STATE OF MAINE
DEPARTMENT OF AGRICULTURE, CONSERVATION AND FORESTRY
BOARD OF PESTICIDES CONTROL
28 STATE HOUSE STATION
AUGUSTA, MAINE 04333

JANET T. MILLS
GOVERNOR

AMANDA E. BEAL
COMMISSIONER

BOARD OF PESTICIDES CONTROL

June 6, 2025

9:00 AM Board Meeting

Join the meeting in person in Room 101, Deering Building, 90 Blossom Lane, Augusta
Or
Join the meeting now
Meeting ID: 295 017 079 533 8
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AGENDA

1. Introductions of Board and Staff

2. Minutes of the April 25, 2025 Board Meeting

   Presentation By: Alex Peacock, Director
   Action Needed: Amend and/or Adopt

3. Legislative Update

   Currently, the Maine State Legislature is in the 132nd First Special Session, where 7 pesticide-related bills have been published. These bills are LD 356: An Act to Require Notification of Certain Outdoor Pesticide Applications, LD 1132: An Act to Further Protect Low-impact Landscaping, LD 1201: An Act to Protect Maine Agriculture and Farms by Exempting Certain Pesticides from Regulation, LD 1323: An Act to Prohibit the Use of Neonicotinoid Pesticides and the Use and Sale of Neonicotinoid-treated Seeds, LD 1557: An Act to Ensure Uniformity in the Regulation of Perfluoroalkyl and Polyfluoroalkyl Substances in Pesticides, and LD 1697: An Act to Increase Penalties to Deter Violations of the Laws

ALEXANDER PEACOCK, DIRECTOR
90 BLOSSOM LANE, DEERING BUILDING

PHONE: (207) 287-2731
WWW.THINKFIRSTSPRAYLAST.ORG

Regarding Improper Pesticide Use. LD 1982: An Act to Ensure Uniformity in the Regulation of PFAS. Staff will give an update on the status of these bills.

Presentation By: Alex Peacock, Director
Action Needed: None; Informational purposes

4. Proposed 2025 Water Quality Assessment

Every year, BPC receives funds from EPA to complete water quality testing in Maine. In previous years, BPC has focused on water quality related to aerial forestry practices, near agriculture and population centers, and drift related to browntail moth applications, among other topics. The board showed interest in pursuing a water quality project in 2025 related to invasive species management programs that have applied for a Chapter 29 variance from buffer requirements. Staff have prepared a proposal for this project.

Presentations By: Julia Vacchiano, Registrar and Water Quality Specialist
Action Needed: Discuss, Amend and/or Approve/Disapprove

5. Spruce Budworm Program Update

As the spruce budworm early intervention strategy has commenced. Staff will provide an update on the proposed treatment area and other information provided by the Maine Budworm Response Coalition (MRBC).

Presentation By: Alex Peacock, Director
Action Needed: None; Informational purposes

6. Tebufenozide and *Bacillus thuringiensis sub. Kur*staki (BTk): Toxicity & Risk Assessment

BPC toxicologist provides an overview of the two active ingredients being used in the spruce budworm early intervention strategy.

Presentation By: Doug Van Hoewyk, PhD., Pesticide Toxicologist
Action Needed: None; Informational purposes

7. Other Old and New Business

a. Variance Permit for CMR01-026, Chapter 29, Parterre Ecological, Sea Spray, Biddeford
b. Variance Permit for CMR01-026, Chapter 29, Parterre Ecological, Peaks Island
c. Variance Permit for CMR01-026, Chapter 29, Wilkinson Ecological, Orcutt, Biddeford
d. Variance Permit for CMR01-026, Chapter 29, Wilkinson Ecological, E. Point, Biddeford
e. Variance Permit for CMR01-026, Chapter 29, Wilkinson Ecological, Abenakee Golf Club
f. EPA Announces Proposed Registration of New Active Ingredient Isocycloseram

g. EPA Releases Strategy to Better Protect Endangered Species from Insecticides Using Commonsense Practices, Provides Flexibilities to States and Growers

8. Schedule of Future Meetings

The next scheduled Board meeting date is July 18, 2025, at the Deering Building, Room 101, Augusta

Future Meetings: August 29, 2025 and October 10, 2025

Adjustments and/or Additional Dates?

