

ARCH CAPE FOREST CONSERVATION PLAN

An aerial photograph of a vast, dense forest covering rolling hills and mountains. In the distance, a coastline is visible with several prominent rock formations jutting into the blue ocean. The sky is clear and blue, and the overall scene is bright and natural.

PREPARED FOR: ARCH CAPE DOMESTIC WATER SUPPLY DISTRICT

PREPARED BY: NORTH COAST LAND CONSERVANCY
WITH SPECIES LISTS PREPARED BY CELATA RESEARCH ASSOCIATES

APRIL 2023

PURPOSE

The Arch Cape Domestic Water Supply District hired North Coast Land Conservancy to create a short report summarizing the conservation values and ecological features present on the Arch Cape Forest. This plan is for informational purposes only and is intended to supplement the Arch Cape Forest Multi Resource Management Plan (November 2022) and the Rainforest Reserve and Arch Cape Forest Ecological Road Assessment (expected June 2023).

The Arch Cape Forest was purchased in 2022 by the Arch Cape Water District for the primary purpose of protecting and improving source water quality and quantity. This conservation plan provides a general summary of the conservation values of the property with management recommendations that complement the property's primary goals. NCLC staff conducted the field visit for this report on April 5, 2023 when there was snow in the mountains and many plants were still dormant. Future visits in late spring and early summer are recommended to confirm the presence and distribution of some of the plants and animals listed in this report.



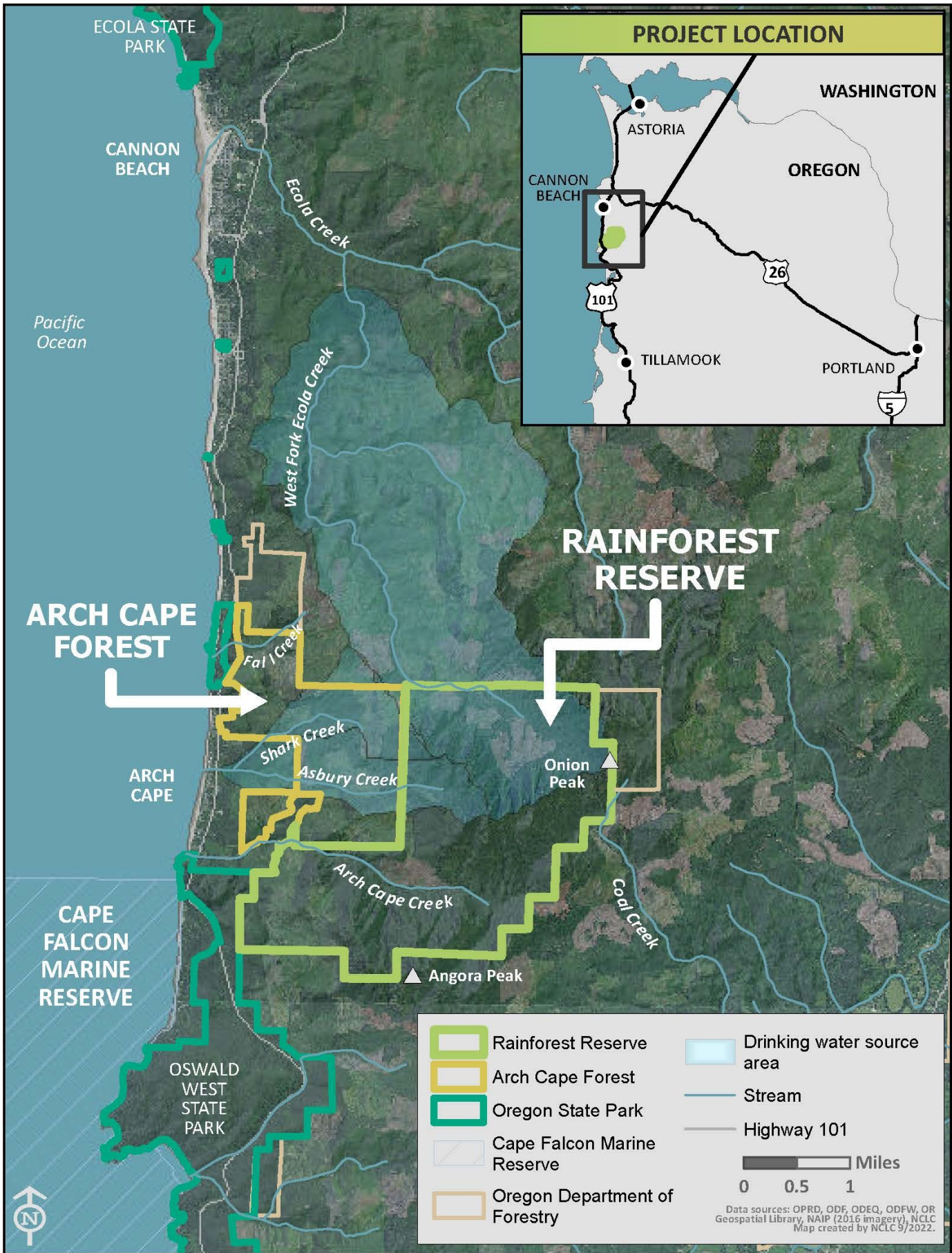
Looking west toward Arch Cape Forest and Pacific Ocean (photo credit: NCLC).

BACKGROUND

The Arch Cape Forest consists of approximately 1,500 acres of coastal temperate rainforest adjacent to Hug Point State Park and NCLC's Rainforest Reserve which is contiguous with Oswald West State Park and Cape Falcon Marine Reserve creating a 32-square-mile resilient sea to summit conservation corridor stretching from the Pacific Ocean to the crests of the Coast Range. The project area protects a large intact area, complements existing ecological networks, and improves connectivity across the landscape. See Map 1 - Context Map on next page.

