

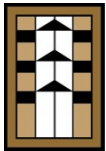
**U.S. DEPARTMENT OF AGRICULTURE  
FARM SERVICE AGENCY**

***DRAFT PROGRAMMATIC ENVIRONMENTAL  
ASSESSMENT***

***New Jersey Conservation Reserve  
Enhancement Program (CREP)***

**Date Prepared: June 2024**

**Prepared by:**



**The Clark Group, LLC**

## Cover Sheet

Proposed Action:	The Proposed Action is to execute and implement an updated CREP agreement between the State of New Jersey and the United States Department of Agriculture's Commodity Credit Corporation. The objectives of the revised CREP agreement are: to create up to 30,000 acres of permanent vegetative cover to address nonpoint source pollution, preserve open space, and promote on-farm conservation; to achieve an annual reduction of 26,000 pounds of phosphorous when compared to 2004 levels or when compared to similarly managed acreage not under contract; to achieve an annual reduction of 7 million pounds of Total Suspended Solids when compared to 2004 levels or when compared to similarly managed acreage not under contract; to maintain and restore ecological functions of streams by reducing biological impairment; and to increase the number of unimpaired stream miles by improving water quality in impaired streams and maintaining water quality in unimpaired streams.
Type of Document:	Programmatic Environmental Assessment
Lead Agency:	United States Department of Agriculture Farm Service Agency
Cooperating Agencies:	N/A
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Comments:	This Programmatic Environmental Assessment (PEA) was prepared in accordance with The National Environmental Policy Act, Public Law 91-140, 42 US Code 4321-4347, as amended, the USDA FSA National Environmental Policy Act (NEPA) implementing procedures found in 7 CFR 799, and the regulations of the Council on Environmental Quality found in 40 CFR 1500-1508.  A copy of the Draft PEA and related material was made available at the New Jersey state and county offices and is posted to the FSA website at <a href="http://New Jersey State Resources (usda.gov)">New Jersey State Resources (usda.gov)</a>

Written comments regarding this PEA can be submitted to the address below until August 9, 2024:

New Jersey Conservation Reserve Program Comments  
200 Clocktower Dr  
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Hamilton Square, NJ 08690

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# 1 **Acronyms and Abbreviations**

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2	BMP	Best Management Practice
3	CAA	Clean Air Act
4	CBRA	Coastal Barrier Resources Act
5	CCC	Commodity Credit Corporation
6	CEQ	Council on Environmental Quality
7	CFR	Code of Federal Regulations
8	CP	Conservation Practice
9	CREP	Conservation Reserve Enhancement Program
10	CRP	Conservation Reserve Program
11	CWA	Clean Water Act
12	CZMA	Coastal Zone Management Act
13	dBA	A-Weighted Decibel
14	EA	Environmental Assessment
15	EE	Environmental Evaluation
16	EIS	Environmental Impact Statement
17	EO	Executive Order
18	EPA	United States Environmental Protection Agency
19	ESA	Endangered Species Act
20	FONSI	Finding of No Significant Impact
21	FR	Federal Register
22	FSA	Farm Service Agency
23	GDP	Gross Domestic Product
24	GHG	Greenhouse Gases
25	GWRA	Global Warming Response Act
26	IPaC	Information for Planning and Consultation
27	IWQAR	Integrated Water Quality Assessment Report
28	MMT CO <sub>2</sub> e	Million Metric Tons of Carbon Dioxide Equivalent
29	MSFW	Migrant and Seasonal Farmworkers
30	NASS	National Agricultural Statistics Service
31	NEPA	National Environmental Policy Act
32	NFIP	National Flood Insurance Program
33	NJ	New Jersey
34	NJDA	New Jersey Department of Agriculture

1	NJDEP	New Jersey Department of Environmental Protection
2	NJFW	New Jersey Division of Fish and Wildlife
3	NJOIT	New Jersey Office of Information Technology
4	NJSPC	New Jersey State Planning Commission
5	NIMHHD	National Institute on Minority Health and Health Disparities
6	NOAA	National Oceanic and Atmospheric Administration
7	NPS	National Park Service
8	NRCS	Natural Resources Conservation Service
9	NRI	Nationwide Rivers Inventory
10	NWSRS	National Wild and Scenic Rivers System
11	PEIS	Programmatic Environmental Impact Statement
12	PIP	Performance Incentive Payments
13	PNS	Primary Nesting Season
14	RCRA	Resource Conservation and Recovery Act
15	SCD	Soil Conservation District
16	SDRP	State Development and Redevelopment Plan
17	SEIS	Supplemental Environmental Impact Statement
18	SGCN	Species of Greatest Conservation Need
19	SPEIS	Supplemental Programmatic Environmental Impact Statement
20	SWQS	Surface Water Quality Standards
21	T&E	Threatened & Endangered
22	TDAT	Tribal Directory Assessment Tool
23	TN	Total Nitrogen
24	TP	Total Phosphorus
25	TSS	Total Suspended Solids
26	USC	United States Code
27	USCB	United States Census Bureau
28	USDA	United States Department of Agriculture
29	USDOT	United States Department of Transportation
30	USFS	United States Forest Service
31	USFWS	United States Fish and Wildlife Service
32	WMA	Watershed Management Area

# Chapter I: Purpose and Need

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## I.1 Introduction

Created in 1985, the Conservation Reserve Program (CRP) administered by the Farm Service Agency (FSA) offers yearly rental payments to landowners in exchange for transitioning environmentally sensitive lands from agricultural production to conservation. The CRP is one of the largest private land conservation programs in the United States and aims to re-establish land cover that improves water quality, prevents soil erosion, and protects and enhances wildlife habitat (FSA 2024). The CRP is authorized through Title II of the Farm Bill, and, in November 2023, the Further Continuing Appropriations and Other Extensions Act (H.R. 6363) was signed into law, extending the Agriculture Improvement Act of 2018 (2018 Farm Bill) and its authorized programs (FSA 2024).

The CRP offers multiple voluntary enrollment options, including continuous CRP enrollment, which allows agricultural producers and landowners to enroll in a CRP contract through their local FSA service office at any time. As of October 2023, over 667,000 agricultural producers and landowners had enrolled over 23 million acres in CRP across the United States (FSA 2024).

Many programmatic National Environmental Policy Act (NEPA) analyses have been completed since the CRP was created in 1985. These previous Programmatic Environmental Assessments (PEAs) and Programmatic Environmental Impact Statements (PEISs) are discussed in more detail in **Section 1.3**.

### ***1.1.1 Conservation Reserve Enhancement Program Background***

The Conservation Reserve Enhancement Program (CREP), administered through the FSA on behalf of the United States Department of Agriculture (USDA) Commodity Credit Corporation (CCC), allows agricultural producers and landowners to convert environmentally sensitive land from agricultural production to conserved open space that helps achieve state environmental goals. The CREP targets high-priority conservation issues of both local and national significance and focuses on impacts to water supplies, loss of critical habitat for threatened and endangered (T&E) species, soil erosion, and reduced habitat for fish populations (FSA 2019). Agricultural producers and landowners enrolled in the CREP receive annual rental payments as well as one-time cost incentives for installing and maintaining conservation practices (CPs) on the enrolled acreage for the duration of the CREP contract. Enrollment is voluntary and contract periods last up to 15 years. Agricultural producers and landowners can enroll eligible acreage on a continual basis through their local USDA Service Center. The 2018 Farm Bill increased the overall cap on CREP acres from 24 million to 27 million (USDA Economic Research Service 2019).

CPs are voluntary land treatment techniques designed to conserve, enhance, or protect soil, water, vegetation, and other natural resources (LI 2024a). There are corresponding practice standards that establish the purpose of the CP as well as maintenance requirements after it is implemented (FSA 2003). As FSA's technical partner for the implementation of the CREP, the Natural Resources Conservation Service (NRCS) develops site-specific conservation plans based on National Conservation Practice Standards. The NRCS coordinates between the FSA and the agricultural producer or landowner by providing technical assistance at a local level for resource assessment, CP design and resource monitoring. CPs eligible through the CREP include, but are not limited to, riparian buffers, filter strips, wetlands, and pollinator plantings. Partners such as state and local governments, Tribes, nonprofit organizations, private companies, and foundations work with the FSA to develop CREP agreements designed to



1 implement conservation goals on agricultural lands, including restoring/establishing wildlife  
2 habitat, maintaining/improving grassland productivity, enhancing water quality and air quality,  
3 reducing soil erosion, restoring/enhancing wetlands, promoting conservation forestry, increasing  
4 control of critical invasive species, enhancing critical T&E plant and animal species survival, and  
5 achieving net water savings in ground and/or surface waters and conserving energy (FSA  
6 2021).

### 7 **1.1.2 Overview of FSA’s Implementation of the New Jersey CREP**

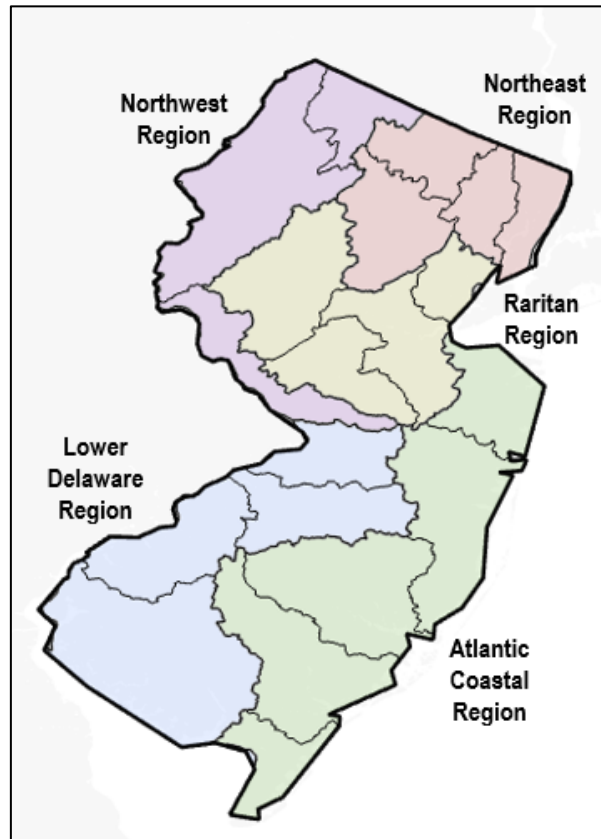
8 The State of New Jersey and the CCC first signed an agreement for the State’s CREP in 2004.  
9 The New Jersey Department of Agriculture (NJDA) and the New Jersey Department of  
10 Environmental Protection (NJDEP) are the state co-sponsors of the New Jersey (NJ) CREP  
11 (NJDA 2016). The original agreement had a 10-year enrollment period and an implementation  
12 timeline of 25 years. An addendum in 2007 eliminated the end date for CREP enrollments. New  
13 enrollments are now allowed in perpetuity subject to availability of funds and statutory authority  
14 for enrollments. Additionally, contracts for land enrolled in CREP now range from 10 to 15 years  
15 in length. The NJ CREP agreement aims to achieve CREP objectives by:

- 16 • Improving existing impairments by reducing agricultural pollutants;
- 17 • Maintaining an existing high level of water quality through the prevention of additional  
18 pollutants into unimpaired streams;
- 19 • Enhancing farm viability by offering CP payments; and
- 20 • Preserving open space for future generations.

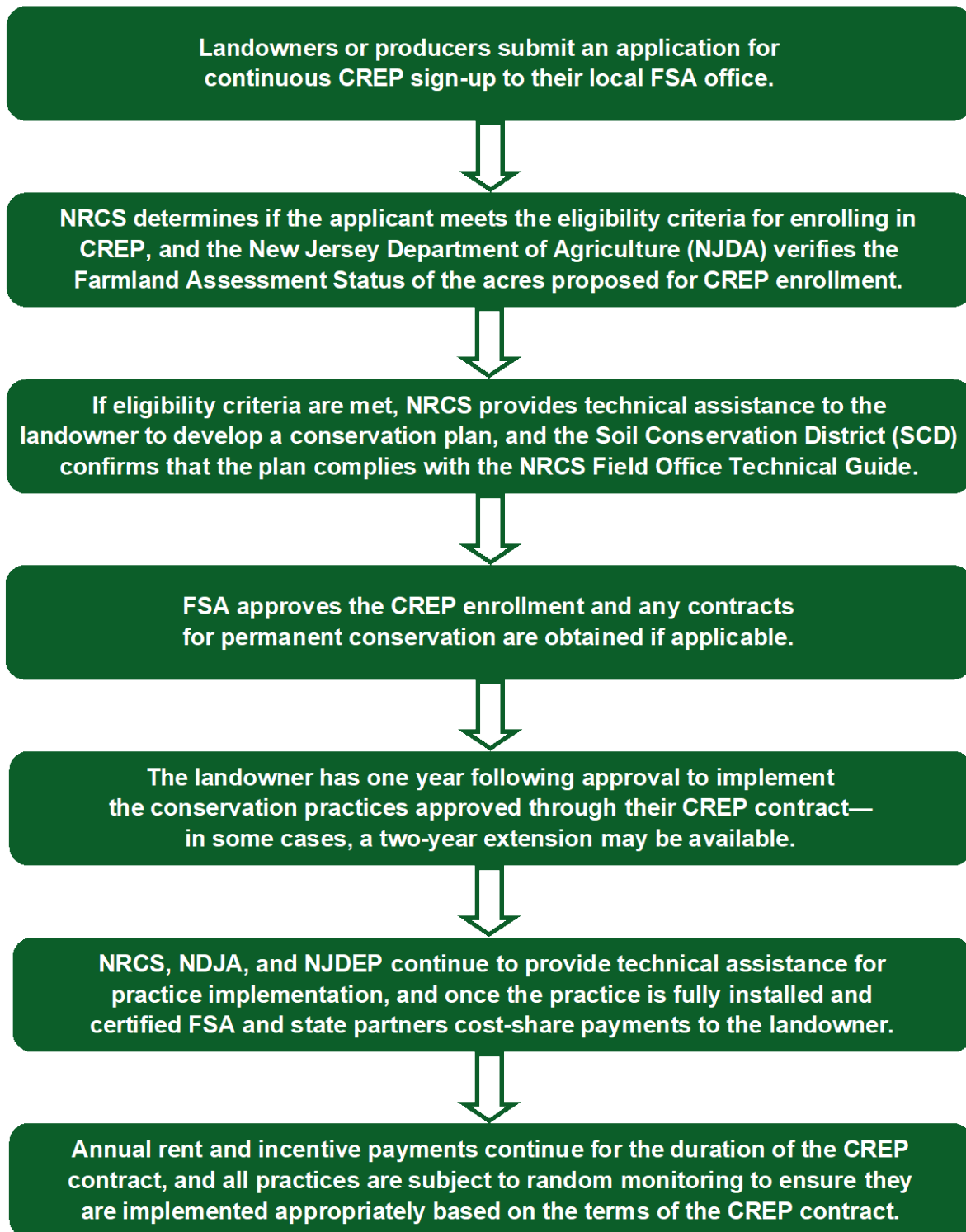
21 The 2004 NJ CREP agreement targets  
22 agricultural areas within the Delaware and  
23 Walkkill Watershed Management Areas  
24 (WMAs), and the Northeast, Raritan, and  
25 Atlantic Coastal regions of New Jersey. These  
26 watershed management areas and regions are  
27 pictured in **Figure 1.1** (NJ IWQMAR 2002).

28 Of the 711,502 acres of farmland in the state  
29 (NASS 2024), NJ CREP enrollment is capped  
30 at 30,000 acres of cropland implementing  
31 riparian buffers, filter strips, contour grass  
32 strips, grass waterways, and permanent CREP  
33 easement contracts.

34 To enroll in the CREP, agricultural producers  
35 and landowners in New Jersey must be able to  
36 show that enrolled acres are legally and  
37 physically able to be cropped and that those  
38 acres have been planted as cropland in at least  
39 four out of the six previous years. Marginal  
40 pastureland is also eligible for CREP  
41 enrollment if it can be planted as a riparian  
42 buffer. Landowners and agricultural producers  
43 must have owned or managed the cropland for  
44 at least one year prior to submitting the offer to  
45 enroll in the CREP. **Figure 1.2** shows the  
46 process for continuous CREP enrollment.



**Figure 1.1 New Jersey Watershed Management Areas and Regions**



1  
2

Figure 1.2 Continuous CREP Enrollment Process

1 **1.1.3 Purpose of the Programmatic Environmental Assessment**

2 NEPA requires federal agencies to conduct Environmental Assessments (EAs) when  
3 considering major federal actions that may have a significant impact on the environment. This  
4 PEA has been prepared under Section 102(2)(c) of NEPA (42 United States Code [USC] §  
5 4321) as amended by the Fiscal Responsibility Act of 2023 (Pub. L. 118-5), the regulations of  
6 the Council on Environmental Quality (CEQ) (40 Code of Federal Regulations [CFR] 1500 -  
7 1508) as amended (effective May 20, 2022), and FSA's NEPA implementing regulations (7 CFR  
8 799).

9 NEPA requires that federal agencies consider the effects of a proposed action and any  
10 reasonable alternatives on the human environment. CEQ guidance recommends that agencies  
11 re-examine existing NEPA analyses for long-term programs. In addition, new CREP agreements  
12 require the development of an EA (7 CFR § 799.41). Consistent with these requirements, an  
13 update and re-evaluation of the analysis completed for the New Jersey CREP in 2004 is  
14 warranted, and this PEA will replace the 2004 NEPA analysis. This PEA analyzes the  
15 implementation of a revised New Jersey CREP agreement (the Proposed Action) as compared  
16 to maintaining the existing CREP agreement (the No Action alternative).

17 This PEA tiers from the CRP PEIS completed in 2003 as authorized by CEQ regulations (40  
18 CFR 1502.4(b)). In addition to this PEA, local NRCS conservation planners would continue to  
19 conduct site-specific environmental evaluations (EEs) on behalf of FSA. FSA would review and  
20 approve these EEs and ensure compliance with FSA's NEPA implementing regulations (7 CFR  
21 799) prior to implementing any new CREP contracts.

22 **1.2 Purpose and Need for the Proposed Action**

23 New Jersey relies on a combination of surface and groundwater to provide much of its drinking  
24 water (NJDEP 2024). Protecting and improving water quality conditions is essential for the  
25 health and safety of state residents and to meet national environmental standards. The NJ  
26 CREP plays a crucial role in achieving these goals.

27 The purposes of the Proposed Action are to update the 2004 CREP agreement between USDA  
28 CCC and the State of New Jersey, to address changes to the CREP made in the 2018 Farm  
29 Bill, and to update the CPs in the NJ CREP agreement to better address current water quality  
30 impairments from agricultural runoff in New Jersey.

31 While some state water quality conditions and chemical parameters of concern have shown  
32 improvement since the implementation of the NJ CREP agreement, the conservation objectives  
33 of the 2004 CREP agreement remain necessary as chemical exceedances continue to be  
34 detected at undesired levels in New Jersey streams. These continuing water quality issues  
35 demonstrate a need to continue to implement CPs to protect water quality throughout the state.

36 Since 2014, the State of New Jersey has employed a rotating regional approach to Integrated  
37 Water Quality Assessment Reports (IWQARs), whereby the NJDEP conducts both a statewide  
38 water quality assessment, in addition to a more detailed, focused report of one of the State's  
39 five Water Regions each assessment cycle (**Figure 1.1**). The most recent IWQAR includes both  
40 the 2018 and 2020 integrated assessment reports and focuses primarily on the New Jersey  
41 portion of the entire Delaware River watershed region (NJDEP 2022a). The 2018/2020 IWQAR  
42 shows improvement in total phosphorous and total nitrogen concentrations likely due to State  
43 upgrades to wastewater treatment and implementation of statewide nonpoint source  
44 management efforts. However, increases in total dissolved solids and chlorides have been  
45 observed, likely due to runoff from urban, suburban, and agricultural areas (NJDEP 2022a).  
46 While statewide biological trends for macroinvertebrates and fish communities show stable

1 conditions, variations exist across watersheds, with the Upper Delaware watershed showing  
2 improvement and the Lower Delaware watershed declining (NJDEP 2022a). The 2018/2020  
3 IWQAR findings were considered when developing the proposed revisions to the NJ CREP  
4 agreement.

5 The proposed revisions to the NJ CREP agreement would further reduce pollution in  
6 agriculturally adjacent waterways and provide more options to address anthropogenic and  
7 agricultural impacts. The revisions would also include the addition of three CPs to the list of  
8 eligible practices, which would allow for more mitigation measures to achieve both state Surface  
9 Water Quality Standards (SWQS) and CREP conservation objectives, which have not been fully  
10 reached through the CPs available through the 2004 NJ CREP agreement.

## 11 **I.3 Other Relevant Documents**

### 12 ***1.3.1 PEIS for the CRP, May 2003***

13 This PEIS examined the impacts of reauthorizing the CRP in accordance with the Farm Security  
14 and Rural Investment Act of 2002 (2002 Farm Bill). The proposed action consisted of  
15 implementing and expanding the reauthorized CRP by promulgating changes from the 2002  
16 Farm Bill, including raising the overall acreage enrollment cap to 39.2 million acres, expanding  
17 the farmable wetlands program up to a cap of one million acres, and changing the  
18 implementation of CRP practices such as hardwood tree planting, vegetative cover, and haying  
19 and grazing (FSA 2003). The CRP Handbook would also be revised as part of these changes.

20 Four alternatives were considered: the no program alternative, representing baseline conditions,  
21 the No Action alternative, representing current program implementation, the proposed action,  
22 and a fourth alternative involving environmental targeting. The fourth alternative would have  
23 eliminated general CRP sign-up and changed acreage allocations and program goals to include  
24 the CREP and continuous sign-up practices in designated environmentally sensitive areas. FSA  
25 selected the proposed action as the preferred alternative based on the PEIS analysis and  
26 published the Record of Decision on May 8, 2003 (FSA 2003).

### 27 ***1.3.2 Supplemental Environmental Impact Statement (SEIS) for the CRP, July 2010***

28 FSA prepared a SEIS to analyze the impacts of implementing revisions to the CRP based on  
29 the Food, Conservation, and Energy Act of 2008 (2008 Farm Bill). The SEIS built upon the  
30 analysis from the 2003 PEIS and analyzed alterations outlined in the 2008 Farm Bill. The SEIS  
31 included nine provisions of the 2008 Farm Bill as alternatives. FSA ultimately decided to  
32 implement all nine alternatives based on the analysis. The provisions included reducing the  
33 overall CRP enrollment cap from 39.2 million to 32 million, increasing cost-share incentives by  
34 25% for beginning, resource-limited, and socially disadvantaged farmers, and encouraging  
35 development of pollinator habitat through a new CP (FSA 2010).

### 36 ***1.3.3 Supplemental Programmatic Environmental Impact Statement (SPEIS) for the 37 CRP, December 2014***

38 Finalized in 2014, the SPEIS for the CRP aimed to implement changes from the Agricultural Act  
39 of 2014 (2014 Farm Bill). The FSA proposed various adjustments, both discretionary and non-  
40 discretionary, to the CRP. The proposed measures analyzed in the SPEIS included targeted  
41 enrollment of environmentally sensitive lands through reverse auctions to meet a reduced  
42 enrollment cap of 24 million acres and frequency parameters for managed harvesting, routine  
43 grazing, and emergency haying and grazing on additional CPs. The SPEIS also addressed the  
44 2014 Farm Bill's extension of CRP enrollment authority to 2018 and intended to simplify  
45 programs, reduce overlapping goals, and reduce overall budgets. Following feedback from

1 interested members of the public as well as state and federal agencies, the FSA decided to  
2 move forward with the proposed action with one exception. The exception was that permitting  
3 haying or grazing on CP25 “Rare and Declining Habitat,” during severe drought conditions  
4 would not be enacted (80 Federal Register [FR] 34883). A clarification was also made regarding  
5 the use of Primary Nesting Season (PNS) regulations to bring further insight to the 2014 Farm  
6 Bill’s language concerning birds that are economically significant, declining in population, or  
7 conserved under federal or state law (80 FR 34883) (FSA 2014).

#### 8 ***1.3.4 Final PEA for the CRP, November 2019***

9 The Final PEA for the CRP, finalized in November 2019, analyzed changes to the CRP resulting  
10 from the Agricultural Improvement Act of 2018 (2018 Farm Bill). While the 2014 Farm Bill set the  
11 CRP enrollment cap at 24 million acres, the 2018 Farm Bill proposed increasing it to 27 million  
12 acres from 2019 to 2023. The proposed action also included changes to haying and grazing  
13 conditions on acres enrolled in the CREP and established the CLEAR30 and SHIPP pilot  
14 programs. Program aspects such as acreage targets, cost-share payments and financial  
15 incentives, additional CPs, and long-term goal monitoring methodologies were all included in the  
16 proposed action. The PEA analysis concluded that the proposed action would not result in  
17 significant adverse direct, indirect, or cumulative effects. This determination took into  
18 consideration site-specific EEs for eligible CRP lands and the establishment of vegetative cover  
19 through CP installation. As a result, FSA concluded that the proposed action would not  
20 constitute a major federal action significantly affecting the quality of the human environment.  
21 Therefore, an EIS was not prepared, and instead FSA’s determination was a Finding of No  
22 Significant Impact (FONSI) for the Proposed Action (FSA 2019).

#### 23 ***1.4 Decision to be Made***

24 FSA must decide if implementing the revised NJ CREP agreement is the selected alternative,  
25 and whether that alternative qualifies as a major federal action significantly affecting the quality  
26 of the human environment. If FSA determines that the selected alternative would not have a  
27 significant impact, it may prepare a FONSI and implement the selected alternative.

#### 28 ***1.5 Public Involvement and Consultation***

29 In 2023, FSA, in coordination with state co-sponsors NJDA and NJDEP, proposed a revision to  
30 the NJ CREP agreement. The informal scoping process for this PEA aimed to provide guidance  
31 to stakeholders on participation opportunities and to utilize their input to inform PEA  
32 development and the scope of the Proposed Action. Informal scoping with state partner  
33 agencies and internal FSA personnel took place throughout 2023. As part of this process, FSA  
34 also initiated consultation with the United States Fish and Wildlife Service (USFWS),  
35 documented in **Appendix C**, and engaged with multiple Tribal entities, detailed in **Appendix D**.  
36 FSA continues to keep stakeholders informed about the proposed revisions to the New Jersey  
37 CREP agreement and opportunities for input on PEA development through stakeholder  
38 outreach and consultation letters, updates on the CREP program website, and public notices.

# Chapter 2: Proposed Action and Alternatives

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Two alternatives were evaluated in this PEA: the No Action alternative and the Proposed Action. The impacts of keeping the current New Jersey CREP agreement (No Action alternative) or updating the New Jersey CREP agreement (Proposed Action) were both analyzed. No other alternatives were considered and dismissed from further analysis.

## 2.1 Alternative 1: No Action Alternative

Under the No Action alternative, no changes would be made to the existing NJ CREP agreement. CREP contracts executed under the existing agreement would continue to be administered in accordance with, and subject to, the CRP regulations at 7 CFR Part 1410, and the provisions of the existing NJ CREP agreement. In the event of a conflict, the CRP regulations would be controlling. The conditions and goals established in the 2004 agreement would remain in place for current CREP contracts and any newly enrolled CREP acres. The CCC would cost share up to 50% of all eligible reimbursable costs for approved CREP CPs. Practices that would be allowed under the No Action alternative include:

- Riparian Forest Buffer (CP22)
- Filter Strips (CP21)
- Establishment of Permanent Vegetative Cover (Contour Grass Strips) (CP15A)
- Grass Waterways (CP8A)

The NJ CREP agreement would continue to only include the four practices listed above, which are described in **Section 2.1**. These practices would also continue to be eligible for a one-time Performance Incentive Payment (PIP) equal to 40% of the cost of the practice, instead of the 50% that would be available under the Proposed Action. The State's commitment to create up to 30,000 acres of permanent vegetative cover to address nonpoint source pollution, preserve open space, and promote on-farm conservation would also remain unchanged. However, changes to CREP re-enrollment requirements, expanding the list of eligible CPs, and revisions to the allowances for CP22 would not be implemented under the No Action alternative.

## 2.1 Alternative 2: Proposed Action

Under the Proposed Action, the FSA would execute and implement an updated CREP agreement between the State of New Jersey and the CCC. The updated NJ CREP agreement would implement programmatic changes to the CREP made in the 2018 Farm Bill and other changes recommended by the CREP state partners. The primary objectives of the revised NJ CREP agreement would be:

- To create up to 30,000 acres of permanent vegetative cover to address nonpoint source pollution, preserve open space, and promote on-farm conservation. This acreage goal does not represent an expansion of the existing acreage cap but rather aligns with the acreage cap set under the No Action alternative.
- At full enrollment, to achieve an annual reduction of 26,000 pounds of phosphorous when compared to 2004 levels or when compared to similarly managed acreage not under contract.



- 1 • At full enrollment, to achieve an annual reduction of 7 million pounds of Total Suspended  
2 Solids (TSS) when compared to 2004 levels or when compared to similarly managed  
3 acreage not under contract.
- 4 • To maintain and restore ecological functions of streams by reducing biological  
5 impairment.
- 6 • To increase the number of unimpaired stream miles by improving water quality in  
7 impaired streams and maintaining water quality in unimpaired streams.

8 To accomplish these objectives, FSA would expand the practices and methods available to New  
9 Jersey. The revised CREP agreement would consist of continuous sign-up, USDA cost-share  
10 payments, annual rental payments, and State cost-share and easement payments, as well as a  
11 state-run CREP permanent easement program. The CREP agreement would continue to allow  
12 for up to 30,000 acres to be enrolled in the NJ CREP in the Delaware and Walkkill WMAs, as  
13 well as WMAs draining to the Atlantic. Under the revised agreement, the CCC would continue to  
14 cost share up to 50% of CP installation costs following FSA National CRP Directives. The  
15 NRCS, the FSA, and State SCDs would also continue to provide technical assistance to  
16 landowners for CP installation and maintenance.

17 The FSA would also increase the total number of CPs included in the NJ CREP agreement from  
18 four to seven, adding CP3A, CP5A, and CP18C. The eligible practices in the revised NJ CREP  
19 agreement would include:

- 20 • **Hardwood Tree Planting (CP3A)**
- 21 • **Field Windbreak Establishment (CP5A)**
- 22 • Grass Waterways (CP8A)
- 23 • Establishment of Permanent Vegetative Cover (CP15A)
- 24 • **Establishment of Salt Tolerant Vegetative Cover (CP18C)**
- 25 • Filter Strips (CP21)
- 26 • Riparian Forest Buffer (CP22)

27 The four original practices included in the 2004 NJ CREP agreement are described below.

28 **Grass Waterways (CP8A)**

29 Implementation of CP8A is intended to convey runoff without causing erosion or flooding, to  
30 reduce gully erosion, and to protect and improve water quality. Under CP8A, vegetation shall be  
31 protected from concentrated flow until grass waterways are established. Livestock shall be  
32 excluded as much as possible, and prescribed burning or mowing shall not take place during  
33 peak nesting season for wildlife with the potential to occur at the site. Any areas that are  
34 damaged shall be repaired and re-seeded as soon as possible (FSA 2015a).

35 **Establishment of Permanent Vegetative Cover (CP15A)**

36 The purpose of this practice is to establish conservation cover to reduce soil erosion and  
37 sedimentation, improve water quality, and enhance wildlife habitat. Any maintenance practices,  
38 prescribed burning, or mowing shall take place outside of peak nesting season. Mowing and  
39 periodic grazing can maintain the treatment capacity of the practice and reduce sedimentation.  
40 Landowners shall control noxious weeds where the practice is implemented (FSA 2015b).

41 **Filter Strips (CP21)**

1 CP21 aims to establish wetland hydrology and hydric soil conditions to provide wetland function  
2 and value. Landowners implementing CP21 shall inspect vegetation on a regular basis and  
3 determine the appropriate level of sedimentation in the practice before sediment is removed to  
4 maintain treatment capacity (FSA 2015c).

5 **Riparian Forest Buffer (CP22)**

6 Riparian forest buffers can provide habitat for rare and declining wildlife or provide wetland  
7 function and value (FSA 2015d). The revised NJ CREP agreement would implement new  
8 allowances and requirements for CP22. The revisions would allow food-producing woody plant  
9 species to be planted in forested riparian buffers if the plants contribute to the conservation of  
10 soil, water quality, and wildlife habitat. Planting food-producing woody plant species must be  
11 consistent with recommendations from the State technical committee and technical guide  
12 standards for the applicable NRCS field office. Harvesting from these food-producing species  
13 must not have a negative impact on conserving ground cover in the riparian buffer. If food-  
14 producing woody plant species are incorporated into a forested riparian buffer, only native  
15 species can be planted in the 35-foot buffer of the waterway. The rental rate associated with  
16 CP22 would be reduced based on the value of the crop harvested from these species.