9. Adjourn

NOTES

- The Board Meeting Agenda and most supporting documents are posted one week before the meeting on the Board website at www.thinkfirstspraylast.org.
- Any person wishing to receive notices and agendas for meetings of the Board, Medical Advisory Committee, or Environmental Risk Advisory Committee must submit a request in writing to the Board's office. Any person with technical expertise who would like to volunteer for service on either committee is invited to submit their resume for future consideration.
- On November 16, 2007, the Board adopted the following policy for submission and distribution of comments and information when conducting routine business (product registration, variances, enforcement actions, etc.):
  - *For regular, non-rulemaking business*, the Board will accept pesticide-related letters, reports, and articles. Reports and articles must be from peer-reviewed journals. E-mail, hard copy, or fax should be sent to the Board's office or pesticides@maine.gov. In order for the Board to receive this information in time for distribution and consideration at its next meeting, all communications must be received by 8:00 AM, three days prior to the Board meeting date (e.g., if the meeting is on a Friday, the deadline would be Tuesday at 8:00 AM). Any information received after the deadline will be held over for the next meeting.
- During rulemaking, when proposing new or amending old regulations, the Board is subject to the requirements of the APA (Administrative Procedures Act), and comments must be taken according to the rules established by the Legislature.

132nd MAINE LEGISLATURE

FIRST REGULAR SESSION-2025

Legislative Document **No. 356**

S.P. 142 In Senate, February 3, 2025

An Act to Require Notification of Certain Outdoor Pesticide Applications

(EMERGENCY)

Received by the Secretary of the Senate on January 30, 2025. Referred to the Committee on Agriculture, Conservation and Forestry pursuant to Joint Rule 308.2 and ordered printed.

DAREK M. GRANT
Secretary of the Senate

Presented by Senator BENNETT of Oxford.
Cosponsored by Senator: GROHOSKI of Hancock, Representatives: BELL of Yarmouth, CIMINO of Bridgton, DOUDERA of Camden, EDER of Waterboro, MILLIKEN of Blue Hill.

Emergency preamble. Whereas, acts and resolves of the Legislature do not become effective until 90 days after adjournment unless enacted as emergencies; and

Whereas, the Department of Agriculture, Conservation and Forestry, Board of Pesticides Control establishes procedures and standards for informing interested members of the public about outdoor pesticide applications in their vicinity; and

Whereas, the purpose of these procedures and standards is to safeguard the health and welfare of the residents of this State; and

Whereas, this legislation must take effect before the expiration of the 90-day period because this legislation amends those procedures and standards; and

Whereas, in the judgment of the Legislature, these facts create an emergency within the meaning of the Constitution of Maine and require the following legislation as immediately necessary for the preservation of the public peace, health and safety; now, therefore,

Be it enacted by the People of the State of Maine as follows:

Sec. 1. 7 MRSA §604, sub-§25-B is enacted to read:

25-B. Pet. "Pet" has the same meaning as in section 712, subsection 16.

Sec. 2. 7 MRSA §606, sub-§2, ¶D, as amended by PL 2005, c. 620, §5, is further amended to read:

D. Handle, transport, store, display or distribute pesticides in such a manner as to endanger human beings or their pets or their environment or to endanger food, feed or any other products that may be transported, stored, displayed or distributed with such pesticides;

Sec. 3. 7 MRSA §606, sub-§2, ¶E, as amended by PL 2005, c. 620, §5, is further amended to read:

E. Dispose of, discard or store any pesticides or pesticide containers in such a manner as may cause injury to humans, vegetation, crops, livestock or pets, wildlife or beneficial insects or pollute any water supply or waterway;

Sec. 4. 7 MRSA §606, sub-§4 is enacted to read:

4. Unlawful use without proper notification. A person may not use any pesticide outdoors within 500 feet of a property owned by another person unless the person provides written notification to the owner, lessee or other legal occupant of the property of the intent to apply pesticides at least 7 days prior to the pesticide application. This subsection does not apply to aerial applicators as defined by the board by rule. The department shall adopt rules governing notification requirements. Rules adopted under this subsection are routine technical rules as defined in Title 5, chapter 375, subchapter 2-A.

Emergency clause. In view of the emergency cited in the preamble, this legislation takes effect when approved.

