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Rachel Carson NWR Seeks Public Comment on Draft Compatibility Determination

Rachel Carson National Wildlife Refuge is seeking public review and comment on a Draft Compatibility Determination for Commercial Tree Harvest. The refuge proposes opening to this use -where this use does not compromise the mission and operations of the national wildlife refuge. The U.S. Fish and Wildlife Service (Service) will accept comments received or postmarked on or before November 8, 2024.

The Service prepares Compatibility Determinations to ensure that public and economic uses of national wildlife refuges do not interfere with or detract from the purposes for which each refuge was established. Compatibility Determinations also describe how these uses would contribute towards achieving refuge purposes and the mission of the National Wildlife Refuge System.

Comments or requests for additional information may be made by email to Colin_McKevitt@fws.gov or U.S. Mail to 321 Port Road, Wells, Maine 04090, Attn: Colin McKevitt.

All comments received from individuals become part of the official public record. The Service's practice is to make comments, including names and home addresses of respondents, available for public review during regular business hours. Individual respondents can request that we withhold their home address from the record, which we will honor to the extent allowable by law. If you wish to have your name and/or address withheld, you must state this prominently at the beginning of your comments.

-Attachment- Draft Compatibility Determination Commercial Tree Harvest, Rachel Carson National Wildlife Refuge

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-FWS-

Compatibility Determination

Title

Draft Compatibility Determination for Commercial Tree Harvesting at Rachel Carson National Wildlife Refuge

Refuge Use Category

Agriculture, Aquaculture, Silviculture

Refuge Use Type(s)

Tree Harvesting (commercial)

Refuge

Rachel Carson National Wildlife Refuge

Refuge Purpose(s) and Establishing and Acquisition Authority(ies)

Rachel Carson National Wildlife Refuge (NWR, refuge) (Figure 1) was established to preserve migratory bird habitat and waterfowl migration routes associated with southern Maine's coastal estuaries. The refuge is in the heart of the Gulf of Maine watershed and is located within a region of great biological diversity.

On December 16, 1966, Congress established the Coastal Maine National Wildlife Refuge under the authority of the Migratory Bird Conservation Act. In a dedication ceremony on June 27, 1970, the refuge was renamed in honor of scientist and author Rachel Carson, who spent much of her life along the Maine Coast. Rachel Carson NWR was established under the authority of the Migratory Bird Treaty Act for "use as an inviolate sanctuary, or for any other management purpose, for migratory birds" 16 USC 715d, Migratory Bird Conservation Act.

Other authorities include:

"...suitable for - - - 1) incidental fish and wildlife oriented recreational development, 2) protection of natural resources, 3) conservation of endangered or threatened species ..." 16 USC section 460k-1 Refuge Recreation Act

“...conservation of wetlands of the Nation in order to maintain the public benefits they provide to help fulfill international obligations contained in various migratory bird treaties and conventions...” 16 USC Section 13901(b)
100 Stat 3583 Emergency Wetlands Resources Act of 1986.

“...for the development, advancement, management, conservation and protection of fish and wildlife resources ...” 16 USC Section 742f(a)(1) Fish and Wildlife Act of 1956

“... for the benefit of the United States Fish and Wildlife Service, in performing its activities and services” 16 USC Section 742f(b)(1) Fish and Wildlife Act of 1956

National Wildlife Refuge System Mission

The mission of the National Wildlife Refuge System (Refuge System) is to administer a national network of lands and waters for the conservation, management, and where appropriate, restoration of the fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans (Pub. L. 105-57; 111 Stat. 1252).

Description of Use

Is this an existing use?

No.

What is the use?

Commercial tree harvesting would be used to achieve the biological goals described in the Rachel Carson NWR Comprehensive Conservation Plan (CCP 2007) ([ServCat - Plan - \(Code: 16701\) \(fws.gov\)](#)) and supporting plans such as the Habitat Management Plan (HMP 2015) ([ServCat - Plan - \(Code: 55391\) \(fws.gov\)](#)). Tree harvesting provides habitat for priority species and sustains ecosystems that are resilient and biologically diverse. This use involves cutting and removing trees according to specific management prescriptions, and allowing forest products such as sawlogs, pulpwood, and firewood to be manufactured and sold from the harvested trees.

Per Service policy, commercial tree harvest is considered a “refuge management economic activity” (602 FW 2.6. N), which is “a refuge management activity on a national wildlife refuge that results in generation of a commodity which is or can be sold for income or revenue or traded for goods or services.” As such, this use will only be authorized if we determine that “the use contributes to the achievement of the national wildlife refuge’s purposes or the National Wildlife Refuge System mission.” (50 CFR 29.1)

Is the use a priority public use?