Oregon coastal forests, including the Arch Cape Forest, lie at the southern end of one of the largest temperate rainforests in the world. This area extends over two thousand miles north through British Columbia and

Map 1. Context Map



into southeast Alaska and is characterized by mild winters and plentiful rainfall. These conditions favor the rapid growth of large coniferous tree species, represented on the north coast by the Sitka spruce, western hemlock and western redcedar associated plant communities. Natural disturbance regimes affecting coastal forests include small to large scale wind events, landslides due to unstable soils and large but infrequent stand replacing forest fires every 300-500 years.

The Arch Cape Forest lies in the lower reaches of the Shark and Asbury Creeks watershed along with several other coastal fronting watersheds. It is bordered on the east and south by the Rainforest Reserve, owned by North Coast Land Conservancy. Land to the north is owned by Lewis & Clark Timberlands and managed for industrial timber production. These coastal facing watersheds rise dramatically from the ocean to Onion peak at over 3,000 feet. This elevation gradient promotes a diversity of plant communities from lowland redcedar to higher elevation Pacific silver fir forests as well as herbaceous and shrubland plant communities on steep slopes and rocky openings.

The entire area in and around the Arch Cape Forest has been managed as an industrial tree farm for almost one hundred years. This has resulted in a patchwork of forest stand ages that tend to be less than 40 years old and in 40-80 acre blocks. These stands were evenly planted and thinned to increase the quantity of merchantable wood and lack the attributes of late successional (old growth) forests that existed prior to European settlement. Old growth forests are typified by not only large trees but high species diversity, large standing and down dead wood, varied age cohorts, and a patchwork of openings. These features are important habitat for many animals that depend on these late seral forests.

As the forest continues to grow and develop under natural disturbance regimes it will provide increased water filtration, retention and moderated stream flows. Well-developed forests provide mitigation to landslide events that increase sediment transfer to streams. Old growth forests can be resilient to climate change by storing large amounts of carbon and moderating temperature. Larger contiguous forests with a host of smaller “micro” habitats allow for climate refugia as plants and animals adapt to changing conditions. The progression to later seral forest condition adds to a historically underrepresented forest stage that many



Water droplets collect on spruce tips (photo credit: NCLC).

threatened species depend.

Ecological forest management can develop old growth forest attributes by reducing over-stocked areas and promoting rapid tree growth as well as breaking up uniform stands of single species plantations. Imitating natural disturbance regimes by creating openings can provide down woody material as well as recruit new tree cohorts or increase understory species diversity.

WILDLIFE HABITAT

The April 5, 2023 field visit included Celata Research Associates wildlife biologist Mike Patterson. Attached to this report are species lists of birds, mammals, amphibians and invertebrates observed on the property or expected to be present based on nearby sites with comparable habitat. Databases of community scientists' observations, including iNaturalist and eBird were also consulted. A map of wildlife habitat and species observations was created with data collected by NCLC staff and volunteers as well as Oregon Department of Fish and Wildlife fish habitat distribution datasets (see following page).

Fish

The Arch Cape Forest includes portions of Asbury, Shark, Fall, and Arch Cape Creeks as well as numerous unnamed perennial and ephemeral streams draining the landscape. Arch Cape Creek flows close to the southwestern property boundary and this reach features coastal cutthroat, coastal Coho salmon, fall Chinook salmon, winter steelhead, and Pacific lamprey (ODFW fish habitat distribution dataset, 1996-2021). Historically, runs of coho and winter steelhead occurred on Asbury Creek up to approximately 1.5 miles east of Highway 101 but a culvert originally constructed in 1937 now prevents fish passage at Highway 101. Asbury and Shark Creeks are classified as fish bearing above this culvert and are likely used by resident cutthroat and rainbow trout.

The most significant human-caused limiting factor to anadromous fish use on the property may be the culvert on Asbury Creek under Highway 101. The Oregon Department of Transportation has scheduled replacement of the highway culvert on Asbury Creek to occur in 2025 with the goal of restoring fish passage.

Stewart (2011) surveyed the lower parts of Asbury and Shark Creeks and identified potential natural barriers and likely limits of anadromous passage if the barrier at the highway was removed. Stewart (2011) notes some anadromous habitat up to the HP-19 crossing on the property may exist (EFM Forest Management Plan, 2017). In 2022 NCLC staff and Mr. Patterson observed cutthroat in Shark Creek and an unnamed tributary upstream of HP-19. Additional assessment of the quality of anadromous fish habitat is needed.

