

To qualify for selection, a property must meet ONE OR MORE of these criteria:

- The property falls within one of NCLC's initiative areas.
- Contains endangered, threatened, or rare species or natural communities.
- Provides public recreational opportunities consistent with the protection of natural resources.
- Protects quality or quantity of surface or underground waters, or provides natural control of flooding.
- Contains relatively natural ecosystems, natural features, or habitat for wildlife, fish, or plants.
- Contains or has potential to contain natural features of educational or scientific value.

- Contains wetlands, floodplains, waterways, riparian corridors, aquifer recharge areas, watershed, or other lands necessary for protection of water supply, water resources, or wetland habitat.
- Buffers agricultural land, wetlands, wildlife habitats, or other sensitive areas.
- Provides a buffer or is close or contiguous to an existing conservation easement, park, preserve, or other protected land.
- Protects scenic views from public roadways, waterways, or recreation areas.
- Will permit public access for education or recreation.
- Sets an important precedent for resource or open space protection in a targeted area.
- Provides a connection to other open protected or open space lands that is important for movement of wildlife between habitats or through developed corridors.
- Has historical or archaeological value, is adjacent to and buffer for such lands, or contains a certified historical structure.
- Contains unique or outstanding physiographic characteristics.

Feasibility

Factors that may preclude North Coast Land Conservancy's (NCLC) involvement: *A property may meet the selection criteria favoring a land protection proposal and still may not be accepted if one or more of the following considerations apply:*

- The property's values are primarily scenic, but are not readily visible or accessible to the general public.
- The property is small and there is little likelihood of adjacent properties being protected or the property is not of significant size for its purposes.
- The proposed open space is part of a development proposal that, overall, is likely to have significant adverse impacts on conservation resources.
- Adjacent properties are being, or are likely to be, developed in a manner that would significantly diminish the conservation values of the property in question.
- The landowner insists on provisions in a conservation easement that NCLC believes would seriously diminish the property's primary conservation values or the Trust's ability to enforce the easement.
- There is reason to believe that the land/easement would be unusually difficult to manage/enforce, for example because of multiple or fractured ownership, frequent incidence of destructive trespassing, irregular configuration, or other reasons.
- The property is irreparably contaminated.
- The property cannot be acquired by the Trust with reasonable effort in relation to the property's conservation values.
- Ethical or public image problems exist in association with the acceptance of this project.
- NCLC cannot fulfill whatever stewardship responsibilities, i.e., monitoring management, and enforcement, associated with the given property.
- NCLC cannot reasonably secure funds to acquire the property.

Stewardship Framework

Based on NCLC's Stewardship Framework how would you rank this property?

- Properties that are in sound ecological state (e.g., minimal invasive species or disturbances) and require negligible stewardship. NCLC generally asks for 15% of property's value to be placed in a stewardship fund.
- Passive – Removing all ecosystem-degrading disturbances (e.g., livestock, grazing, wildlife barriers, invasive species infestations, dikes, and culverts) in order to allow an ecosystem to recover through natural processes. NCLC generally asks for 20% of property's value to be placed in a stewardship fund.
- Active – May involve planting of native species (trees, shrubs, forbs, and grasses), adding structure (e.g., large woody debris), and reintroducing plant and animal species (e.g., keystone species, rare species). NCLC generally asks for 25% of property's value to be placed in a stewardship fund.

Comments:

The Board's Discretionary Role

All the preceding notwithstanding, the Board of Directors retains discretion over acquisition or disposition and will evaluate each project and proposal on its own merits after careful investigation of the Conservation Committee's recommendation, the property's resources, and its public benefits.

Appendix B.

Ranking System & Data Sources

Layer	Data Source	NCLC Scoring and Process	
Wetlands Type	U.S. Fish and Wildlife - National Wetlands Inventory (http://www.fws.gov/wetlands/Data/Data-Download.html)	Create Wetlands Type clipped shapefile and "union" with Area of Interest. Assign scores.	
		Wetland Type	Score
		Estuarine and marine deepwater	0
		Estuarine and marine	2
		Freshwater pond/lake	6
		Freshwater emergent; riverine	8
		Riverine	8
	Freshwater forested/shrub	10	

Layer	Data Source	NCLC Scoring and Process	
Land Cover	U.S. Geological Survey (http://www.mrlc.gov/nlcd06_data.php)	Create Land Cover clipped shapefile and "union" with Area of Interest. Assign scores.	
		Land Cover Type	Score
		Developed	-2
		Open water, agriculture	0
		Rock/sand/clay	2
		Grasslands/herbaceous	2
		Forest	8
	Shrub/scrub, woody wetlands, emergent herbaceous wetlands	10	