SUMMARY

This bill prohibits a person from using any pesticide outdoors within 500 feet of a property owned by another person unless the person provides written notification to the owner, lessee or other legal occupant of the property of the intent to apply pesticides at least 7 days prior to the pesticide application. The bill provides that this prohibition does not apply to aerial application of pesticides. The bill also explicitly prohibits handling, transporting, storing, displaying or distributing pesticides in a manner that endangers pets and explicitly prohibits disposing of, discarding or storing any pesticides or pesticide containers in a manner that may cause injury to pets.

L.D. 356

Date: (Filing No. S-)

AGRICULTURE, CONSERVATION AND FORESTRY

Reproduced and distributed under the direction of the Secretary of the Senate.

STATE OF MAINE

SENATE

132ND LEGISLATURE

FIRST SPECIAL SESSION

COMMITTEE AMENDMENT " " to S.P. 142, L.D. 356, "An Act to Require Notification of Certain Outdoor Pesticide Applications"

Amend the bill by striking out the title and substituting the following:

'Resolve, Directing the Board of Pesticides Control to Prohibit the Use of Rodenticides in Outdoor Residential Settings'

Amend the bill by striking out everything after the title and inserting the following:

'**Sec. 1. Board of Pesticides Control to prohibit use of rodenticides. Resolved:** That the Department of Agriculture, Conservation and Forestry, Board of Pesticides Control shall prohibit the use of rodenticides, including rodenticidal baits, in outdoor residential settings. A certified applicator as defined under the Maine Revised Statutes, Title 22, section 1471-C, subsection 4 is exempt from the prohibition under this section. The board shall submit a report with an update on the prohibition under this section to the Joint Standing Committee on Agriculture, Conservation and Forestry no later than January 15, 2026. The joint standing committee may submit a bill to the Second Regular Session of the 132nd Legislature relating to the subject matter of the report.'

Amend the bill by relettering or renumbering any nonconsecutive Part letter or section number to read consecutively.

SUMMARY

This amendment replaces the bill with a resolve and removes the emergency preamble and emergency clause. The resolve requires the Department of Agriculture, Conservation and Forestry, Board of Pesticides Control to prohibit the use of rodenticides, including rodenticidal baits, in outdoor residential settings. A person who is certified by the board pursuant to the Maine Revised Statutes, Title 22, section 1471-D and authorized to use or supervise the use of any pesticides is exempt from the prohibition on the use of rodenticides in outdoor residential settings. The amendment requires the board to submit a report with an update on the prohibition on the use of rodenticides in outdoor residential settings to the

Joint Standing Committee on Agriculture, Conservation and Forestry no later than January 15, 2026.

FISCAL NOTE REQUIRED

(See attached)

132nd MAINE LEGISLATURE

FIRST SPECIAL SESSION-2025

Legislative Document	**No. 1323**
H.P. 858	House of Representatives, March 27, 2025

An Act to Prohibit the Use of Neonicotinoid Pesticides and the Use and Sale of Neonicotinoid-treated Seeds

Reference to the Committee on Agriculture, Conservation and Forestry suggested and ordered printed.

ROBERT B. HUNT
Clerk

Presented by Representative DOUDERA of Camden.
Cosponsored by Senator INGWERSEN of York and
Representatives: CLUCHEY of Bowdoinham, FROST of Belgrade, GRAMLICH of Old Orchard Beach, HEPLER of Woolwich, PLUECKER of Warren, SINCLAIR of Bath,
Senators: TALBOT ROSS of Cumberland, TEPLER of Sagadahoc.

Be it enacted by the People of the State of Maine as follows:

Sec. 1. 7 MRSA c. 103, sub-c. 11-B is enacted to read:

SUBCHAPTER 11-B

NEONICOTINOID PESTICIDES

§1061. Definitions

As used in this subchapter, unless the context otherwise indicates, the following terms have the following meanings.

1. Agricultural emergency. "Agricultural emergency" means an occurrence of any pest that presents an imminent risk of significant harm or injury to or loss of agricultural crops.

2. Bloom. "Bloom" means the period from the onset of flowering for a plant or the process of flowering of a plant until petal fall is complete.

3. Crop group. "Crop group" means the groupings of agricultural commodities specified in 40 Code of Federal Regulations, Section 180.41 (2023).