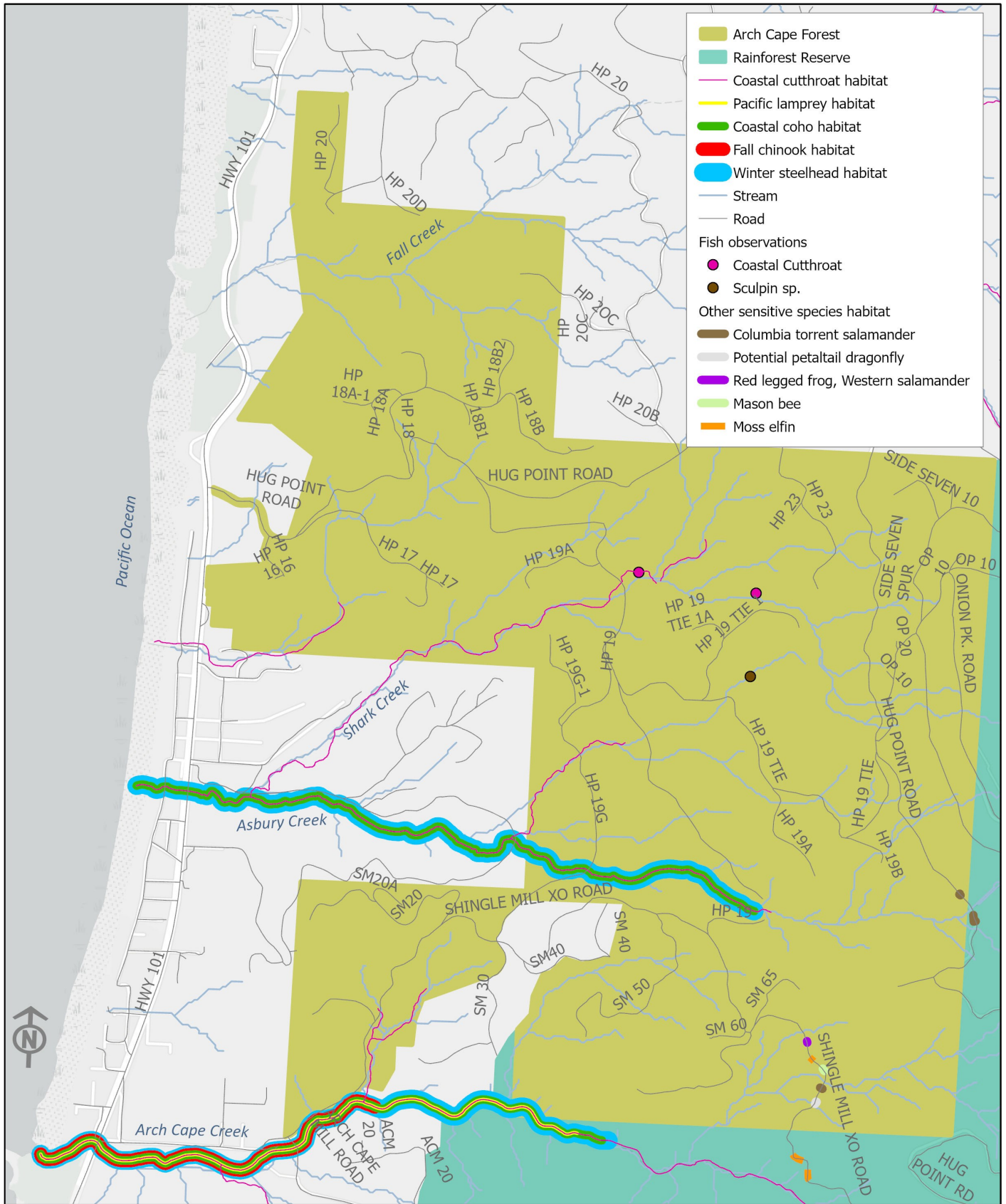
Invertebrates

A complete invertebrate species list was not prepared for this report; however, locations of Oregon sedum, a rock garden species that is the primary host plant for the Moss's elfin butterfly, were documented as possible habitat for the species. The late arrival of spring meant that the timing of this project was not in synch with the Moss's elfin flight season and presence could not be confirmed. Possible habitat for petaltail dragonfly was documented along Shingle Mill XO Road (see attached map). Additional surveying at drier



Moss's Elfin on Oregon sedum (photo credit: Mike Patterson)

DOCUMENTED SENSITIVE FISH AND WILDLIFE HABITAT



0 500 1,000 2,000 Feet

Map created by NCLC April 2023.
Data sources: ODFW, OSU, NCLC

times of year to determine if roadside pocket wetlands are perennial could help to make this determination.

Lee Cain, a local high school science teacher with particular knowledge of native freshwater mussels, was consulted regarding possible mussel habitat on the property. More than three quarters of North America's freshwater mussel species are listed as endangered, threatened or of special concern and freshwater mussels can be indicators of water quality as many are highly sensitive to environmental changes (Pacific Northwest Native Freshwater Mussel Workgroup). Cain's opinion was that Shark and Asbury Creeks are not freshwater mussel habitat presently as the larval stage of their life cycle is linked with anadromous fish, which cannot currently access these streams on property. Arch Cape Creek was not assessed but the presence of anadromous fish and the low gradient of the stream indicate that freshwater mussels could be present in this stream located just off the property.

Birds

A list of more than 90 bird species likely to breed on the property or in adjacent forested areas was developed from observation and based on data extracted from the online eBird database (see Table01). Species of concern that have been noted on nearby analog sites as likely breeders include Northern pygmy owl, pileated woodpecker, band-tailed pigeon, olive-sided flycatcher and willow flycatcher. Watch-list species include Rufous hummingbird and hermit warbler. All these species are very likely to occur on the site.

Nearby forests within Oswald West State Park and an Oregon Department of Forestry-owned tract east of the Arcadia Beach State Recreation Site feature known marbled murrelet habitat. Marbled murrelets require large trees with substantial lateral branching and heavy moss cover; however, there are very few trees that currently meet these conditions within the Arch Cape Forest.

Mammals

Mammal data was inferred from observations of tracks and scat, and anecdotal observations from community members. There is sizable herd of Roosevelt elk, numerous Columbia black-tailed deer; scat from coyote and bobcat have been observed; American black bear and cougar have been reported; and evidence of mountain beaver has been observed. Additional mammal species are listed in the attached Table02.

Amphibians

Based on limited field surveys and observations at analog sites, the full array of native amphibians that occur in the Northern Oregon Coast Range likely occur on the Arch Cape Forest (Celata Research Associates). Species observed on the property include northern red-legged frog, Oregon tailed frog, rough-skinned newt, western red-backed salamander, and Columbia torrent salamander. A list of additional species likely to occur on the property is provided in Table03.



Pacific giant salamander (photo credit: NCLC)

SENSITIVE PLANT SPECIES & HABITAT

Most of the sensitive plant habitat is found along rocky outcrops and ridges located at higher elevations of the Arch Cape Forest and nearby Rainforest Reserve. This habitat is challenging to evaluate because much of the rocky ridgelines and steep slopes are difficult to access and have not been inventoried. There is a section of Onion Peak Road that falls within the property and contains a rock wall upslope of the road that was artificially created when the road was built in the early 20th century and has since naturalized. This area contains several of the sensitive species that have been documented on the Onion Peak bald. Additionally, there is a section of unnamed road near the south boundary of the property that contains unique rocky habitat (see photos below). Several rare plant observations were mapped on the Sensitive Plant & Habitats Map (see following page). On this map potential rocky habitats on the property are represented in grey. Most of these areas were not visited but these areas have the highest potential to contain sensitive plant species and should be inventoried in the future. Lists of documented species of interest and potential species of interest to look out for are included below.