No, commercial tree harvesting is not a priority public use of the National Wildlife Refuge System, under the National Wildlife Refuge System Administration Act of 1966 (16 U.S.C. 668dd-668ee), as amended by the National Wildlife Refuge System Improvement Act of 1997.

Where would the use be conducted?

This use could occur throughout the refuge, including any future acquired parcels, as allowed by the refuge CCP goals and objectives. Currently, the refuge includes approximately 3,000 acres of upland habitat.

Objectives 1.6 in the Refuge CCP and HMP outline the goal to restore and maintain maritime shrubland, and Goal 3 in the Refuge CCP and HMP outlines silvicultural management actions to perpetuate the biological integrity and diversity of upland habitats where this work would occur, including early successional (shrubland-grassland) and deciduous, evergreen, and mixed forest habitat types. Objective 3.1 in the CCP includes the goal of managing 1,715 acres of early successional habitat. Objective 3.1 in the Habitat Management Plan includes managing at least 1,300 acres of early successional habitat. Objective 1.8 in the Refuge CCP and HMP lists the strategy: Designate appropriate units to be managed for pitch pine communities.

Objective 2.2 in both the Refuge CCP and HMP outlines conditions of active forest management to protect vernal pools. Vernal pools will be surveyed before active management, and Maine best management practices for harvesting will be followed.

When would the use be conducted?

Commercial tree harvesting may occur throughout the year but would typically be performed in late summer, fall, or winter seasons to minimize unwanted impacts to wildlife (especially breeding birds and bats), soils (compaction or erosion), and roads. Harvesting will occur when the ground is dry or frozen. Periods of high public visitation and recreation will be considered and efforts to minimize impacts will be incorporated into the harvest plan. To the extent possible, the breeding periods of migratory birds will be avoided.

How would the use be conducted?

Commercial tree harvest, an important component of early successional habitat and forest habitat management, includes silvicultural methods designed to achieve the refuge's biological goals, while also incorporating practices that protect and promote important ecological values. Climate change and other threats are considered in the preparation of site prescriptions, which are developed by refuge staff to guide operations. In general, stands will be managed to diversify forest age class and structure and to create early successional habitat to benefit focal wildlife species (Bauer et al. 2022, King and Schlossberg 2014, DeGraaf and Yamasaki 2003, Seymour and Hunter Jr. 1992, 2000; Kenefic and Nyland 2000; Keeton 2006; Foster et al. 2010). All harvesting will follow best forestry and wildlife management practices recommended by the Maine Department of Agriculture, Conservation and Forestry (Maine Forest Services 2017).

Commercial tree harvesting activities will be directed by the refuge CCP and HMP and tailored to each habitat type. Where commercial tree harvesting is warranted, those activities are performed by a logging company operating under a special use permit (SUP). Project prospectus and specifications are forwarded to local and regional logging companies for competitive bidding or in some cases agreements with specific contractors may be negotiated to meet particular wildlife habitat needs. The refuge manager will select a company based on meeting qualifications and requirements in the project prospectus.

The refuge manager will issue the selected company a SUP. Active harvest operations may include felling trees, skidding them to a landing, processing the trees, loading logs or wood chips on trucks, and hauling the wood products offsite. Forest management treatments (e.g., trees targeted, spacing, residual tree density, harvest method, etc.) are dictated by a silvicultural prescription developed by the refuge to meet wildlife habitat needs.

Provisions listed in 50 CFR (subpart D-Permits, 25.41-45) regulate all activities under this SUP process. The permittee would be required to comply with all Department of the Interior, U.S. Fish and Wildlife Service (Service), and other Federal laws in the conduct of their business. Because this is an economic use of the refuge, it is also subject to other applicable laws and regulations (see 50 CFR 29.1). We would continue to follow the procedures for SUPs outlined in the Service's Refuge Manual (5 RM 17.11) and other applicable laws and regulations (see also 50 CFR 29.1) when selecting permittees and administering this use.

Within a specific management unit, focal wildlife species will be identified and will act as drivers for active forest management. Where focal species-specific habitat

conditions are missing, and may be created through active forest management, those areas will be prioritized for treatment.