Layer	Data Source	NCLC Scoring and Process	
Clatsop County Taxlot Data	Clatsop County GIS Department - (12-20-2012) (http://www.co.clatsop.or.us/page/933?deptid=6)	Create Taxlot clipped shapefile and "union" with Area of Interest. Assign	
		Parcel Size	
		1 > acre	Score
		1.1 - 5.0 acres	0
		5.1 - 10 acres	1
		10.1 - 20 acres	2
	20.1 - 50 acres	3	
	50 < acres	4	
		5	

Layer	Data Source	NCLC Scoring and Process	
City of Warrenton Zoning	City of Warrenton GIS Department (8-25-2013) (http://www.ci.warrenton.or.us/GIS/)	Create Warrenton zoning clipped shapefile and "union" with Area of Interest. Assign scores.	
		Zoning Type	Score
		General Industrial	-2
		Aquatic Development	-2
		Water Dependent Industrial/	-2
		Recreational Commerical	0
		High Density Residential	0
		Intermediate/Medium Density Resi-	2
		Low Density Residential	4
		Open Space Institutional	6
		Growth Management	6
	Aquatic Natural	8	
	Lake and Freshwater Wetland	10	

Layer	Data Source	NCLC Scoring and Process												
Clatsop County Zoning (Comprehensive Plan Goals)	Clatsop County GIS Department - (12-20-2012) (http://www.co.clatsop.or.us/page/933?deptid=6)	Create Clatsop County Zoning clipped shapefile and "union" with Area of Interest. Assign scores.												
		<table border="1"> <thead> <tr> <th>Zoning Type</th> <th>Score</th> </tr> </thead> <tbody> <tr> <td>Development</td> <td>-2</td> </tr> <tr> <td>Rural Lands/Rural Agriculture</td> <td>2</td> </tr> <tr> <td>Conservation Resources^a</td> <td>8</td> </tr> <tr> <td>Conservation Forest Lands^b</td> <td>8</td> </tr> <tr> <td>Natural Lands^c</td> <td>10</td> </tr> </tbody> </table>	Zoning Type	Score	Development	-2	Rural Lands/Rural Agriculture	2	Conservation Resources ^a	8	Conservation Forest Lands ^b	8	Natural Lands ^c	10
Zoning Type	Score													
Development	-2													
Rural Lands/Rural Agriculture	2													
Conservation Resources ^a	8													
Conservation Forest Lands ^b	8													
Natural Lands ^c	10													

Step	Data Source	NCLC Process													
Create overlay that combines wet-land type, land cover, zoning, and parcel size	Wetland type, land cover, zoning, and parcel size layers were incorporated into the model	<p>Calculated final score: wetland score + land cover score + zoning scores + parcel size score</p> <table border="1"> <thead> <tr> <th>Final Score</th> <th>Ranking</th> </tr> </thead> <tbody> <tr> <td>-6 - (-1)</td> <td rowspan="3">Low</td> </tr> <tr> <td>-1 - 3</td> </tr> <tr> <td>3.1 - 9</td> </tr> <tr> <td>9.1 - 13</td> <td rowspan="3">Medium</td> </tr> <tr> <td>13.1 - 18</td> </tr> <tr> <td>18.1 - 22</td> </tr> <tr> <td>22.1 - 28</td> <td rowspan="2">High</td> </tr> <tr> <td>28.1 - 39</td> </tr> </tbody> </table>	Final Score	Ranking	-6 - (-1)	Low	-1 - 3	3.1 - 9	9.1 - 13	Medium	13.1 - 18	18.1 - 22	22.1 - 28	High	28.1 - 39
Final Score	Ranking														
-6 - (-1)	Low														
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3.1 - 9															
9.1 - 13	Medium														
13.1 - 18															
18.1 - 22															
22.1 - 28	High														
28.1 - 39															

^a The Clatsop County Comprehensive Plan defines conservation (Other) resources as “areas [that] provide important resource or ecosystem support functions such as lakes, wetlands and federal, state and local parks,” and “lands for low intensity uses which do not disrupt the resource and recreational value of the land.”

^b The Clatsop County Comprehensive Plan defines conservation forest lands as “those lands that are to be retained for the production of wood fiber and other forest uses.”

^c The Clatsop County Comprehensive Plan defines natural lands as “those which have not been significantly altered by man and which, in their natural state, perform resource support functions including those functions vital to estuarine or riparian ecosystems.”