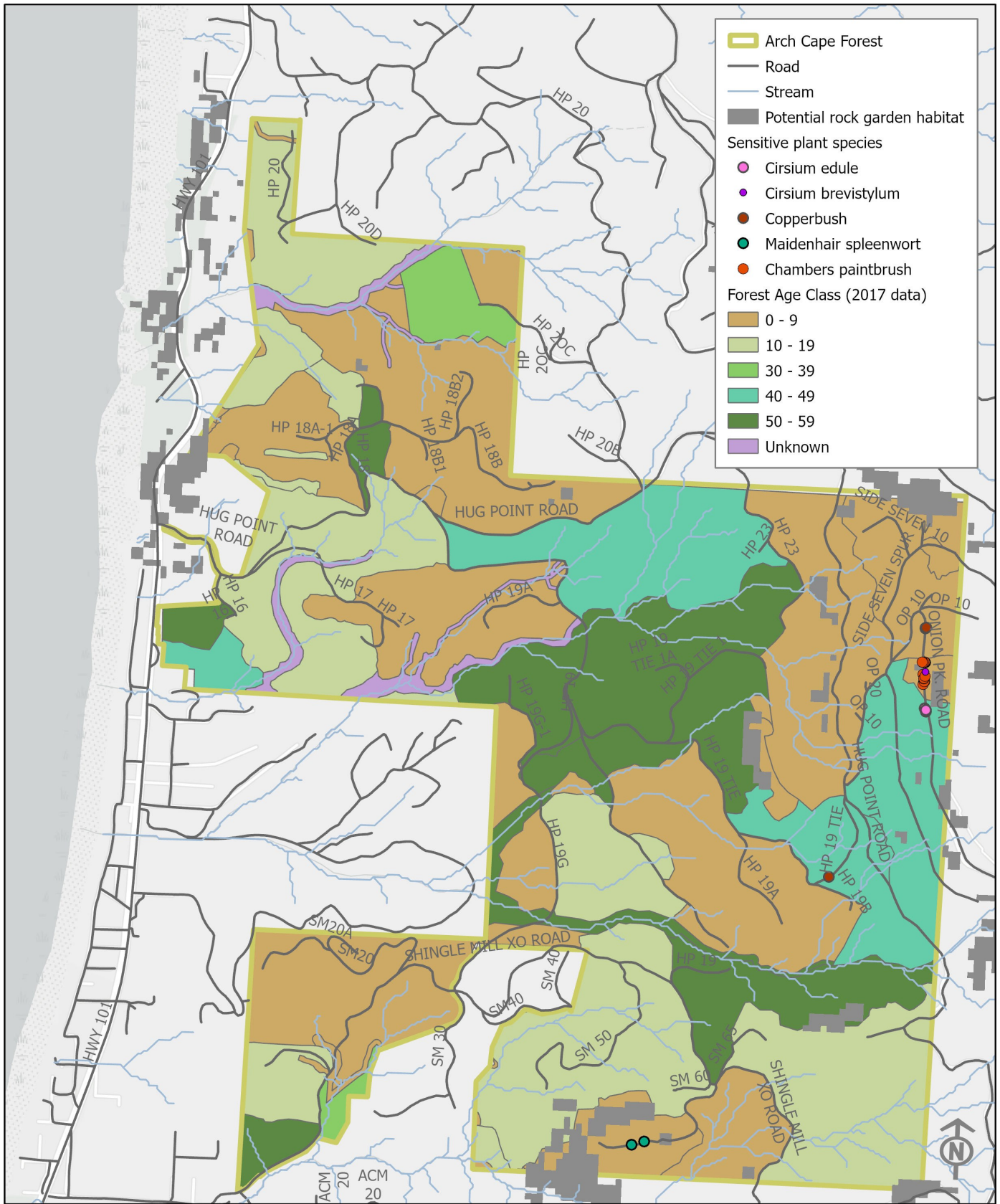


Rock wall along Unnamed road (photo credit: NCLC)



Rock wall along Shingle Mill XO road (photo credit: NCLC)

SENSITIVE PLANT SPECIES & HABITATS



0 500 1,000 2,000 Feet

Map created by NCLC April 2023.
Data sources: ODEQ, OR Geospatial Library, EFM, NCLC

Documented Species of Interest



(photo credit: NCLC)

Native Thistles

- Documented along Onion Peak Road on the Arch Cape Forest and likely to occur elsewhere on the property.
- There are two native thistles that are common along roadsides, edible thistle and short styled thistle.
- These can often be confused with non-native and invasive thistles, including Canada thistle and bull thistle.
- Native thistles are important for pollinators! Make sure land managers and visitors to the forest know proper ID before attempting treatment of non-native thistles.



(photo credit: Mike Patterson)

Oregon stonecrop

- Documented along Onion Peak Road, Shingle Mill XO, and Unnamed Road.
- Oregon stonecrop (sedum) leaves and flowers are the host plant for Moss's Elfin butterflies.
- Found on rocky walls and exposed cliffs, this species is often found with rare or sensitive plants in the Onion Peak complex
- Representative of a rare habitat type.
- Flowers are important nectar for pollinators



(photo credit: Mike Patterson)



MAIDENHAIR SPLEENWORT
(*Asplenium trichomanes*)

Maidenhair spleenwort

- Documented in wet seeps along the rock walls of the unnamed road near the southern boundary
- Prior to the 4/5/23 observations of these plants in the Arch Cape Forest, the only other documented population in Clatsop County was on Angora Peak

(photo credit: Mike Patterson)

Copperbush

- Documented on HP-19 TIE Road (one plant)
- Uncommon plant in Clatsop County, which represents the southern extent of its range
- Deciduous shrub found only in higher elevation peaks in this region.