Silvicultural treatments will be designed to meet wildlife habitat objectives within particular early successional habitat and forest types (e.g., oak-pine forest, white pine-hemlock forest, pitch pine forest, mixed wood forest, maritime shrubland, dry shrubland, early successional habitat, grassland, pollinator habitat, etc.), while addressing site-specific operational constraints. Active management will help restore forest or early successional habitat structure (Kenefic and Nyland 2000; Crow et al. 2002; Bryan 2003; Keeton 2006; Raymond et al. 2009; Arseneault et al. 2011) and species composition (Leak 1975, 2003, 2005; Arseneault et al. 2011), and improve the forest's resiliency to environmental stressors like climate change (Hines, Heath, and Birdsey 2010). Monitoring of forest systems and the impacts of commercial tree harvesting strategies would allow modification of management practices as necessary. Climate change may influence the trajectory of our forest systems in unpredictable ways, and adjustments to objectives and management strategies may occur.

Why is this use being proposed or reevaluated?

Both the Refuge CCP and HMP outline silvicultural management techniques to create and maintain quality habitat for New England Cottontail, breeding birds and other species of conservation concern while sustaining biologically diverse and resilient early successional and forest habitats. Most of the upland forest consists of mixed oak and pine, with some stands of hemlock, spruce and pitch pine, as well as hickory and sugar maple. The refuge also contains important transitional habitats, including maritime shrubland, dry shrubland and early successional forest. The loss and degradation of naturally maintained shrublands has been extensive throughout the region. Many of the historic conditions which perpetuated shrublands (e.g., prehistoric grazing animals, purposeful fires by Native Americans, wildfires, large beaver colonies creating wet shrublands and meadows, small-scale agriculture and insect outbreaks) are now either non-existent or tightly controlled (Askins 1998).

Grasslands, early successional forest, and shrubland habitats can be maintained efficiently through the use of fire as well as mechanical treatments. Many of the refuge's upland habitats are fire-adapted and the interspersed urbanized lands adjacent to refuge lands presents challenges in providing optimal prescribed fire and mechanical treatments to these lands. Timber harvest, clear cutting or thinning to establish, re-establish or improve burn units is necessary so that hazardous fuel loads can be mitigated before a prescribed burn takes place. The work will fulfill hazardous fuels reduction goals and create optimal conditions for target species of wildlife, restore fire adaptive landscapes and protect natural resources and local municipalities. Commercial tree harvesting used alone or in conjunction with other

silvicultural techniques can also create and maintain the appropriate forest structure, and age or size class distribution on the landscape so that suitable habitat is always available for priority species.

Availability of Resources

Rachel Carson NWR lacks the funding, personnel, and equipment to effectively manage its forested lands alone; therefore, engaging private logging companies as part of a commercial tree harvesting arrangement is the only practical alternative for accomplishing this work necessary for meeting habitat management objectives. Additionally, the design and oversight of commercial tree harvest on the refuge requires specialized forestry expertise, which can be obtained through staffing, consulting, or partnering.

A portion of funds generated by the sale of trees harvested on refuge lands will go into the national revenue sharing fund. Another portion will fund additional forest management, including stand inventories, timber marking, pre-commercial thinning, related road maintenance, and plantings (if prescribed). When appropriate, infrastructure maintenance associated with timber sales, such as road maintenance, will be included as a deliverable in the SUP. This flexibility alleviates additional management costs associated with active forest management.

All harvesting and access to management areas is likely to occur near, or from, existing roads, which require substantial resources to perform essential maintenance. At times, modifications may be needed to accommodate logging equipment.

Expected annual costs to conduct a commercial tree harvest on the refuge are listed below. These costs are typically offset by revenues generated by the harvest but vary a great deal due to market conditions and the quality and size of the stand to be managed (see Table 1). The estimates in Table 1 were derived considering current rates for professional, licensed services if contracted outside the FWS. Other factors considered were the past and present scale of tree harvesting (~250 acres) and the complexity of most harvests. Annual costs may vary with changes in rates, scale, and complexity.

Table 1. Costs to Administer and Manage Commercial Tree Harvest.

Category and Itemization	Range of Annual Revenues	Recurring Annual Expenses
Forestry Consultant, inventory, implementation planning		\$5,000

Harvest layout, marking paint, equipment		\$16,500
Administer bid process, issue special use permit		\$1,000
On-site representative during operations		\$7,500
Post-harvest assessments		\$2,500
Roadwork and close-out	--	\$10,500
Revenues	\$0 to \$75,000 (but unknown at this time)	
Total expenses		\$43,000

Anticipated Impacts of the Use

Potential impacts of a proposed use on the refuge's purpose(s) and the Refuge System mission

The effects of the proposed use to species and their habitats, whether adverse or beneficial, are those that are reasonably foreseeable and have a reasonably close causal relationship to the proposed use of Commercial Tree Harvesting. This CD includes a description of the environmental consequences on a resource only when the impacts could be more than negligible and therefore considered an “affected resource.”