17 In addition to the four original practices included in the 2004 NJ CREP agreement, under the  
18 Proposed Action, three new practices would be included in the revised NJ CREP agreement in  
19 accordance with the CP standards described below.

20 **Hardwood Tree Planting (CP3A)**



**Figure 2.1 Hardwood Tree Planting Adjacent to Agricultural Field (FSA 2015e)**

21 CP3A is intended to restore land degraded by human activity, provide habitat for rare and  
22 declining wildlife species, restore and conserve native plant communities, increase the diversity  
23 of native plants where implemented, and manage unique or declining native habitats. Use of  
24 native plant species is encouraged, and while management of noxious weeds and invasive  
25 species is required where this practice is implemented, biological methods shall be used where  
26 feasible. Landowners shall observe appropriate planting dates and handle the plants in a  
27 manner that ensures an acceptable rate of survival (FSA 2015e). Under the revised NJ CREP,  
28 CP3A would also require that three or more hardwood tree species that support wildlife in the  
29 area, or Atlantic White Cedar, be planted at rates appropriate for the site index. The site index is  
30 the measure used to describe the productivity of a site or stand of trees and typically represents



1 the average total height of the dominant and co-dominant species of trees in a forest stand at a  
2 given age (American Forest Management 2017). See **Figure 2.1** for an example of hardwood  
3 tree planting.

#### 4 **Field Windbreak Establishment (CP5A)**

5 The purpose of this practice is to  
6 reduce soil erosion from wind, protect  
7 plants from wind damage, enhance  
8 plant growth and wildlife habitat by  
9 providing travel corridors, establish  
10 living barriers against airborne  
11 chemical drift, improve carbon storage  
12 and irrigation efficiency, and manage  
13 snow deposition. Landowners who  
14 enroll acres in the CREP for this  
15 practice would be required to replace  
16 dead trees and shrubs and prune  
17 vegetation to maintain the barrier's  
18 function. Landowners and producers  
19 would be required to protect vegetation  
20 from adverse effects of disease, pests,  
21 competing vegetation, fire, livestock, and wildlife. Periodic nutrient application or supplemental  
22 watering may also be needed to establish and maintain the plants in the barrier (FSA 2015f).  
23 See **Figure 2.2** for an example of field windbreak establishment.



**Figure 2.2 Field Windbreak Establishment (FSA 2015f)**

#### 24 **Establishment of Salt Tolerant Vegetative Cover (CP18C)**

25 The primary purpose of CP18C is to establish salt-tolerant cover on cropland with a high water  
26 table. This practice is used to reduce soil erosion and sedimentation, improve water quality, and  
27 enhance wildlife habitat. Maintenance practices would not be expected to disturb any grassland  
28 species that would be present during nesting season, and any prescribed burns must take place  
29 at times that avoid peak nesting season and would not reduce winter cover. Mowing and  
30 periodic grazing is permissible to maintain the capacity of the practice and reduce sediment  
31 deposition, and landowners would be expected to control noxious weeds on acres where this  
32 practice is implemented (FSA 2015g).

#### 33 **Haying and Grazing**

34 Under the revised New Jersey CREP agreement, haying and grazing would be allowed  
35 on lands enrolled in the program, subject to specific conditions. Approval for haying and  
36 grazing would be granted on a site-specific basis, requiring a conservation plan  
37 approved by NRCS or a technical service provider beforehand. Two types of  
38 authorization would be permitted: non-emergency and emergency. Non-emergency  
39 haying and grazing would aim to enhance CP cover quality, prevent soil erosion, and  
40 protect water and wildlife habitat quality, with defined frequencies and times of year.  
41 Emergency haying and grazing would be temporary relief measures in areas affected by  
42 severe drought or disaster, authorized on a county-by-county basis during "D2 Drought -  
43 Severe" conditions, as defined by the U.S. Drought Monitor (USDA Economic Research  
44 Service 2019).

45 See **Table 1** for allowable haying and grazing practices under the 2018 Farm Bill.

**TABLE 1: ALLOWABLE HAYING AND GRAZING UNDER THE 2018 FARM BILL**

<p>Non-Emergency Grazing</p>	<p>Frequency: Every other year</p> <p>Time of year: Can occur during PNS at 50% of the approved stocking rate</p> <p>Provisions:</p> <ul style="list-style-type: none"> <li>• Can occur 12 months after conservation cover is established</li> <li>• Land within 120 feet of a stream or other water body is ineligible</li> <li>• Emergency haying or grazing restarts the frequency clock</li> <li>• Haying and grazing cannot occur on the same acreage</li> <li>• Authorized for a single period of up to 120 days or 2 60-day periods before September 30</li> <li>• Requires modification of Conservation Plan (grazing plan)</li> <li>• 25% or greater payment reduction</li> </ul>
<p>Emergency Grazing</p>	<p>Frequency: No frequency limitation</p> <p>Time of year: Can occur during the PNS at 50% of the allowable stocking rate</p> <p>Provisions:</p> <ul style="list-style-type: none"> <li>• Graze 75% of field or contiguous fields or all entire field(s) at no more than 75% of stocking rate</li> <li>• Can occur after cover is established</li> <li>• Producer agrees to re-establish the cover at own expense if it is destroyed</li> <li>• Land within 120 feet of a stream or other water body is ineligible</li> <li>• Haying and grazing cannot occur on the same acreage</li> <li>• Up to 90 days (and possibly a single 30-day extension) before September 1</li> <li>• No payment reduction</li> </ul>
<p>Non-Emergency Haying</p>	<p>Frequency: Once every three years</p> <p>Provisions:</p> <ul style="list-style-type: none"> <li>• Can occur 12 months after conservation cover is established</li> <li>• Land within 120 feet of a stream or other water body is ineligible</li> <li>• Emergency haying or grazing restarts the frequency clock</li> <li>• Haying and grazing cannot occur on the same acreage</li> <li>• Limited to one cutting per year</li> <li>• Up to 120 calendar days after the end of PNS</li> <li>• Requires modification of Conservation Plan to identify acres</li> <li>• Requires producer to re-establish cover at own expense if the activity causes the cover to fail</li> <li>• 25% or greater payment reduction</li> </ul>

**TABLE 1: ALLOWABLE HAYING AND GRAZING UNDER THE 2018 FARM BILL**

<p>Emergency Haying</p>	<p>Frequency: No frequency limitation</p> <p>Provisions:</p> <ul style="list-style-type: none"> <li>• Shall leave 50% of field or contiguous fields unhayed</li> <li>• Can occur after the cover is established</li> <li>• Producer agrees to re-establish the cover at own expense if it is destroyed</li> <li>• Land within 120 feet of a stream or other water body is ineligible</li> <li>• Not authorized during the PNS</li> <li>• Haying and grazing cannot occur on the same acreage</li> <li>• Producers may not sell hay</li> <li>• Up to 60 days before August 31</li> <li>• No payment reduction</li> </ul>
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1 **Re-enrollment Revisions**

2 The Proposed Action would allow for the re-enrollment of CREP acres at the end of a CREP  
 3 contract. Land would be eligible for re-enrollment in the NJ CREP if the re-enrollment contract is  
 4 for the same CP(s) as the original enrollment contract. Land proposed for re-enrollment must  
 5 also meet the criteria for re-enrollment outlined in 7 CFR Part 1410, including compliance with  
 6 the conservation plan for the land. Re-enrollment must take place before the previous CREP  
 7 contract ends, and the CCC would not offer cost-share payment for the installation of any cover  
 8 or practice on re-enrolled land.

9 **Administrative Changes**

10 The Proposed Action would also make administrative changes to the NJ CREP, including  
 11 revisions to the State’s in-kind contributions. New Jersey is required by the NJ CREP  
 12 agreement to provide an in-kind contribution of 20% of the NJ CREP’s overall annual program  
 13 cost. Under the Proposed Action, the NJDEP Green Acres Program would no longer be part of  
 14 the State’s in-kind contribution. The Proposed Action would also revise the deadline for the  
 15 State’s annual report to the CCC from January 1 to December 31. In addition, the total cost  
 16 share payments from all sources, including PIPs, would not exceed 110% of the cost of the  
 17 practice per CRP regulations and FSA National CRP Directives. One-time PIPs would also  
 18 increase from 40% to 50% for applicable practices and would be paid in two amounts. This PIP  
 19 would be subject to the 110% cost share limit.

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1 **2.3 Comparison of Alternatives**

<b>TABLE 2: COMPARISON OF ALTERNATIVES</b>		
<b>PRACTICE</b>	<b>NO ACTION (ALTERNATIVE 1)</b>	<b>PROPOSED ACTION (ALTERNATIVE 2)</b>
Filter Strips (CP21)	X	X
Riparian Forest Buffer (CP22)	X	X
Grass Waterways (CP8A)	X	X
Establishment of Permanent Vegetative Cover (CP15A)	X	X
Establishment of Salt Tolerant Vegetative Cover (CP18C)		X
Hardwood Tree Planting (CP3A)		X
Field Windbreak Establishment (CP5A)		X
<b>ASPECT</b>	<b>NO ACTION (ALTERNATIVE 1)</b>	<b>PROPOSED ACTION (ALTERNATIVE 2)</b>
Haying and Grazing	Haying and grazing not authorized on CPs.	Both emergency and non-emergency haying and grazing allowed.
Objectives and Goals	<ul style="list-style-type: none"> <li>Maintains existing 2004 CREP agreement objectives</li> <li>Overall goal to create 30,000 acres of permanent vegetative cover.</li> </ul>	<ul style="list-style-type: none"> <li>Create 30,000 acres of permanent vegetative cover.</li> <li>Reduce phosphorus by 26,000 pounds annually compared to 2004 levels.</li> <li>Reduce TSS by 7 million pounds annually compared to 2004 levels.</li> <li>Restore ecological functions of streams, reducing biological impairment.</li> <li>Increase unimpaired stream miles by improving water quality.</li> </ul>
Enrollment and Re-enrollment	Does not include provisions for re-enrollment	Allows re-enrollment with specified criteria and deadlines

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## Chapter 3: Affected Environment

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This section describes the existing conditions of the environmental resources that have the potential to be impacted by the Proposed Action. The area with the potential to be impacted by the Proposed Action is known as the Affected Environment. Federal and state requirements that may apply to resources in the Affected Environment are included in this PEA as **Appendix E**. All figures for Chapter 3 are included in this PEA as **Appendix F**.

The boundary of the Affected Environment for this PEA includes all properties, land, and environmental resources in the State of New Jersey. New Jersey covers approximately 8,723 square miles (22,591 square kilometers). See **Figure 3.1** for the Affected Environment boundary (**Appendix F**).

The geographic scope of analysis in this PEA encompasses the entire State of New Jersey – specifically the agricultural lands located in the Delaware and Walkkill WMAs as well as the Northeast, Raritan, and Atlantic regions of the state. Up to 30,000 acres of agricultural land in New Jersey may be enrolled or re-enrolled in the CREP at any given time under both alternatives. CRP contracts are limited to lands that are entirely located within eligible CREP project areas and can be planted as cropland or marginal pastureland.

The temporal scope for this analysis is fifteen years after the revised NJ CREP agreement is approved and implemented; the conditions in the revised agreement would be included in new CREP enrollment and re-enrollment contracts for a minimum of ten to fifteen years. The State and the CCC may choose to make further revisions to the agreement in the future – at that point, a new programmatic analysis would be required before enrolling new CREP acres under the updated agreement pursuant to 7 CFR 799. New programmatic analyses as well as site-specific EEs would tier from or supplement this PEA.

### 3.1 Land Use, Zoning, and Aesthetics

#### Definition of the Resource

**Land use** refers to the human use of land (United States Environmental Protection Agency [EPA] 2024a). It represents the economic and cultural activities that are practiced at a given place. These activities include, but are not limited to, agricultural, residential, industrial, open space, commercial, or recreational uses.

**Zoning** regulates human development patterns, including the density, construction, alteration, and use of buildings, structures, or land (United States Department of Housing and Urban Development 2024).

**Aesthetics** are the visual environment of an area, including natural and artificial landscape features that make up a view. A landscape's visual environment considers its visual character and visual quality (Transportation Research Board 2004).

#### Affected Environment

New Jersey prioritizes comprehensive planning to preserve its natural, cultural, economic, and social resources, guided by the 1985 State Planning Act. This act emphasizes integrated statewide planning focusing on objectives like conserving natural resources, revitalizing urban centers, and promoting economic growth while ensuring affordable housing and public services. Under this legislation, the State Development and Redevelopment Plan (SDRP) sets statewide objectives for land use, housing, transportation, and conservation, focusing on equal social and economic opportunities, balanced infrastructure investment, and urban revitalization.

Sustainable development is integrated as a unifying theme, guiding planning efforts to create enduring quality of life in sustainable communities (New Jersey State Planning Commission [NJSPC] 2001).

County Agriculture Development Boards are local county government entities that partner with the State Agriculture Development Committee on the Farmland Preservation, Right to Farm, and Agricultural Mediation Programs. Supported by local zoning regulations, these programs protect landowners and agricultural producers under the Right to Farm Act (New Jersey State Agriculture Development Committee 2016).

New Jersey's land use is a diverse mix of urban, suburban, agricultural, and natural areas, with significant urbanization in the northeastern corridor. Trends show continued urbanization and suburban sprawl, converting agricultural and natural lands. Projections suggest that these trends will persist, with urban/developed lands and brush/grasslands increasing while farmlands decrease. Conservation efforts like the Green Acres Program aim to preserve open space and natural areas, while development along the Atlantic Ocean coastline poses challenges related to erosion and sea-level rise (Ngoy et al. 2021).

Agricultural land, though limited, is crucial to the state's rich agricultural heritage. New Jersey is a leading producer of commodities such as blueberries, cranberries, tomatoes, sweet corn, peppers, lettuce, eggplants, spinach, floriculture, nursery crops, and asparagus. As of 2022, New Jersey had 97,000 acres of hay and 60,180 acres of grazing land (NASS 2024). Recent census data indicates that there are 10,000 farm operations in New Jersey covering 711,502 acres, with an average farm size of 70 acres (NASS 2021).

New Jersey offers a diverse range of aesthetics, from the urban skylines of cities like Newark and Jersey City to the serene rural landscapes and coastal regions along the Atlantic Ocean. The state's architectural diversity includes historic landmarks, charming small towns, and bustling communities, complemented by its natural beauty in parks, farmlands, and shorelines, providing residents and visitors with a variety of visual experiences to appreciate (NJSPC 2001).

The SDRP guides local communities in New Jersey with a comprehensive framework for land use, economic development, transportation, and environmental conservation. It provides guidance on zoning regulations, infrastructure investments, and preservation efforts that enhance residents' quality of life while ensuring alignment with statewide objectives. The SDRP also supports New Jersey's agricultural sector by designating agricultural zones, promoting farming-friendly policies, and encouraging sustainable agricultural practices (NJSPC 2001).

## 3.2 Noise

### Definition of the Resource

**Environmental noise** is defined as the intensity, duration, and character of sounds from all sources (USC § 4902(11)). Noise can be intermittent or continuous, steady or impulsive, and can involve any number of sources and frequencies. It can be readily identifiable or generally nondescript.

A **sensitive receptor** is an occupied residence or facility whose occupants are more susceptible to the adverse effects of noise or odor including but not limited to hospitals, schools, daycare facilities, elderly housing, and convalescent facilities (LI 2024b).

### Affected Environment

New Jersey faces diverse noise pollution challenges due to its dense population and extensive transportation networks, which include highways, airports, and industrial areas. These factors



contribute to elevated noise levels in urban and suburban areas, significantly impacting residents' quality of life. Efforts to mitigate noise pollution include zoning regulations, sound barriers along highways, and measures to reduce aircraft noise near airports. However, continued urbanization and transportation infrastructure expansion pose ongoing challenges in managing noise pollution in the state.

In some urban and high transportation areas of New Jersey, noise levels can exceed 100 A-weighted decibels (dBA), while urban areas typically experience daytime noise levels of 60-65 dBA, and suburban and residential areas range from 40-45 dBA. Rural areas remain comparatively quieter, with sound levels averaging between 30-40 dBA (United States Department of Transportation [USDOT] 2022). See **Figure 3.2** for a transportation noise map of New Jersey (**Appendix F**).

In New Jersey's agricultural regions, machinery operation and farming activities also contribute to elevated noise levels. The perceived noise from farm equipment varies based on factors such as the type of equipment and its proximity to residential areas. See **Table 3** for a list of common farming equipment and their corresponding approximate noise level ranges in decibels (Penn State Extension 2022).

TABLE 3: NOISE FROM FARM EQUIPMENT	
FARM EQUIPMENT	NOISE LEVEL RANGE (DBA)
Tractors	74-112
Combine Harvesters	80-105
Balers	80-100
Sprayers	85-106
Cultivators	80-95
Plows	85-100
Seeders/Planters	80-95

### 3.3 Waste and Hazardous Materials

#### 3.3.1 Solid Waste

##### Definition of the Resource

**Solid waste** is any garbage or refuse, sludge from a wastewater treatment plant, water supply treatment plant, or air pollution control facility and other discarded material, resulting from industrial, commercial, mining, and agricultural operations, and from community activities (42 USC § 6903(27)).

##### Affected Environment

Solid waste management in New Jersey is overseen by the NJDEP and local authorities (NJDEP 2024a). In 2020, the State generated approximately 21 million tons of solid waste, including municipal waste, construction debris, and other types of non-municipal waste. This is an increase from 11.4 million tons in 1985. On average, New Jersey residents produce about 5.4 pounds of trash per day. (NJDEP 2024b).

New Jersey has over 800 landfills, 400 of which are active, covering more than 10,500 acres (NJDEP 2022b). See **Figure 3.3** for landfills in New Jersey (**Appendix F**). In addition, over 40% of the state's trash is exported out of state (NJDEP 2024b). Landfills pose major economic

challenges, with costs to close the State's landfills estimated to exceed \$2 billion. Additionally, every 40,000 tons of municipal solid waste added to a landfill condemns at least one acre of land, making new landfill sites difficult to find.

Recycling, which accounts for about 36% of the state's municipal solid waste, helps reduce waste, save landfill space, preserves natural resources, and decreases water and air pollution. However, recycling rates have declined since the mid-1990s, with a decline from 56% in 2019 to 55% in 2020 (NJDEP 2024b; New Jersey Future 2007).

### **3.3.2 Hazardous Materials**

#### Definition of the Resource

**Hazardous waste** is defined by the Resource Conservation and Recovery Act (RCRA) (amended by the Hazardous and Solid Waste Amendment) as any solid, liquid, contained gaseous, or semisolid waste, or any combination of wastes that poses a substantial present or potential hazard to human health or the environment (42 USC § 9603(5)). In general, both hazardous materials and wastes include substances that, because of their quantity; concentration; or physical, chemical, or infectious characteristics, might present substantial danger to public health or welfare or the environment when released or otherwise improperly managed.

A **hazardous substance** is defined by the Comprehensive Environmental Response, Compensation, and Liability Act, as amended by the Superfund Amendments and Reauthorization Act and the Toxic Substances Control Act, as any substance with physical properties of ignitability, corrosivity, reactivity, or toxicity that might cause an increase in mortality, serious irreversible illness, incapacitating reversible illness, or pose a substantial threat to human health or the environment (42 USC § 9601(14)).

#### Affected Environment

New Jersey has over 11,000 sites regulated under RCRA, including industrial facilities, landfills, and storage facilities (EPA 2023). Hazardous waste in New Jersey encompasses a broad spectrum of materials including, but not limited to, industrial chemicals, solvents, pesticides, and heavy metals. Such waste can originate from diverse sources including industrial facilities, manufacturing processes, laboratories, and common household products.

Given New Jersey's dense population and extensive industrial activity, the volume of hazardous waste generated in the state is substantial. However, the NJDEP maintains robust regulations and enforcement mechanisms to ensure safe handling and disposal, supported by public education and outreach initiatives (NJDEP 2023a).

**Figure 3.4** depicts New Jersey's superfund sites earmarked for cleanup under the EPA's Superfund program (**Appendix F**). As of December 2023, the state leads the nation with 115 sites listed on the EPA's National Priorities List, mainly in industrial areas and dense population centers like the Passaic River, Berry's Creek, and the Lower Passaic River Study Area. Cleanup efforts entail collaboration between the EPA and NJDEP, focusing on investigation, risk assessment, remediation, and monitoring (New Jersey Office of Information Technology [NJOIT] 2024).

There are also approximately 700 brownfield sites, or sites that have been abandoned or underused due to contamination (**Figure 3.4**; NJOIT 2024). The state addresses brownfield cleanup and redevelopment through initiatives like the Brownfields Development Area Program and the Hazardous Discharge Site Remediation Fund. Additionally, the new Brownfields Impact Fund offers low-interest loans of \$50,000 to \$350,000 for site cleanup. These efforts, administered by the NJDEP, the New Jersey Economic Development Authority, and the New



Jersey Department of Community Affairs, aim to revitalize urban areas, boost economic activity, improve public health, and catalyze redevelopment efforts in underserved communities (NJDEP 2024c).

### 3.4 Air Quality

#### Definition of the Resource

**Air quality** is defined as the extent to which ambient air, or the portion of the atmosphere, external to buildings, to which the general public has access, is pollution-free (40 CFR Part 50.1(e)).

**Air pollutant:** Any air pollution agent or combination of such agents, including any physical, chemical, biological, radioactive substance or material which is emitted into or otherwise enters the ambient air (42 USC § 7602(g)).

**Nonattainment:** A geographic area with air quality that does not meet the air quality standards for a pollutant is called a “non-attainment” area (42 USC § 7501(2)).

#### Affected Environment

According to the EPA’s “Green Book on Nonattainment of Criteria Pollutants,” New Jersey is in attainment for all criteria pollutants except for 8-Hour Ozone, with the entire state in nonattainment for this pollutant (EPA 2024b). However, ozone trends in New Jersey have consistently decreased due to reductions in emissions of volatile organic compounds and nitrogen oxides from sources like motor vehicles, power plants, combustion processes, chemical plants, factories, consumer and commercial products, and natural sources such as trees (NJDEP 2022c).

### 3.5 Farmland and Soils

#### Definition of the Resource

**Farmland** means prime or unique farmlands as defined in section 1504(c)(1) Of the Farmland Protection Policy Act or farmland that is determined by the appropriate state or unit of local government agency to be farmland of statewide or local importance (7 CFR Part 658.2(a)).

**Soil** is defined as the unconsolidated mineral or organic material on the immediate surface of the Earth that serves as a natural medium for the growth of land plants (NRCS 2024a).

#### Affected Environment

New Jersey's soil composition varies widely due to factors like geology, climate, and land use history (Dalton 2006). This diversity in soil types affects the suitability of various areas for specific crops and agricultural practices. Farms in New Jersey occupy 711,502 acres, or approximately 12.8% of the state's total land area (NJDEP 2023b), with around 324,506 acres co-located with Prime Farmland and Soils of Statewide Importance. Agricultural land is primarily concentrated in the southern and western regions of the state (NASS 2024).

In New Jersey, erosion and soil concerns are significant due to the state's diverse geography, high population density, and extensive development. Factors contributing to erosion and soil degradation in New Jersey include:

- **Urbanization and Development:** New Jersey is one of the most densely populated states, with a high level of urbanization and development. The conversion of natural landscapes into urban and suburban areas increases impervious surfaces like roads,

parking lots, and buildings. These surfaces prevent water infiltration into the soil, leading to increased runoff and erosion. Urban development also disturbs the natural vegetation cover, which can exacerbate soil erosion (Rutgers 2011).

- **Construction:** Construction activities can disrupt soil structure, increase erosion, and alter the hydrological cycle, adversely affecting soil health and water quality (Rutgers 2011).
- **Agricultural Practices:** Intensive tillage and monoculture cropping in agriculture can increase the rate of soil erosion, leading to loss of topsoil, reduced soil fertility, and sedimentation of water bodies (Sustainable Agriculture Research and Education 2022).
- **Coastal Development:** New Jersey's densely populated and highly developed Atlantic coastline faces erosion from coastal development activities like beach replenishment, seawall and jetty construction, and dredging. Sea-level rise and storm events further exacerbate coastal erosion, threatening infrastructure and habitats (NJDEP 2024d).
- **Natural Processes:** New Jersey regularly experiences severe weather events like hurricanes and nor'easters. These weather events can trigger soil erosion, particularly in areas with steep slopes or poorly vegetated soils (Soil Society of America 2015).
- **Riverine Erosion:** Erosion along rivers and streams in New Jersey can occur due to factors such as high flow rates, channelization, and land use changes in riparian areas. The rate of riverine erosion is influenced by factors such as streambank stability, vegetation cover, and land development activities in the watershed (Queensland Department of Environment, Science, and Innovation 2009).

Farmland preservation initiatives have been significant in New Jersey due to the pressures of urbanization and development. The state has implemented various programs to protect agricultural land from conversion to non-agricultural uses, ensuring the continued viability of its farming sector. The New Jersey Agricultural Smart Growth Plan (NJDEP 2024e) is one of these initiatives along with NRCS's agricultural easement programs (NRCS 2024b).

## 3.6 Climate Change

### Definition of the Resource

**Climate Change** refers to significant and long-term alterations in Earth's climate patterns, including shifts in temperature, precipitation, and weather extremes, primarily resulting from human activities such as the burning of fossil fuels, deforestation, and industrial processes. These activities release greenhouse gases (GHG) into the atmosphere, which trap heat and contribute to the warming of the planet (Pielke 2004).

### Affected Environment

Since 1895, New Jersey's annual temperature has increased by 3.5°F due to climate change (NJDEP 2020). In 2021, the leading sectors of GHG emissions in the state were fuel consumed via transportation (37.3%), electric generation (19.1%), residential activities (14.9%), commercial activities (9.9%), and industrial activities (7.9%). Non-fuel agricultural activities made up 0.4% of all state emissions in 2021. Examples of non-fuel agriculture emissions include releases of nitrous oxide from soil, carbon dioxide released by agricultural lime and similar materials as soil acids are neutralized, and livestock operations. Fuel consumed at farms, such as in farming equipment, is included as part of "fuel-consuming industrial activities (NJDEP 2024f).

Climate-change induced alterations in temperature, precipitation, carbon dioxide concentrations, and water availability are anticipated to affect future crop and livestock productivity for the state. In particular, New Jersey may become unsuitable for crops such as blueberries and cranberries that require an extended winter-chill period to grow (NJDEP 2020).

To address statewide GHG emissions, the state passed the Global Warming Response Act (GWRA) in 2007 to establish a GHG monitoring and reporting program (N.J.S.A 26:2C-37). In addition, the NJDEP and the NJDA developed the Natural Working Lands Strategy in 2023 to mitigate New Jersey's effects on climate change by setting GHG reduction goals and targets for land management practices (NJDEP 2023b). Since 1990, New Jersey's annual net emissions have dropped from 112.6 million metric tons of carbon dioxide equivalent (MMT CO<sub>2</sub>e) to 97.6 MMT CO<sub>2</sub>e in 2021, a 13% reduction over 31 years. The GWRA set a goal to reduce state emissions by 80% from 2006 levels by 2050, or a goal of 24.0 MMT CO<sub>2</sub>e. At the current rate of emission reduction, this goal would not be reached until 2060 (NJDEP 2024f).

Currently, renewable resources contribute about 8% of New Jersey's electricity generation. The state's Renewable Portfolio Standard, enacted in 1999 and updated in 2018, mandates that by 2030, 50% of electricity sold in New Jersey must originate from renewable sources (United States Energy Information Administration 2024).

### 3.7 Water Resources

This resource area includes the following subsections:

- Water Quality, Surface Water, and Groundwater
- Water Source
- Floodplains
- Wetlands
- Federally Protected Water Resources (Coastal Zones, Coastal Barrier Resource Systems, Wild & Scenic Rivers, and Nationwide Rivers Inventory [NRI] Rivers)

#### 3.7.1 Water Quality, Surface Water, and Groundwater

##### Definition of the Resource

**Water quality standards** are provisions of State or Federal law that consist of a designated use or uses for the waters of the United States and water quality criteria for such waters based upon such uses. Water quality standards are to protect the public health or welfare, enhance the quality of water, and serve the purposes of the Clean Water Act (CWA) (40 CFR Part 131.3(i)).

**Surface water** means all water that is open to the atmosphere and subject to surface runoff (40 CFR Part 141.2)

**Groundwater** is water that exists underground in saturated zones beneath the land surface (40 CFR Part 257.53).

##### Affected Environment

In New Jersey, the NJDEP holds delegated authority under the CWA to regulate water quality standards for both surface waters and groundwater. NJDEP's authority includes establishing and enforcing SWQS, outlined in N.J.A.C. 7:9B. These standards form a comprehensive framework for preserving the integrity of New Jersey's surface waters, defining policies, stream classifications, and quality criteria crucial for protecting designated uses across each water classification (NJDEP 2024).

Furthermore, New Jersey has laws and regulations in place to protect and manage groundwater resources, governed by the Water Pollution Control Act (WPCA) and the Water Quality Planning Act (WQPA). NJDEP administers the State’s groundwater quality standards and manages State water allocation to regulate groundwater quality and withdrawals, ensuring sustainable use of groundwater resources (NJDEP 2024).

### Surface Water

New Jersey's surface water resources include over 19,425 miles of flowing waterways, comprising of 13,695 miles of nontidal and 5,730 miles of tidal rivers and streams (**Table 4**, NJDEP 2022a). The State is intersected by major rivers such as the Delaware, Passaic, and Raritan, with a combined length of approximately 197 miles along shared borders with neighboring states. These rivers provide critical habitats for aquatic life and serve as vital sources of drinking water and venues for recreational activities. The state also has about 47,620 acres of freshwater lakes, ponds, and reservoirs, including 43 reservoirs covering approximately 14,970 acres. Notable lakes and reservoirs, such as Lake Hopatcong, Greenwood Lake, and Round Valley Reservoir, are popular for fishing, boating, and other water-based pursuits. Along the coast, estuaries like Delaware Bay, Barnegat Bay, and Great Bay, support diverse marine ecosystems, serving as nursery habitats for fish species, and enhancing the overall biodiversity of the region. Rivers and streams also serve as an irrigation source for agriculture in New Jersey, supporting crops such as fruits, vegetables, and ornamental plants (NJDEP 2022a). See **Figure 3.5** for a map of surface waters in New Jersey (**Appendix F**).

TABLE 4: SURFACE WATER STATISTICS IN NEW JERSEY. SOURCE: NJDEP 2022A	
SURFACE WATER FEATURES	EXTENT
Rivers and Streams	19,425 miles (total)
Nontidal Rivers and Streams	13,695 miles
Tidal Rivers and Streams	5,730 miles
Lakes, Ponds, and Reservoirs	47,620 acres (total)
Number of Reservoirs	43
Estuarine Systems	650 square miles
Ocean Coastline	127 miles
Wetlands	~950,000 acres

### Surface Water Management

In New Jersey, surface water resources are managed through a system of twenty designated WMAs. These WMAs oversee the management and conservation of surface water within specific geographic regions of the state. The NJDEP provides water resource management through divisions like the Division of Science and Research, the Division of Water Monitoring and Standards, and the Bureau of Freshwater & Biological Monitoring. These divisions collaborate to monitor water quality, assess trends, and implement strategies for protecting and enhancing surface water resources statewide (NJDEP 2022a).

### Surface Water Quality

Surface water quality in New Jersey is influenced by both natural and anthropogenic factors (NJDEP 2022a). Due to the nature of the Proposed Action, this PEA focuses solely on agricultural factors that influence surface water quality, including nutrient pollution and agricultural practices.

## Nutrient Pollution

**Trends:** Total phosphorus (TP) and total nitrogen (TN) concentrations have generally decreased over the past four decades, reflecting successful management strategies targeting nutrient pollution. However, nitrate concentrations have shown a consistent upward trend, primarily due to ammonia reduction practices at wastewater treatment plants, which inadvertently elevate nitrate levels in surface water bodies (Lester et al. 2020).

**Current Status:** While efforts to reduce TP and TN concentrations have been effective, the increase in nitrate concentrations poses ongoing challenges. Excess nutrients can lead to eutrophication, harmful algal blooms, and degradation of aquatic ecosystems, highlighting the need for continued monitoring and management (NJDEP 2022a).

## Agricultural Practices

**Trends:** Agricultural runoff contributes to elevated levels of phosphorus, nitrogen, sediment, pesticides, and herbicides in water bodies. Trends over the last four decades suggest persistent or worsening conditions over time, driven by intensive agricultural practices, including fertilizer and pesticide use (Lester et al. 2020).