COPPERBUSH
(*Elliottia pyrolifora*)

(photo credit: Mike Patterson)

Potential Species of Interest to Look For

Queen of the Forest (*Filipendula occidentalis*)

- Documented along Arch Cape Creek upstream of Arch Cape Forest and at multiple locations on adjacent Rainforest Reserve
- Best time to survey is when it is in flower in June-July, near seeps and riparian areas.
- ORBIC list 1, meaning that it is Threatened or Endangered throughout its range.
- G2S2 status, meaning it is imperiled throughout its range and critically imperiled in Oregon.
- State Candidate for listing as Threatened or Endangered



(photo credit: Eric Owen, NCLC)

Saddle Mountain Bittercress (*Cardamine pattersonii*)

- Documented on Angora Peak complex
- Best time to survey is when in flower, in May. Look along rocky slopes, including unnamed road with rock wall near southern boundary.
- ORBIC list 1, meaning that it is Threatened or Endangered throughout its range.
- G2S2 status, meaning it is imperiled throughout its range and critically imperiled in Oregon.
- State Candidate for listing as Threatened or Endangered



Photo credit: NCLC

INVASIVE SPECIES

Invasive species were surveyed for and mapped by NCLC staff during the 4/5/2023 property visit and additionally throughout summer 2022 by an NCLC intern (see map on next page). Current conditions include limited distribution of very common weeds to this area, including, predominantly, Himalayan and cutleaf blackberries, Scotch broom, and tansy ragwort. Additional documented species include Canada thistle, two occurrences of cotoneaster, and one occurrence each of bamboo and cherry laurel. Invasive plant species were primarily observed and located along the active and inactive roads. Even though these current levels of invasive species observations are related to the road system, invasive plants are expected to continue to be a major threat to the conservation values. Invasive plants have the potential of spreading onto the property via wildlife, people accessing the property on foot, and land management equipment.

Shade-Intolerant Weeds: blackberry, Scotch broom, tansy and Canada thistle

Most of the invasive plants that occur on the property are limited to the road network. The roads contain a perfect mix of ingredients for allowing invasive plant populations to thrive: disturbance from use or maintenance, sunlight from cleared canopies along the road corridor, and opportunity for new weeds to be introduced or spread by people, wildlife, and equipment using the roads for travel. Himalayan blackberry is the most abundant weed species observed on the property and is predominantly found along these road corridors. Himalayan blackberry is also intolerant to shade, meaning that it will not grow under a fully closed canopy. Since the property is dominated entirely by forest habitat and the management goals include growing mature forests for clean and abundant drinking water, blackberry will not thrive away from the roads and provides more of a road maintenance/access nuisance than a threat to the overall conservation values. Roads will need to be brushed routinely to maintain access and any roads that are not maintained may have short-term blackberry issues that will resolve themselves as soon as the nearby trees provide enough shade. Evergreen/cutleaf blackberry is another blackberry species that is found on the property. It is less prolific but it can tolerate partial shade and should be watched for in forest gaps away from the road.

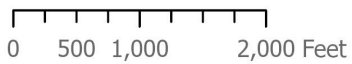
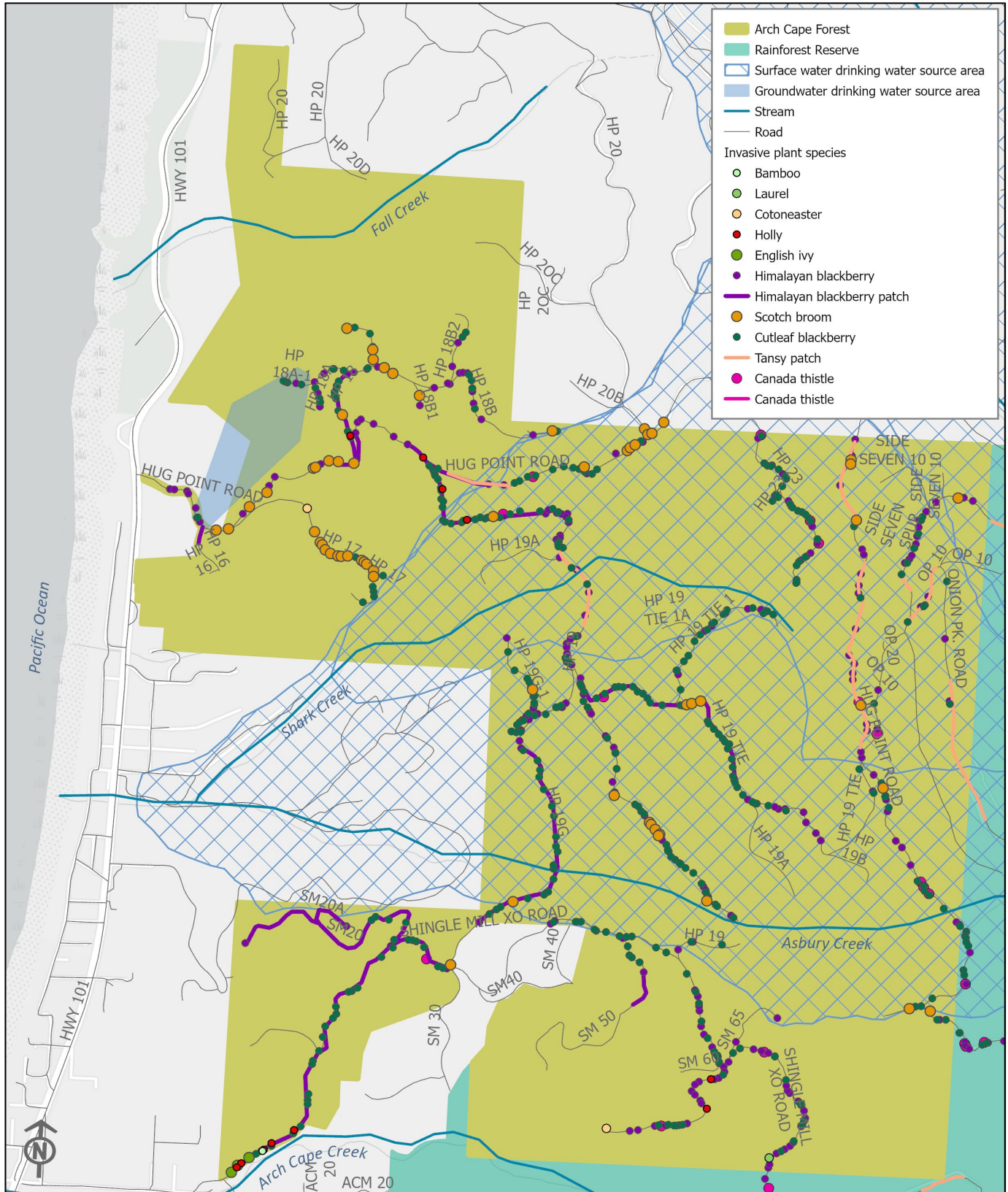
Scotch broom is another prolific invasive weed in our region, but is fortunately also shade intolerant. Its distribution on the property is primarily limited to roads and very young forest stands that have been recently clear cut. Previous landowner, EFM, also documented the locations of Scotch broom on the property in 2017 with the greatest densities in the southwestern region of the property and in an area between HP-17 and HP-19 north of Shark Creek. EFM implemented two slashing treatments in July 2017 and June 2018 in these two areas. Scotch broom was not documented as extensively in the 2022 survey of the road system; however, off-road areas were not surveyed and these previously treated areas should be reassessed.