4. Environmental emergency. "Environmental emergency" means an occurrence of any pest that presents a significant risk of harm or injury to the environment or significant harm or injury to or loss of agricultural crops, including any exotic or foreign pest that may need preventive quarantine measures to avert or prevent that risk, as determined by the commissioner.

5. Neonicotinoid pesticide. "Neonicotinoid pesticide" means any pesticide containing a chemical belonging to the neonicotinoid class of chemicals, including imidacloprid, nithiazine, acetamiprid, clothianidin, dinotefuran, thiacloprid, thiamethoxam and any other chemical designated by the commissioner by rule as belonging to the neonicotinoid class of chemicals.

6. Neonicotinoid-treated seed. "Neonicotinoid-treated seed" means a treated seed that is treated or coated with a neonicotinoid pesticide.

7. Ornamental plants. "Ornamental plants" means perennial, annual, biennial and ground cover plants purposefully planted for aesthetic reasons.

§1062. Prohibited; application of neonicotinoid pesticides

1. Prohibited application. The following uses of neonicotinoid pesticides are prohibited:

A. Outdoor application to any crop during bloom;

B. Outdoor application to soybeans or any crop in the cereal grains crop group;

C. Outdoor application of neonicotinoid pesticides to crops harvested after bloom in the leafy vegetables; brassica; bulb vegetables; herbs and spices; and stalk, stem and leaf petiole vegetable crop groups; and

D. Application to ornamental plants.

2. Exemptions. The commissioner, after consultation with the Commissioner of Environmental Protection, may waive the requirements of this section and issue a written exemption order if the commissioner determines that:

A. A valid environmental emergency or agricultural emergency exists;

B. The neonicotinoid pesticide would be effective in addressing the environmental emergency or the agricultural emergency under paragraph A; and

C. A less harmful pesticide that is not a neonicotinoid pesticide or pest management practice would not be as effective in addressing the environmental emergency or the agricultural emergency under paragraph A.

3. Written exemption order contents. A written exemption order issued under subsection 2:

A. May not be valid for a period of more than one year;

B. Must specify the neonicotinoid pesticides, uses and crops or plants to which the exemption order applies; the date on which the exemption order takes effect; the exemption order's duration; and the exemption order's geographic scope, which may include specific farms, fields or properties; and

C. Must provide a detailed evaluation supporting a determination that an environmental emergency or agricultural emergency exists.

4. Written exemption order restrictions. A written exemption order issued under subsection 2 may establish restrictions on the use of neonicotinoid pesticides to which the exemption order applies to minimize harm to pollinator populations, bird populations, ecosystem health and public health or that the commissioner considers necessary.

5. Rescission. The commissioner, after consultation with the Commissioner of Environmental Protection, may rescind a written exemption order issued under subsection 2 at any time. A rescission may not go into effect until at least 15 days after the issuance of the written exemption order.

§1063. Prohibition on the use and sale of neonicotinoid-treated seeds

1. Prohibition. A person may not sell, offer for sale or use, distribute or use any neonicotinoid-treated seed for soybeans or for any crop in the cereal grains crop group.

2. Exemptions. The commissioner, after consultation with the Commissioner of Environmental Protection, may waive the requirements of this section and issue a written exemption order only if:

A. The person seeking the exemption order:

(1) Completes integrated pest management training, provided by the commissioner or an approved 3rd party;

(2) Completes a pest risk assessment and submits a pest risk assessment report to the commissioner; and

(3) Maintains current records of the pest risk assessment report under subparagraph (2) and records of when neonicotinoid-treated seeds are planted, both of which are subject to review upon request by the commissioner; and

B. Any neonicotinoid-treated seeds authorized for use under the exemption order are planted only on the property or properties identified in the pest risk assessment report under paragraph A, subparagraph (2).

3. Written exemption order contents. A written exemption order issued under subsection 2:

A. May not be valid for a period of more than one year; and

B. Must specify the types of neonicotinoid-treated seeds to which the exemption order applies, the date on which the exemption order takes effect and the exemption order's duration.

4. Written exemption order restrictions. A written exemption order issued under subsection 2 may establish restrictions to the use of neonicotinoid-treated seeds to which the exemption order applies to minimize harm to pollinator populations, bird populations, ecosystem health and public health or that the commissioner considers necessary.