**Current Status:** Despite efforts to implement best management practices (BMPs) and conservation measures, agricultural activities continue to be a major source of nutrient pollution. Runoff from agricultural lands poses risks to water quality, particularly in areas with intensive farming practices and limited buffer zones (NJDEP 2022a).

## Groundwater

New Jersey's groundwater resources are essential for providing reliable water statewide. The state benefits from vast aquifers storing approximately 13 trillion gallons of groundwater, including the Coastal Plain, Kirkwood-Cohansey, and Potomac-Raritan-Magothy systems (**Figure 3.6, Appendix F**). Some, like the Kirkwood-Cohansey aquifer, are designated as sole-source aquifers, which are aquifers designated by the EPA under the Safe Drinking Water Act that supply at least 50% of the drinking water for their area with no viable alternative sources in case of contamination (Hoffman 1999). These aquifers vary in size, depth, and water quality, meeting the diverse needs of residents, industries, and ecosystems.

Groundwater serves as a vital source of drinking water for over half of New Jersey's population, supporting domestic, agriculture, industrial, and commercial use. Groundwater also sustains ecosystems by contributing to stream flow, wetlands, and habitat for various species. Additionally, groundwater is essential for irrigation in agriculture, providing water for crop cultivation (NJDEP 2022a).

## Groundwater Quality

New Jersey's groundwater quality is monitored through a comprehensive network established with the USGS, comprising 150 wells screened at the water table. These wells, spanning various land use types, allow for assessing groundwater quality trends over time. Data from 1999 and 2019 indicate variations in parameters such as pH, dissolved oxygen, and total dissolved solids, reflecting differences in geology and land use. While wells in undeveloped areas typically have more natural quality, those in agricultural and urban areas show higher concentrations of total dissolved solids, attributed to factors like road salt application and agrochemical use. Changes in median dissolved oxygen concentrations highlight the potential impacts of urbanization on groundwater quality. The trends vary statewide, with some areas showing improvements due to remediation efforts or changes in land use practices, while others may degrade due to urbanization or intensified agriculture. Continued monitoring is crucial to

assess management strategies' effectiveness and the protection of groundwater resources (NJDEP 2022a).

### **3.7.2. Water Source and Availability**

#### Definition of the Resource

**Water source capacity** is defined as the total amount of water supply available from all active sources permitted for use by a water system (including surface water, groundwater, and purchased water) (LI 2024c).

**Drinking water** is defined as water meant for human consumption that is provided by a Public Water System or a private well (42 USC §300f).

#### Affected Environment:

In New Jersey, public water systems must meet strict state regulations set by the NJDEP to ensure the delivery of safe drinking water to consumers. These regulations ensure compliance with State surface water treatment rules and groundwater rules. Public water systems must also conduct regular monitoring and reporting, adhere to state water quality standards, develop emergency response plans, and implement source water protection measures. Federal requirements under the Safe Drinking Water Act also play a crucial role in safeguarding public health and maintaining water supply reliability (NJDEP 2024).

On average, New Jersey uses 3.1 billion gallons of consumptive water annually. New Jersey primarily sources water from two main sources: surface water and groundwater (NJDEP 2017).

**Surface Water:** Surface water accounts for about 75% of New Jersey's drinking water supply, sourced from rivers, reservoirs, ponds, lakes, bays, and oceans. Key surface water bodies like the Delaware, Passaic, Raritan, and Hackensack Rivers, along with reservoirs like the Wanaque and Round Valley Reservoir, ensure a reliable supply, especially during periods of high demand or drought. Coastal areas can also utilize seawater, which can be treated through desalination plants to produce potable water (NJDEP 2017).

**Groundwater:** About 25% of New Jersey's drinking water is accessed through groundwater wells. Common aquifers include the Cohansey, Kirkwood-Cohansey, Potomac-Raritan-Magothy, and Atlantic City Sands systems. Groundwater exists in confined and unconfined aquifers, with varying extraction methods (NJDEP 2017).

Statewide water withdrawals vary across different sectors, with potable supply representing 78%, commercial/industrial/mining activities representing 13%, and agriculture/irrigation representing 9% of total withdrawals (**Figure 3.7, Appendix F**).

Challenges such as climate change, population growth, aging infrastructure, and pollution threaten water sources. These challenges vary across the state due to geographic and hydrological differences, leading to regional disparities in water availability and quality. Rising temperatures and altered precipitation patterns from climate change strain water supplies. Population growth, particularly in urban areas, poses additional risks by escalating demand and increasing stress on water sources. Moreover, pollution from various sources threatens freshwater reserves and aquifers, while coastal areas face unique challenges such as saltwater intrusion. Extreme weather events further disrupt water infrastructure and supply stability, posing additional risks (NJDEP 2017). **Figure 3.8** illustrates projected 2040 water availability by public water system, highlighting areas facing potential challenges in meeting future water needs (**Appendix F**).

### **3.7.3 Floodplains**

#### Definition of the Resource

A **flood** is when an area experiences inundation from rising waters or from the overflow of streams, rivers, or other bodies of water, or from tidal surges, abnormally high tidal water, tidal waves, tsunamis, hurricanes, or other severe storms or deluge (42 USC § 4121(a)(1)).

#### Affected Environment

552 out of 566 municipalities in New Jersey participate in the National Flood Insurance Program (NFIP), a federal initiative designed to mitigate the financial impact of floods on communities and property owners. By joining the NFIP, participating municipalities commit to adopting and enforcing floodplain management regulations and to meeting federal standards. These regulations include zoning ordinances, building codes, and land use planning to minimize flood damage risk. In return, property owners gain access to federally backed flood insurance, ensuring financial protection against flood-related losses. NFIP participation enhances New Jersey's flood risk management and resilience, offering residents affordable flood insurance coverage and bolstering disaster preparedness efforts.

New Jersey, with about 19,425 miles of rivers and streams, faces significant flood risk, particularly in areas adjacent to these water bodies and its 127-mile ocean coastline. Over the past decade, flood risk in New Jersey has increased due to climate change impacts, including rising sea levels, more frequent and intense storms, and changes in precipitation patterns. Coastal areas like the Jersey Shore, have become more vulnerable to storm surges and tidal flooding, while inland regions near rivers and streams experience more flash flooding and riverine inundation. Recent data shows that tidal flooding risk in New Jersey has more than doubled since 1980, with a significant increase in the number of homes at risk (**Figure 3.9, Appendix F**). Hurricane flood risk has also expanded, affecting more buildings and properties. Projections suggest that New Jersey's flood risk will continue to grow, with additional buildings expected to flood frequently and increased hurricane-related damage anticipated (RhodiumGroup 2019).

### **3.7.4 Wetlands**

#### Definition of the Resource

A **wetland** is an area inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions (40 CFR Part 230.41(a)).

#### Affected Environment

New Jersey features a diverse array of wetland ecosystems, encompassing nearly 950,000 acres, including tidal, freshwater, and cedar swamps (**Table 5**). Freshwater wetlands serve as crucial interfaces between terrestrial upland and aquatic ecosystems, supporting flood-tolerant vegetation adapted to wet conditions. These ecosystems provide vital ecosystem services, including water purification, biodiversity support, and climate change mitigation (NJDEP 2019).

However, freshwater wetlands face significant threats from environmental and human stressors, exacerbated by climate change, which may reduce their natural capacity to rebound. Threats to the integrity of freshwater wetlands in New Jersey include landscape fragmentation, alterations to hydrology by ditching, soil erosion, saltwater intrusion, deer browse, and invasive species. The condition of wetlands and their landscape context affect the long-term viability, resiliency, and adaptability of these systems in the face of a changing climate (NJDEP 2020).



**TABLE 5: ACREAGE AND PERCENTAGE OF FRESHWATER WETLANDS BY LAND COVER TYPE IN NEW JERSEY (NJDEP 2019)**

FRESHWATER WETLAND TYPE	ACRES	HECTARES	% FRESHWATER WETLANDS
<b>Forested Wetlands</b>			
Deciduous Wooded Wetlands	342,687	138,683	48%
Coniferous Wooded Wetlands	72,602	29,382	10%
Mixed Wooded Wetlands (Coniferous Dom.)	73,092	29,580	10%
Mixed Wooded Wetlands (Deciduous Dom.)	59,621	24,128	8%
Atlantic White Cedar Wetlands	41,910	16,961	6%
<b>Shrub Wetlands</b>			
Deciduous Scrub/Shrub Wetlands	39,250	15,884	6%
Mixed Scrub/Shrub Wetlands (Deciduous Dom.)	12,575	5,089	2%
Mixed Scrub/Shrub Wetlands (Coniferous Dom.)	8,142	3,295	1%
Coniferous Scrub/Shrub Wetlands	6,517	2,637	1%
<b>Herbaceous Wetlands</b>			
Herbaceous Wetlands	30,657	12,407	4%
Phragmites Dominated Interior Wetlands	11,852	4,796	2%
<b>Freshwater Tidal Marshes</b>			
Freshwater Tidal Marshes	8,194	3,316	1%
<b>Total Freshwater Wetland Area in New Jersey</b>	<b>707,100</b>	<b>286,159</b>	<b>100%</b>

Tidal wetlands, found along the coast, are resilient habitats that play crucial roles in flood control, carbon sequestration, and biodiversity conservation. However, they face increasing threats from climate change, including rising sea levels, more frequent and severe storms, and saltwater intrusion into freshwater wetlands. These impacts exacerbate existing challenges and pose significant risks to the long-term health and resilience of tidal wetland ecosystems. The changing climate alters habitat conditions, affecting carbon sequestration, evapotranspiration, and fire frequency, while also increasing the risk of saltwater intrusion into freshwater wetlands. This intrusion disrupts the delicate balance of these ecosystems, leading to shifts in plant and animal communities and potentially causing habitat loss and degradation (NJDEP 2020).

### **3.7.5 Federally Protected Water Resources**

#### Definition of the Resource

For the purpose of this PEA, **federally protected water resources** include coastal zones, coastal barriers, wild and scenic rivers, and rivers in the Nationwide River Inventory (NRI).

**Coastal Zones** are the coastal waters (including the lands therein and thereunder) and the adjacent shorelands (including the waters therein and thereunder), strongly influenced by each



other and in proximity to the shorelines of the several coastal states, and includes islands, transitional and intertidal areas, salt marshes, wetlands, and beaches (16 USC §1453).

**Coastal Barriers** are depositional geological features that are subject to wave, tidal, and wind energies, and protect landward aquatic habitats from direct wave attacks (16 USC §3502).

**Wild Rivers** are free of impoundments and generally inaccessible except by trail, with watersheds or shorelines essentially primitive and waters unpolluted (16 USC §1273).

**Scenic Rivers** are free of impoundments, with shorelines or watersheds still largely primitive and shorelines largely undeveloped, but accessible in places by roads (16 USC §1273).

The **NRI** is a listing of free-flowing river segments in the United States that have been identified as having one or more "outstandingly remarkable" natural or cultural value(s). NRI river segments are potential candidates for inclusion in the National Wild and Scenic Rivers System (NWSRS) (16 USC §1276).

#### Affected Environment

##### **Coastal Zone Management Program**

New Jersey's Coastal Management Program covers tidal and non-tidal waters, waterfronts, and inland areas from the Hudson River to Trenton, including the Raritan and Delaware Bays. This coastal zone spans approximately 1,800 miles of tidal coastline, including 126 miles along the Atlantic oceanfront from Sandy Hook to Cape May, with widths ranging from 100 feet to 16.5 miles (NJDEP 2024g). See **Figure 3.10** for coastal zone areas in New Jersey (**Appendix F**).

##### **Coastal Barrier Resources System**

The Coastal Barrier Resources System in New Jersey comprises 21 units, including 12 that are designated as Otherwise Protected Areas, collectively covering a total of 65,070 acres. These units encompass 6,680 upland acres and 58,390 acres of associated aquatic habitat, with 44 shoreline miles. Governed by the Coastal Barrier Resources Act, these areas are subject to restrictions on federal expenditures and financial assistance to discourage development. Additionally, New Jersey's Coastal Zone Management Act areas include areas covered under the Coastal Area Facilities Act, state tidal waters, the Hackensack Meadowlands District, and tidal wetlands up to 500 feet landward from the mean high-water line (NJDEP 2024h). See **Figure 3.10** for coastal barrier resource systems in New Jersey (**Appendix F**).

##### **Wild & Scenic Rivers**

Designated wild and scenic rivers in New Jersey include the Lower and Middle sections of the Delaware River, the Great Egg Harbor River, the Maurice River, and the Musconetcong River. These rivers collectively span approximately 262.9 miles, representing more than 4% of the state's river miles. See **Figure 3.11** for wild and scenic rivers in New Jersey (**Appendix F**).

##### **Nationwide Rivers Inventory**

New Jersey has over 60 NRI river segments, totaling approximately 467 miles. These segments, identified for their outstanding natural or cultural values, are potential candidates for inclusion in the NWSRS. Being listed signifies that these rivers possess one or more "outstandingly remarkable" qualities, which are at least regionally significant. These qualities may include exceptional scenic beauty, recreational opportunities, wildlife habitat, geological features, or cultural importance. The NRI in New Jersey features diverse river segments, ranging from 2 to 49 miles in length, offering various recreational and ecological opportunities (NPS 2024a).

## 3.8 Biological Resources

### 3.8.1 Vegetation and Wildlife Habitat

**Vegetation** is defined as the plant life in an area.

**Wildlife** are animal species that are native or introduced and are characteristic of a region.

**Habitat** is defined as the combination of resources and environmental conditions that promote occupancy, survival, and reproduction by individuals of a species within its range (NatureServe 2021).

#### Affected Environment

The 1973 New Jersey Endangered Species Conservation Act (NJSA 23:2A-1 to 23:2A-1:16) led to the creation of the Endangered Nongame Species Program by the NJDEP's Division of Fish and Wildlife (NJFW). This program aims to protect and restore endangered, threatened, and nongame wildlife populations, promoting biodiversity within healthy ecosystems.

New Jersey encompasses several distinct ecosystem types, each contributing to the state's ecological diversity (NJDEP 2018). See **Figure 3.12** for a map of these ecosystem types (**Appendix F**). The ecosystem types include:

**Piedmont Plains:** Located in the northwest part of the state, the Piedmont Plains feature gently rolling hills, fertile soils, and diverse vegetation. This region supports agriculture, including crops such as corn, soybeans, and fruits, as well as residential and commercial development.

**Delaware Bay:** The Delaware Bay region comprises tidal marshes, beaches, and estuarine habitats along the shoreline. It serves as an important habitat for migratory birds, including shorebirds and waterfowl, and supports commercial fisheries and recreational activities like birdwatching and fishing.

**Atlantic Coastal Region:** Along the eastern coast of New Jersey, the Atlantic Coastal Region features sandy beaches, dunes, barrier islands, and salt marshes. This dynamic ecosystem plays a crucial role in coastal protection, offers habitat for diverse plant and animal species, and drives tourism and recreation.

**Pinelands:** The Pinelands, or Pine Barrens, covers a large portion of southern New Jersey with extensive pine forests, wetlands, and unique plant communities. This region hosts rare and endangered species, including the Pine Barrens tree frog and the Pine Barrens tree snake, and is protected by state and federal conservation efforts.

**Skylands:** In the northern part of the state, the Skylands region is defined by rugged terrain, including forests, lakes, and valleys. It offers a wide range of outdoor recreation opportunities such as hiking, camping, and wildlife viewing. Diverse wildlife, including black bears, deer, and birds of prey, call this region home.

**Marine:** New Jersey's marine habitat comprises coastal waters, estuaries, and offshore Atlantic Ocean areas, supporting a variety of marine life like fish, shellfish, and marine mammals. It sustains commercial and recreational fishing industries, along with shipping and transportation.

Vulnerable habitat types in New Jersey include (NJDEP 2018):

- **Coastal Areas:** Vulnerable to erosion, sea-level rise, and storm surges, impacting both terrestrial and aquatic habitats.
- **Wetlands:** Subject to drainage, pollution, and habitat fragmentation due to urbanization and development.

- **Forests:** Threatened by fragmentation, invasive species, and habitat loss due to land conversion and infrastructure development.
- **Grasslands and Meadows:** Vulnerable to conversion for agriculture, urbanization, and habitat degradation due to changes in land management practices.
- **Riparian Zones:** Susceptible to pollution, habitat alteration, and encroachment from development along water bodies.
- **Barrier Islands:** Prone to erosion, sea-level rise, and habitat loss due to coastal development and storms.

New Jersey's State Wildlife Action Plan identifies the Species of Greatest Conservation Need (SGCN) through a two-tiered filtering process. Initially, 289 SGCN were identified, expanding to 656 species in the revised plan. These were refined to 107 focal SGCN based on criteria like state listing and federal listing status, regional conservation needs, and feasibility of conservation actions. The list of SGCN includes all state-listed species as well as species of concern based on national or regional plans/criteria. This focused approach ensures targeted conservation efforts for vulnerable species across the State's habitats (NJDEP 2018). See **Appendix G** for the full list of New Jersey SGCN. Among the 107 SGCN, there are four avian species and four beetle species commonly found in agricultural landscapes (see **Table 6**).

TABLE 6: NEW JERSEY SGCN LIKELY TO OCCUR IN AGRICULTURAL LANDSCAPES		
SPECIES	HABITAT DESCRIPTION	BREEDING INFORMATION (NJ)
Bobolink ( <i>Dolichonyx oryzivorus</i> )	Grassland habitats, including agricultural fields	Breeds during spring and summer, typically April to July
Eastern Meadowlark ( <i>Sturnella magna</i> )	Open grasslands, including agricultural fields	Breeds from late March to early August
Grasshopper Sparrow ( <i>Ammodramus savannarum</i> )	Grasslands and meadows, including agricultural fields	Breeds from late April to early July
Vesper Sparrow ( <i>Poocetes gramineus</i> )	Open grassy areas, including agricultural fields	Breeds from late April to early August
New Jersey Pine Barrens Tiger Beetle ( <i>Cicindela patruela consentanea</i> )	Found in sandy or gravelly habitats, including fields and open areas	Not applicable
Little White Tiger Beetle ( <i>Cicindela lepida</i> )	Often found in sandy or gravelly habitats, including coastal dunes and fields	Not applicable
Northeastern Beach Tiger Beetle ( <i>Cicindela dorsalis dorsalis</i> )	Found in sandy coastal habitats, including fields near beaches	Not applicable
Southeastern Beach Tiger Beetle ( <i>Cicindela dorsalis media</i> )	Typically inhabits sandy coastal habitats, including fields near beaches	Not applicable

### 3.8.2. Federally Protected Species

USFWS serves as the lead federal agency overseeing terrestrial and freshwater T&E species, while the National Oceanic and Atmospheric Administration (NOAA) Fisheries regulates marine T&E species. Federal agencies proposing activities with the potential to affect protected species must consult with both the USFWS and NOAA Fisheries. Given that the Conservation Reserve Enhancement Program (CREP) does not pose any potential impact on marine species, this PEA is limited to the discussion of protected species under USFWS jurisdiction.

While New Jersey has four USFWS National Wildlife Refuges, the CREP does not operate within these refuges. Consequently, the analysis will concentrate solely on areas outside these refuges, ensuring relevance to the CREP program's intended implementation sites.

#### Endangered Species Act-Listed Species

##### Definition of the Resource

**Endangered:** Any species which is in danger of extinction throughout all or a significant portion of its range (16 USC § 1532(6)).

**Threatened:** Any species which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range (16 USC § 1532(20)).

**Critical habitat** for threatened or endangered species are specific areas within the geographic range of the species which are found to contain the physical or biological features essential to its conservation (16 USC § 1532(5)).

##### Affected Environment

According to the USFWS Information for Planning and Consultation (IPaC) report, 18 Endangered Species Act (ESA)-listed species have the potential to occur in the Affected Environment (**Table 7**; **Appendix H**). There are no critical habitats in the Affected Environment. See **Appendix C** for a copy of the IPaC Report. **Table 7**, included in this PEA as **Appendix H**, lists the habitat requirements for all ESA-listed species with the potential to occur in the Affected Environment.

#### Migratory Birds

##### Definition of the Resource

**Migratory Bird:** Any bird, whatever its origin and whether or not raised in captivity, which belongs to a species listed in 50 CFR Part 10.13, or which is a mutation or a hybrid of any such species, including any part, nest, or egg of any such bird, or any product, whether or not manufactured, which consists, or is composed in whole or part, of any such bird or any part, nest, or egg thereof.

**Take:** To pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to pursue, hunt, shoot, wound, kill, trap, capture, or collect.

##### Affected Environment

The NJFW enforces migratory game bird regulations at the state level through state laws and regulations, which may be more stringent, but not more lenient than federally prescribed regulations (NJFW 2022).

Among the 54 migratory bird species listed in **Appendix C**, eight are of particular interest due to their potential presence in or near agricultural settings during the summer months. These

species are detailed in **Table 8**, which highlights migratory birds that have the potential to occur in the Affected Environment.

TABLE 8: MIGRATORY BIRDS THAT HAVE THE POTENTIAL TO OCCUR IN THE AFFECTED ENVIRONMENT. SOURCE: IPAC REPORT, APPENDIX C, NATURESERVE 2024		
SPECIES NAME	BREEDING SEASON	AGRICULTURAL SETTINGS
<b>Bobolink</b> ( <i>Dolichonyx oryzivorus</i> )	May through July	May forage and breed in agricultural fields, particularly grasslands and meadows.
<b>Eastern Whip-poor-will</b> ( <i>Antrorstomus vociferus</i> )	May through August	May inhabit agricultural areas with open habitats for foraging.
<b>Henslow's Sparrow</b> ( <i>Ammodramus henslowii</i> )	May through August	May nest and forage in agricultural grasslands and pastures.
<b>King Rail</b> ( <i>Rallus elegans</i> )	May through September	May inhabit wetland areas adjacent to agricultural fields.
<b>Northern Saw-whet Owl</b> ( <i>Aegolius acadicus acadicus</i> )	March through July	May utilize agricultural areas with suitable habitat for hunting prey.
<b>Prairie Warbler</b> ( <i>Dendroica discolor</i> )	May through July	May nest and forage in shrubby habitats near agricultural fields.
<b>Prothonotary Warbler</b> ( <i>Protonotaria citrea</i> )	April through July	May nest in wooded wetlands adjacent to agricultural areas.
<b>Wood Thrush</b> ( <i>Hylocichla mustelina</i> )	May through August	May utilize forest edges and open woodlands near agricultural lands for foraging and nesting.

### Bald and Golden Eagles

The Bald Eagle and the Golden Eagle are not Birds of Conservation Concern in the project area but were identified in the IPaC Resource List due to the Bald and Golden Eagle Protection Act (**Table 9**).

TABLE 9: BALD AND GOLDEN EAGLE PROTECTION ACT SPECIES THAT HAVE THE POTENTIAL TO OCCUR IN THE PROJECT AREA. SOURCE: IPAC REPORT, APPENDIX C		
SPECIES NAME	BREEDING SEASON	PROBABILITY OF PRESENCE AND HABITAT REQUIREMENTS
<b>Bald Eagle</b> ( <i>Haliaeetus leucocephalus</i> )	Breeds January 1 to Sep 30	Probability of presence during September-June. Prefers large, super canopy roost trees – typically around larger water bodies (e.g., estuaries, large lakes, reservoirs, rivers, and some seacoast).
<b>Golden Eagle</b> ( <i>Aquila chrysaetos</i> )	Breeds elsewhere	Probability of presence during Oct-Nov. Prefers diverse habitats, including open grasslands, shrublands, mountainous terrain with cliffs, and forested areas. They roost and nest in large trees or cliffs, with a preference for super canopy trees near larger water bodies.

## 3.9 Cultural Resources

### Definition of the Resource

**Cultural resources** are evidence of past human activity. These include sites, districts, buildings, structures, and objects significant in American history, architecture, archaeology, engineering, and culture.

### Affected Environment

New Jersey contains a rich history of Native American and European settlement, resulting in a landscape dense with material remains representing millennia of human activity. These resources include large and small residential settlements, cemeteries, mortuary sites, trails, stone quarries, fish weirs, shell middens, and battlefields. Additionally, remnants of engineering features such as canals, bridges, dams, and early roadways serve as historic archaeological sites. The waters surrounding New Jersey are estimated to cradle around 3000 shipwrecks, primarily from the era of sailing ships. Moreover, there are thousands of sites in New Jersey listed on the National Register of Historic Places, with 58 of them further designated as National Historic Landmarks, encompassing all 21 counties in the state (NJDEP 2022e, NPS 2024b).

The archaeological record of New Jersey is expansive, with evidence of continuous occupation beginning at least as early as 12,000 BP (ca. 10,000 BC) through the present day (Kraft 2001). The precontact archaeological record of New Jersey is subdivided into three periods based on shifts in material culture and settlement patterns: the Paleoindian period (ca. 12,000-10,000 BP); the Archaic period (ca. 10,000-3000 BP); and the Woodland period (ca. 3000-400 BP).

European settlement of New Jersey began with Dutch and Swedish colonists in the early 17<sup>th</sup> century. The Dutch lost control of the territory encompassing modern-day New Jersey (“New Netherlands”) in 1664 when the British incorporated the territory into their colonies (State of New Jersey 2024). By 1776, New Jersey was declared an independent state and joined the colonial cause during the American Revolution. Throughout the 1800s and 1900s, the population skyrocketed with the introduction of industries and railways that attracted immigrant workers of European descent to major cities like Trenton, Newark, and Paterson (State of New Jersey 2024).

Archaeological and historic sites are distributed across all geographic regions of the state, frequently reflecting modern development patterns rather than accurate historical settlement. There are no federally recognized tribes with federal service areas in the state of New Jersey. However, New Jersey does have several state-recognized tribes, including the Ramapough Lenape, Nanticoke Lenni-Lenape, and Powhatan Renape nations (New Jersey Commission on American Indian Affairs 2024). Additionally, there are five federally recognized tribes with a current or ancestral interest in landscapes comprising modern-day New Jersey, including the Absentee-Shawnee Tribe of Indians of Oklahoma, the Delaware Nation of Oklahoma, the Delaware Tribe of Indians, the Shawnee Tribe, and the Stockbridge Munsee Community of Wisconsin (Tribal Directory Assessment Tool [TDAT] 2024).



## 3.10 Human Population

This resource area includes the following subsections:

- Socioeconomics
- Environmental Justice

### 3.10.1 Socioeconomics

#### Definition of the Resource

**Socioeconomics** is a branch of economics that examines the relationship between economic factors and society (USDA 2020). Socioeconomic analyses generally include detailed investigations of the prevailing population, income, employment, and housing conditions of a community.

#### Affected Environment

New Jersey is a highly populous state whose socioeconomic trends largely mirror those of the US. As of 2024, New Jersey is the eleventh most populated and the most densely populated state, with over 1,200 people per square mile (USCB 2024). From 2000 to 2020, the State's population grew by approximately 10%, from 8.4 million to 9.2 million people, ranking it as the eighth fastest-growing state (USCB 2021). Between 2018 and 2022, the average annual per-capita income in New Jersey was approximately \$10,000 above the national average, at \$50,995 (USCB 2024). Approximately 9.8% of the State's current population falls below the 2024 Federal Poverty Level (Assistant Secretary for Planning and Evaluation 2024, USCB 2024), which is slightly lower than the national average of 12.6% (NIMHHD 2024). As of January 2024, the state's unemployment rate was 0.9% higher than the national average of 3.9% (United States Bureau of Labor Statistics 2024). New Jersey's gross domestic product (GDP) in 2023 was \$586.8 billion, which is a 22.5% increase from 2022 (IBISWorld 2024).

Regional wealth discrepancies exist across the state of New Jersey. As of 2022, the wealthiest county in New Jersey was Somerset County, which had a mean household income of \$131,948 (USCB 2022) and 5.1% of its population under the poverty line (NIMHHD 2024). According to the 2019 census, the most established industry in Somerset County was "Professional, Scientific, and Technical Services" (USCB 2019). In comparison, Cumberland County is the least affluent county with a median household income of \$62,310 (USCB 2022) and roughly 15.7% of residents below the poverty line (NIMHHD 2024). The most prevalent industry in Cumberland County was "Retail Trade" as of 2019 (USCB 2019).

Farming constitutes a significant portion of the New Jersey socioeconomic landscape. As of 2022, the State had roughly 711,500 acres of farmland, constituting 12.7% of its total land area (USDA 2024). In the same year, agricultural sales generated roughly \$1.5 billion, representing 0.185% of the state's total GDP (SNJ 2024). Nearly 90% of agricultural sales revenue came from crop production, while around 9% came from livestock production (USDA 2024).

Despite these statistics, New Jersey agriculture has declined in recent decades. Between 2002 and 2022, haying practices, including the production of hay, haylage, grass silage, and greenchop, saw a 19% decrease in total harvested tons (USDA 2024). Grazing practices in New Jersey have also declined, with the number of acres permanently designated as pasture and rangeland decreasing by 11% between 2017 and 2022. Over 78% of New Jersey farms are family or individually-owned, and most farms are smaller than 50 acres, highlighting the prevalence of small-scale, non-commercial farming in the State (USDA 2024). **Table 10** shows the rates of poverty and the percentage of land covered by farmland per county in 2022.

**TABLE 10: NEW JERSEY RATES OF POVERTY AND FARMLAND COVERAGE BY COUNTY (NIMHHD 2024, NASS 2019)**

COUNTY	PERSONS IN POVERTY (% OF STATE POPULATION)	ACRES OF FARMLAND (% OF COUNTY LAND AREA)
Cumberland	15.7%	21.4%
Essex	15.3%	0.2%
Passaic	14.6%	1.6%
Hudson	14.4%	0.1%
Atlantic	14.0%	8.2%
Salem	13.0%	46.3%
Camden	12.3%	6.6%
Mercer	11.4%	17.6%
Ocean	10.5%	2.1%
Cape May	9.3%	5.0%
Union	8.6%	0.1%
Middlesex	8.4%	8.1%
Warren	7.8%	32.4%
Glouster	7.2%	24.0%
Bergen	6.6%	0.7%
Monmouth	6.5%	13.1%
Burlington	6.2%	18.8%
Somerset	5.1%	18.6%
Sussex	5.1%	18.0%
Morris	5.0%	4.9%
Hunterdon	3.7%	37.0%
<b>Statewide (average)</b>	<b>9.8%</b>	<b>15.6%</b>

### **3.10.2 Environmental Justice**

#### Definition of the Resource

**Environmental justice** is the just treatment and meaningful involvement of all people regardless of income, race, color, national origin, Tribal affiliation, or disability, in agency decision-making and other Federal activities that affect human health and the environment so that people (i) are fully protected from disproportionate and adverse human health and environmental effects (including risks) and hazards, including those related to climate change, the cumulative impacts of environmental and other burdens, and the legacy of racism or other structural or systemic barriers; and (ii) have equitable access to a healthy, sustainable, and resilient environment in which to live, play, work, learn, grow, worship, and engage in cultural and subsistence practices (Executive Order [EO] 14096, 2023).

A **minority** is an individual or group of individuals who are members of the following groups: American Indian or Alaskan Native; Asian or Pacific Islander; Black, not of Hispanic origin; or Hispanic (CEQ 1997).



## Affected Environment

### **Minority Populations**

Traditionally, New Jersey has been predominantly inhabited by individuals of white, non-Hispanic descent. As of 2022, nearly 68% of the population identified as white and non-Hispanic (USBC 2024). The racial composition disparity is even higher within the agricultural community, where roughly 97% of the state's farmers fall within the category of white, non-Hispanic individuals (USDA 2024). **Table 11** below displays the breakdown of the state population and farm producers by race.

<b>TABLE 11: RACIAL COMPOSITION OF NEW JERSEY POPULATION AND FARM PRODUCERS (USCB 2022A &amp; USDA 2024)</b>		
<b>RACE</b>	<b>PERCENT OF STATE POPULATION</b>	<b>PERCENT OF STATE FARM PRODUCERS</b>
White	67.26%	97.0%
Black or African American	15.75%	0.5%
Asian	12.43%	1.7%
Other*	4.42%	0.5%
American Indian or Alaska Native	0.11%	0.2%
Native Hawaiian or Other Pacific Islander	0.02%	0.1%

\* All persons reporting Hispanic/Latino/ Spanish origin, more than one race, or a race not listed in the table above are included in the "Other" category

### **Migrant and Seasonal Farm Workers**

Migrant and Seasonal Farm Workers (MSFW) are defined as individuals who are employed in farm work of a seasonal or temporary nature and are not reasonably able to return to their permanent residence within the same day of working (New Jersey Department of Labor and Workforce Development 2019). MSFWs account for over one-third of all hired farm workers in New Jersey, with an estimated 8,248 MSFWs being employed in 2022 (USDA 2024). The proportion of MSFWs in New Jersey is over double the national average of 16%, and 19 percentage points higher than the rate of MSFW labor in California, which has the highest overall quantity of MSFWs (USDA 2024).