Wildlife species respond differently to forest management activities that include timber harvest depending on forest type and harvest intensity (Fredericksen et al. 2000). Even within groups of wildlife species (amphibians, reptiles, birds, mammals, etc.) the effects are variable and often species-specific. Many studies have demonstrated the importance of early-successional forest habitat for breeding bird abundance, composition, and diversity (Hanle et. al. 2020). Numerous declining forest bird species in Bird Conservation Regions (BCR) are reliant upon forest habitat with dense understory development, historically caused by local disturbances. For example, the Canada warbler, a species of conservation concern, is often found in mature forested habitat where tree gaps allow for the development of localized understory shrub and sapling development (Lambert and Faccio 2005). Forest management to simulate additional tree gaps will give the understory a chance to grow resulting in a positive impact for many bird species.

Short-term impacts

The construction and maintenance of roads and landings, and the operation of heavy equipment could cause short-term soil compaction, rutting, or erosion

(Helfrich, Weigmann & Neves 1998; Wiest 1998; Cullen 2005). This impact could worsen if operating on unfrozen or moist soils, which can have a longer-term impact. Impacts from compaction can include damage to roots and concentration of water on skid roads, which could cause erosion. However, harvesting will occur during times when soil is frozen or dry, which minimizes the effects of compaction and erosion. Further, specialized equipment and/or harvesting techniques will be used to limit the extent of ground where heavy equipment will travel. Even if these adverse impacts do occur, they will be short-term because regular freeze-thaw cycles and frost heaving negates any minor compaction or rutting.

Poorly planned or executed commercial tree harvesting operations can have adverse impacts on water quantity and quality. Data from experimental forested watersheds in the eastern U.S. indicate that leaching of nutrients after timber harvesting, especially clearcutting, tends to increase (Bormann et al. 1968, 1974), while increases in stream temperature are highest where revegetation of harvested areas is delayed (Demaynadier & Hunter Jr. 1995; Cullen 2001). These factors may have detrimental effects on stream organisms, including fish, invertebrates, and amphibians (Campbell & Doeg 1989). Mitigation of these impacts is possible through careful planning and implementation, and therefore these effects are not expected at Rachel Carson NWR. As described elsewhere in this document, the refuge will protect water quality and sensitive resources by abiding with best management practices, and consulting with resource professionals.

Commercial tree harvest, which includes the construction of roads, creation of landings, and operation of heavy equipment, can create both localized and broader impacts on forests including damage to understory vegetation (Scheller & Mladenoff 2002), alteration of microhabitat environments (Demaynadier & Hunter Jr. 1995), changes in the abundance and type of coarse woody debris (Demaynadier & Hunter Jr. 1995; Siitonen 2001), and removal of snags important to wildlife. Mitigation of these impacts is possible through careful planning and implementation, and any effects are outweighed by the long-term benefits.

Endangered, threatened, and at-risk species are a critical consideration when planning and implementing commercial tree harvest as a component of forest management. All forest management that may affect listed species is subject to review and approval by the U.S. Fish and Wildlife Service's Ecological Services program. We do not expect any adverse effects to northern long-eared bat, tricolored bat, Blanding's turtle, New England cottontail, or monarch butterfly because we will follow the stipulations outlined by Ecological Services designed to ensure habitat management does not negatively impact these species.

Commercial tree harvest operations may temporarily disrupt visitor access to some areas, and parts of the refuge undergoing active forest management may be temporarily closed to ensure visitor safety. Trails and roads will either be closed or

shared with log trucks when safe passage can be accommodated. Alternate routes will be provided when possible. Only a small proportion of the refuge will be closed at any one time so the impact to visitors will be short-term and minor.

Long-term impacts

Commercial tree harvest will yield long-term, beneficial impacts for forest health, wildlife and plants. This form of management is specifically designed to restore forest structure and diversity to improve conditions for species and to help the ecosystem stay resilient in the face of climate change. There are possible minor adverse long-term impacts that will likely be avoided through conscientious planning and practices.