5. Rescission. The commissioner, after consultation with the Commissioner of Environmental Protection, may rescind a written exemption order issued under subsection 2 at any time. A rescission may not go into effect until at least 30 days after the issuance of the written exemption order and may not apply to neonicotinoid-treated seeds planted or sown prior to the effective date of the rescission.

§1064. Report

Upon issuing a written exemption order under section 1062 or 1063, the commissioner shall submit a copy of the exemption order to the joint standing committee of the Legislature having jurisdiction over agriculture, conservation and forestry matters.

§1065. Rulemaking

The department may adopt rules as necessary for the purposes of implementing and enforcing this subchapter. Rules adopted pursuant to this section are routine technical rules as defined in Title 5, chapter 375, subchapter 2-A.

Sec. 2. Effective date. This Act takes effect January 1, 2026.

SUMMARY

This bill prohibits certain applications of neonicotinoid pesticides and prohibits the use and sale of neonicotinoid-treated seeds for certain crops. The bill authorizes the Commissioner of Agriculture, Conservation and Forestry, after consultation with the Commissioner of Environmental Protection, to waive these prohibitions and issue a written exemption order if certain conditions are met.

L.D. 1323

Date: (Filing No. H-)

AGRICULTURE, CONSERVATION AND FORESTRY

Reproduced and distributed under the direction of the Clerk of the House.

STATE OF MAINE

HOUSE OF REPRESENTATIVES

132ND LEGISLATURE

FIRST SPECIAL SESSION

COMMITTEE AMENDMENT " " to H.P. 858, L.D. 1323, "An Act to Prohibit the Use of Neonicotinoid Pesticides and the Use and Sale of Neonicotinoid-treated Seeds"

Amend the bill by striking out the title and substituting the following:

'Resolve, Directing the Board of Pesticides Control to Evaluate the Impact of Neonicotinoids on Pollinators, Humans and the Environment'

Amend the bill by striking out everything after the title and inserting the following:

'**Emergency preamble. Whereas,** acts and resolves of the Legislature do not become effective until 90 days after adjournment unless enacted as emergencies; and

Whereas, the Legislature understands that bees and other pollinators face many threats such as loss of habitat, extreme heat and drought, flooding, wildfires, diseases, Varroa mites and competition from nonnative insects; and

Whereas, the Legislature finds it is important to understand the impact of neonicotinoids, including neonicotinoid-treated seeds, on pollinators; to develop strategies to mitigate the risks of neonicotinoid exposure; and to protect pollinator populations; and

Whereas, this legislation needs to take effect before the expiration of the 90-day period to allow the Department of Agriculture, Conservation and Forestry, Board of Pesticides Control to conduct its work as soon as possible so that it may provide a preliminary report to the Legislature by January 15, 2026; and

Whereas, in the judgment of the Legislature, these facts create an emergency within the meaning of the Constitution of Maine and require the following legislation as immediately necessary for the preservation of the public peace, health and safety; now, therefore, be it

Sec. 1. Board of Pesticides Control to study neonicotinoids. Resolved: That the Department of Agriculture, Conservation and Forestry, Board of Pesticides Control, referred to in this resolve as "the board," shall study:

1. The impacts of neonicotinoids, including neonicotinoid-treated seeds, on pollinators;

2. The costs and benefits of neonicotinoid-treated seeds compared to untreated seeds, including the market availability of neonicotinoid-treated seeds compared to untreated seeds;

3. The impact of neonicotinoids on the environment, including, but not limited to, soil, water and plant tissues;

4. The toxicity of neonicotinoids to humans;

5. Alternatives to neonicotinoid seed treatments for the protection of crops from damaging pests and disease;

6. The toxicity of effective alternatives to neonicotinoids and neonicotinoid-treated seeds that may be used for the protection of crops from damaging pests and disease; and

7. Methods of application of alternatives to neonicotinoids and neonicotinoid-treated seeds and the required number of applications for effectiveness.

In conducting the study under this section, the board shall give special consideration to effects on potato crops and corn crops.

Sec. 2. Request for information. Resolved: That the board shall solicit feedback regarding ideas and insights on the topic of the study, pursuant to section 1, from the public, stakeholders and interested parties through either a public hearing or a request for information document.