MSFWs are protected by the Migrant and Seasonal Agricultural Worker Protection Act, which established employment standards related to wages, housing, transportation, disclosures, and recordkeeping for MSFWs (29 USC §§ 1801-1872). Despite this and other regulations, agricultural workers in New Jersey have lower wages and slower rates of wage growth than those in other industries. As of January 1, 2024, the minimum wage for agricultural workers in New Jersey was \$12.81 per hour, as compared to the general minimum wage of \$15.13 per hour for workers in other industries (Farmworker Justice 2024). MSFWs also commonly lack sufficient access to health care and suffer more illnesses than the general population due to immigration status, limited mobility, low pay, and workplace hazards (Borjan Constantino, & Robson 2008).

# Chapter 4: Environmental Impacts

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## 4.1 Resources Eliminated from Detailed Analysis

Under FSA's NEPA implementing regulations (7 CFR 799.16), FSA may exclude from detailed study any issues that are deemed insignificant or that have been previously addressed in environmental reviews. Consequently, the following resources have been eliminated from detailed analysis:

### **Solid Waste**

The CPs considered in this PEA focus on land management and environmental conservation and would not generate solid waste. As such, no impacts on solid waste are anticipated.

### **Hazardous Materials**

The CPs considered in this PEA focus on land management and environmental conservation and would not generate hazardous waste. BMPs, such as avoiding hazardous waste sites and promptly addressing contaminated soil or groundwater, are integral to these conservation measures. As a result, the impacts from hazardous materials have been deemed negligible.

## 4.2 Land Use, Zoning, and Aesthetics

### Evaluation Criteria

Impacts to land use, zoning, or aesthetics would be considered significant if the Proposed Action conflicts with any state, local, or tribal land use plans; if land use patterns change due to the Proposed Action; or if the Proposed Action is noncompliant with local or tribal zoning. Impacts on aesthetics would be considered significant if the existing visual character and/or quality of the area would be degraded by the Proposed Action.

### Alternative 1: No Action

Under the No Action alternative, CP22, CP21, CP15A, CP8A would continue to primarily occur in areas where previous agricultural activities had taken place. As a result, these practices would take place in areas with appropriate zoning for agricultural or conservation purposes, minimizing potential conflicts with land use regulations.

**Land use:** CPs would continue to be implemented in areas with a history of agriculture and would support agricultural activities and enhance environmental conservation efforts.

**Zoning:** The areas designated for CPs would align with existing zoning regulations for agricultural or conservation purposes. Zoning changes would not be required, as the CPs would be consistent with the intended land use designation.

**Aesthetics:** The implementation of CPs in areas with previous agricultural activity would enhance landscape aesthetics. Riparian buffers, filter strips, and grass waterways would enhance natural features, promote biodiversity, and improve visual appeal. Proper maintenance and design considerations would be employed to ensure that CPs are integrated harmoniously with the surrounding environment.

### *Significance Determination*

The implementation of CPs under the No Action alternative would align with current land use patterns, zoning, and aesthetics of the area. **Therefore, the No Action alternative would not result in significant adverse impacts on land use, zoning, or aesthetics.**

### **Alternative 2: Proposed Action**

Under the Proposed Action, impacts from CP8A, CP15A, CP21, and CP22 would be the same as those of the No Action alternative.

Similar to the No Action alternative, the addition of CP18C, CP3A, and CP5A and haying and grazing would not require changes to land use or zoning ordinances. Aesthetically, the introduction of the additional CPs would enhance the visual diversity and environmental sustainability of agricultural landscapes. Implementation of the CPs, along with haying and grazing, would not significantly alter the natural character of agricultural landscapes. Overall, impacts on land use, zoning, and aesthetics under the Proposed Action would align closely with those of the No Action alternative.

### *Significance Determination*

The implementation of the proposed CPs and haying and grazing under the Proposed Action would align with existing land use plans and zoning regulations and would be compatible with the current land use patterns and aesthetics. **Therefore, the Proposed Action alternative would not result in significant adverse impacts on land use, zoning, or aesthetics.**

### **Cumulative Impacts**

In New Jersey, organizations like the New Jersey Audubon and the NRCS promote conservation initiatives to enhance land management practices (Bright 2023). These initiatives encourage practices such as riparian buffers, filter strips, and grass waterways, consistent with those proposed in the Proposed Action. While focused on improving water resource management and habitat conservation, these efforts, when combined with the Proposed Action, are expected to maintain existing land use and aesthetic qualities. Therefore, while not directly targeting land use, zoning, or aesthetics, the consistent implementation of these practices aligns with broader conservation goals and enhances the overall sustainability of land management practices in the state.

Haying and grazing on CREP land, when combined with existing haying and grazing activities on active agricultural land, would not adversely impact land use and aesthetics. Haying and grazing are already integrated into current land use practices for actively farmed land. As such, visual and functional aspects of the landscape would remain unchanged under the Proposed Action.

## **4.3 Noise**

### **Evaluation Criteria**

Noise impacts would be significant if the Proposed Action led to the prolonged exposure of noise that exceeded applicable federal, state, local, or tribal noise regulations or ordinances.

This section is limited to the discussion of how the Proposed Action may contribute to community noise levels and how existing noise levels may impact it. Potential noise impacts that are specific to Biological Resources are discussed in **Section 4.9**.

### Alternative 1: No Action

Existing CPs (CP22, CP21, CP15A, and CP8A) under the No Action alternative would involve occasional use of farming equipment for establishment and periodic maintenance, generating noise during these activities. However, this contrasts with actively farmed agricultural land, which requires the ongoing use of farming equipment for cultivation, planting, and harvesting, resulting in sustained elevated noise levels. CPs involving the creation of riparian buffers and permanent vegetative cover would also serve as noise barriers, further reducing noise in areas where they are implemented. Overall, the transition to permanent vegetative cover under these CPs would lead to a long-term reduction in noise pollution in New Jersey by reducing noise pollution associated with agricultural activities.

#### *Significance Determination*

The continued implementation of CP22, CP21, CP15A, and CP8A would not result in prolonged exposure to noise levels exceeding applicable regulations or ordinances. **Therefore, the No Action alternative would not result in significant adverse impacts on or from noise.**

### Alternative 2: Proposed Action

Similar to the No Action alternative, short-term noise impacts from installation and occasional maintenance of CP22, CP21, CP15A, and CP8A are anticipated. However, the Proposed Action would overall lead to a long-term reduction in noise impacts through converting agricultural land to permanent vegetative cover. Adding CP18C, CP3A, and CP5A would further reduce noise by serving as noise barriers, contributing to a quieter environment over time.

#### *Significance Determination*

Implementation of CP18C, CP3A, and CP5A would not lead to prolonged exposure to noise levels exceeding applicable regulations or ordinances. Additionally, existing ambient noise levels at the proposed CP locations would not interfere with their intended use. **Therefore, the Proposed Action would not result in significant adverse impacts on or from noise.**

### Cumulative Impacts

In New Jersey, conservation initiatives by organizations like the New Jersey Audubon and the NRCS seek to mitigate noise pollution in agricultural regions (Bright 2023). These initiatives, promoting practices such as riparian buffers and field windbreak establishment, align with the CPs proposed in the Proposed Action. The introduction of permanent vegetation under these initiatives reduces noise levels compared to traditional farming practices. As a result, the cumulative impact of these initiatives in addition to the Proposed Action would contribute to a quieter and more sustainable agricultural landscape in alignment with broader environmental conservation objectives in New Jersey.

## 4.5 Air Quality

### Evaluation Criteria

Impacts to air quality would be considered significant if the Proposed Action would result in emissions that expose people, wildlife, or vegetation to ambient air that fails to meet standards established under the Clean Air Act (CAA) or exceeds state ambient air quality standards.

### Alternative 1: No Action

Under the No Action alternative, the implementation of CP22, CP21, CP15A, and CP8A is not expected to have significant adverse impacts on air quality in New Jersey (EPA & NRCS 2012).

These practices involve vegetation management and soil conservation techniques that positively contribute to air quality by sequestering carbon and reducing emissions from agricultural activities. Riparian buffers, filter strips, and permanent vegetative cover act as carbon sinks, absorbing carbon dioxide and storing it in plant biomass and soil organic matter. Additionally, grass waterways minimize soil erosion, reducing the need for frequent tilling and soil disturbance that can release particulate matter and other pollutants into the air.

While farming equipment may emit localized emissions, the net impact of these practices on air quality is expected to be beneficial, contributing to the reduction of GHG emissions and improving environmental health (EPA & NRCS 2012). Moreover, the limited and occasional use of farming equipment for establishment and maintenance would further reduce emissions and support air quality improvement efforts in New Jersey. Additionally, while New Jersey is not in attainment with 8-hour ozone standards, these CPs are not expected to exacerbate ozone levels, as their positive impacts on air quality outweigh any potential localized emissions.

#### *Significance Determination*

The No Action alternative would not result in emissions that would lead to exposure of people, wildlife, or vegetation to ambient air that does not meet the standards established under the CAA or exceeds state ambient air quality standards. **Therefore, the No Action alternative would not have significant adverse impacts on air quality.**

#### **Alternative 2: Proposed Action**

Under the Proposed Action, impacts from CP8A, CP15A, CP21, and CP22 would be the same as those of the No Action alternative.

Adding CP18C, CP3A, and CP5A to the list of allowable CPs is not expected to significantly impact air quality in New Jersey (EPA & NRCS 2012). These practices, including hardwood tree planting, field windbreak establishment, and riparian forest buffers, act as carbon sinks, absorbing carbon dioxide from the atmosphere and storing it in plant biomass and soil organic matter. As such, implementing these CPs would reduce GHG emissions and improve overall environmental health without affecting current air quality attainment levels in New Jersey.

#### *Significance Determination*

The Proposed Action would not result in emissions that would lead to exposure of people, wildlife, or vegetation to ambient air that does not meet the standards established under the CAA or exceeds state ambient air quality standards. **Therefore, the Proposed Action would not have significant adverse impacts on air quality.**

#### **Cumulative Impacts**

The implementation of CPs under the Proposed Action is not expected to have significant cumulative impacts on air quality in New Jersey when compared to similar practices. The proposed CPs align with initiatives by organizations such as the New Jersey Audubon and the NRCS (Bright 2023). By promoting environmental sustainability, the Proposed Action aims to mitigate air quality impacts by reducing emissions from agricultural activities and enhancing carbon storage in vegetation and soil. Overall, the collective benefits of these CPs are likely to outweigh any localized emissions, resulting in improvements to air quality. Therefore, the CPs proposed under the Proposed Action are unlikely to contribute significantly to air quality degradation or exacerbate existing air quality issues in the state.

## 4.6 Farmland and Soils

### Evaluation Criteria

Impacts to farmland would be considered significant if the Proposed Action would result in substantial loss or conversion of prime farmland or farmland of state or local importance.

Impacts to soils would be considered significant if the Proposed Action would result in a permanent increase to the regional rate of soil erosion or lead to mass wasting, damage to vegetation, or a sustained increase in sedimentation of a waterbody.

### Alternative 1: No Action

Under the No Action alternative, the continued implementation of CP8A, CP15A, CP21, and CP22 would not result in a substantial loss or conversion of prime farmland or farmland of state or local importance. Although land enrolled in the CREP would change from active farmland to conservation land, this is not considered to be a permanent conversion of farmland, as the land is set aside only for the duration of the 10-15-year CREP contract. As such, impacts to farmland are not anticipated as a result of the No Action alternative.

The statewide level of soil erosion, including erosion of prime farmland as well as farmland of state or local importance, would continue at its current rate under the No Action alternative without improvement. The CPs under the No Action alternative would continue to address soil erosion through the following methods:

**CP8A:** dense grass cover would stabilize soil along waterways, preventing sedimentation and the transportation of pollutants into surface water and groundwater recharge areas.

**CP15A:** vegetative ground cover would mitigate the impact of water and wind-related soil erosion.

**CP21:** stabilization of soil particles would prevent soil erosion and the runoff of sediment into surface water and groundwater systems.

**CP22:** dense vegetation in riparian areas would stabilize soil, reduce erosion, and prevent sediment buildup in rivers, streams, lakes, and reservoirs. Additionally, the root systems of riparian plants would improve bank stabilization, decreasing the risk of erosion and channel instability.

### *Significance Determination*

The No Action alternative would not result in a substantial loss or conversion of prime farmland or farmland of state or local importance. The regional rate of soil erosion would not increase and would not lead to mass wasting, damage to vegetation, or a sustained increase in sedimentation of a waterbody. **Therefore, the No Action alternative would not have significant adverse impacts on prime farmland or farmland of state or local importance.**

### Alternative 2: Proposed Action

Under the Proposed Action, impacts from CP8A, CP15A, CP21, and CP22 would be the same as those of the No Action alternative. Impacts to farmland under the Proposed Action would be the same as the No Action alternative.

The addition of CP18C, CP3A, and CP5A would cause localized, short-term impacts to erosion during installation, but these are expected to be minimal and managed through BMPs. Installation of the proposed new CPs would not affect erosion rates at the regional level. Long term, CP18C, CP3A, and CP5A would improve soil retention statewide, reducing soil erosion



rates, including the erosion of prime farmland and farmland of state or local importance, through the following methods:

**CP18C:** Salt-tolerant vegetation would reduce the rate of soil erosion by anchoring soil particles in coastal areas, which would help to prevent erosion caused by wave action, storm surges, and high tides.

**CP3A:** Planting hardwood trees would reduce erosion through the establishment of woody vegetation to increase ground cover and plant root systems.

**CP5A:** Planting windbreaks would reduce the amount of wind experienced in a given area, thus reducing the impact of wind-related erosion.

### **Haying and Grazing**

Haying and grazing, if poorly managed, can harm soil, water quality, and agricultural productivity, posing risks to farmland. Overgrazing can lead to soil degradation and reduced vegetative cover, increasing vulnerability to erosion. Vegetation removal by haying also exposes soil, which can lead to increased erosion and sedimentation (Skovlin 1985). However, when managed sustainably, these practices would improve soil health, manage invasive species, and support biodiversity (Bilotta et al. 2007). Importantly, properly managed haying and grazing would not permanently convert farmland to nonagricultural uses. Impacts of haying and grazing would also be assessed on a site-specific basis (see **Chapter 5**). As such, impacts to farmland and soils from haying and grazing under the Proposed Action would be minor.

#### *Significance Determination*

The Proposed Action alternative would not result in a substantial loss or conversion of prime farmland or farmland of state or local importance. The rate of soil erosion would not increase and would not lead to mass wasting, damage to vegetation, or a sustained increase in sedimentation of a waterbody. The Proposed Action would lead to a reduction in the amount of soil erosion due to the implementation of additional CPs. **Therefore, the Proposed Action alternative would not have significant adverse impacts on prime farmland or farmland of state or local importance.**

#### **Cumulative Impacts**

The implementation of CPs under the Proposed Action is not anticipated to have significant cumulative impacts on farmland or soil in New Jersey when compared to similar practices. These practices align with initiatives by organizations such as the NRCS and regional SCDs. The collective benefits of these CPs are expected to outweigh any localized ground disturbance from their installation, resulting in improvements to soil retention. Therefore, the CPs proposed under the Proposed Action, when combined with similar CPs, are unlikely to contribute significantly to the loss of farmland and soils in the state.

Haying and grazing on CREP land, when combined with existing haying and grazing activities on active agricultural land, would not adversely impact farmland and soil resources. Haying and grazing would not convert farmland to nonagricultural use. Haying and grazing on CREP land would be short-term in duration and would adhere to the time, duration, and location restrictions outlined in **Table 1** to minimize impacts. Additional site-specific mitigation measures would also be implemented as needed. Consequently, soil health would remain unchanged, and loss of farmland is not anticipated under the Proposed Action when combined with existing haying and grazing activities.



## 4.7 Climate Change

### Evaluation Criteria

Impacts to climate change would be significant if the Proposed Action were to reduce soil carbon sequestration capacity in New Jersey. Impacts from climate change would be significant if they were to reduce the effectiveness of the Proposed Action.

### Alternative 1: No Action

Under the No Action alternative, CP8A, CP15A, CP21, and CP22 would maintain current soil carbon sequestration rates by promoting vegetation planting to remove carbon dioxide from the atmosphere and storing it in perennial biomass and soils. These existing CPs would also continue to help reduce statewide atmospheric GHG emissions by encouraging vegetation planting to absorb emissions from agricultural operations.

Climate change would not reduce the No Action alternative's carbon sequestration effectiveness over time, as plant species requiring a winter-chill period for growth would not be planted as part of the proposed CPs.

In areas where new lands would be enrolled under the CREP, existing farming activities would cease, and the proposed CPs would be implemented instead. CPs introducing permanent vegetation, like riparian buffers and permanent vegetative cover, require minimal fuel consumption for establishment and maintenance, unlike active farmland, which often necessitates ongoing fuel consumption and GHG emissions for cultivation, planting, and harvesting. This shift to permanent vegetation would reduce fuel consumption in converted areas, contributing to a more sustainable and energy-efficient agricultural landscape.

### Significance Determination

The No Action alternative would not introduce significant changes to the atmospheric GHG conditions or disrupt existing soil carbon sequestration initiatives. Impacts from climate change would not reduce the effectiveness of the No Action alternative. **Therefore, the No Action alternative would not have a significant adverse impact on or from climate change.**

### Alternative 2: Proposed Action

Under the Proposed Action, impacts from CP8A, CP15A, CP21, and CP22 would be the same as those of the No Action alternative. Impacts from climate change on the Proposed Action would be the same as the No Action alternative.

The addition of CP18C, CP3A, and CP5A to the allowable CPs for NJ CREP-enrolled farmland would enhance carbon sequestration rates by increasing the amount of vegetative organic matter, thus expanding the capacity to sequester atmospheric carbon in perennial biomass and soils. This implementation aligns with the GWRA goal to reduce state emissions by 2050. Additionally, these CPs would create more carbon sinks, potentially removing an estimated average of 1.22 metric tons of CO<sub>2</sub> per hectare per year (NJDEP 2023c). Converting agricultural land to carbon sinks would also minimize soil disturbance, reducing the frequency of soil release due to soil disturbance.

### Haying and Grazing

Climate change could significantly impact haying and grazing on CREP land by altering precipitation patterns, leading to either droughts or increased rainfall, both of which have the potential to disrupt haying and grazing activities. Haying and grazing activities also have the potential to exacerbate climate change impacts. Overgrazing can lead to soil degradation and reduced vegetative cover, increasing vulnerability to erosion, which in turn releases carbon

stored in the soil into the atmosphere. Intensive grazing practices can also disturb the carbon sequestration process, further contributing to GHG emissions. However, allowable haying and grazing activities under the New Jersey CREP agreement would be short-term in duration and would follow the time of year, duration, and location restrictions outlined in **Table 1** to minimize impacts. Haying and grazing would also be assessed on a site-specific basis, with appropriate safeguards and mitigation measures implemented as needed to minimize the potential for climate change to affect haying and grazing, or for haying and grazing activities to exacerbate climate change impacts (see **Chapter 5**). Therefore, with the use of site-specific mitigation and management, impacts from and to climate change due to haying and grazing would be minor.

#### *Significance Determination*

The Proposed Action would not create a significant adverse impact to atmospheric GHG levels or disrupt existing soil carbon sequestration initiatives. Impacts from climate change would not reduce the effectiveness of the Proposed Action. **Therefore, the Proposed Action would not have a significant adverse impact on or from climate change.**

#### **Cumulative Impacts**

While CP establishment may lead to a short-term release of soil-carbon storage, removing environmentally sensitive land from agricultural production would overall enhance long-term environmental health and quality. CP establishment would restore land use to natural conditions, aligning with CREP initiatives to improve water quality, prevent soil erosion, reduce habitat loss, and enhance climate change resilience (FSA 2024a). No adverse impacts on climate are anticipated as CP implementation would benefit the environment by enhancing ecological function.

Haying and grazing on CREP land, in combination with existing haying and grazing activities on active agricultural land, would not result in cumulative climate change impacts. Haying and grazing on CREP land would be short-term in duration and would adhere to the time, duration, and location restrictions outlined in **Table 1** to minimize impacts. Additional site-specific mitigation measures would also be implemented as needed. As a result, the impact of haying and grazing on CREP land on climate change would be negligible and would not add to the overall climate impact of haying and grazing activities in New Jersey.

## **4.8 Water Resources**

### **4.8.1 Water Quality, Surface Water, and Groundwater**

#### **Evaluation Criteria**

Impacts to water quality, surface water, and groundwater would be considered significant if the Proposed Action would result in runoff, sedimentation, or other contamination causing degradation of waters that do not meet CWA standards, interfere with state water quality standards, or violate Total Maximum Daily Load targets. Impacts would also be considered significant if the Proposed Action resulted in significant changes in surface or groundwater availability or changes in groundwater discharge or recharge patterns.

#### **Alternative 1: No Action**

Under the No Action alternative, CP8A, CP15A, CP21, and CP22 would continue to improve New Jersey water quality. Specific improvements for each CP are detailed in the following sections.

**CP22:** Establishing riparian buffers near agricultural practices in New Jersey would continue to have the following effects on surface water and groundwater resources (United States Forest Service [USFS] 2024):

- **Sediment and Nutrient Runoff Reduction:** Riparian buffers act as natural filters, trapping sediment and nutrients from agricultural runoff, stabilizing soils, reducing erosion, and preventing sedimentation in rivers, streams, lakes, and reservoirs. This helps maintain water clarity and quality by minimizing the input of sediments and nutrients that can degrade aquatic ecosystems and impair water quality.
- **Pollutant Filtration:** Riparian buffers absorb and filter pollutants such as pesticides and fertilizers, preventing them from reaching surface water sources, thereby protecting aquatic habitats and preserving water quality.
- **Bank Stabilization:** The root systems of riparian vegetation stabilize stream banks and shorelines, reducing erosion and channel destabilization. By preventing sedimentation and bank erosion, riparian buffers help maintain the integrity of surface water habitats and prevent the loss of valuable agricultural land.
- **Groundwater Recharge:** Riparian buffers facilitate groundwater recharge by allowing infiltrated water to percolate through the soil, which removes agricultural runoff contaminants and excess nutrients, reducing the risk of groundwater contamination. By promoting infiltration and groundwater recharge, riparian buffers help maintain groundwater levels and sustain groundwater availability.
- **Water Quality Protection:** Riparian buffers filter pollutants, nutrients, and contaminants, preventing them from leaching into underlying aquifers. This helps safeguard groundwater quality and maintain the ecological balance of groundwater-dependent ecosystems.
- **Aquifer Stabilization:** Riparian buffers regulate groundwater levels by maintaining soil moisture levels and regulating water table dynamics. By minimizing the risk of aquifer depletion or overdraft, riparian buffers help support the long-term sustainability of groundwater resources.

**CP21, CP15A, and CP8A:** Implementation of these practices adjacent to agricultural activities would continue to provide the following water quality benefits (Trimarco 2023; Van Alfen 2014; Fiener and Auerswald 2017).

- **Sediment and Nutrient Runoff Reduction and Filtration:** Acting as natural filters, these practices intercept sediment and nutrients from agricultural runoff, safeguarding water quality in surface and groundwater sources. By capturing pollutants, these practices help prevent contamination and reduce the risk of eutrophication in rivers, streams, lakes, and estuaries.
- **Erosion Control:** These practices mitigate erosion caused by wind and water, minimizing sedimentation in rivers, streams, lakes, and groundwater recharge areas. By stabilizing soil particles, they prevent soil erosion and sediment runoff into surface water and groundwater systems.

Overall, the continued implementation of CPs under the No Action alternative would offer significant benefits for New Jersey's surface water and groundwater resources. These practices would reduce sediment and nutrient runoff, increase pollutant filtration, temperature regulation, habitat enhancement, bank stabilization, groundwater recharge, water quality protection, and aquifer stabilization. While the actions proposed in the No Action alternative under the NJ CREP

are not anticipated to affect designated sole source aquifers, any potential impacts would be assessed at a site-specific level following EPA guidelines.

### *Significance Determination*

Based on the evaluation criteria, impacts to water quality, surface water, and groundwater from CP22, CP21, CP15A, and CP8A are deemed insignificant. These practices are not expected to cause runoff, sedimentation, or contamination that would degrade water quality or violate established standards. Furthermore, there would be no significant changes in surface or groundwater availability, or groundwater discharge or recharge patterns. **Therefore, the No Action alternative would not have significant adverse impacts on water quality, surface water, or groundwater resources.**

### **Alternative 2: Proposed Action**

Under the Proposed Action, impacts from CP8A, CP15A, CP21, CP22 would be the same as those of the No Action alternative.

The addition of CP18C, CP3A, and CP5A to the list of allowable CPs would offer substantial benefits to water quality. Implementation of CP3A and CP5A would have the following benefits to both surface and groundwater resources (Pavlidis and Tsihrintzis 2018, Smith et al. 2021):

- **Erosion Control:** Both practices mitigate soil erosion by reducing the negative impacts of wind and water on agricultural land. Hardwood tree plantings provide long-term stabilization of soils with their deep root systems, while field windbreaks act as barriers against wind erosion. By preventing soil erosion, these practices reduce sedimentation in surface water bodies, thereby maintaining water clarity and quality.
- **Water Quality Protection:** Both practices act as natural filters, trapping sediment, nutrients, and pollutants from agricultural runoff. The vegetation absorbs excess nutrients, filters out pollutants, and prevents soil particles from reaching surface water bodies.

CP18C offers significant benefits for water resources, particularly in coastal areas and regions affected by saltwater intrusion (Garcia-Caparros 2023):

- **Soil Stabilization:** Salt-tolerant vegetation stabilizes soils in coastal areas, preventing erosion from wave action, storm surges, and high tides. By anchoring soil particles, the vegetative reduces sedimentation in adjacent water bodies, preserving water quality and clarity.
- **Saltwater Intrusion Mitigation:** In areas facing saltwater intrusion to freshwater aquifers, salt-tolerant vegetative cover can create a buffer zone, limiting saline water movement inland. Dense root systems of salt-tolerant plants help retain freshwater and prevent saltwater from infiltrating aquifers, thereby safeguarding groundwater resources.
- **Shoreline Protection:** Along coastlines, salt-tolerant vegetation acts as a natural barrier against shoreline erosion, helping to maintain the integrity of coastal habitats and protect against storm damage. By stabilizing shorelines, these vegetative covers minimize sediment runoff and protect water quality in estuaries, bays, and coastal waters.

The additional CPs proposed in the Proposed Action offer significant benefits for New Jersey's surface water and groundwater resources. These practices would reduce sediment and nutrient runoff reduction, enhance pollutant filtration, regulate temperature, stabilize banks, recharge groundwater, protect water quality, and stabilize aquifers. Although the Proposed Action under the CREP is not anticipated to impact sole source aquifers, any potential impacts would be assessed at a site-specific level following EPA guidelines.

## Haying and Grazing

Haying and grazing can impact water quality by increasing sediment and nutrient runoff, as well as by causing soil compaction, which damages vegetation near water bodies. The removal of vegetation by haying exposes soil, making it more susceptible to erosion, while grazing can lead to soil compaction and excessive fecal runoff, degrading water quality (Howard-Williams & Pickmere 1994; Hubbard et al. 2004). The USDA mandates a 120-foot buffer around water bodies to mitigate these potential impacts. Additionally, impacts of haying and grazing would be assessed on a site-specific level, with mitigation measures implemented on an as-needed basis (see **Chapter 5**). As such, impacts would be minor.

### *Significance Determination*

CPs under the Proposed Action provide significant benefits for New Jersey's surface water and groundwater resources and would not cause increased runoff, sedimentation, or contamination that would degrade water quality or interfere with established water quality standards. Although haying and grazing have the potential for adverse impacts, site-specific mitigation measures would prevent adverse effects to water quality. Additionally, no significant changes in surface or groundwater availability, discharge, or recharge patterns would occur under the Proposed Action. **Therefore, the Proposed Action alternative would not have significant adverse impacts on water quality, surface water, or groundwater resources.**

### Cumulative Impacts

In New Jersey, organizations like the New Jersey Audubon and NRCS, drive conservation efforts to improve water resource management (Bright 2023). The New Jersey Audubon oversees the Healthy Land and Waters Grant, aiding farmers in implementing practices like cover cropping and habitat enhancement. These efforts provide technical and financial support, helping farmers to mitigate soil erosion, reduce nutrient runoff, and enhance wildlife habitat. Collectively, these programs contribute to enhanced water quality in rivers, streams, and other water bodies across the state. The widespread adoption of the practices facilitated by these programs, in combination with the CPs under the NJ CREP agreement, yields cumulative benefits for water resource management in New Jersey. By reducing sedimentation, nutrient pollution, and habitat degradation, these initiatives support the overall health and sustainability of the state's water resources, aligning with the goals of the Proposed Action.

Haying and grazing on CREP land, in combination with existing haying and grazing activities on active agricultural land, would not result in significant adverse impacts to water resources. Haying and grazing on CREP land would be short-term in duration and would adhere to the time, duration, and location restrictions outlined in **Table 1** to minimize impacts. Additional site-specific mitigation measures would also be implemented as needed. As a result, the impact to water resources of haying and grazing on CREP land would be below the level of significance and would not add to the overall impact of haying and grazing activities in New Jersey on water quality, surface water, or groundwater resources.

## **4.8.2 Water Source and Availability**

### Evaluation Criteria:

Impacts to water sources would be considered significant if the Proposed Action would result in a demand that would overburden public water supply systems. Impacts would also be considered significant if the Proposed Action resulted in significant changes in the availability of surface or groundwater, or changes in discharge or recharge patterns of groundwater.

## Alternative 1: No Action

Under the No Action alternative, CP8A, CP15A, CP21, and CP22 would continue to enhance drinking water quality in New Jersey. CP22 and CP21 act as natural filters along water bodies, capturing pollutants, sediments, and nutrients from runoff (USFS 2024; Trimarco 2023). CP15A and CP8 stabilize soil, minimize erosion, and reduce nutrient leaching. Implementation of the proposed CPs would not change the availability of surface water or groundwater. Collectively, they mitigate soil erosion, contamination, and surface water and groundwater quality, safeguarding drinking water sources (Van Alfen 2014; Fiener and Auerswald 2017).

While the Proposed Action under CREP is not anticipated to affect designated sole source aquifers, any potential impacts would be assessed at a site-specific level per EPA guidelines.

### *Significance Determination*

Based on the evaluation criteria, impacts to water sources under the No Action alternative are not considered significant. The implementation of CP22, CP21, CP15A, CP8A would not lead to runoff, sedimentation, or contamination that would degrade water quality or interfere with established standards. Additionally, there are no significant changes in the availability of surface or groundwater, nor alterations in groundwater discharge or recharge patterns. **Therefore, the No Action alternative would not have significant adverse impacts on drinking water sources.**

## Alternative 2: Proposed Action

Under the Proposed Action, impacts from CP8A, CP15A, CP21, and CP22 would be the same as those of the No Action alternative.

The addition of CP18C, CP3A, and CP5A to the list of allowable CPs would enhance drinking water quality. CP3A and CP5A stabilize soils and reduce erosion, preserving water quality in surface water and groundwater sources. These CPs prevent soil runoff, sedimentation, and wind erosion, contributing to the availability of clean drinking water (Pavlidis and Tsihrintzis 2018; Smith et al. 2021).

Implementing CP18C in New Jersey would positively impact water sources by reducing soil erosion and sedimentation, improving water quality, and mitigating saltwater intrusion. Salt-tolerant vegetative cover stabilizes soil, preventing sediment pollution in water bodies, and maintaining water source integrity for drinking water (Garcia-Caparros 2023).

Overall, the CPs under the Proposed Action would benefit the state's drinking water sources, particularly in areas near agricultural activities by mitigating runoff, sedimentation, and contamination, thereby preserving the integrity of water sources for drinking water consumption.

### **Haying and Grazing**

Haying and grazing can impact the availability and quality of both surface and groundwater. Soil compaction from grazing reduces the soil's ability to absorb water, decreasing groundwater recharge and increasing surface runoff. This diminishes groundwater availability for drinking water and can transport contaminants into water bodies, potentially contaminating drinking water supplies. Uncontrolled grazing can result in excessive fecal runoff, further degrading drinking water quality (Hubbard et al. 2004). In addition, haying can expose soil, increasing erosion and sedimentation in water bodies, and reducing the availability of clean water sources (Howard-Williams & Pickmere 1994). To mitigate these impacts, the USDA requires a 120-foot buffer around water bodies. Additionally, impacts of haying and grazing would be assessed on a site-specific level, with site-specific mitigation requirements determined on a project-by-project basis (see **Chapter 5**). As such, impacts on water resources would be minor.