Elk-browsed scotch broom (photo credit NCLC)

The best time to assess current Scotch broom distribution is in May when the bright yellow flowers bla-

INVASIVE PLANT SPECIES OBSERVATIONS



Map created by NCLC April 2023.
Data sources: ODEQ, OR Geospatial Library, NCLC

tantly signal their presence. An interesting observation on both the Arch Cape Forest and Rainforest Reserve is that the elk population are managing many of the roadside Scotch broom plants, and pruning them into bonsai-shaped shrubs and sometimes preventing them from flowering. As long as the forest management on the property avoids future large clearcut openings, Scotch broom should be a low risk to the forest's conservation values. It does create a greater risk to rare plant habitats in open, rocky outcroppings. These habitat types are very difficult to access and, therefore, management would be incredibly challenging if Scotch broom were to spread to these areas. Mature Scotch broom plants create seed pods that explode when ripe in late summer and can take root and become established in rocky areas with very little topsoil. The best preventative management is to treat roadside populations which are currently at a low enough density to make this reasonable. Treatment can be done mechanically at the same time as roadside brushing, manually with volunteer events or contractors, and/or by continuing to encourage the resident elk to be allies in Scotch broom control.

Several roadside observations of Canada thistle were made by the summer intern weed inventory. It is important to carefully identify Canada thistle as there are several native species that exist on the property or nearby which are very important for pollinators and wildlife and should be protected (e.g. *Cirsium edule* and *Cirsium brevistylum*). Canada thistle is very difficult to control once established, usually requiring chemical control as part of the management strategy, which is prohibited on the Arch Cape Forest. It will not thrive in shady areas, so the risk of spread is limited to roadside habitats, forest gaps, and streamside habitats. Since the current population is limited to just a handful of individual plants it is recommended that these plants be pulled up multiple times during the growing season to prevent them from going to seed. They also grow aggressively through rhizomes so the individual plants will need to be monitored and pulled up over many seasons to eliminate them from the site.

Shade-Tolerant Weeds: English ivy, English holly, and cherry laurel

Shade tolerant invasive plant species currently persist at very low levels on the property but present a greater risk to conservation values should they become more widespread in the future. The forests in the Arch Cape Forest are relatively free of English ivy, but it is prolific in the forests along Highway 101 and is present in the trees and forest floor at both entrances to the property (Hug Point and Shingle Mill gates). English ivy will outcompete native understory vegetation creating an ivy carpet that is detrimental to habitat diversity and also can lead to increased landslides and soil erosion. Ivy climbs up trees seeking sunlight to create flowers to reproduce. The added weight of the vines can eventually lead to tree mortality through damage to the bark, strangulation, competition for resources, and an overall weakened tree that is more susceptible to pests, disease, and windthrow. The ivy growing near the property boundary has the potential to spread to remote areas by birds who have consumed the ivy fruit, which is usually growing in the forest canopy or areas that have enough light to trigger the plants to produce flowers. English ivy can be manually controlled by cutting and removing vines growing up a tree between shoulder height and ankle height. Prioritizing the ivy growing up trees will help protect those individual trees and will also help prevent the ivy from producing fruit and spreading to new or remote areas on the property. Treating the tree ivy that is currently growing at the entrance to the property will help protect the rest of the healthy forest from a future infesta-



English ivy (photo credit: NCLC)

tion. Regular monitoring for new plants and seedlings will also help protect the forest. If a new plant is observed it can easily be pulled up in a few seconds with no special tools needed.

English holly is present on the property at low densities. It is also spread by birds who consume the berries and disperse seed. Holly generally grows slowly but can out-compete native shrubs and trees and disrupt the ecosystem. Holly seedlings can be easily pulled up and should be disposed of offsite. Mature holly are difficult to control and cutting them down may delay fruit production in the short-term but will create a larger problem in the future as the stump will resprout and the cut tree will grow roots, creating a large holly thicket. The only effective methods are to either dig it up and remove it from the site, which would create a lot of soil disturbance and would not be practical since equipment would be needed in sometimes remote sites, or chemical control. The most effective chemical control requires very targeted small doses of herbicide in paste form encapsulated by a metal bullet and injected into the stem of the plant, which eliminates the risk of spray drift and non-target impacts. The Arch Cape Water District has adopted a no chemical policy for the property so this method is not currently an option. With this restriction only young and small holly can be effectively treated by pulling them up. The mature holly will continue to be a seed source and spread across the property.