Poorly planned or executed timber harvests can affect water quality, alter surface and groundwater hydrology, and water storage capability. Impacts such as sedimentation into waterways, localized ponding, concentrated outwash, or drought can happen from inadequately placed or drained infrastructure and neglecting to fix erosion-causing problems such as rutting. Operations will favor the use of existing infrastructure that is stable and has minimal or no impact, remedy infrastructure that is problematic, and keep new road construction to an absolute minimum.

Damage to uncut trees from heavy equipment may create entry points for invasion by insects or disease (Nichols, Lemin Jr. & Ostrofsky 1994). Less downed wood and fewer large-diameter logs are likely to accumulate under a short-rotation (less than 50 years) harvest, whole-tree harvests, and selection cuts than would occur under long rotations or in uncut forests, affecting soil moisture regimes and forest floor amphibians and small mammals (Gore and Patterson III 1986; Demaynadier and Hunter Jr. 1995). Harvesting may also leave remaining trees more susceptible to wind throw (Ruel 1995) and facilitate the spread of invasive plants (Sakai et al. 2001), which may have long-term implications on biodiversity if control measures are unsuccessful.

The long-term impacts on various refuge users are anticipated to be entirely positive as forest management may increase presence and therefore observation of bird and other wildlife species, provide for enhanced opportunities for interpretation of the benefits of forest management for wildlife habitat, and improve hunting opportunities and, potentially, access.

The ability to use forest management to mimic the natural disturbance paradigm for improving wildlife habitats relies on creating similar size and timing of disturbance that historically occurred on the landscape (Seymour et al. 2002). For long-term effects of different forest regeneration methods on mature forest birds, less intense harvests had positive effects on more forest bird species than intense harvests and a variety of regeneration methods will benefit the most forest birds (Perry et al. 2017). Less intense harvests have also benefited New England

Cottontail, as intense harvests have led to Eastern Cottontail invasions (Eline et al. 2022, Buffum et al. 2012). Implementing thinning at intervals across landscape scales to develop different seral stages and stand-structures, while also maintaining un-thinned areas for species negatively impacted by thinning, will likely have the greatest positive impact on beta diversity of birds in managed plantation landscapes (Cahall et al. 2013).

Using commercial tree harvest in areas managed for forest will increase forest age/size class diversity and create a more complex habitat matrix that will support numerous forest dependent wildlife species. Using commercial tree harvest to create and maintain early successional habitats will decrease dense forest cover but will increase rare habitat types that are paramount to achieving Refuge CCP and HMP goals for supporting New England Cottontail and other species adapted to early successional habitats.

Overall, we will minimize or avoid long-term, adverse impacts by placing seasonal restrictions on harvesting to avoid disturbing wildlife and damaging trees or understory vegetation, through the careful layout of skid trails, by using mechanical harvesters to reduce rutting and minimize the operation's footprint, and conducting pre-harvest surveys of priority species and ecosystems. We would also conduct post-harvest assessments of vegetation and infrastructure, such as skid and truck roads, to ensure the impacts are minor and outweighed by the benefits of achieving desired forest conditions. Depending on the prescribed silviculture, contractors would leave tops, branches and other downed wood on site when appropriate.

Public Review and Comment

The draft compatibility determination will be available for public review and comment for 30 days from October 9, 2024 to November 8, 2024. The public will be made aware of this comment opportunity through a posting at refuge headquarters and local town offices. The State of Maine, and all federally recognized tribes in the area will be asked to review this draft. A copy of this document will be posted at the Refuge Headquarters located at 321 Port Road Wells, Maine 04090. It will be made available electronically on the refuge website <https://www.fws.gov/refuge/rachel-carson>. Please contact the Refuge Manager for this document if a paper copy is needed. Information or concerns received during the public comment period will be addressed in the final document.

Determination

Is the use compatible?

Yes

Stipulations Necessary to Ensure Compatibility

To ensure commercial tree harvest remains compatible and to minimize adverse effects on soils, wildlife, and plants, the refuge will:

1. Restrict commercial tree harvest on hydric soils, steep slopes, and other sensitive areas like vernal pools.
2. Conduct harvests only during periods when the ground is frozen or dry enough to support tree harvesting equipment without causing long-term, adverse impacts. This will be determined by the refuge manager or forester.
3. Conduct harvests to minimize or avoid adverse impacts to breeding migratory birds and Northern long-eared bats by prohibiting tree harvesting from approximately June 1 to July 31. The refuge manager reserves the right to review and update these dates as climate change requires flexibility to achieve management objectives. The manager may also temporarily suspend operations if serious, adverse impacts are likely to occur.
4. Conduct thorough assessments of the management area when the forest floor can be seen and plants can be identified to ensure skid trails (to the extent possible) avoid important habitat features and micro-habitats such as snag and cavity trees, coarse woody debris, and vernal pools.