### Significance Determination

The proposed CPs under the Proposed Action would improve water quality for drinking water sources. While haying and grazing could potentially result in impacts to water quality, the implementation of site-specific mitigation measures would effectively prevent any adverse effects on water quality. **Therefore, the Proposed Action alternative would not have significant adverse impacts on drinking water sources.**

### Cumulative Impacts

The conservation efforts of the New Jersey Audubon described in **Section 4.8.1** of this EA also serve to improve the quality of drinking water in New Jersey. These water quality initiatives, when combined with the Proposed Action, contribute to the preservation and enhancement of drinking water sources across the state by reducing sedimentation, nutrient pollution, and erosion.

Haying and grazing on CREP land, along with existing haying and grazing activities on active agricultural land, would not cumulatively impact New Jersey's drinking water. Haying and grazing on CREP land would be short-term in duration and would adhere to the time, duration, and location restrictions outlined in **Table 1** to minimize impacts. Additional site-specific mitigation measures would also be implemented as needed. As a result, the impact of haying and grazing on CREP land would be below the level of significance and would negligibly contribute to the overall impact of haying and grazing activities on drinking water in New Jersey.

### 4.8.3 Floodplains

#### Evaluation Criteria

Impacts to floodplains would be considered significant if the floodplain is directly or indirectly altered enough to present a substantial increased flood danger to the area or if the Proposed Action is noncompliant with applicable state or local floodplain ordinances.

#### Alternative I: No Action

Under the No Action alternative, CP8A, CP15A, CP21, and CP22 would all continue to improve floodplains in New Jersey using the following methods:

**CP22:** Implementing riparian forest buffers would help to stabilize floodplain soils, reduce erosion, and absorb excess water during flood events (USFS 2024).

**CP21:** Filter strips intercept runoff from adjacent agricultural fields or urban areas, reducing floodwater velocity, allowing for infiltration and groundwater recharge (Trimarco 2023).

**CP15A:** Establishing permanent vegetation like grasses and native plants stabilizes floodplain soils, preventing erosion and promoting soil moisture retention. This strengthens the structural integrity of floodplains and reduces the risk of erosion-induced sedimentation in adjacent water bodies. Additionally, permanent vegetative cover acts as a natural flood buffer, absorbing excess water and attenuating flood peaks, thereby mitigating flood risk (Van Alfen 2014).

**CP8A:** Grass waterways play a crucial role in flood risk reduction and ecosystem preservation in waterways. Serving as natural channels, grass waterways manage floodwaters, reduce flow velocities, and curb soil erosion along floodplain corridors. Their stabilizing effect on soil particles and improved infiltration mitigate flooding impacts on floodplain habitats, fostering resilience and long-term viability (Fiener and Auerswald 2017).

Overall, the CPs proposed under the No Action alternative would reduce flood risk and regulate water flow.



### *Significance Determination*

The proposed CPs (CP22, CP21, CP15A, CP8A) under the No Action alternative would mitigate flood risk and enhance floodplain health without introducing changes that would increase flood danger. **Therefore, the No Action alternative would not have significant adverse impacts on floodplains.**

### **Alternative 2: Proposed Action**

Under the Proposed Action, impacts from CP8A, CP15A, CP21, and CP22 would be the same as those of the No Action alternative.

The addition of CP18C, CP3A, and CP5A to the list of allowable CPs would help to improve floodplains using the following methods:

**CP3A:** Hardwood trees, with their extensive root system, would stabilize soil along floodplain corridors, reducing erosion. This prevents sedimentation in nearby water bodies, contributing positively to the overall health and resilience of floodplain ecosystems (Pavlidis and Tsihrintzis 2018).

**CP5A:** Windbreaks act as barriers against wind erosion, mitigating soil loss and sedimentation in flood-prone areas. By minimizing erosion, field windbreaks help maintain the structural integrity of floodplains and preserve their ecological functions (Smith et al. 2021).

**CP18C:** Salt-tolerant vegetative cover stabilizes soil along coastlines, preventing erosion from tidal action and storm surges. This reduces sedimentation in coastal water bodies, maintains water quality within floodplains, and supports the resilience of coastal ecosystems (Garcia-Caparros 2023).

The CPs under the Proposed Action would collectively enhance the health and resilience of floodplain ecosystems by reducing flood risk, regulating water flow, and protecting floodplain habitats.

### **Haying and Grazing**

Haying and grazing can disrupt the natural function of floodplains, impacting their ability to manage floodwaters effectively. Soil compaction from grazing reduces the floodplain's capacity to absorb and retain floodwaters, leading to increased surface runoff and reduced groundwater recharge. Additionally, uncontrolled grazing may lead to excessive fecal runoff, compromising water quality and harming the floodplain ecosystem (Hubbard et al. 2004). The removal of vegetation through haying exposes the soil, which contributes to sedimentation, and reduces the floodplain's ability to dissipate flood energy effectively (Howard-Williams & Pickmere 1994). To mitigate these impacts, the USDA requires a 120-foot buffer around water bodies, preserving floodplain function. Furthermore, the impacts of haying and grazing would be assessed on a site-specific basis, with appropriate mitigation measures implemented as needed (see **Chapter 5**). Consequently, when properly managed, the impacts on floodplains would be minor.

### *Significance Determination*

The proposed CPs under the Proposed Action would mitigate flood risk and improve floodplain health without increasing flood danger. While haying and grazing could potentially impact floodplains, the implementation of site-specific mitigation measures would effectively prevent adverse effects on floodplains. **Therefore, the Proposed Action alternative would not have significant adverse impacts on floodplains.**

## Cumulative Impacts

Organizations in New Jersey such as the New Jersey Audubon and the NRCS actively engage in conservation initiatives to improve floodplain management and resilience (Bright 2023). These programs provide technical and financial support to landowners and farmers, promoting practices like riparian restoration, erosion control, and floodplain restoration. By reducing soil erosion, enhancing vegetative cover, and restoring natural floodplain functions, these initiatives contribute to the overall health and sustainability of floodplain ecosystems. Consequently, these cumulative efforts support the long-term protection of communities and infrastructure from flood hazards while preserving the ecological integrity of floodplain habitats.

Haying and grazing on CREP land, along with existing haying and grazing activities on active agricultural land, would not cumulatively impact New Jersey's floodplains. Haying and grazing on CREP land would be short-term in duration and would adhere to the time, duration, and location restrictions outlined in **Table 1** to minimize impacts. Additional site-specific mitigation measures would also be implemented as needed. As a result, the impact of haying and grazing on CREP land would be below the level of significance and would negligibly contribute to the overall impact of haying and grazing activities on floodplains in New Jersey.

### 4.8.4 Wetlands

#### Evaluation Criteria

Impacts to wetlands would be considered significant if the soil structure, hydrology, or the vegetation of the wetland or its buffer were altered directly or indirectly.

#### Alternative 1: No Action

Under the No Action alternative, the CP8A, CP15A, CP21, and CP22 would all continue to improve wetlands in New Jersey using the following methods:

**CP22 & CP21:** Implementing riparian forest buffers and filter strips adjacent to wetlands would serve as effective mechanisms for stabilizing wetland edges, reducing erosion, and filtering pollutants from runoff before they enter wetland areas (USFS 2024; Trimarco 2023).

**CP15A & CP8A:** Establishing permanent vegetative cover and grass waterways around wetlands offers multiple benefits. Grasses and native plants stabilize wetland soils, prevent erosion, and promote sediment retention (Van Alfen 2014; Fiener and Auerswald 2017), bolstering the structural integrity of wetlands and minimizing sediment influx into wetland areas.

#### *Significance Determination*

The proposed CPs under the No Action alternative would not directly alter the soil structure, hydrology, or vegetation of wetlands or their buffers. The proposed CPs would indirectly benefit wetland ecosystems by promoting soil stabilization, reducing sedimentation, and enhancing vegetative cover in adjacent areas. **Therefore, the No Action alternative would not have significant adverse impacts on wetlands.**

#### Alternative 2: Proposed Action

Under the Proposed Action, impacts from CP8A, CP15A, CP21, and CP22 would be the same as those of the No Action alternative.

The addition of CP18C, CP3A, and CP5A to the list of allowable CPs would enhance wetland ecosystems by contributing to soil stability, erosion reduction, and wildlife habitat provision (Pavlidis and Tsihrintzis 2018; Smith et al. 2021; Garcia-Caparrós 2023). These measures would stabilize wetland edges, reduce erosion, filter pollutants, and improve water quality, bolstering the resilience of wetland ecosystems statewide. As such, the Proposed Action would

prioritize the preservation and enhancement of wetland ecosystems across New Jersey, particularly in areas adjacent to agricultural activities.

### **Haying and Grazing**

Haying and grazing can disturb wetland hydrology and ecological functions. Soil compaction from grazing reduces the wetland's ability to absorb and retain water, increasing surface runoff and decreasing groundwater recharge (Skovlin 1985). Uncontrolled grazing can lead to excessive fecal runoff, degrading water quality and harming wetland ecosystems (Hubbard et al. 2004). Vegetation removal by haying exposes soil, leading to erosion, sedimentation, and disruption of wetland hydrology (Skovlin 1985). To mitigate these impacts, the USDA requires a 120-foot buffer around water bodies, helping to preserve the functions and integrity of wetlands. Site-specific assessments and mitigation efforts further minimize impacts, ensuring minimal disruption to wetlands when properly managed (see **Chapter 5**).

#### *Significance Determination*

The CPs under the Proposed Action alternative would enhance wetland management and ecological resilience without directly altering the soil structure, hydrology, or vegetation of wetlands or their buffers. These practices would benefit wetlands by promoting soil stabilization, reducing sedimentation, and enhancing vegetative cover in adjacent areas. While haying and grazing could potentially result in impacts to wetlands, the implementation of site-specific mitigation measures would effectively prevent any adverse effects on wetlands. **Therefore, the Proposed Action alternative would not have significant adverse impacts on wetlands.**

#### **Cumulative Impacts**

Organizations in New Jersey, including the New Jersey Audubon and the NRCS are actively involved in New Jersey wetland conservation efforts (Bright 2023). Through initiatives providing technical and financial aid, they assist landowners and farmers in adopting practices like riparian restoration, erosion control, and wetland enhancement. The New Jersey Audubon, for instance, administers grants and provides technical support for wetland buffer establishment, wetland restoration, and habitat enhancement projects.

These conservation efforts yield cumulative benefits, bolstering wetland management and resilience in New Jersey. By reducing soil erosion, improving vegetative cover, and restoring natural wetland functions, these initiatives safeguard wetland ecosystems. Consequently, these cumulative efforts support the long-term protection of wetlands and their associated benefits, including flood mitigation, water quality improvement, and biodiversity conservation.

Haying and grazing on CREP land, along with existing haying and grazing activities on active agricultural land, would not cumulatively impact wetlands. Haying and grazing on CREP land would be short-term in duration and would adhere to the time, duration, and location restrictions outlined in **Table 1** to minimize impacts. Additional site-specific mitigation measures would also be implemented as needed. As a result, the impact of haying and grazing on CREP land would be below the level of significance and would negligibly contribute to the overall impact of haying and grazing activities on wetlands.

### **4.8.5 Federally Protected Water Resources**

#### **Evaluation Criteria**

Significant impacts to coastal barrier resources and coastal zones would occur if the recreational, ecological, historical, or aesthetic values of these resources were degraded. Similarly, impacts to Wild and Scenic Rivers and NRI segments would be significant if the Proposed Action jeopardized the “Outstandingly Remarkable Values” of these rivers.

Additionally, impacts to these resources could be considered significant if activities violated applicable state or federal regulations for federally protected waters.

### Alternative I: No Action

Under the No Action alternative, the CP8A, CP15A, CP21, and CP22 would all continue to improve federally protected water resources in New Jersey using the following methods:

#### CP22 and CP15A:

- **Coastal Barrier Resources Systems Impacts:** Riparian buffers and permanent vegetative cover act as natural filters, trapping sediment and nutrients from agricultural runoff before they reach coastal barrier resources. This preserves water clarity and quality along coastlines, protecting sandy beaches, dunes, barrier islands, and associated wetlands. By mitigating sedimentation and nutrient pollution, these practices reduce risks to human life, wasteful expenditure of federal revenues, and protect coastal ecosystems. Healthy coastal habitats, such as sandy beaches and dunes, mitigate the impacts of storms and sea-level rise, preventing costly damages and human casualties. This proactive approach helps avoid unnecessary federal expenses on infrastructure repairs and restoration efforts due to coastal degradation (Van Alfen 2014, USFS 2024).
- **Coastal Zones Impacts:** Riparian buffers and permanent vegetative cover play a crucial role in reducing erosion along waterways, thereby preserving water clarity and quality in coastal zones. These practices stabilize soil and prevent sediment runoff, enhancing the scenic beauty of coastal areas and bolstering their ecological resilience. This aligns with the objectives of the CZMA, which aims to promote sustainable development, protect coastal resources, support economic and recreational activities, and preserve cultural heritage (Van Alfen 2014, USFS 2024).
- **Wild and Scenic Rivers/NRI Impacts:** Riparian buffers and permanent vegetative cover safeguard the water quality of wild and scenic rivers and NRI segments by minimizing sedimentation and pollutant runoff. This preservation of water clarity and quality maintains the natural character, scenic beauty, and ecological integrity of designated river stretches. Consequently, these practices sustain the health of riverine ecosystems and the species they support (Van Alfen 2014, USFS 2024).

#### CP21 and CP8A:

- **Coastal Barrier Resources Systems Impacts:** Grass filter strips and grass waterways intercept sediment and nutrients from agricultural runoff, preventing contamination and preserving water clarity and quality along coastal barriers. This enhances their scenic beauty and natural character, reduces risks to human life, avoids wasteful expenditure of federal revenues, and mitigates damage to fish, wildlife, and other natural resources associated with coastal barriers (Trimarco 2023, Fiener and Auerswald 2017).
- **Coastal Zones Impacts:** Filter strips and grass waterways effectively reduce erosion and sedimentation in coastal zones, resulting in improved water clarity and quality. This enhancement of coastal visual aesthetics makes waters and beaches more appealing for recreational activities like swimming, snorkeling, and beach combing. These practices align with the objectives of the CZMA by promoting sustainable land use and safeguarding coastal resources (Trimarco 2023, Fiener and Auerswald 2017).
- **Wild and Scenic Rivers/NRI Impacts:** Filter strips and grass waterways protect the water quality of wild and scenic rivers and NRI segments by filtering pollutants and reducing erosion. This preserves water clarity and quality and enhances the scenic beauty and ecological health of designated river areas. These efforts align with the goals

of the Wild and Scenic Rivers Act and the NRI by enriching recreational and cultural experiences for visitors and local communities (Trimarco 2023, Fiener and Auerswald 2017).

### *Significance Determination*

Impacts to coastal barrier resources and coastal zones would not be significant as the proposed CPs (CP22, CP21, CP15A, CP8A) would not degrade their recreational, ecological, historical, or aesthetic values. Similarly, impacts to Wild and Scenic Rivers and NRI segments would not be considered significant as the No Action alternative would not lead to the deterioration of any "Outstandingly Remarkable Values" of these rivers. Moreover, impacts to these resources are not significant as none of the activities would violate applicable state or federal regulations for federally protected waters. **Therefore, the No Action alternative would not have significant adverse impacts on federally protected water resources.**

### **Alternative 2: Proposed Action**

Under the Proposed Action, impacts from CP8A, CP15A, CP21, and CP22 would be the same as those of the No Action alternative.

The addition of CP18C, CP3A, and CP5A to the list of allowable CPs would help to improve federally protected water resources using the following methods:

#### **CP3A (Hardwood Tree Planting):**

- **Coastal Barrier Resources Systems Impacts:** Hardwood tree planting stabilizes soils and reduces erosion, benefiting coastal barriers such as sandy beaches, dunes, barrier islands, and associated wetlands, in accordance with the Coastal Barrier Resources Act (CBRA). By preventing soil loss and nutrient runoff, this practice minimizes damage to fish, wildlife, and other natural resources associated with coastal barriers, aligning with the objectives of the CBRA to minimize the loss of human life, wasteful expenditure of federal revenues, and damage to coastal ecosystems (Pavlidis and Tsihrintzis 2018).
- **Coastal Zones Impacts:** Although hardwood tree planting primarily occurs inland, it indirectly benefits coastal zones by reducing sedimentation and nutrient runoff into upstream waterways. This preservation of soil health and reduction of upstream erosion enhances water quality downstream, supporting coastal ecosystems and recreational activities, in alignment with CZMA objectives (Pavlidis and Tsihrintzis 2018).
- **Wild and Scenic Rivers/NRI Impacts:** Planting hardwood trees along rivers and NRI segments upstream stabilizes stream banks, reduces sedimentation, and improves habitat conditions for downstream aquatic species. This indirectly improves upstream water quality and habitat conditions, preserving the value of downstream wild and scenic rivers, including scenic beauty, recreational opportunities, and cultural significance (Pavlidis and Tsihrintzis 2018).

#### **CP5A (Field Windbreak Establishment):**

- **Coastal Barrier Resources Systems Impacts:** Field windbreak establishment directly mitigates wind erosion and protects agricultural lands, both inland and along the coast. Along coastal regions, it protects against soil loss and nutrient runoff, aligning with the CBRA's goal to protect coastal ecosystems and minimize human and financial losses associated with coastal hazards (Smith et al. 2021).
- **Coastal Zones Impacts:** While primarily inland, field windbreaks indirectly benefit coastal zones by reducing erosion and nutrient runoff upstream. This preserves upstream soil health and reduces erosion, thereby enhancing downstream water quality

and supporting coastal ecosystems and recreational activities, in line with the CZMA (Smith et al. 2021).

- **Wild and Scenic Rivers/NRI Impacts:** Field windbreak establishment along upstream rivers and NRI segments helps counteract adverse agricultural impacts like sedimentation and nutrient runoff into downstream waterways. By reducing soil erosion and runoff from agricultural fields, this practice indirectly improves water quality and habitat conditions upstream, contributing to the preservation of values associated with downstream designated wild and scenic rivers (Smith et al. 2021).

#### **CP18C (Establishment of Salt Tolerant Vegetative Cover):**

- **Coastal Barrier Resources Systems Impacts:** While the establishment of salt-tolerant vegetative cover may not directly impact coastal areas, its indirect impact on reducing nutrient runoff into upstream waterways can help minimize damage to coastal barrier resources. By preserving soil stability and reducing erosion inland, this practice aligns with the objectives of the CBRA to minimize the loss of human life, wasteful expenditure of federal revenues, and damage to coastal ecosystems associated with coastal barriers (Garcia-Caparros 2023).
- **Coastal Zones Impacts:** Salt-tolerant vegetative cover primarily implemented inland extends its benefits to coastal zones by improving water quality downstream. By reducing nutrient runoff and sedimentation into waterways, this practice supports coastal ecosystems and recreational activities, aligning with the objectives of the CZMA to protect and enhance coastal resources, support economic and recreational activities, and address coastal hazards and climate change impacts (Garcia-Caparros 2023).
- **Wild and Scenic Rivers/NRI Impacts:** Establishment of salt-tolerant vegetative cover inland near agricultural fields reduces sedimentation and nutrient runoff into rivers and NRI segments. This prevents soil erosion and filters pollutants from runoff water before it reaches waterways, improving water quality and habitat conditions downstream. While the direct implementation may not occur along the banks of these rivers, the benefits extend to the overall health and integrity of the riverine ecosystems, supporting the objectives of the Wild and Scenic Rivers Act and the NRI (Garcia-Caparros 2023).

#### **Haying and Grazing**

Haying and grazing practices can disrupt natural hydrological patterns, increase surface runoff, and diminish groundwater recharge, posing threats to federally protected water resources. Uncontrolled grazing can deteriorate water quality due to pollutants, endangering aquatic ecosystems and recreational activities (Skovlin 1985). Additionally, vegetation removal through haying exposes soil to erosion, contributing to sedimentation in water bodies and threatening aquatic habitats and biodiversity (Howard-Williams & Pickmere 1994). To address these impacts, the USDA requires a 120-foot buffer around water bodies to preserve aquatic resource integrity. Furthermore, the impacts of haying and grazing would be assessed on a site-specific basis, with appropriate mitigation measures implemented as needed (see **Chapter 5**). Consequently, with proper management, impacts on federally protected water resources would be minimized.

#### *Significance Determination*

Under the Proposed Action, impacts to coastal barrier resources and coastal zones would not be significant as the proposed CPs would not degrade the recreational, ecological, historical, or aesthetic values of these resources. Similarly, impacts to Wild and Scenic Rivers and NRI segments would not be significant as the Proposed Action alternative would not deteriorate the



"Outstandingly Remarkable Values" of these rivers. Furthermore, these activities comply with applicable state or federal regulations for federally protected waters. While haying and grazing could potentially impact aquatic resources, the implementation of site-specific mitigation measures would effectively prevent any adverse effects on federally protected water resources. **Therefore, the Proposed Action alternative would not have significant adverse impacts on federally protected water resources.**

### Cumulative Impacts

Various organizations in New Jersey, including the New Jersey Audubon and the NRCS, are actively engaged in conservation efforts aimed at improving water resource management (Bright 2023). While these initiatives do not specifically target federally protected waters, they indirectly benefit them by reducing soil erosion, nutrient runoff, and sedimentation, thereby aligning with the objectives of the Proposed Action. This collective action results in cumulative benefits for the management and preservation of federally protected waters.

Haying and grazing on CREP land, along with existing haying and grazing activities on active agricultural land, would not cumulatively impact federally protected water resources. Haying and grazing on CREP land would be short-term in duration and would adhere to the time, duration, and location restrictions outlined in **Table 1** to minimize impacts. Additional site-specific mitigation measures would also be implemented as needed. As a result, the impact of haying and grazing on CREP land would be below the level of significance and would negligibly contribute to the overall impact of haying and grazing on federally protected water resources.

## 4.9 Biological Resources

### 4.9.1 Vegetation, Wildlife, and Habitat

#### Evaluation Criteria

Impacts to vegetation, wildlife, or habitat would be considered significant if the Proposed Action disrupted or disturbed nearby wildlife populations to a degree that could potentially lead to species extirpation. This could result from habitat destruction or fragmentation, the introduction of invasive species, permanent disruptions to the dynamic processes of the ecosystem; or violate tribal, local, state, or federal regulations protecting wildlife and their habitats. Extirpation is defined as the complete disappearance (elimination) of a species from a given region, island, or area, but other populations of the species exist elsewhere (USFWS 2024e).

#### Alternative 1: No Action

The proposed CPs under the No Action alternative would have the following impacts on vegetation, wildlife, and habitat:

**CP22:** The implementation of riparian forest buffers along water bodies provides essential habitat elements like woody debris and leaf litter, which are crucial food sources and shelter for aquatic invertebrates, and offers structural habitats for aquatic life, facilitating breeding and foraging. These buffers also reduce direct sun exposure, lowering water temperatures to create optimal conditions for aquatic species, while enhancing habitat complexity through deadfall, which promotes species diversity and ecosystem resilience. Additionally, riparian buffers serve as travel corridors and provide resources for terrestrial animals that rely on healthy riparian habitats for nesting, foraging, and migration, contributing significantly to the health and resilience of both aquatic and terrestrial ecosystems (The Wildlife Society 2007, Marczak et al. 2010).



**CP21:** Filter strips mitigate the direct impact of contaminants entering water bodies by filtering out pollutants like agro-chemicals and sediment. They also provide habitat and corridors for wildlife, offering valuable nesting and forage areas, which enhances biodiversity and supports healthy ecosystems. Additionally, filter strips contribute to soil conservation by reducing erosion and preserving soil health, further benefiting the surrounding environment (The Wildlife Society 2007).

**CP15A and CP8A:** The implementation of permanent vegetative cover and grass waterways enhances wildlife habitat by providing cover and security for birds, mammals, and insects, supporting pollinators and grassland and game bird species with suitable nesting and foraging conditions. Additionally, these practices contribute to soil conservation and water quality improvement by reducing erosion and filtering runoff, indirectly supporting healthy ecosystems and promoting biodiversity in agricultural landscapes (The Wildlife Society 2007, Fiener and Auerswald 2017).

The proposed CPs under the No Action alternative would have the following impacts on species listed in the New Jersey State Wildlife Action Plan (NJ SWAP):

- **Grassland Bird Species (Bobolink, Eastern Meadowlark, Grasshopper Sparrow, Vesper Sparrow):** CP21, CP15A, and CP8A collectively benefit grassland bird species by creating or enhancing suitable habitat within agricultural landscapes. These practices offer additional nesting sites, foraging opportunities, and vegetated corridors essential for the breeding success and survival of grassland birds. By preserving and restoring grassland habitats, these conservation measures contribute to maintaining populations of Bobolinks, Eastern Meadowlarks, Grasshopper Sparrows, and Vesper Sparrows in New Jersey (The Wildlife Society 2007, Fiener and Auerswald 2017).
- **Tiger Beetle Species (New Jersey Pine Barrens Tiger Beetle, Little White Tiger Beetle, Northeastern Beach Tiger Beetle, Southeastern Beach Tiger Beetle):** These species primarily inhabit sandy or gravelly habitats, including coastal dunes and beaches, which are not directly impacted by the proposed CPs. Therefore, the No Action alternative is not expected to have a direct impact on tiger beetle species. However, indirect benefits such as improved water quality and reduced sedimentation resulting from the CPs may indirectly benefit tiger beetle populations by preserving their natural habitats and supporting ecosystem health (The Wildlife Society 2007, NatureServe 2024).

### *Significance Determination*

The No Action alternative would not result in the disruption or disturbance of nearby wildlife populations to a degree that would lead to the potential extirpation of a species or a natural vegetative community resulting from habitat destruction or fragmentation, the introduction of invasive or exotic species, permanent disruptions to the dynamic processes of the ecosystem, or violation of tribal, local, state, or federal regulations protecting wildlife and their habitats.

**Therefore, the No Action alternative would not have significant adverse impacts on vegetation, wildlife, or habitat.**

### **Alternative 2: Proposed Action**

Under the Proposed Action, impacts from CP8A, CP15A, CP21, and CP22 would be the same as those of the No Action alternative.

The addition of CP18C, CP3A, and CP5A to the list of allowable CPs would help to improve vegetation, wildlife, and habitat using the following methods:

**CP3A:** The introduction of hardwood trees would offer vital habitat for diverse wildlife species and enhance ecosystem diversity. Hardwood trees serve as nesting sites, food sources, and shelter for birds, mammals, and insects, while also contributing to soil stabilization, erosion control, and carbon sequestration, thereby fostering overall ecosystem health and resilience (The Wildlife Society 2007).

**CP5A:** Field windbreaks would create sheltered microenvironments that benefit both vegetation and wildlife. Windbreaks provide protection against wind erosion, establish habitat corridors, and offer nesting sites and foraging opportunities for birds and small mammals (The Wildlife Society 2007).

**CP18C:** Establishing salt-tolerant vegetative cover in areas with salt accumulates in the root zone enhances soil health and erosion control. This practice reduces soil salinity, mitigates erosion, and improves water by minimizing saline runoff and leaching. Salt-tolerant vegetation fosters habitat creation for wildlife and supports sustainable land management practices (Garcia-Caparrós 2023).

The proposed CPs under the Proposed Action would have the following impacts on species listed in the NJ SWAP:

- **Grassland Bird Species (Bobolink, Eastern Meadowlark, Grasshopper Sparrow, Vesper Sparrow):** CP15A, CP18C, and CP21 would have positive impacts on grassland bird species within agricultural landscapes. These practices would create or enhance suitable habitats by providing additional nesting sites, foraging opportunities, and vegetated corridors crucial for the breeding success and survival of grassland birds. By preserving and restoring grassland habitats, these conservation measures would help to maintain populations of Bobolinks, Eastern Meadowlarks, Grasshopper Sparrows, and Vesper Sparrows in New Jersey (The Wildlife Society 2007).
- **Tiger Beetle Species (New Jersey Pine Barrens Tiger Beetle, Little White Tiger Beetle, Northeastern Beach Tiger Beetle, Southeastern Beach Tiger Beetle):** Although not directly impacting tiger beetle habitats, CP21, CP15A, and CP8A would have indirect impacts of this species. By reducing erosion, preserving soil health, and improving water quality, the CPs would indirectly support the natural habitats of tiger beetles, maintaining suitable conditions for their survival and promoting the overall ecosystem health (The Wildlife Society 2007, NatureServe 2024).

Collectively, these conservation efforts aimed at enhancing habitats around agricultural lands in New Jersey would positively impact vegetation, wildlife, and habitat by improving habitat quality, supporting biodiversity, and contributing to soil and water conservation, ultimately fostering healthier ecosystems and promoting sustainable agricultural practices statewide.

### **Haying and Grazing**

Haying and grazing practices have notable impacts on vegetation, wildlife, and habitat. Grazing often leads to selective consumption of preferred plant species, reducing plant diversity and altering vegetation structure. This alteration affects habitat suitability for various wildlife species, disrupting nesting sites and reducing available food sources. Excessive grazing pressure can also result in soil compaction and erosion, thereby degrading habitats and contributing to a decline in biodiversity, which may disrupt ecosystem balance and create challenges for wildlife conservation and habitat restoration efforts. To mitigate impacts to the vegetation, wildlife, and habitats associated with water bodies, the USDA requires a 120-foot buffer around these areas. Additionally, impacts of haying and grazing would be assessed on a site-specific basis, with appropriate mitigation measures implemented as needed. Consequently, when properly managed, the impacts on vegetation, wildlife, and habitats would be minor.

### *Significance Determination*

The Proposed Action would not disrupt or disturb nearby wildlife populations to the extent of causing extirpation of a species or a natural vegetative community due to habitat destruction or fragmentation, the introduction of invasive or exotic species, permanent disruptions to ecosystem processes, or violations of tribal, local, state, or federal regulations protecting vegetation, wildlife, and habitats. While haying and grazing could potentially result in impacts to vegetation, wildlife, and habitat, the implementation of site-specific mitigation measures would effectively prevent any adverse effects on these resources. **Therefore, the Proposed Action would not have significant adverse impacts on vegetation, wildlife, or habitat.**

### *Cumulative Impacts*

The USFWS plays a pivotal role in conserving habitats and species of greatest conservation concern in New Jersey through initiatives such as habitat restoration and management of National Wildlife Refuges. These efforts are integral to preserving and enhancing habitats critical for a wide range of species statewide. Collaborating with organizations like the New Jersey Audubon and the NRCS, these conservation actions collectively have a substantial impact. Practices such as riparian buffer establishment, wetland restoration, and no-till planting aim to improve wildlife habitat on working lands throughout New Jersey (Bright 2023). The implementation of CPs, including those outlined in the Proposed Action, along with broader conservation initiatives by New Jersey Audubon and the NRCS, would lead to beneficial impacts on vegetation, wildlife, or habitat in New Jersey.

Haying and grazing on CREP land, along with existing haying and grazing activities on active agricultural land, would not cumulatively impact vegetation, wildlife, or habitat. Haying and grazing on CREP land would be short-term in duration and would adhere to the time, duration, and location restrictions outlined in **Table 1** to minimize impacts. Additional site-specific mitigation measures would also be implemented as needed. As a result, the impact of haying and grazing on CREP land would be below the level of significance and would negligibly contribute to the overall impact of haying and grazing activities on vegetation, wildlife, or habitat.

### **4.9.2 Federally Protected Species**

#### *Evaluation Criteria*

Impacts to federally protected species would be considered significant if the Proposed Action would result in a take of a federally protected species or affect designated critical habitat. Impacts would also be considered significant if noise or other disturbances resulting from the Proposed Action led to impacts on federally protected species in the area. Impacts to migratory birds are more likely to be significant if they occur during a species' known breeding season.

#### *Alternative 1: No Action*

##### *Endangered Species Act-Listed Species*

Eighteen threatened, proposed threatened, or endangered species were identified as having potential to occur in the Affected Environment (**Appendix C**). The proposed CPs under the No Action alternative would have the following impacts on ESA-listed species:

- **Bats (Indiana Bat, Northern Long-eared Bat, Tricolored Bat):** The CPs would indirectly benefit bats by enhancing habitat quality and availability of roosting sites. For example, CP22 would provide suitable foraging habitat and roosting sites for bats along water bodies. Additionally, CP15A would create suitable foraging areas and offer shelter for bats (Olimpia & Philpott 2018).