Sec. 3. Reports. Resolved: That the board shall submit a preliminary report to the Joint Standing Committee on Agriculture, Conservation and Forestry no later than January 15, 2026 and shall submit a final report with findings and recommendations relating to the subject matter of the study under section 1 to the joint standing committee of the Legislature having jurisdiction over agricultural matters no later than January 15, 2027. The joint standing committee may submit a bill to the 133rd Legislature in 2027 relating to the subject matter of the final report.

Sec. 4. Appropriations and allocations. Resolved: That the following appropriations and allocations are made.

AGRICULTURE, CONSERVATION AND FORESTRY, DEPARTMENT OF

Pesticides Control - Board of 0287

Initiative: Provides funding for contractual services to research the effects of neonicotinoids.

OTHER SPECIAL REVENUE FUNDS	**2025-26**	**2026-27**
All Other	$156,500	$0
OTHER SPECIAL REVENUE FUNDS TOTAL	$156,500	$0

Emergency clause. In view of the emergency cited in the preamble, this legislation takes effect when approved.'

Amend the bill by relettering or renumbering any nonconsecutive Part letter or section number to read consecutively.

SUMMARY

This amendment replaces the bill with a resolve and adds an emergency preamble and emergency clause. The amendment requires the Department of Agriculture, Conservation and Forestry, Board of Pesticides Control to study the impact of neonicotinoids, including neonicotinoid-treated seeds, on pollinators, humans and the environment. The amendment requires the board to solicit feedback regarding ideas and insights on the topic of the study from the public, stakeholders and interested parties through either a public hearing or a request for information document. The amendment requires the board to submit a preliminary report and a final report with findings and recommendations relating to the subject matter of the study to the joint standing committee of the Legislature having jurisdiction over agricultural matters. The amendment also adds an appropriations and allocations section.

FISCAL NOTE REQUIRED

(See attached)

132nd MAINE LEGISLATURE

FIRST SPECIAL SESSION-2025

Legislative Document **No. 1697**

H.P. 1132 House of Representatives, April 17, 2025

An Act to Increase Penalties to Deter Violations of the Laws Regarding Improper Pesticide Use

Reference to the Committee on Agriculture, Conservation and Forestry suggested and ordered printed.

ROBERT B. HUNT
Clerk

Presented by Representative DOUDERA of Camden.
Cosponsored by Representatives: GRAMLICH of Old Orchard Beach, HEPLER of Woolwich, PLUECKER of Warren.

Be it enacted by the People of the State of Maine as follows:

Sec. 1. 7 MRSA §616-A, sub-§2, ¶A, as repealed and replaced by PL 2003, c. 452, Pt. B, §6 and affected by Pt. X, §2, is amended to read:

A. A person may not violate this subchapter or a rule adopted pursuant to this subchapter or Title 22, chapter 258-A or a rule adopted pursuant to Title 22, chapter 258-A. Except as provided in paragraph B, the following penalties apply to violations of this paragraph.

(1) A person who violates this paragraph commits a civil violation for which a fine ~~of not more than $1,500~~ may be adjudged as follows.

(a) A fine of not more than $25,000 may be adjudged except as provided in division (b).

(b) A fine of not more than $50,000 may be adjudged for an unauthorized pesticide application in a case in which the preponderance of the evidence demonstrates that the person who violated this paragraph benefited substantially from the violation as determined by the board by routine technical rule as described in Title 5, chapter 375, subchapter 2-A. Clear and convincing evidence that only one person benefited substantially from an unauthorized pesticide application constitutes prima facie evidence that the person is responsible for the unauthorized pesticide application.

(2) A person who violates this paragraph and is subject to a fine under subparagraph (1), division (a) after having previously violated this paragraph and having been subject to a fine under subparagraph (1), division (a) within the previous 4-year period commits a civil violation for which a fine of not more than ~~$4,000~~ $75,000 may be adjudged. A person who violates this paragraph and is subject to a fine under subparagraph (1), division (b) after having previously violated this paragraph and having been subject to a fine under subparagraph (1), division (b) within the previous 4-year period commits a civil violation for which a fine of not more than $150,000 may be adjudged.

Sec. 2. 7 MRSA §616-A, sub-§2, ¶B, as amended by PL 2011, c. 510, §1, is further amended to read:

B. A private applicator, as defined in Title 22, section 1471-C, may not violate a rule regarding records maintained pursuant to section 606, subsection 2, paragraph G. The following penalties apply to violations of this paragraph.