Cherry laurel (photo credit: NCLC)

There was a single cherry laurel shrub observed on the Shingle Mill XO Road. This plant grows well in shade or sun and is spread by birds who consume berries or by improper yard debris disposal. Since this is the only plant that was observed on the property, it is important for it to be removed before it spreads and establishes at other sites. Removal will require cutting it down with a chainsaw as low to the ground as possible and disposing of the cut plant offsite. The cut stump will need to be monitored for several years and re-sprouts will need to be cut when observed.

Other weedy species to look out for: knotweeds, bamboo, pampas/jubata grass, gorse

Japanese knotweed and giant knotweed have been documented along Arch Cape Creek downstream of the Arch Cape Forest and were last treated by Clatsop Soil and Water Conservation District in 2016. NCLC did not observe any knotweed species during the site visit, but the Arch Cape Forest Multi-Resource Management Plan notes that three species of knotweed have been observed on the property. Presumably these would be Japanese, Himalayan, and giant knotweeds. All three species can spread aggressively along riparian corridors and will displace important native plants and can even reduce riparian canopy cover in the long term by preventing tree regeneration. Documenting the current populations on the property and creating a plan for control will be important both for long term habitat conservation goals, but also source water protection goals.

Other weedy species that are known to occur near the Arch Cape Forest include pampas/jubata grass, yellow archangel, and *Skimmia japonica*. Gorse is not yet documented in the area, but should also be monitored for along with the other listed species.

MANAGEMENT RECOMMENDATIONS

- Implement the Multi-Resource Management Plan. Managing a forest for water quality and quantity also improves the habitat for wildlife that depend on mature forests and healthy streams.
 - ⇒ Ecological Forestry practices including variable density thinning and snag creation are important management tools to enhance habitat and increase biodiversity. Restoration grants are available to help fund forest restoration projects that focus on resilient landscapes and habitat enhancement. Oregon Watershed Enhancement Board (OWEB) Restoration Grant Program and US Fish and Wildlife Coastal Program are two good funding resources to look into.
- Implement the recommendations that come out of the Ecological Road Assessment. Roads that are needed for access need to be well-maintained to protect stream health and control non-native species. Decommissioning any roads not needed for access is the best way to protect and enhance conservation values and will also reduce annual operating costs associated with road maintenance.
 - ⇒ The Ecological Road Assessment was funded by OWEB and recommendations that come out of this plan that enhance or protect conservation values by improving stream crossings and decommissioning sections of road will be good projects for which to pursue OWEB restoration funding. The North Coast Watershed Association is also a good resource to pursue future OWEB restoration projects with. The Arch Cape Forest is within their service area and they have stated interest in collaborating on future restoration projects. Additionally, the road network between the Arch Cape Forest and Rainforest Reserve are interconnected. Partnering with North Coast Land Conservancy will be important for some areas and may open the door to additional funding opportunities.
- Invasive species monitoring and control will be an ongoing need for the Arch Cape Forest. We recommend prioritizing weeds that have the greatest impact to conservation values (shade tolerant species) and taking measures to prevent new weed species from being introduced to the property.
 - ⇒ Require contractors to clean equipment, use weed free straw if needed for erosion control projects, and source weed-free gravel for road grading projects.
 - ⇒ The Management Team and Water Board might consider an exception to the herbicide restrictions for methods that have no impact to water resources and are effective at weed control. In the Invasive Species section we discussed herbicide bullets that can be injected into the woody English holly stems using an EZ-ject lance. This is a very low impact and very effective method to treat holly. NCLC can share resources if there is interest in learning more.
 - ⇒ If Arch Cape Forest allows public access, install boot brushes and make users aware of how weed seeds can spread on boots. Users could be encouraged to assist with community conservation projects using iNaturalist or other online platforms to learn more about potential rare species that might be on the property. Alternatively, a consultant could be hired to conduct a more thorough assessment.

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Unnamed tributary of Arch Cape Creek (photo credit: NCLC)

Table01: Bird species list (n = 99). Boldfaced indicates species likely to breed on property or in adjacent forested areas of Arch Cape Area. Based on data extracted from eBird.com for Clatsop and Tillamook.

Mountain Quail	Olive-sided Flycatcher	Swainson's Thrush
Ruffed Grouse	Western Wood-Pewee	Hermit Thrush
Sooty Grouse	Willow Flycatcher	American Robin
Band-tailed Pigeon	Hammond's Flycatcher	Cedar Waxwing
Mourning Dove	Pacific-slope Flycatcher	House Sparrow
Common Nighthawk	Black Phoebe	American Pipit
Vaux's Swift	Hutton's Vireo	Evening Grosbeak
Anna's Hummingbird	Warbling Vireo	House Finch
Rufous Hummingbird	Canada Jay	Purple Finch
Great Blue Heron	Steller's Jay	Red Crossbill
Turkey Vulture	California Scrub-Jay	Pine Siskin
Osprey	American Crow	American Goldfinch
Northern Harrier	Common Raven	Fox Sparrow
Sharp-shinned Hawk	Black-capped Chickadee	Dark-eyed Junco
Cooper's Hawk	Chestnut-backed Chickadee	White-crowned Sparrow
Bald Eagle	Purple Martin	Golden-crowned Sparrow
Red-shouldered Hawk	Tree Swallow	Savannah Sparrow
Red-tailed Hawk	Violet-green Swallow	Song Sparrow
Barn Owl	Barn Swallow	Lincoln's Sparrow
Western Screech-Owl	Cliff Swallow	Spotted Towhee
Great Horned Owl	Bushtit	Red-winged Blackbird
Northern Pygmy-Owl	Wrentit	Brown-headed Cowbird
Barred Owl	Ruby-crowned Kinglet	Brewer's Blackbird
Northern Saw-whet Owl	Golden-crowned Kinglet	Orange-crowned Warbler
Belted Kingfisher	Red-breasted Nuthatch	Common Yellowthroat
Red-breasted Sapsucker	Brown Creeper	Yellow Warbler
Downy Woodpecker	Pacific Wren	Yellow-rumped Warbler
Hairy Woodpecker	Marsh Wren	Black-throated Gray Warbler
Pileated Woodpecker	Bewick's Wren	Townsend's Warbler
Northern Flicker	American Dipper	Hermit Warbler
American Kestrel	European Starling	Wilson's Warbler
Merlin	Western Bluebird	Western Tanager
Peregrine Falcon	Varied Thrush	Black-headed Grosbeak