- **Birds (Eastern Black Rail, Piping Plover, Roseate Tern, Rufa Red Knot):** The CPs would indirectly benefit these species by enhancing ecosystem health and providing additional resources. For example, CP21 and CP15A would increase insect abundance, a crucial food source for these birds during migration and breeding seasons. Additionally, CP8A would provide suitable habitat conditions for insects, which are prey for these bird species. Moreover, riparian forest buffers would enhance water quality and establish habitat corridors, indirectly supporting the broader ecosystem that these birds depend on (The Wildlife Society 2007, Fiener and Auerswald 2017).
- **Reptiles (Bog Turtle):** The CPs are unlikely to directly impact Bog Turtle habitat but would indirectly benefit them via practices like CP21 and CP15A, which may improve water quality and reduce sedimentation. These enhancements could positively impact the quality of aquatic habitats where Bog Turtles forage and bask, indirectly supporting their populations. Additionally, CP8A would help mitigate soil erosion and maintain the integrity of wetland habitats utilized by Bog Turtles (De Steven & Lowrance 2011).
- **Mollusks (Dwarf Wedgemussel, Green Floater):** CP22 and CP15A would indirectly benefit mollusk species by reducing sedimentation and improving water quality in water bodies where they inhabit (The Wildlife Society 2007, De Steven & Lowrance 2011).
- **Insects (Monarch Butterfly):** CP15A and CP22 would provide nectar sources and breeding habitat for monarch butterflies, which would help to maintain suitable habitat for monarchs during their migration and breeding seasons (The Wildlife Society 2007).
- **Plants (American Chaffseed, Knieskern's Beaked Rush, Seabeach Amaranth, Northeastern Bulrush, Sensitive Joint-vetch, Small Whorled Pogonia, Swamp Pink):** Implementation of CP22 and CP15A would indirectly benefit this species by stabilizing soil, reducing erosion, and providing suitable growing conditions. CP21 would also indirectly contribute to their preservation by improving soil health and reducing nutrient runoff (The Wildlife Society 2007, De Steven & Lowrance 2011).

Despite no anticipated negative impacts, these species are present in the Affected Environment and may experience some impacts. Therefore, FSA reached a "May Affect, Not Likely to Adversely Affect" determination, prompting informal consultation with the USFWS, who concurred with this determination (see **Appendix C** for consultation record). During CP establishment, if any ESA-listed species are identified through the CPA 52 process, consultation with USFWS would occur.

### *Migratory Birds*

Sixty-three migratory bird species were identified as potentially occurring in the Affected Environment. While impacts to habitat are unlikely, some species may exist and even breed on farmland. However, since the CPs would be implemented on previously farmed lands, substantial negative impacts to the breeding habitat during implementation are unlikely. Under the No Action alternative, activities such as raptor propagation, scientific collecting, or take of depredated birds would not occur, eliminating the need for a permit under the Migratory Bird Treaty Act (USFWS 2023c).

Under the No Action alternative, CP22 and CP21 would positively affect migratory bird habitats, with riparian buffers providing essential habitat elements like woody debris and leaf litter and serving as food sources and shelter for birds. Filter strips would also enhance biodiversity, offering valuable nesting and forage habitat. In addition, CP15A and CP8A would diminish noise pollution from farming activities by promoting vegetation growth, which acts as natural sound barriers to dampen noise levels. Collectively, these practices indirectly contribute to maintaining

and enhancing vegetation diversity and abundance, critical for supporting migratory bird populations (Conover 2014).

### *Bald and Golden Eagles*

The proposed CPs under the No Action alternative would minimally impact bald and golden eagles. These CPs focus on habitat enhancement, soil health improvement, and erosion reduction, indirectly benefiting eagle populations by supporting prey and ecosystem health. Riparian buffers and filter strips offer habitats and foraging areas for small mammals and fish, which are prey for eagles. Establishing permanent vegetative cover and grass waterways improves habitat and ecosystem stability, indirectly aiding eagle populations. Direct impacts on eagle habitat or behavior are unlikely since the CPs primarily target agricultural landscapes, not eagle habitats. Overall, the CPs under the No Action alternative are not expected to have significant adverse effects on bald and golden eagle populations, aligning with conservation objectives to promote habitat sustainability and biodiversity (The Wildlife Society 2007).

### *Significance Determination*

The No Action alternative would not result in the take of a federally protected species or lead to impacts on designated critical habitat. The No Action alternative would not result in noise or other disturbances that would lead to impacts on federally protected species in the area.

**Therefore, the No Action alternative would not have significant adverse impacts on federally protected species.**

### *Alternative 2: Proposed Action*

#### *Endangered Species Act-Listed Species*

Under the Proposed Action, impacts from CP8A, CP15A, CP21, CP22 would be the same as those of the No Action alternative.

The addition of CP18C, CP3A, and CP5A to the list of allowable CPs would help to improve habitat for ESA-listed species using the following methods:

- **Bats (Indiana Bat, Northern Long-eared Bat, Tricolored Bat):** Impacts to these species under the Proposed Action would be the same as those of the No Action alternative.
- **Birds (Eastern Black Rail, Piping Plover, Roseate Tern, Rufa Red Knot):** CP5A would further enhance insect abundance, serving as a vital food source for migratory birds during migration and breeding seasons. CP3A would improve water quality and create habitat corridors, indirectly supporting bird populations (The Wildlife Society 2007).
- **Reptiles (Bog Turtle):** While CP5A is unlikely to directly impact bog turtle habitat, it would indirectly benefit bog turtles by improving water quality and reducing sedimentation in their aquatic habitats (De Steven & Lowrance 2011).
- **Mollusks (Dwarf Wedgemussel, Green Floater):** CP18C would indirectly benefit mollusk species by reducing sedimentation and improving water quality in water bodies where they inhabit (The Wildlife Society 2007, De Steven & Lowrance 2011).
- **Insects (Monarch Butterfly):** CP5A would provide nectar sources and breeding habitat for monarch butterflies, supporting their migration and breeding seasons (The Wildlife Society 2007).
- **Plants (American Chaffseed, Knieskern's Beaked Rush, Seabeach Amaranth, Northeastern Bulrush, Sensitive Joint-vetch, Small Whorled Pogonia, Swamp**

**Pink):** Although not directly associated with agricultural areas, CP18C would indirectly benefit these plant species by stabilizing soil, reducing erosion, and improving habitat conditions throughout New Jersey (The Wildlife Society 2007, De Steven & Lowrance 2011).

While there are no anticipated negative impacts to these species, they inhabit the Affected Environment and may incur some impacts. As such, FSA reached a "May Affect, Not Likely to Adversely Affect" determination, prompting informal consultation with the USFWS, who concurred with this determination (see **Appendix C** for consultation record). During CP establishment, if any ESA-listed species were identified at a site-specific level through the CPA 52 process, consultation would occur with the USFWS.

### **Haying and Grazing**

Haying and grazing can impact federally listed species, including bats, birds, turtles, mussels, and plants (see **Appendix C** for a detailed impacts analysis to federally listed species). Haying and grazing may disrupt crucial habitats such as bat foraging and roosting sites, bird nesting areas, and turtle habitats, leading to habitat loss and reduced availability. Grazing can alter vegetation structure, affecting wildlife behavior and ecosystem dynamics, while both practices can contribute to soil erosion and runoff, potentially degrading water quality (Filazzola et al. 2020). Implementing effective management strategies, like maintaining USDA-mandated buffer zones around water bodies and limiting activities during the PNS, can mitigate these impacts. Site-specific analyses and consultation with relevant agencies like the USFWS can also ensure appropriate protective measures for federally listed species and their habitats, thus minimizing the impacts of haying and grazing on federally listed species.

#### *Migratory Birds*

Under the Proposed Action, impacts from CP8A, CP15A, CP21, and CP22 would be the same as those of the No Action alternative.

The addition of CP18C, CP3A, and CP5A to allowable CPs would help to improve habitat for migratory birds. In particular, CP18C would expand habitat and food sources crucial for supporting migratory bird populations. The practices also indirectly contribute to maintaining and enhancing vegetation diversity and abundance critical for migratory bird habitats (Conover 2014). In addition, CP5A would reduce impacts on noise to migratory bird species by acting as a natural sound barrier to dampen noise from agricultural operations.

### **Haying and Grazing**

Haying and grazing activities can disrupt migratory bird habitats and foraging opportunities, potentially affecting nesting areas and reducing food availability during critical times of the year (Barzan et al. 2021, Strassmann 1987). However, these impacts can be mitigated through measures outlined in the 2018 Farm Bill. For instance, haying is restricted during the PNS, and grazing is limited to 50% of the approved stocking rate during the PNS to minimize disturbance. Additionally, prohibiting haying and grazing activities within 120 feet of water bodies further protects critical habitats. Conducting site-specific analyses and consulting with relevant agencies like the USFWS also ensures appropriate protective measures for federally listed species and their habitats (see **Chapter 5**). With careful management and mitigation efforts, the adverse effects of haying and grazing on migratory birds can be minimized, ensuring their continued protection and conservation.

#### *Bald and Golden Eagles*

Under the Proposed Action, impacts from CP8A, CP15A, CP21, and CP22 would be the same as those of the No Action alternative.



The addition of CP18C, CP3A, and CP5A to the list of allowable CPs would indirectly benefit bald and golden eagle populations by enhancing the habitat quality of their prey base. These practices improve habitat conditions and ecosystem stability, thereby supporting eagle populations by maintaining healthy ecosystems. Direct impacts on bald and golden eagles are unlikely, as these practices are implemented in agricultural landscapes and do not directly target eagle habitats. Overall, the proposed CPs would significantly benefit bald and golden eagle populations, aligning conservation objectives to promote habitat sustainability and biodiversity (The Wildlife Society 2007).

## **Haying and Grazing**

Haying and grazing activities can impact bald and golden eagles by altering their foraging habitats and potentially disturbing nesting sites, leading to habitat fragmentation and reduced prey availability (Johnson and Horn, 2008). Increased human disturbance from haying and grazing can also affect the breeding success and overall population health of these species. Adhering to conservation regulations and avoiding haying and grazing near known eagle nesting sites are crucial management practices to minimize these impacts and ensure the conservation of these species. Conducting site-specific analyses and consulting with relevant agencies, such as the USFWS, are essential to identify and mitigate potential threats to eagle habitats (see **Chapter 5**). With careful management and mitigation efforts, the adverse impacts of haying and grazing on bald and golden eagles can be minimized, ensuring their continued protection and conservation.

### *Significance Determination*

The Proposed Action alternative would not result in the take of a federally protected species or lead to impacts on designated critical habitat. The Proposed Action alternative would not result in noise or other disturbances that would lead to impacts on federally protected species in the area. While haying and grazing could potentially result in impacts to these federally protected species, the implementation of site-specific mitigation measures would effectively prevent any adverse effects on these resources. **Therefore, the Proposed alternative would not have significant adverse impacts on federally protected species.**

### **Cumulative Impacts**

The USFWS is instrumental in conserving federally protected species in New Jersey, overseeing habitat restoration and management across the state, including National Wildlife Refuges. Collaborative initiatives with organizations like New Jersey Audubon and the NRCS, further enhance habitat preservation. Through practices such as riparian buffer establishment, wetland restoration, and no-till planting, these efforts aim to improve wildlife habitat on working lands throughout New Jersey (Bright 2023). The collective implementation of CPs, including those outlined in the Proposed Action, alongside broader conservation initiatives, would lead to beneficial impacts on federally protected species across the state.

Haying and grazing on CREP land, along with existing haying and grazing activities on active agricultural land, would not cumulatively impact federally protected species. Haying and grazing on CREP land would be short-term in duration and would adhere to the time, duration, and location restrictions outlined in **Table 1** to minimize impacts. Additional site-specific mitigation measures would also be implemented as needed. As a result, the impact of haying and grazing on CREP land would be below the level of significance and would negligibly contribute to the overall impact of haying and grazing activities on federally protected species.



## 4.10 Cultural Resources

### Evaluation Criteria

Impacts to historic districts, sites, buildings, or structures would be considered significant if the Proposed Action would result in disturbances to historic properties via directly or indirectly diminishing integrity or significance as they relate to National Register eligibility, or an “adverse effect” determination under Section 106 of the National Historic Preservation Act (36 CFR 800.5).

### Alternative 1: No Action

The CPs proposed under the No Action alternative (CP22, CP21, CP15A, and CP8A) would involve activities that could impact cultural resources in New Jersey, such as vegetation clearing, land disturbance, and earthmoving. To mitigate adverse effects, avoidance and/or mitigation efforts would be implemented, including consultation with NJDEP Historic Preservation Office staff. No CPs would occur on Native American reservation lands as there are no tribal federal service areas in the state of New Jersey.

To ensure responsible management of cultural resources, scoping letters have been sent to tribes with ancestral and current interests in landscapes comprising modern-day New Jersey to inform them of the alternatives in this PEA (TDAT 2024). The NJDEP Historic Preservation Office’s cultural resources GIS database would be consulted by Secretary of the Interior-qualified archaeologists when conducting site-specific EEs. Any impacts to cultural resources would be addressed through the Section 106 review and consultation process, which may involve cultural resource surveys and tribal consultation if necessary (36 CFR 800).

Diligence would be exercised during ground-disturbing activities, with immediate cessation of work and notification of appropriate authorities in the case of unexpected cultural resource discoveries, including the NJDEP Historic Preservation Office. Furthermore, measures would be taken to secure any archaeological findings, restrict access to sensitive areas, and implement necessary protocols to ensure compliance with relevant cultural resource preservation regulations. Site-specific unanticipated discovery plans would be submitted for any actions that could potentially damage or disturb culturally sensitive resources. As such, impacts on cultural resources would be minor.

### *Significance Determination*

The No Action alternative would result in minimal direct and indirect impacts to historic properties with the continuation of practices defined in the existing New Jersey CREP agreement. The No Action alternative CPs provide for erosion control measures that prevent degradation of buried and above-ground historic properties. **Therefore, the No Action alternative would not have significant adverse effects on cultural resources.**

### Alternative 2: Proposed Action

The Proposed Action adds CP18C, CP3A, and CP5A to the list of allowable CPs and would also allow for haying and grazing on all CPs. While these measures may involve activities such as vegetation clearing and land disturbance, potentially impacting cultural resources, efforts would be made to minimize these impacts, including prioritizing avoidance of areas with known cultural resources, conducting site-specific assessments, and adhering to established protocols for cultural resource management (36 CFR 800). Therefore, adverse effects to cultural resources are not anticipated under the Proposed Action.

### *Significance Determination*

The Proposed Action alternative would result in minimal direct and indirect impacts to historic properties, and measures would be taken to reduce adverse effects through mitigative practices outlined in the No Action alternative, up to and including background research, coordination with NJDEP Historic Preservation Office preservation specialists, avoidance or buffer areas around identified historic properties, and cultural resource surveys. While haying and grazing could potentially result in impacts to cultural resources, particularly in near-surface or surface contexts, the implementation of site-specific mitigation measures would effectively minimize any adverse effects to these resources. **Therefore, the Proposed Action alternative would not have significant adverse impacts on cultural resources.**

### **Cumulative Impacts**

The implementation of the Proposed Action, including the addition of new CPs along with haying and grazing, alongside other agricultural activities in New Jersey, may cumulatively impact cultural resources. While the CPs under the Proposed Action, when combined with existing practices, could increase land disturbance and potentially impact cultural resources, mitigation efforts would be taken. These efforts include avoiding known cultural resource areas and conducting site-specific cultural resource surveys to minimize adverse effects to New Jersey's rich historical and precontact heritage. Additionally, ongoing coordination and consultation with relevant stakeholders, including tribal nations and historic preservation agencies, would be conducted to ensure the collaborative preservation and protection of cultural resources in the context of continued agricultural development.

## **4.11 Human Population**

### **4.11.1 Socioeconomics**

#### **Evaluation Criteria**

Socioeconomic impacts would be considered significant if the number of jobs in the area or the economic activity for local businesses were significantly increased or decreased, if there were changes to neighborhoods that adversely impacted community cohesion, if there were altered travel patterns that diminished accessibility to community services, or if there were impacts to school districts, recreation areas, places of worship, businesses, police and fire protection stations, etc. that would inhibit those institutions from functioning as intended.

#### **Alternative 1: No Action**

Adhering to the No Action alternative would maintain the current NJ CREP agreement, preserving the conditions and goals established in 2004. This alternative would continue the use of current NJ CREP conservation practices, maintaining current site conditions, conservation practices, and enrollment rates. While current benefits, such as additional income and ecological enhancements, would be maintained, the No Action alternative would forgo the benefits associated with the Proposed Action's implementation of additional planned practices and additional land conservation. Land conservation is associated with increased real estate values of surrounding properties (Land, VanCeylon, & Ando, 2023), enhanced outdoor recreation and agri-tourism opportunities (Lynch and Duke, 2007), and improved farmland profitability (Agronomic Crops Network, 2018). Consequently, since fewer conservation practices would be implemented and less land would be eligible for enrollment, the No Action alternative would result in fewer financial benefits than the Proposed Action.

### *Significance Determination*

The No Action alternative would not affect the number of jobs, the use of any public land, or the function of public institutions within the state. Any positive or negative economic impacts from this alternative on local economic patterns, income, or social well-being would be negligible on a state-wide level. **Therefore, the No Action alternative would not have significant adverse impacts on socioeconomics.**

### **Alternative 2: Proposed Action**

The Proposed Action would maintain all CREP contracts under the existing NJ CREP agreement while introducing enhancements like higher payment rates, new incentives and cost-share programs, and focused climate change mitigation efforts through additional conservation practices. These existing and proposed CPs are linked to local economic benefits, including increased real estate values (Land, VanCeylon, & Ando, 2023), higher revenue from outdoor recreation and agri-tourism (Lynch and Duke, 2007), and improved agricultural productivity and profitability (Agronomic Crops Network, 2018). With increased financial incentives and expanded eligibility, more farmers would be anticipated to enroll in the CREP under the Proposed Action than under the No Action alternative. Thus, the potential economic benefits from the CREP would be amplified under the Proposed Action and lead to higher potential financial gains for the enrolled farmers and surrounding communities.

Despite the positive economic effects anticipated, the statewide impact of the Proposed Action is projected to be minimal, as the enrollment of up to 30,000 acres of farmland represents only 4.2% of the state's total cropland (USDA 2024). The Proposed Action would thus remove a marginal amount of land from agricultural use and would not significantly impact the level of farm production, necessary labor and equipment, or value of supporting infrastructure.

### **Haying and Grazing**

Haying and grazing activities present the potential for additional socioeconomic impacts. Livestock, poultry, and their products account for a sizeable portion of New Jersey's agricultural economy, and the implementation of the Proposed Action would offer financial benefits to farmers needing their enrolled land for livestock support. Despite this, improper implementation of haying and grazing can harm local soil health and water quality, leading to decreased crop quality and productivity (D'Hose et al., 2014; Stine & Weil, 2022). However, employing site-specific mitigation measures for haying and grazing activities can mitigate these negative effects, preserving the economic productivity of New Jersey farms.

### *Significance Determination*

The Proposed Action would not result in any significant impacts on the number of jobs, the use of any public land, or the function of public institutions. Enrollment in the CREP would result in minor direct and indirect financial benefits to farmers and surrounding regions, but these impacts would be insignificant on a state-wide level. The inclusion of haying and grazing under best management practices is not anticipated to impact any ecological or economic functions. **Therefore, the Proposed Action alternative would not have significant adverse impacts on socioeconomics.**

### **Cumulative Impacts**

On a local level, the CREP would provide income for enrolled farmers and mitigate the costs associated with land conservation. Over time, if the list of proposed CPs, as well as haying and grazing activities, are implemented properly, they would increase the health and productivity of lands across New Jersey. These environmental improvements

would provide economic benefits for the enrolled farms, as well as for surrounding farms and outdoor recreation facilities regardless of CREP enrollment status.

#### **4.11.2 Environmental Justice**

##### **Evaluation Criteria**

Impacts to environmental justice would be considered significant if the Proposed Action resulted in disproportionate adverse health and environmental effects for communities with environmental justice concerns (as defined in EO 14096) or if it reduced their equitable access to a healthy environment.

##### **Alternative 1: No Action**

Under the No Action alternative, New Jersey land currently in the CREP would remain as is, with some additional land enrolled. These practices, conducted on private farmland with landowner permission, would not impact any publicly owned or regulated lands. Continuation of the current NJ CREP agreement would primarily impact farm owners and workers, with minimal impacts to surrounding communities. While there would be some reduction in pesticide and fertilizer use, fewer acres would be converted to conservation, limiting the potential benefits and health gains compared to the Proposed Action.

##### *Significance Determination*

The No Action alternative does not cause any impacts to environmental justice populations, as it avoids exclusion, denial of benefits, or exposure to discrimination or disproportionate environmental or human health risks. **Therefore, the No Action alternative would not have significant adverse impacts on environmental justice communities.**

##### **Alternative 2: Proposed Action**

Under Proposed Action, all currently enrolled CREP land would be maintained, with additional land enrolled under new CPs and higher payment structures. Similar to the No Action alternative, the Proposed Action would take place on private property with the landowner's consent, minimizing impacts on publicly owned or state-regulated areas. More farmers would be enrolled in the CREP under the Proposed Action than the No Action alternative, resulting in the conversion of more farmland to conservation land. This conservation effort would decrease the use of pesticides, fertilizers, and other chemicals, reducing workplace exposure to potentially harmful substances for MSFW and surrounding communities while improving water quality.

The Proposed Action would impact a greater number of communities than the No Action alternative. Site-specific EEs would be conducted as part of the evaluation process for all lands seeking enrollment in CREP and would assess potential environmental justice impacts. The EE process ensures that the CREP enrollment would not disproportionately affect the human health or environment of minority or low-income communities.

##### *Significance Determination*

The Proposed Action would occur on private, previously disturbed farmland without affecting equitable access to the environment. Conservation actions would not disturb local ecological processes or cause adverse health effects for surrounding populations, as confirmed by individual EEs. Thus, the Proposed Action would not raise environmental justice concerns for minority, low-income, or MSFW populations. **Therefore, the Proposed Action alternative would not have significant adverse impacts on environmental justice communities.**

### Cumulative Impacts

The Proposed Action would initially have little to no effect on environmental justice communities, as conservation efforts would take place on private farmland without affecting access to public lands, equitable use of natural resources, or regional pollution levels. However, long-term implementation would enhance local fauna habitat, reduce non-point source pollution, and improve water quality, benefiting surrounding ecological regions and enhancing public access to outdoor recreational areas. Clean water resulting from these improvements would particularly aid marginalized communities, reducing their exposure to potentially harmful drinking water contaminants as identified in EO 14096.

### 4.12 Findings

This EA supports a **Finding of No Significant Impact** for the Proposed Action.

## Chapter 5: Implementation

Site-specific actions are projects funded by FSA through the CREP that are consistent with the terms of the NJ CREP agreement detailed in **Section 1.1.2**. FSA anticipates using this PEA to guide decision-making for site-specific actions under the NJ CREP agreement. It is expected that most activities occurring under the NJ CREP agreement would be consistent with the analysis in this PEA. Supplemental EAs would be prepared if the NJ CREP agreement changes in a way that is substantially different from the Proposed Action and the changes are relevant to environmental concerns, or if there are significant new circumstances or information relevant to environmental concerns that would change the analysis in the PEA.

### 5.1 Site-Specific Environmental Evaluation Process

Evaluation of project-specific impacts would be conducted by NRCS staff on behalf of FSA during the planning process for enrollment of all new parcels into the NJ CREP program. The site specific evaluations would be done at the earliest possible time to ensure that any significant environmental issues are identified; that consultation among agencies, other area programs, and the public (where applicable) occurs; and that a decision is made on whether the PEA appropriately addresses all components of the project, or whether a more detailed analysis is required.

If the project proposal is deemed to be consistent with the PEA and the parcel meets the eligibility criteria for CREP enrollment, NRCS staff would perform a site-specific EE in coordination with the agricultural producer or landowner. At the time of the site-specific EE, the FSA would take inventory of the protected resources present in the action area and assess whether there is a potential to adversely impact those resources present. Examples of site-specific considerations for key resource areas and impacts requiring mitigation are listed in **Table 12**. **Table 12** is not comprehensive but provides key examples to guide the identification of circumstances that would require mitigation measures to avoid significant adverse impacts.

TABLE 12: SITE-SPECIFIC CONSIDERATIONS AND IMPACTS REQUIRING MITIGATION		
CATEGORY	SITE-SPECIFIC CONSIDERATIONS	IMPACTS REQUIRING MITIGATION
Sensitive Habitats	Presence of sensitive habitats (e.g., wetlands, riparian areas, endangered species habitats) within or adjacent to the project site.	Direct habitat loss, fragmentation, or disturbance; alteration of critical wildlife corridors.
Federally Listed Species	Presence of federally listed species or their critical habitat within or near the project area.	Habitat destruction, significant disturbance to species, interference with breeding or migration patterns.
Geology and Topography	Unique geology or topography, including areas prone to soil instability, erosion, or geological hazards	Soil erosion, slope instability, increased sedimentation in water bodies
Hydrology	Proximity to water bodies (e.g., rivers, streams, lakes) and watershed boundaries	Water quality degradation, aquatic habitat disruption, increased flood risk

TABLE 12: SITE-SPECIFIC CONSIDERATIONS AND IMPACTS REQUIRING MITIGATION		
CATEGORY	SITE-SPECIFIC CONSIDERATIONS	IMPACTS REQUIRING MITIGATION
Noise	Proximity to noise-sensitive areas (e.g., residential areas, schools, hospitals).	Elevated noise levels affecting human health and wildlife behavior.
Air Quality	Areas with existing air quality concerns or non-attainment zones for pollutants.	Increase in pollutant emissions, deterioration of air quality.
Climate Change	Areas vulnerable to climate change impacts (e.g., sea level rise, increased frequency of extreme weather events).	Exacerbation of climate change effects, increased greenhouse gas emissions.
Cultural Resources	Presence of cultural or historical resources (e.g., archaeological sites, historic structures, culturally significant landscapes)	Damage or destruction of cultural artifacts, adverse effects on historic properties
Infrastructure	Involvement with infrastructure development or alterations to utility networks	Disruption of existing infrastructure, impacts on utility services, community inconvenience
Land Use	Compliance with local land use regulations and zoning requirements	Conflict with zoning ordinances, incompatible land uses
Public Health and Safety	Potential risks to public health and safety, especially in hazard-prone areas	Increased risk of flooding, landslides, wildfire, or exposure to hazardous materials
Socioeconomic	Impacts on local economies, job markets, or community cohesion.	Substantial changes in economic activity, job losses, disruption of community structures.
Environmental Justice Communities	Presence of disadvantaged or vulnerable communities that may be disproportionately affected by the project.	Disproportionate adverse health and environmental effects on environmental justice communities.
Community Concerns	Significant public interest or community concerns regarding the proposed project	Public opposition, stakeholder conflicts, controversy over project benefits versus risks

The site-specific EE informs CP design and any mitigation or monitoring needs, which are recorded in a site-specific conservation plan. Once a conservation plan has been completed, it is then reviewed and approved by the applicable SCD to confirm that the plan complies with the NRCS Field Office Technical Guide for the project location.

## 5.2 Integration of the PEA and Site-Specific Evaluations

The PEA and site-specific EEs work together to provide a comprehensive analysis of the environmental impacts associated with the NJ CREP. If the proposed action is approved, FSA will use the PEA and site-specific EEs to ensure that the implementation



of site-specific projects under the NJ CREP agreement do not have significant adverse environmental impacts.

### **PEA Coverage:**

- **Broad Overview:** The PEA provides a comprehensive but broad overview of the programmatic impacts associated with the NJ CREP. This analysis includes the establishment of baseline conditions, identification of potential environmental effects, and outline of general mitigation measures applicable to a range of NJ CREP actions.
- **Common Issues:** The PEA addresses common issues and mitigation measures at a programmatic level for the entire state of NJ to ensure consistency across individual NJ CREP actions.
- **Identification of Triggers:** The PEA highlights scenarios where it may not fully address site-dependent impacts, complexities, or significant environmental concerns, prompting further analysis during a site-specific evaluation.

### **Site Specific EE Coverage:**

- **Resource Area Evaluation:** A detailed site-specific EE for land proposed for enrollment in the CREP is required to identify local resource areas that may be impacted.
- **Tailored Mitigation Strategies:** Site-specific EEs lead to the development of tailored mitigation strategies based on the impacts identified.
- **Integration with PEA Findings:** The analysis in the EE should be integrated into the broader framework established by the PEA. This integration ensures consistency with CREP goals and objectives outlined in the programmatic assessment.

## **5.3 Special Award Conditions and Conditional Approval of CREP Enrollments**

FSA provides conditional approvals for CREP enrollments whereby an applicant is provided an opportunity to satisfy additional NEPA or other environmental compliance requirements before an action may occur. Enrollment in the NJ CREP includes a requirement that prior to any expenditures associated with CP establishment, a site-specific EE must be completed. Additionally, partners must demonstrate compliance with applicable laws for environmental protection by providing proof of permits, licenses, and authorizations prior to implementing the project. At the time of the site-specific EE, FSA will inventory the protected resources present as described in **Section 5.1**. If the site-specific project would result in adverse impacts to any protected resource, and the applicant cannot modify their action to avoid adverse impacts, FSA may determine that the action is not appropriate for funding under the NJ CREP.

## Appendix A: List of Preparers

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## Appendix B: References

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# Appendix C: Section 7 Consultation Record

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## **Appendix D: Tribal Consultation Record**

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## Appendix E: List of Relevant Laws

LIST OF RELEVANT LAWS	
TITLE	DESCRIPTION
National Environmental Policy Act (42 USC § 4321 – 4370)	Enacted to establish a national policy for the environment and to create the Council on Environmental Quality (CEQ). Requires federal agencies to consider the effects of proposed actions on the human environment.
Noise Control Act of 1972 (42 USC § 4901 – 4918)	Addresses major sources of noise pollution, including transportation vehicles, appliances, machinery, and construction equipment. Establishes noise guidelines and regulations to protect citizens from adverse health, psychological, physiological, and social effects associated with noise.
Endangered Species Act of 1973 (16 USC § 1531 – 1544)	Establishes a national program for the conservation of T&E species. Requires federal agencies to ensure that actions do not jeopardize listed species or adversely affect their critical habitats.
Migratory Bird Treaty Act of 1918 (16 USC § 703–712)	Ensures the sustainability of all protected migratory bird populations through enforcement of international conservation treaties. Prohibits the take of protected migratory bird species without authorization.
Bald and Golden Eagle Protection Act of 1940 (16 USC § 668-668c)	Prohibits taking bald or golden eagles without a permit. Enforces penalties for violating the Act, including fines and imprisonment.
Farmland Protection Policy Act of 1981 (7 USC § 4201, et seq)	Minimizes the impact of federal programs and projects on the conversion of farmland to non-agricultural uses.
Wild and Scenic Rivers Act of 1968 (16 USC § 1271 – 1287)	Protects designated wild and scenic rivers by prohibiting or restricting uses that would affect their free-flowing condition.
Coastal Zone Management Act of 1972 (16 USC § 1451)	Manages coastal resources in coastal and Great Lakes states to prevent loss of living marine resources and alterations in ecological systems.

National Historic Preservation Act of 1966 (54 USC § 300101)	Establishes a process for determining potential adverse effects to historic properties and requires federal agencies to consult with State Historic Preservation Officers regarding potential impacts.
Archeological and Historic Preservation Act of 1974 (16 USC § 470)	Preserves historical and archeological data that may be placed in jeopardy due to federally funded activities or programs.
Archeological Resources Protection Act (16 USC § 470aa-mm)	Protects archeological resources on public and tribal lands through enforceable permit requirements and criminal penalties for illegal excavation or removal.
Indian Religious Freedom Act of 1978 (42 USC § 1996)	Allows Native Americans to practice their traditional ceremonies and worship freely. Requires federal agencies to consult with native religious leaders on actions that may affect religious or ceremonial sites.
Native American Graves Protection and Repatriation Act of 1990 (25 USC § 3001 – 3013)	Protects and returns Native American human remains, funerary objects, and cultural items affiliated with federally recognized tribes.
Executive Order 12898 of February 11, 1994 (Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations)	Directs federal agencies to avoid disproportionate adverse effects on minority and low-income populations.
Executive Order 14096 of April 21, 2023 (Revitalizing Our Nation’s Commitment to Environmental Justice for All)	Requires a whole-of-government approach to environmental justice, considering disparate impacts on communities with environmental justice concerns.
Executive Order 11990 of May 24, 1977 (Protection of Wetlands)	Directs federal agencies to take action to avoid adverse effects on wetlands and to minimize harm if such effects are unavoidable.
Executive Order 11988 of May 24, 1977 (Floodplain Management)	Requires federal agencies to take action to mitigate impacts of floodplain occupancy and development.
Executive Order 13690 of January 30, 2015 (Establishing a Federal Flood Risk Management Standard and a Process for Further	Establishes the Federal Flood Risk Management Standard, mitigating effects of flooding.