(1) A person who violates this paragraph commits a civil violation for which a fine of not more than ~~$500~~ $1,000 may be adjudged.

(2) A person who violates this paragraph after having previously violated this paragraph within the previous 4-year period commits a civil violation for which a fine of not more than ~~$1,000~~ $2,000 may be adjudged.

Sec. 3. Board of Pesticides Control to adopt rules. The Department of Agriculture, Conservation and Forestry, Board of Pesticides Control shall adopt routine technical rules as described in the Maine Revised Statutes, Title 5, chapter 375, subchapter 2-A to:

1. Establish a penalty schedule for violations of the laws and rules governing pesticides to create transparency for future penalties assessed;

2. Provide the means by which separate civil suits may be brought against the same violator of the laws and rules governing pesticides if pesticide migration through soil or bedrock occurs affecting more than one property;

3. Provide for the restoration of affected property and replacement of vegetation as penalties for violations of the laws and rules governing pesticides in addition to monetary penalties; and

4. Designate pesticides with the active ingredient tebuthiuron as state restricted use pesticides.

SUMMARY

This bill increases the maximum fine that may be adjudged for a violation of the laws and rules governing pesticides from $1,500 to $25,000 except in a case for an unauthorized pesticide application in which the preponderance of the evidence demonstrates that the violator benefited substantially from the violation, in which case the maximum fine is $50,000. Maximum fines for subsequent violations are increased to $75,000 and $150,000, respectively. The bill provides that clear and convincing evidence that only one person benefited substantially from an unauthorized pesticide application constitutes prima facie evidence that the person is responsible for the unauthorized pesticide application. The bill increases the maximum fine for a private applicator who violates rules regarding the maintenance of records from $500 to $1,000 and from $1,000 to $2,000 for subsequent violations.

The bill directs the Department of Agriculture, Conservation and Forestry, Board of Pesticides Control to adopt routine technical rules to:

1. Establish a penalty schedule for violations of the laws and rules governing pesticides to create transparency for future penalties assessed;

2. Provide the means by which separate civil suits may be brought against the same violator of the laws and rules governing pesticides if pesticide migration through soil or bedrock occurs affecting more than one property;

3. Provide for the restoration of affected property and replacement of vegetation as penalties for violations of the laws and rules governing pesticides in addition to monetary penalties; and

4. Designate pesticides with the active ingredient tebuthiuron as state restricted use pesticides.

132nd MAINE LEGISLATURE

FIRST SPECIAL SESSION-2025

Legislative Document	**No. 1557**
H.P. 1015	House of Representatives, April 10, 2025

An Act to Ensure Uniformity in the Regulation of Perfluoroalkyl and Polyfluoroalkyl Substances in Pesticides

Reference to the Committee on Agriculture, Conservation and Forestry suggested and ordered printed.

ROBERT B. HUNT
Clerk

Presented by Representative ARATA of New Gloucester.
Cosponsored by Representatives: COOPER of Windham, CRAY of Palmyra, DILL of Old Town, GUERRETTE of Caribou, HEPLER of Woolwich, JACKSON of Oxford, Senator: BERNARD of Aroostook.

Be it enacted by the People of the State of Maine as follows:

Sec. 1. 7 MRSA §604, sub-§22-A, as enacted by PL 2021, c. 673, §1, is amended to read:

22-A. Perfluoroalkyl and polyfluoroalkyl substances or PFAS. "Perfluoroalkyl and polyfluoroalkyl substances" or "PFAS" has the same meaning as in ~~Title 32, section 1732, subsection 5-A~~ 40 Code of Federal Regulations, Section 705.3, as amended.

Sec. 2. 38 MRSA §1614, sub-§5, ¶H is enacted to read:

H. Notwithstanding subsection 1, paragraph F, for purposes of the prohibition on the sale of pesticide products containing intentionally added PFAS under this subsection, "perfluoroalkyl and polyfluoroalkyl substances" or "PFAS" has the same meaning as in Title 7, section 604, subsection 22-A and "pesticide" has the same meaning as in Title 7, section 604, subsection 25.