Table02: Annotated mammal checklist of species likely to occur on property based on nearby analog sites. Boldface indicates species confirmed by direct observation.

Virginia Opossum (*Didelphis virginiana*) – probable
 Vagrant Shrew (*Sorex vagrans*) – probable
 Coast Mole (*Scapanus oranius*) – mole mounds noted probably this species
Myotis sp. – several species likely to occur.
 Big Brown Bat (*Eptesicus fuscus*) – probable
 Brush Rabbit (*Sylvilagus bachmani*) – probable
 Snowshoe Hare (*Lepus americanus*) – probable
Mountain Beaver (*Aplodontia rufa*) – burrows noted
Townsend's Chipmunk (*Tamias townsendii*) – common
Douglas's Squirrel (*Tamiasciurus douglasii*) – common
White-footed Deermouse (*Peromyscus sonoranensis*) – tracks and burrows, common
Microtus sp. – several species likely to occur.
Coyote (*Canis latrans*) – probably common, scat noted
 Gray Fox (*Urocyon cinereoargenteus*) – probable
 American Black Bear (*Ursus americanus*) – probable
 Common Raccoon (*Procyon lotor*) – probable
 Long-tailed Weasel (*Mustela erminea*) – probable
 Striped Skunk (*Mephitis mephitis*) – probable
 Cougar (*Puma concolor*) – probable
Bobcat (*Lynx rufus*) – scat
Roosevelt Elk (*Cervus elaphus*) – common, abundant scat and other sign
Columbia Black-tailed Deer (*Odocoileus hemionus columbianus*) – common

* The forest management committee also noted the presence of beaver (*Castor canadensis*) and river otter (*Lutra canadensis*) (per 5/16/23 email communication).

Table 03: Annotated Amphibian checklist of species likely to occur on property based on nearby analog sites. Boldface indicates species confirmed for site.

Northwestern Salamander (*Ambystoma gracile*) – likely
 Long-toed Salamander (*Ambystoma macrodactylum*) – likely
 Pacific Giant Salamander (*Dicamptodon tenebrosus*) – likely
 Cope's Giant Salamander (*Dicamptodon copei*) – unconfirmed
 Oregon Ensatina (*Ensatina eschscholtzii*) – likely
 Dunn's Salamander (*Plethodon dunni*) – likely, habitat similar to *P. vehiculum*
Western Red-backed Salamander (*Plethodon vehiculum*) – common, photographs
Columbia Torrent Salamander (*Rhyacotriton kezeri*) – likely in rocky streambeds
Rough-skinned Newt (*Taricha granulose*) – common, photographs
 Pacific Tree Frog (*Pseudacris regilla*) - likely
Northern Red-legged Frog (*Rana aurora aurora*) – common
Oregon Tailed Frog (*Ascaphus truei*) – larvae commonly seen

Appendix 01: Species of concern from Oregon Biodiversity Information Center (2019 list). List abridged to include only species that might possibly occur on or near the property detailed in this report with notes on current status in Clatsop Co.

Amphibia	Columbia Torrent Salamander	Occurs in most streams of appropriate water quality
Aves	Common Nighthawk	Breeds locally throughout the Coast Range
Aves	Bald Eagle	Breeds locally throughout the Coast Range
Aves	Mountain Quail	Breeds throughout Coast Range; well documented in region
Aves	Northern Spotted Owl	Historically present; presumably extirpated; not much habitat left; too many Barred Owls
Aves	Olive-sided Flycatcher	Breeds throughout Coast Range; well documented in region
Aves	Pileated Woodpecker	Breeds throughout Coast Range; well documented in region
Aves	Purple Martin	Breeds locally throughout the Coast Range; cavity nester using snags
Aves	Band-tailed Pigeon	Breeds throughout Coast Range; well documented in region
Aves	Western Bluebird	Breeds throughout Coast Range; well documented in region, cavity nester in snags and stumps
Aves	Willow Flycatcher (ssp <i>brewsteri</i>)	Breeds throughout Coast Range; well documented in region
Mammalia	California Myotis	Collection records Tillamook (Verts and Carraway 1998)
Mammalia	Fringed Myotis	Collection records Tillamook (Verts and Carraway 1998)
Mammalia	Hoary Bat	Collection records Tillamook (Verts and Carraway 1998)
Mammalia	Long-legged Myotis	Collection records Tillamook (Verts and Carraway 1998)
Mammalia	Silver-haired Bat	Collection records Tillamook (Verts and Carraway 1998)
Mammalia	Townsend's Big-ear Bat	Collection records Tillamook (Verts and Carraway 1998)
Fishes	Western brook lamprey	Historically present; current status requires some research
Fishes	Coastal Cutthroat Trout	Occurs in most streams of appropriate water quality
Fishes	Coho Salmon	Likely in lower reaches of larger streams

<https://inr.oregonstate.edu/sites/inr.oregonstate.edu/files/2019-rte-book.pdf>