Soliciting and Considering Stakeholder Input)	
Conservation Compliance Provisions (7 CFR Part 12)	Requires agricultural producers to apply soil conservation measures on highly erodible land and refrain from converting wetlands to crop production in exchange for certain USDA benefits.
Food Security Act of 1985 (PL 99-198)	Addresses a variety of agricultural and food-related concerns, including conservation, forestry, nutrition, rural development, and trade.
Federal Water Pollution Control Act (Clean Water Act) (33 USC § 1251 – 1387)	Regulates pollutant discharges into U.S. waters and establishes quality standards for surface waters.
Water Resources Development Act of 1986 (33 USC § 2201 et seq.)	Authorizes water resources projects for navigation, flood control, hurricane and storm damage reduction, ecosystem restoration, and other water-related purposes.
Emergency Wetlands Resources Act of 1986 (PL 99-645)	Promotes the conservation and protection of wetlands through inventory and assessment, research, acquisition, and management activities.
Agriculture Improvement Act of 2018 (PL 115-334)	Encompasses various agricultural and food-related policies, including conservation programs, nutrition assistance, crop insurance, and commodity programs.
Organic Foods Production Act of 1990 (7 USC § 6501 et seq.)	Establishes national standards for the production and handling of organic agricultural products.
Federal Insecticide, Fungicide, and Rodenticide Act (7 USC § 136 et seq.)	Regulates the sale, distribution, and use of pesticides to protect human health and the environment.
National Trails System Act (16 USC § 1242)	Establishes a national system of scenic, historic, and recreational trails.
Wilderness Act of 1964 (16 USC § 1131-1133)	Designates certain federal lands as wilderness areas, where the land is protected and preserved in its natural condition.
Forest and Rangeland Renewable Resources Planning Act of 1974 (16 USC § 1600-1614)	Establishes guidelines for the development and maintenance of long-range plans for renewable resource management on federal lands.
National Park Service Organic Act of 1916 (16 USC § 1)	Establishes the National Park Service and mandates its mission to conserve the scenery,

	natural and historic objects, and wildlife in national parks.
Surface Mining Control and Reclamation Act of 1977 (30 USC § 1201 et seq.)	Regulates surface coal mining and reclamation activities to minimize environmental impacts and ensure land restoration.
Resource Conservation and Recovery Act (42 USC § 6901 et seq.)	Regulates the management and disposal of hazardous and non-hazardous solid waste.
Comprehensive Environmental Response, Compensation, and Liability Act (Superfund) (42 USC § 9601 et seq.)	Provides federal authority for responding to releases of hazardous substances and pollutants, as well as cleaning up contaminated sites.
Toxic Substances Control Act (15 USC § 2601 et seq.)	Regulates the manufacturing, processing, distribution, use, and disposal of commercial chemicals to protect human health and the environment.
Clean Air Act (42 USC § 7401 et seq.)	Regulates air emissions from stationary and mobile sources to protect public health and the environment.
Fish and Wildlife Coordination Act (16 USC § 661-666c)	Requires federal agencies to coordinate with USFWS to conserve fish and wildlife resources during planning and development projects.
Endangered Species Act Amendments of 1978 (PL 95-632)	Expanded the scope of the Endangered Species Act to include protection for species listed as threatened.
Food Quality Protection Act of 1996 (PL 104-170)	Amends the Federal Insecticide, Fungicide, and Rodenticide Act and the Federal Food, Drug, and Cosmetic Act to strengthen pesticide regulations and improve public health protection.
Emergency Planning and Community Right-to-Know Act (42 USC § 11001 et seq.)	Requires federal, state, and local governments and industry to work together to prevent chemical accidents and releases, and to provide communities with information about potentially hazardous chemicals in their area.
Safe Drinking Water Act (42 USC § 300f et seq.)	Protects public health by regulating the quality of drinking water provided by public water systems in the United States.

## Appendix F: Affected Environment Figures

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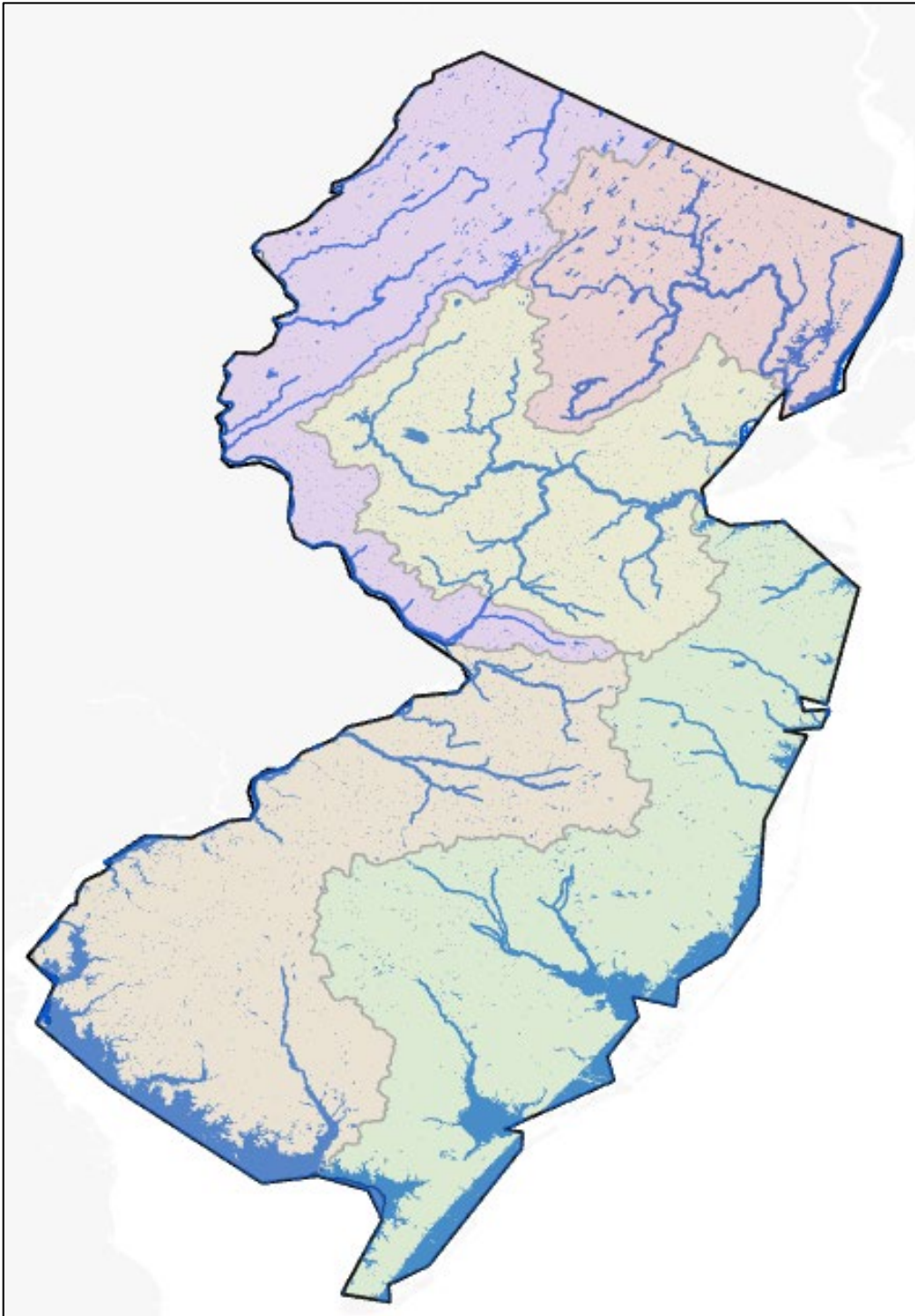


Figure 3.1: Affected Environment Boundary



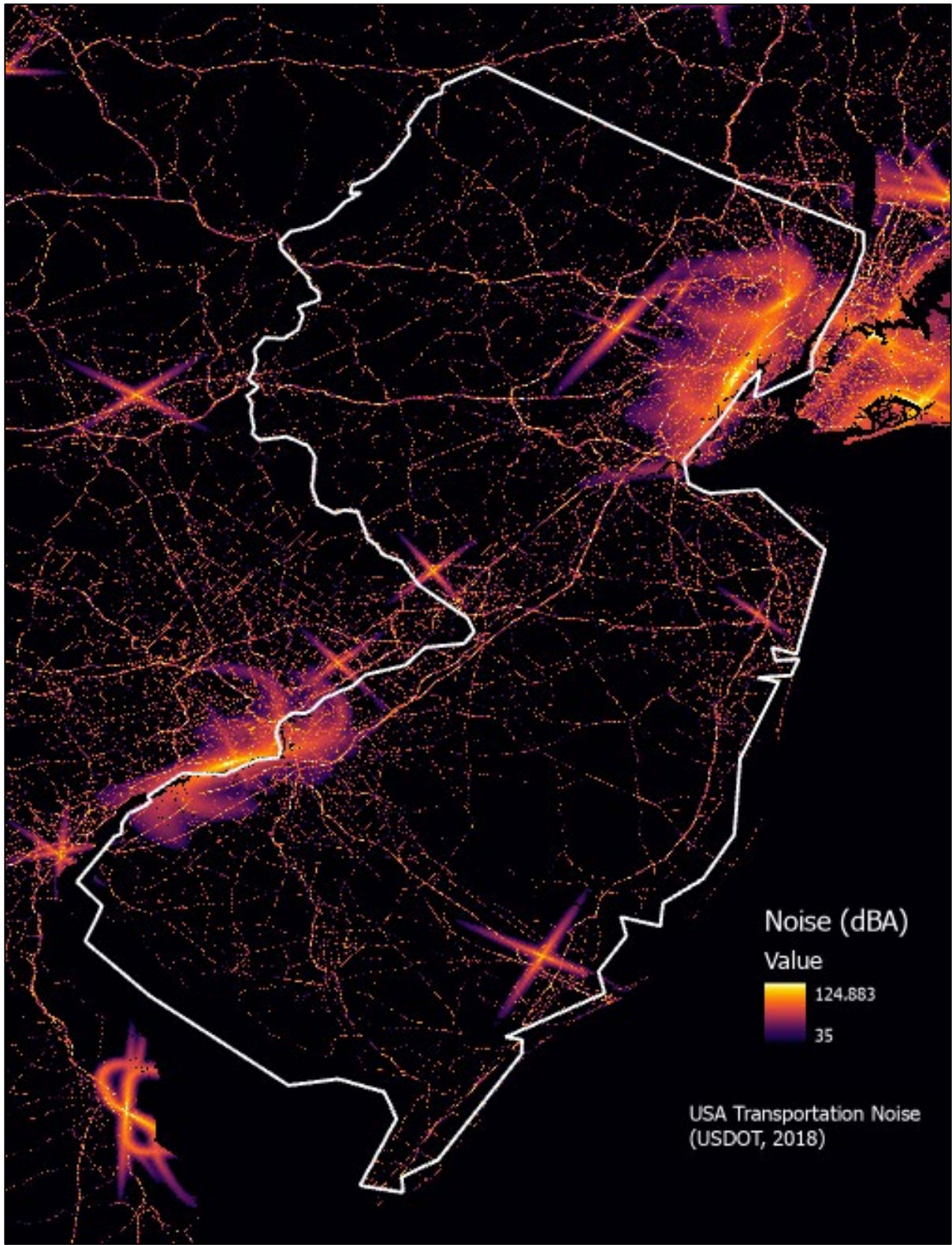


Figure 3.2: New Jersey Transportation Noise Map (USDOT 2018)

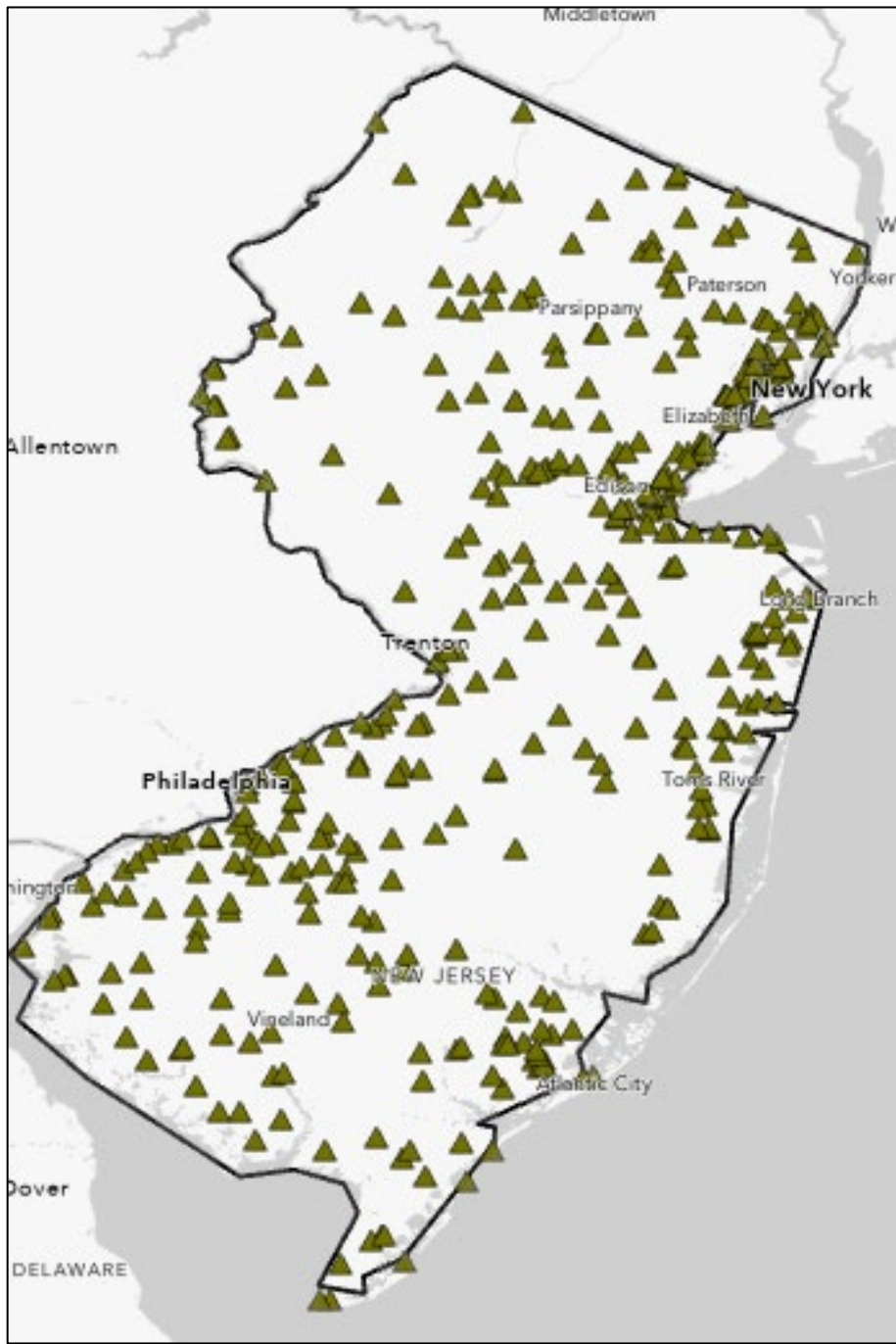


Figure 3.3: Solid Waste Landfills in New Jersey



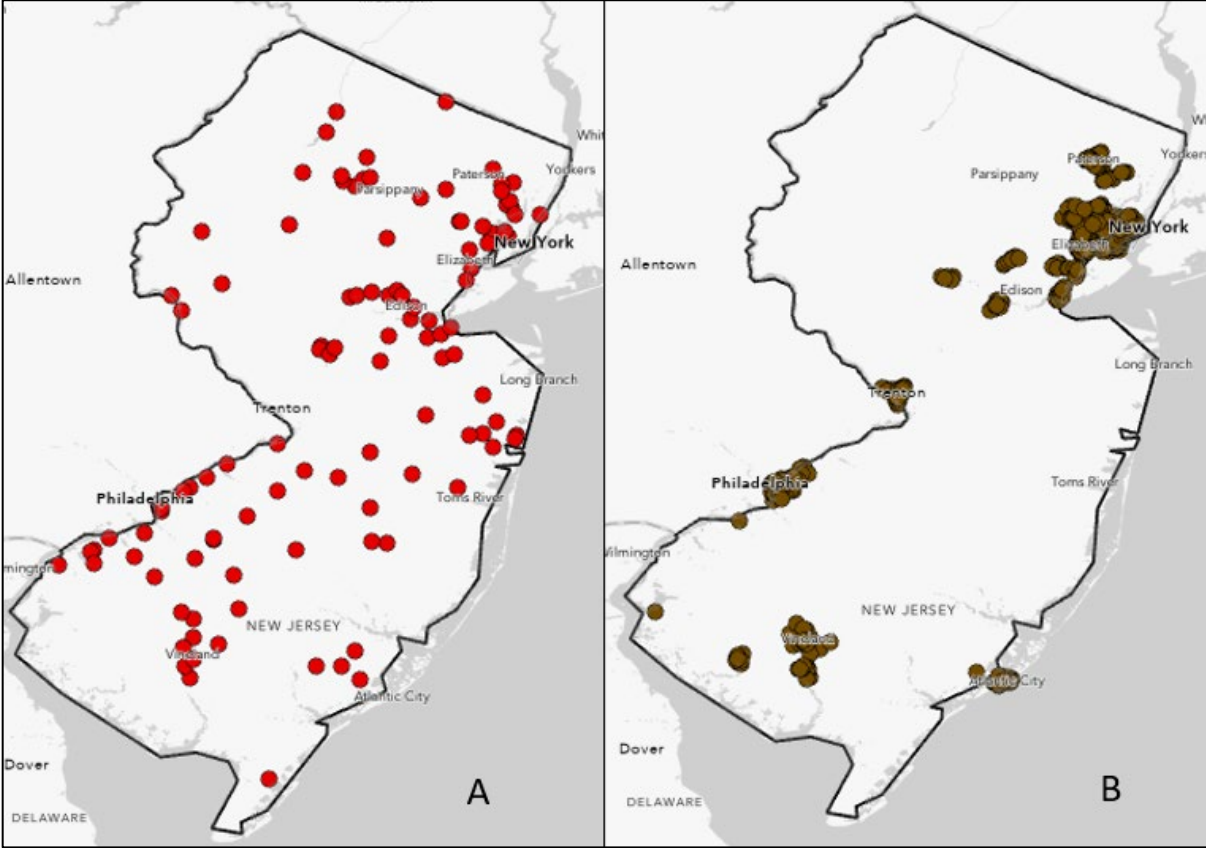


Figure 3.4: Superfund (A) and Brownfields (B) in New Jersey (ArcGIS 2024)

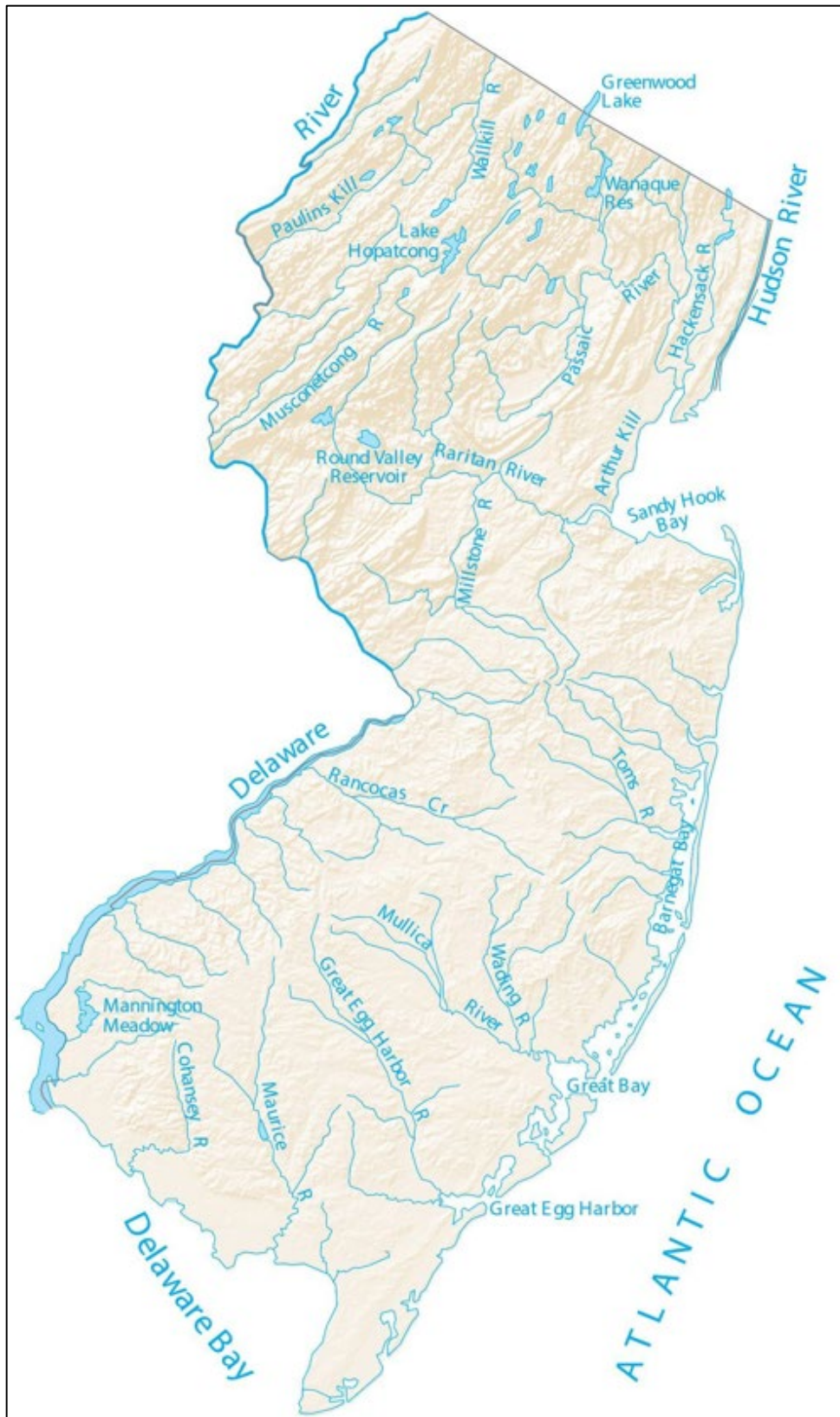


Figure 3.5: New Jersey Surface Water Map Source: GISGeography

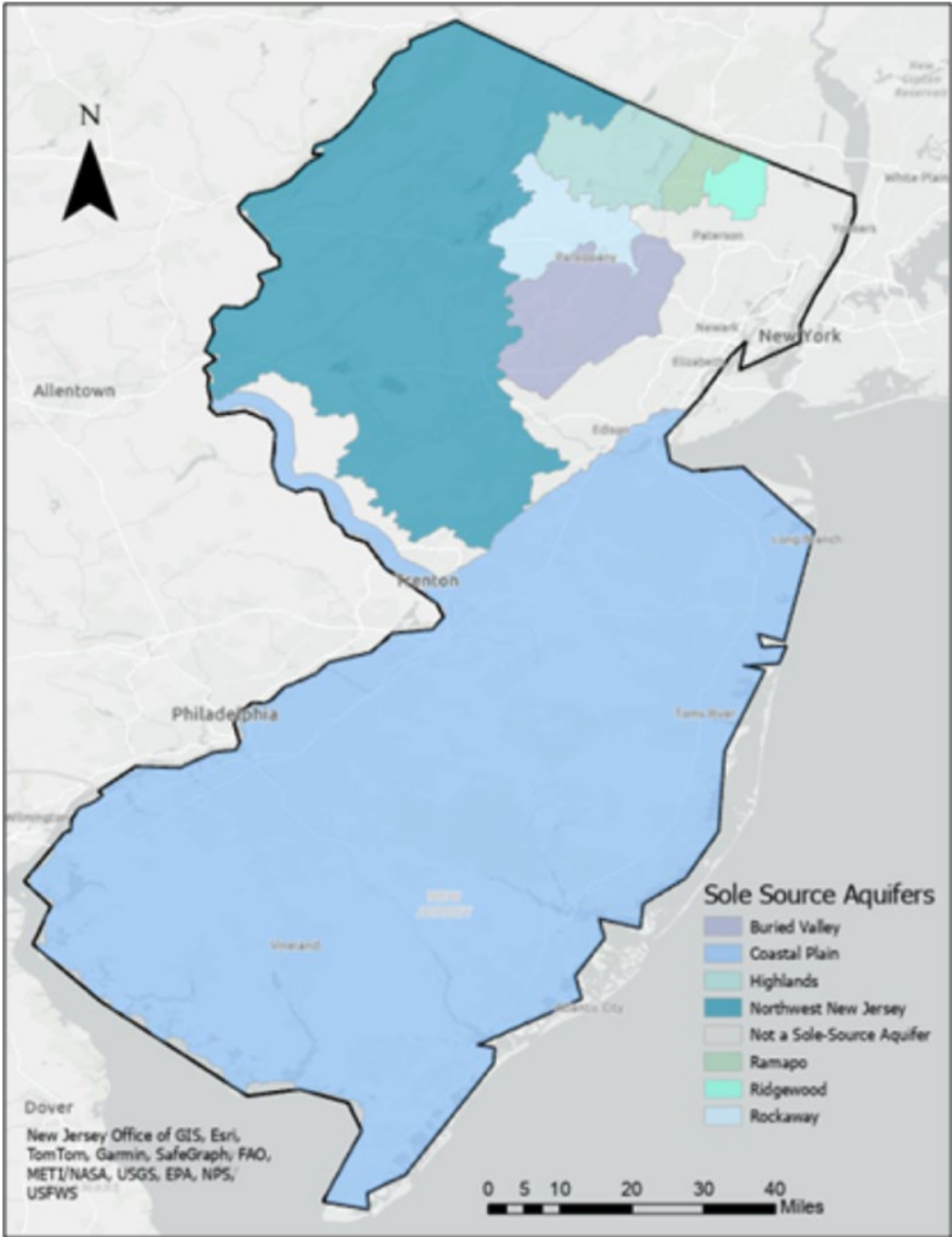


Figure 3.6: New Jersey Sole Source Aquifers

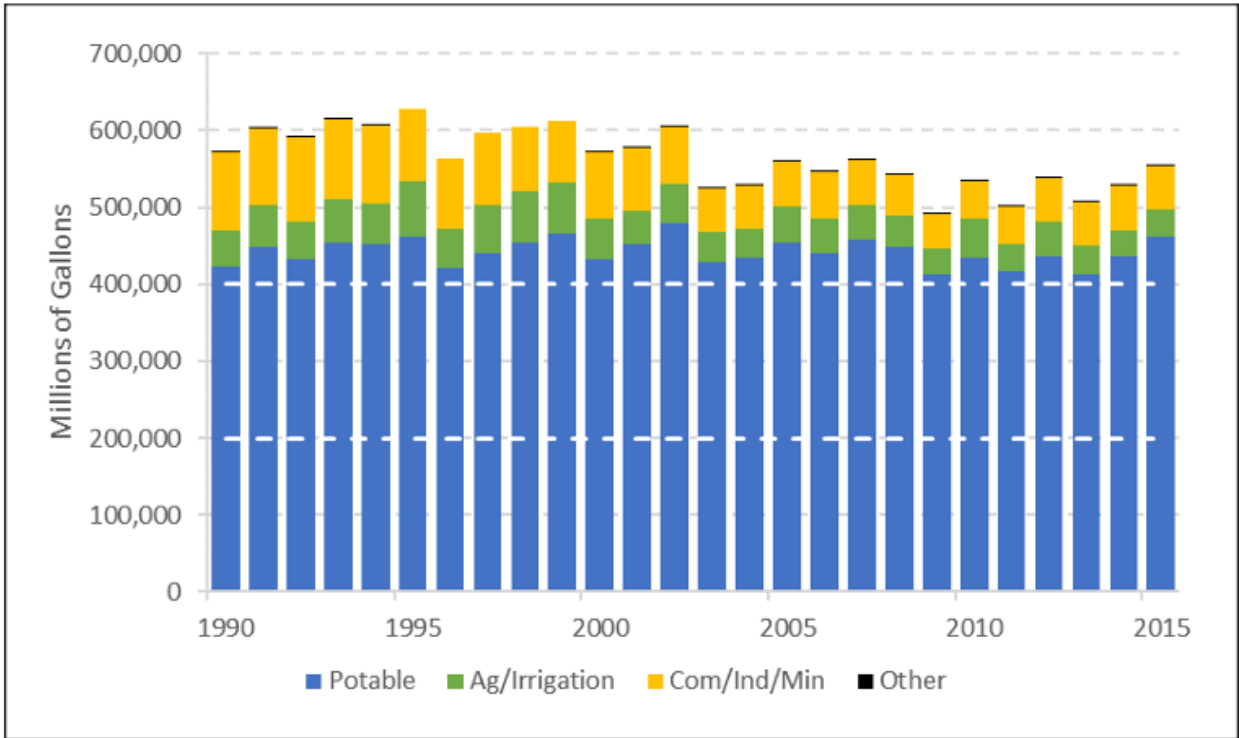


Figure 3.7: Consumptive Water Withdrawals by Use Sector, 1990-2015 (NJ DEP 2017)

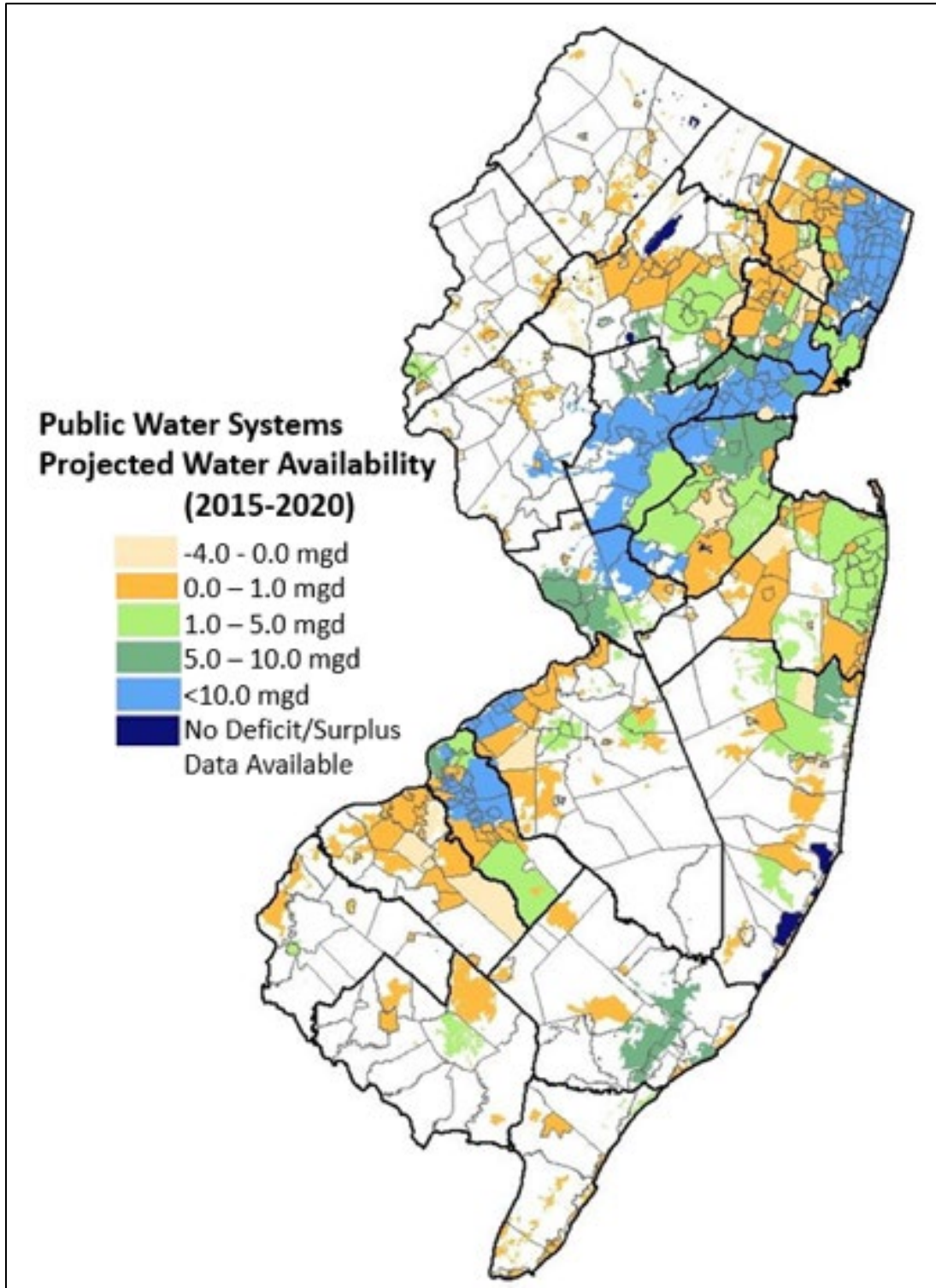
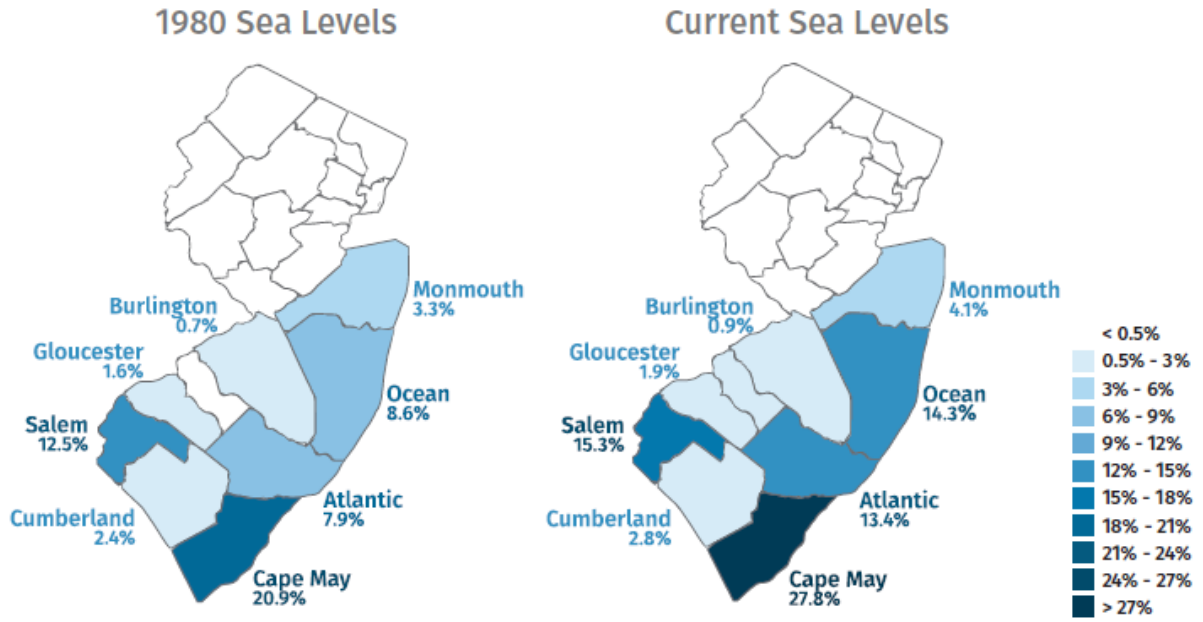