Justification

The stipulations above would help ensure that commercial tree harvesting is compatible at Rachel Carson NWR. This use, as described, would not conflict with federal law or policy to maintain the biological diversity, integrity, and environmental health of the refuge. Based on available science and best professional judgment, the Service has determined that commercial tree harvesting at Rachel Carson NWR, in accordance with the stipulations provided and regulation governing economic uses of refuges, would contribute to the achievement of the National Wildlife Refuge System mission and the purposes of Rachel Carson NWR by helping to meet species and habitat objectives, particularly for regionally and refuge prioritized species such as forest-dependent migratory birds, pollinators and the New England cottontail.

Signature of Determination

Refuge Manager, Signature and Date

Signature of Concurrence

Assistant Regional Director, Signature and Date

Mandatory Reevaluation Date

2033

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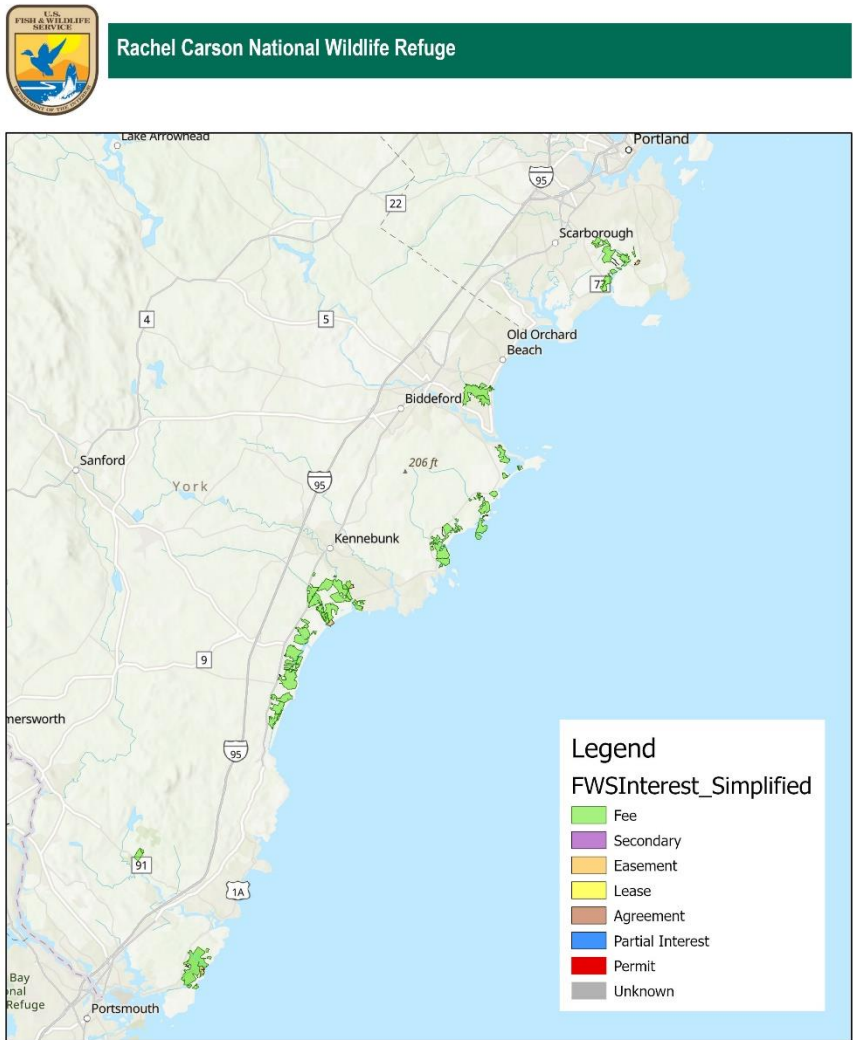
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Figure(s)

Figure 1. Map of Rachel Carson National Wildlife Refuge.



Produced by USFWS Biologist Jennifer Frochly

Basemap: ERSI topo

DateSaved:7/25/2024 8:41AM

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or decisions based on map content.

0 2.5 5 10 15 20 Miles



0 3 6 12 18 24 Kilometers WGS 1984



WGS 1984