Figure 3.8: Projected 2015-2040 Water Availability





Source: Rhodium Group and First Street Foundation analysis

Figure 3.9 Percent of Buildings at Risk of Annual Flooding

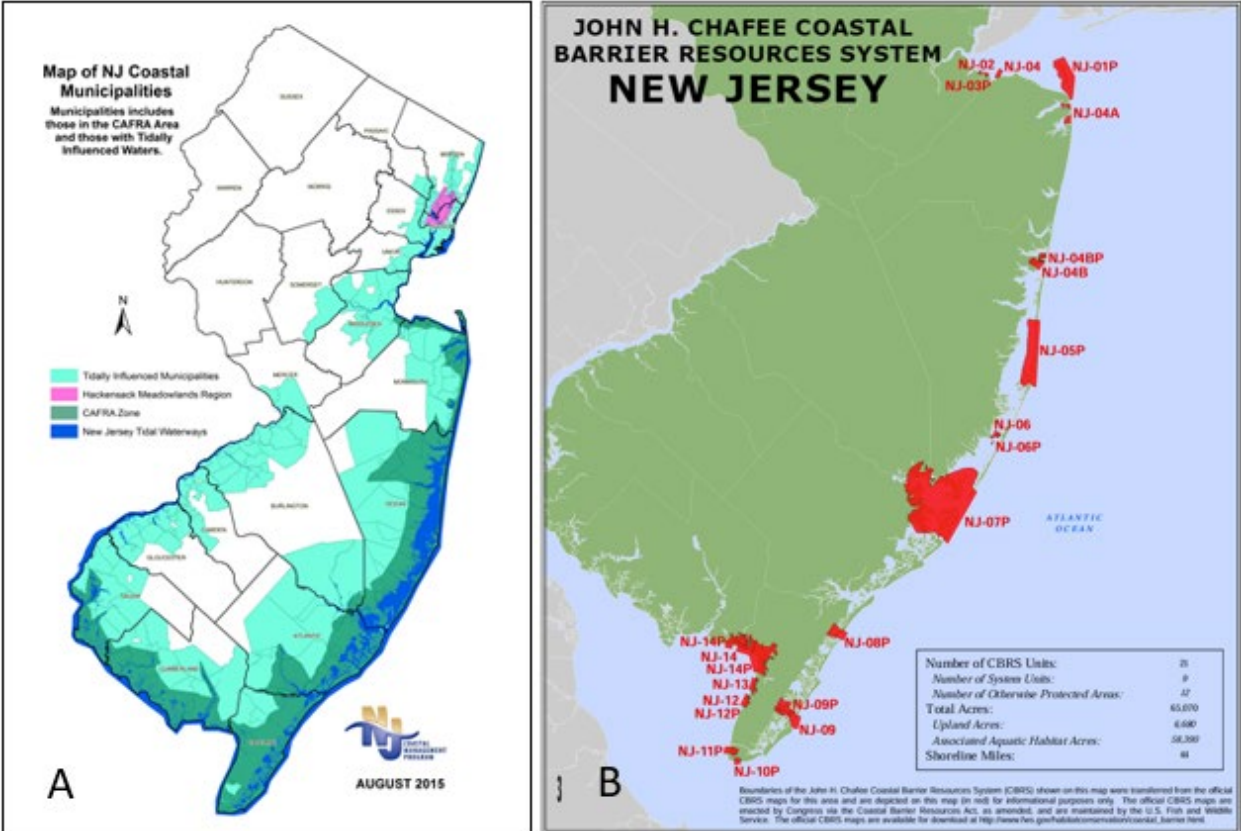


Figure 3.10 New Jersey's Coastal Zone (A) and Coastal Barrier Resource System (B)

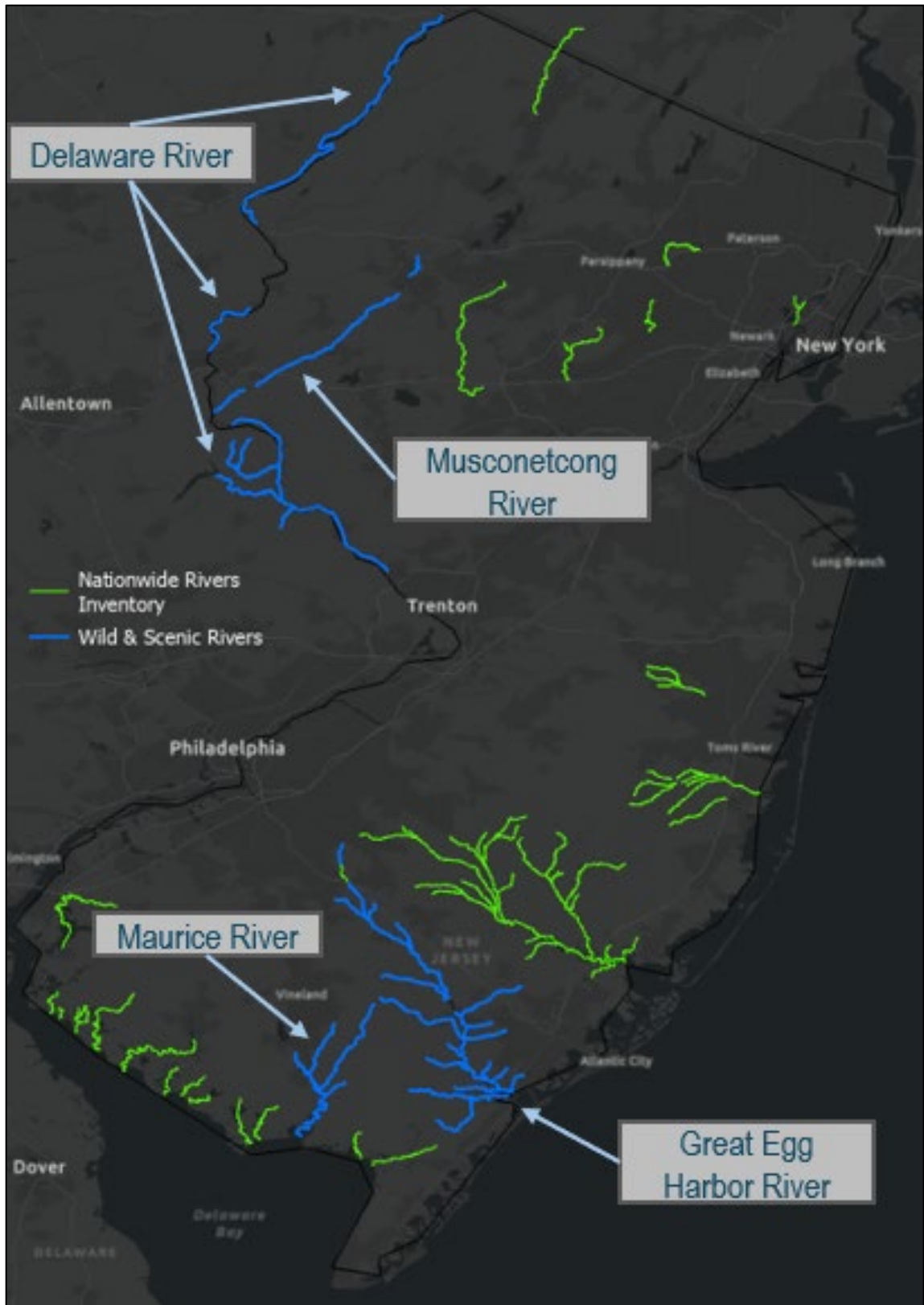


Figure 3.11 New Jersey Wild and Scenic Rivers



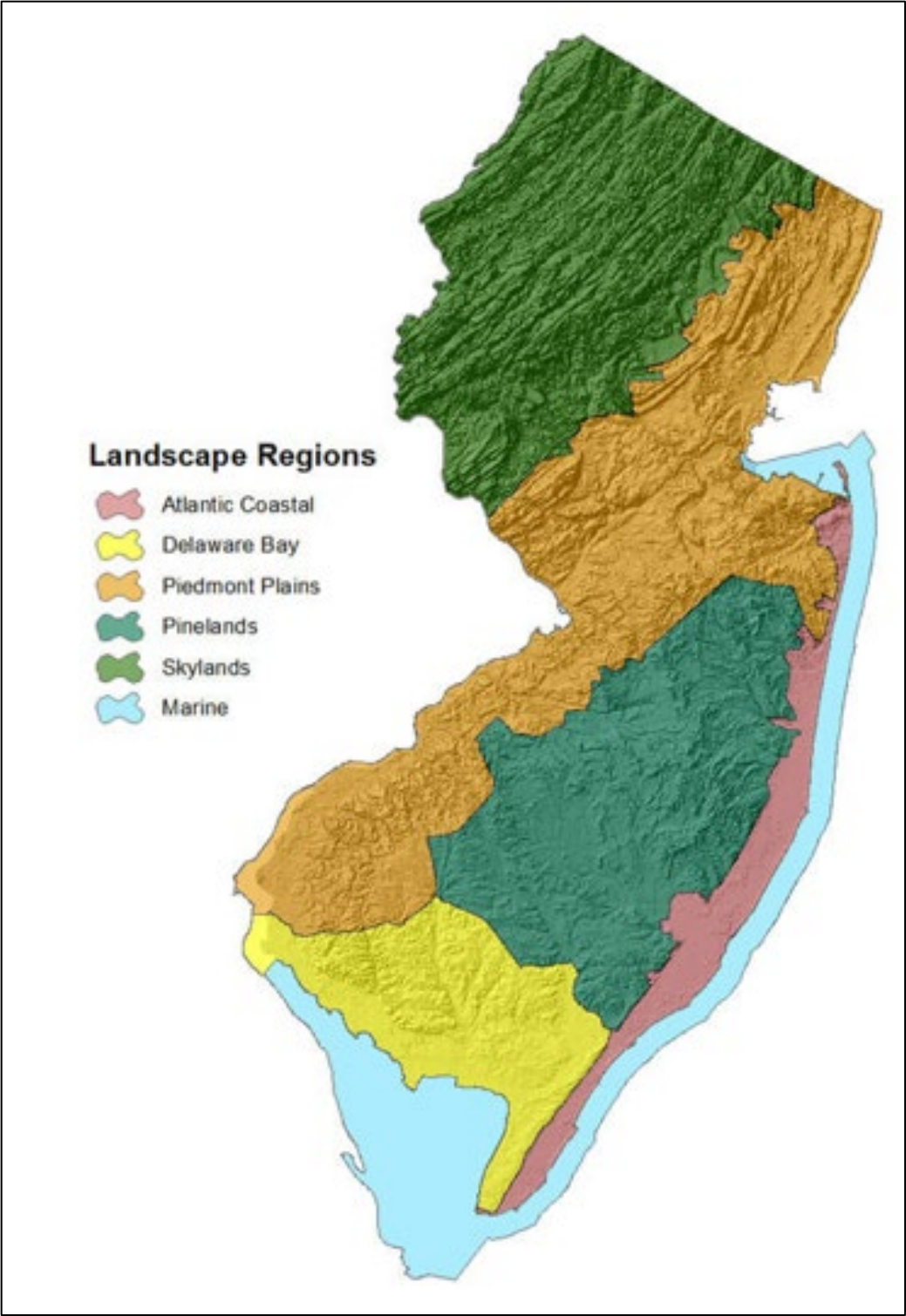


Figure 3.12 Ecosystem Types in New Jersey

# Appendix G: New Jersey Species of Greatest Conservation Need (SWAP)

MAMMALS	
<p><b>Terrestrial Mammals</b></p> <p><b>Conservation Target (Not Grouped)</b> Allegheny Woodrat, <i>Neotoma magister</i></p> <p><b>Conservation Target</b></p> <p><b>Cave-hibernating Bats</b> Indiana Bat, <i>Myotis sodalis</i> Little Brown Bat, <i>Myotis lucifugus</i> Northern Myotis, <i>Myotis septentrionalis</i></p>	<p><b>Marine Mammals</b></p> <p><b>Conservation Target (Not Grouped)</b> North Atlantic Right Whale, <i>Eubalaena glacialis</i></p>
BIRDS	
<p><b>Landbirds</b></p> <p><b>Conservation Target (Not Grouped)</b> Northern Harrier, <i>Circus cyaneus</i> Peregrine Falcon, <i>Falco peregrinus</i> Red-headed Woodpecker, <i>Melanerpes erythrocephalus</i></p> <p><b>Conservation Targets</b></p> <p><b>Forest Birds</b> Cerulean Warbler, <i>Dendroica cerulea</i> Kentucky Warbler, <i>Oporornis formosus</i> Prothonotary Warbler, <i>Protonotaria citrea</i> Scarlet Tanager, <i>Piranga olivacea</i> Wood Thrush, <i>Hylocichla mustelina</i></p> <p><b>Grassland Birds</b> Bobolink, <i>Dolichonyx oryzivorus</i> Eastern Meadowlark, <i>Sturnella magna</i> Grasshopper Sparrow, <i>Ammodramus savannarum</i> Vesper Sparrow, <i>Pooecetes gramineus</i></p> <p><b>Young Forest Birds</b> American Woodcock, <i>Scolopax minor</i> Blue-winged Warbler, <i>Vermivora pinus</i> Golden-winged Warbler, <i>Vermivora chrysoptera</i> Northern Bobwhite, <i>Colinus virginianus</i></p>	<p><b>Waterbirds</b></p> <p><b>Conservation Target (Not Grouped)</b> Pied-billed Grebe, <i>Podilymbus podiceps</i></p> <p><b>Conservation Targets</b></p> <p><b>Beach-nesting Birds</b> American Oystercatcher, <i>Haematopus palliatus</i> Black Skimmer, <i>Rynchops niger</i> Least Tern, <i>Sternula antillarum</i> Piping Plover, <i>Charadrius melodus</i></p> <p><b>Marsh Birds</b> Black Rail, <i>Laterallus jamaicensis</i> Common Tern, <i>Sterna hirundo</i> Forster's Tern, <i>Sterna forsteri</i> Little Blue Heron, <i>Egretta caerulea</i> Snowy Egret, <i>Egretta thula</i> Tricolored Heron, <i>Egretta tricolor</i></p> <p><b>Migrant Shorebirds</b> Red Knot, <i>Calidris canutus</i> Ruddy Turnstone, <i>Arenaria interpres</i></p>
REPTILES & AMPHIBIANS	
<p><b>Reptiles</b></p> <p><b>Conservation Targets (Not Grouped)</b> Bog Turtle, <i>Glyptemys mühlenbergii</i> Eastern Box Turtle, <i>Terrapene carolina carolina</i> Eastern Hognose Snake, <i>Heterodon platirhinos</i> Eastern Redbelly Turtle, <i>Pseudemys rubriventris</i> Northern Black Racer, <i>Coluber constrictor constrictor</i> Northern Diamondback Terrapin, <i>Malaclemys terrapin terrapin</i> Timber Rattlesnake, <i>Crotalus horridus</i> Wood Turtle, <i>Glyptemys insculpta</i></p> <p><b>Conservation Targets</b></p> <p><b>Marine Turtles</b> Atlantic Green Turtle, <i>Chelonia mydas</i> Atlantic Leatherback, <i>Dermochelys coriacea</i> Atlantic Loggerhead, <i>Caretta caretta</i> Atlantic Ridley, <i>Lepidochelys kempii</i></p>	<p><b>Pine Barrens Snakes</b> Corn Snake, <i>Elaphe guttata guttata</i> Northern Pine Snake, <i>Pituophis melanoleucus melanoleucus</i> Northern Scarlet Snake, <i>Cemophora coccinea copei</i></p> <p><b>Amphibians</b></p> <p><b>Conservation Targets (Not Grouped)</b> Longtail Salamander, <i>Eurycea longicauda longicauda</i> Northern Red Salamander, <i>Pseudotriton ruber ruber</i></p> <p><b>Conservation Target</b></p> <p><b>Vernal Pond/Pond Breeders</b> Carpenter Frog, <i>Lithobates virgatipes</i> Eastern Spadefoot, <i>Scaphiopus holbrookii</i> Eastern Tiger Salamander, <i>Ambystoma tigrinum tigrinum</i> NJ Chorus Frog, <i>Pseudacris kalmi</i> Pine Barrens Treefrog, <i>Hyla andersonii</i></p>

Table 1 (Focal SGCN) continued

FISH	
<p><b>Freshwater Fish</b></p> <p><b>Conservation Target (Not Grouped)</b> Brook Trout, <i>Salvelinus fontinalis</i></p> <p><b>Conservation Targets</b></p> <p><b>Pinelands Freshwater Fish</b> Banded Sunfish, <i>Enneacanthus obesus</i> Blackbanded Sunfish, <i>Enneacanthus chaetodon</i> Mud Sunfish, <i>Acantharchus pomotis</i> Swamp Darter, <i>Etheostoma fusiforme</i></p> <p><b>Vulnerable Minnows</b> Bridle Shiner, <i>Notropis bifrenatus</i> Comely Shiner, <i>Notropis amoenus</i> Ironcolor Shiner, <i>Notropis chalybaeus</i></p>	<p><b>Marine Fish</b></p> <p><b>Conservation Target</b> <b>Anadromous and Semi-anadromous Fish</b> Alewife, <i>Alosa pseudoharengus</i> Atlantic Sturgeon, <i>Acipenser oxyrinchus</i> Blueback Herring, <i>Alosa aestivalis</i> Shortnose Sturgeon, <i>Acipenser brevirostrum</i></p>
INVERTEBRATES (INSECTA)	
<p><b>Bees</b></p> <p><b>Conservation Target</b> <b>Bumble Bees</b> American Bumble Bee, <i>Bombus pensylvanicus</i> Ashton Cuckoo Bumble Bee, <i>Bombus bohemicus</i> Rusty Patched Bumble Bee, <i>Bombus affinis</i> Southern Plains Bumble Bee, <i>Bombus fraternus</i> Variable Cuckoo Bumble Bee, <i>Bombus variabilis</i> Yellow Bumble Bee, <i>Bombus fervidus</i> Yellow-banded Bumble Bee, <i>Bombus terricola</i></p> <p><b>Moths</b></p> <p><b>Conservation Targets (Not Grouped)</b> Maritime Sunflower Borer Moth, <i>Papaipema maritima</i> <i>Papaipema harrisii</i></p> <p><b>Conservation Target</b> <b>Pinelands Moths</b> A Notodontid Moth, <i>Heterocampa varia</i> Buchholz's Gray, <i>Hypomecis buchholzaria</i> Buchholz's Dart Moth, <i>Agrotis buchholzi</i> Carter's Noctuid Moth, <i>Spartiniphaga carterae</i> Daecke's Pyralid Moth, <i>Crambus daeckellus</i> Pink Sallow, <i>Psectraglaea carnosa</i> Sand Myrtle Looper/Pink, <i>Cyclophora culicaria</i></p> <p><b>Tiger Beetles</b></p> <p><b>Conservation Target (Not Grouped)</b> New Jersey Pine Barrens Tiger Beetle, <i>Cicindela patruela consentanea</i></p> <p><b>Conservation Target</b> <b>Beach Tiger Beetles</b> Little White Tiger Beetle, <i>Cicindela lepida</i> Northeastern Beach Tiger Beetle, <i>Cicindela dorsalis dorsalis</i> Southeastern Beach Tiger Beetle, <i>Cicindela dorsalis media</i></p>	<p><b>Butterflies</b></p> <p><b>Conservation Targets (Not Grouped)</b> Arogos Skipper, <i>Atrytone arogos arogos</i> Dotted Skipper, <i>Hesperia attalus slossonae</i> Frosted Elfin, <i>Callophrys irus</i> Georgia Satyr, <i>Neonympha helicta</i> Hoary Elfin, <i>Callophrys polios</i> Leonard's Skipper, <i>Hesperia leonardus</i> Northern Metalmark, <i>Calephelis borealis</i></p> <p><b>Odonates</b></p> <p><b>Conservation Targets (Not Grouped)</b> Robust Baskettail, <i>Epithecina spinosa</i> Septima's Clubtail, <i>Gomphus septima</i> Superb Jewelwing, <i>Calopteryx amata</i></p> <p><b>Conservation Target</b> <b>Pond Odonates</b> New England Bluet, <i>Enallagma laterale</i> Pine Barrens Bluet, <i>Enallagma recurvatum</i> Scarlet Bluet, <i>Enallagma pictum</i></p> <p><b>INVERTEBRATES (NON INSECTA)</b></p> <p><b>Mussels</b></p> <p><b>Conservation Target</b> <b>Freshwater Mussels</b> Brook Floater, <i>Alasmidonta varicosa</i> Dwarf Wedgemussel, <i>Alasmidonta heterodon</i> Eastern Lampmussel, <i>Lampsilis radiata</i> Green Floater, <i>Lasmigona subviridis</i> Triangle Floater, <i>Alasmidonta undulata</i> Yellow Lampmussel, <i>Lampsilis cariosa</i></p>

## **Appendix H: Table 7: ESA-Listed Species and Habitat Requirements**

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**TABLE 7: ESA-LISTED SPECIES AND HABITAT REQUIREMENTS. NATURESERVE 2024**

SPECIES	FEDERAL STATUS	HABITAT REQUIREMENTS
<b>MAMMALS</b>		
<b>Indiana Bat</b> <i>(Myotis sodalist)</i>	Endangered	<p>This species' current range includes the northwestern part of New Jersey. They can be found near cave entrances in late August/early September prior to hibernation, and during winter hibernation remain in large clusters inside caves. Hibernacula habitats can also include mines, dams, and tunnels. The species leaves their hibernacula in March and April and maternity colonies assemble in the late spring and summer in wooded or semi-wooded areas. Females prefer hollow trees or loose tree bark for nursery roosts, and roosting species can include elm, oak, beech, hickory, maple, ash, sassafras, birch, sycamore, locust, aspen, cottonwood, pine, and hemlock.</p>
<b>Northern Long-eared Bat</b> <i>(Myotis septentrionalis)</i>	Endangered	<p>This species prefers old growth forest and interior forest habitat, and uses the dead or decaying trees for breeding, roosting, and foraging. Younger or more fragmented forest habitat is less suitable for this species as they are less suitable for nursery roosts. Reproductive females and juveniles often roost alone in the summer while the rest of the population assembles in colonies. This species mates in late summer/early fall near caves. They hibernate in caves, mines, and tunnels with cool temperatures and high humidity. Loss, degradation, and fragmentation of mature forest habitat has been identified as a potential threat to the species.</p>
<b>Tricolored Bat</b> <i>(Perimyotis subflavus)</i>	Proposed Endangered	<p>This species forages near trees and along waterways in forested landscapes, with most foraging taking place in riparian areas. Maternity and summer roosts can include dead or live trees, tree cavities, caves, mines, rock crevices, and human-made structures. Hibernation sites include caves, mines, tunnels, and road culverts near forests. This species is more likely to roost near open areas or edge habitat than other bat species.</p>
<b>BIRDS</b>		
<b>Eastern Black Rail</b> <i>(Laterallus jamaicensis ssp. Jamaicensis)</i>	Threatened	<p>The current known range for this species does not overlap with the Proposed Action area, and there is no critical habitat designated for this species.</p>

**TABLE 7: ESA-LISTED SPECIES AND HABITAT REQUIREMENTS. NATURESERVE 2024**

SPECIES	FEDERAL STATUS	HABITAT REQUIREMENTS
<b>Piping Plover</b> <i>(Charadrius melodus)</i>	Threatened	This species' breeding grounds are in beach habitats, and they typically reach these locations in late spring. Nest sites consist of depressions or scrapes in the sand that are typically 6 to 8 cm across and lined with pebbles, shells, or driftwood. On the Atlantic coast they prefer the shelter of sand dunes and areas where grass tufts are present, including vegetated shores and islands of shallow lakes, ponds, rivers, and impoundments. Outside of breeding season the species can be found on beaches or algal, sand, and mud flats in bays.
<b>Roseate Tern</b> <i>(Sterna dougalli dougalli)</i>	Endangered	This species breeds along the Atlantic coast, primarily between Cape Cod and Long Island. It can be found at the mouth of tidal rivers, on tidal flats and shorelines, and in lagoons, bays, or sounds. This species also prefers sand dunes.
<b>Rufa Red Knot</b> <i>(Canutus rufa)</i>	Threatened	There is proposed critical habitat for this species which includes New Jersey. Its current range includes the New Jersey coast.
<b>REPTILES</b>		
<b>Bog Turtle</b> <i>(Glyptemys muhlenbergii)</i>	Threatened	This species occurs in freshwater herbaceous wetlands, scrub-shrub wetlands, and riparian areas. These habitats often contain abundant sedge or moss cover. In New Jersey, hibernacula have included subterranean rivulets or seepage areas from underground springs where the turtles are under 5 to 55 cm of water and mud. This species nests in open elevated areas with moss, sedge, or moist earth. These nests are often shallow, or the turtle will lay eggs on top of a sedge tussock.
<b>CLAMS</b>		
<b>Dwarf Wedgemussel</b> <i>(Alasmidonta heterdon)</i>	Endangered	This species is presumed extirpated in multiple states and is likely only remaining in approximately 20 sites. Reproduction has been documented in the New Jersey population in the Neversink River. Habitat includes freshwater creeks and rivers, where this species is found in quick running water on cobble, gravel, or silt and sandy bottoms. Submerged aquatic vegetation provides additional habitat, and this clam can also be found under overhanging tree limbs stream banks. Water pollution and impoundments are the primary threats to this species.

**TABLE 7: ESA-LISTED SPECIES AND HABITAT REQUIREMENTS. NATURESERVE 2024**

SPECIES	FEDERAL STATUS	HABITAT REQUIREMENTS
<b>Green Floater</b> <i>(Lasmigona subviridis)</i>	Proposed Threatened	There is proposed critical habitat for this species that does not overlap with the Proposed Action area. This species historically occurred in the Middle Delaware and Raritan Rivers as well as Stony Brook. Its habitat includes smaller streams in pools and eddies with gravel and sandy bottoms. This species is generally intolerant of strong currents and is more likely found in hydrologically stable waterways as opposed to those prone to flooding or drying out. This clam species relies on good water quality.
<b>INSECTS</b>		
<b>Monarch Butterfly</b> <i>(Danaus Plexippus)</i>	Candidate	Monarch Butterfly habitat typically consists of fields, prairie habitat, roadside areas, urban gardens, or wet areas that have milkweed, forbs, and other flowering plants that provide nectar.
<b>FLOWERING PLANTS</b>		
<b>American Chaffseed</b> <i>(Schwalbea americana)</i>	Endangered	This species' current range includes on colony in New Jersey in Lebanon State Forest/Pinelands National Reserve which remains vulnerable to road improvements. Habitat for this species is seasonally wet acidic, sandy, or peaty soil in pine flatwoods, pitch pine lowland forests, seepage bogs, palustrine pine savannahs, and other grass or sedge-dominated plant communities. It occurs primarily in the Coastal Plain including the Atlantic coast, historically ranging from Massachusetts to Florida.
<b>Knieskern's Beaked-rush</b> <i>(Rhynchospora knieskernii)</i>	Threatened	This species' current known range is limited to eastern parts of New Jersey. It is now endemic to 5 counties in the New Jersey Pine Barrens. It only occurs in early successional habitats in pitch pine lowland forests. It relies on highly acidic and nutrient poor soils and often occurs over clay deposits or on bog iron deposits. This species does not compete well with other plant species and prefers bare or sparsely vegetated areas prone to fire or flood scouring. Many populations are declining as a result of woody succession or through over-use by recreational vehicles, fire suppression, and roadside scraping.
<b>Northeastern Bulrush</b>	Endangered	The northeastern bulrush, a wetland obligate plant, thrives in diverse wetland habitats, including sinkhole ponds, wet depressions, vernal pools, beaver flowages, and riparian areas. It prefers areas with fluctuating water levels and abundant sunlight, exhibiting versatility in water



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SPECIES	FEDERAL STATUS	HABITAT REQUIREMENTS
<i>(Scirpus ancistrochaetus)</i>		depth tolerance. Typically found in open areas surrounded by forest, the species is sensitive to light availability, with shaded areas hindering growth.
<b>Seabeach Amaranth</b> <i>(Amaranthus pumilus)</i>	Threatened	This species' historical and current range includes the New Jersey coast. It primarily occurs in natural areas of barrier island beaches and inlets. It does not occur at well-vegetated sites because it does not tolerate competition with other plant species. Construction of sea walls and dune fencing along with development and offroad vehicle traffic pose a threat to this species' habitat.
<b>Sensitive Joint-vetch</b> <i>(Aeschynomene virginica)</i>	Threatened	This species' current range includes southern parts of New Jersey. It prefers fresh to slightly brackish tidal river shorelines and estuarine-river marsh borders. It grows on raised banks within 2 meters of the low water mark in peaty, sandy, or gravel substrates. At a site observed in New Jersey, salinity was approximately 0.8 ppt and the average pH was 4.4.
<b>Small Whorled Pogonia</b> <i>(Isotria medeoloides)</i>	Threatened	This species' current range includes the northern part of New Jersey. It requires acidic dry-mesic to wet-mesic soils in deciduous or deciduous-coniferous forests. It can occasionally occur near dense ferns with a moderate to light shrub layer and an open canopy. Populations of this species primarily occur in second growth or successional forests.
<b>Swamp Pink</b> <i>(Helonias bullata)</i>	Threatened	This species' historical range included New Jersey and is now known to occur in the Coastal Plain as well as higher elevations in northern New Jersey. This species only occurs in forested wetlands that are influenced by groundwater and perennially water-saturated with a low frequency of inundation. This includes emergent areas of hummocks in and along streams in Atlantic white cedar swamps, headwater seepage wetlands, red maple swamps, mixed hardwood/evergreen swamps, and less often spruce-tamarack bogs. It is considered shade tolerant.