SUMMARY

This bill changes the definition of "perfluoroalkyl and polyfluoroalkyl substances," also referred to as PFAS, in the Maine Pesticide Control Act of 1975 to align with the United States Environmental Protection Agency's definition of "PFAS." The bill also applies this definition of PFAS for the purposes of the prohibition on the sale of pesticide products containing intentionally added PFAS.

132nd MAINE LEGISLATURE

FIRST SPECIAL SESSION-2025

Legislative Document	**No. 1982**
H.P. 1325	House of Representatives, May 20, 2025

An Act to Ensure Uniformity in the Regulation of PFAS

(AFTER DEADLINE)

Approved for introduction by a majority of the Legislative Council pursuant to Joint Rule 205.

Received by the Clerk of the House on May 15, 2025. Referred to the Committee on Environment and Natural Resources pursuant to Joint Rule 308.2 and ordered printed pursuant to Joint Rule 401.

ROBERT B. HUNT
Clerk

Presented by Representative ARATA of New Gloucester.
Cosponsored by Senator BERNARD of Aroostook and
Representatives: BRIDGEO of Augusta, CRAY of Palmyra, DILL of Old Town, GUERRETTE of Caribou, HEPLER of Woolwich, JACKSON of Oxford.

Be it enacted by the People of the State of Maine as follows:

Sec. 1. 32 MRSA §1732, sub-§5-A, as enacted by PL 2019, c. 277, §2, is amended to read:

5-A. Perfluoroalkyl and polyfluoroalkyl substances; PFAS. "Perfluoroalkyl and polyfluoroalkyl substances" or "PFAS" means ~~any member of the class of fluorinated organic chemicals containing at least one fully fluorinated carbon atom.~~ any chemical substance or mixture containing a chemical substance that structurally contains at least one of the following 3 substructures:

A. R-(CF_2)-CF(R')R", where both the CF_2 and CF moieties are saturated carbons;

B. R-CF_2OCF_2-R', where R and R' can either be F, O or saturated carbons; or

C. $CF_3C(CF_3)$R'R", where R' and R" can either be F or saturated carbons.

Sec. 2. 38 MRSA §1614, sub-§1, ¶F, as enacted by PL 2021, c. 477, §1 and reallocated by RR 2021, c. 1, Pt. A, §54, is amended to read:

F. "Perfluoroalkyl and polyfluoroalkyl substances" or "PFAS" means ~~substances that include any member of the class of fluorinated organic chemicals containing at least one fully fluorinated carbon atom.~~ any chemical substance or mixture containing a chemical substance that structurally contains at least one of the following 3 substructures:

(1) R-(CF_2)-CF(R')R", where both the CF_2 and CF moieties are saturated carbons;

(2) R-CF_2OCF_2-R', where R and R' can either be F, O or saturated carbons; or

(3) $CF_3C(CF_3)$R'R", where R' and R" can either be F or saturated carbons.

SUMMARY

This bill changes the definition of "perfluoroalkyl and polyfluoroalkyl substances" or "PFAS" in the laws governing reduction of toxics in packaging, the sale of products containing intentionally added PFAS, the Fund to Address PFAS Contamination, pesticides, renewable energy procurement in contaminated land, firefighting or fire-suppressing foam, waste discharge licenses, licenses to spread septage and the Land Application Containment Monitoring Fund to align with the United States Environmental Protection Agency's definition of "PFAS."

STATE OF MAINE
DEPARTMENT OF AGRICULTURE, CONSERVATION & FORESTRY
BOARD OF PESTICIDES CONTROL
28 STATE HOUSE STATION
AUGUSTA, MAINE 04333

JANET T. MILLS
GOVERNOR

AMANDA E. BEAL
COMMISSIONER

Memorandum

To: Maine Board of Pesticides Control

From: Julia Vacchiano, Pesticides Registrar and Water Quality Specialist

Re: Proposed 2025 Water Quality Assessment: Tracking Herbicide Impacts from Invasive Plant Control

May 30, 2025

Under 7 M.R.S. §607-A. REVIEW OR REREGISTRATION 2-A, "The board shall conduct a water residue survey at least once every 6 years to establish a representative sample of a number of wells or bodies of water, selected at random, in areas of possible contamination or at other locations to be described by the board, for the purpose of testing these waters and preparing a profile of the kinds and amounts of pesticides present. [2005, c. 620, §7 (NEW) .]"

Invasive plant species pose a significant and escalating threat to Maine's ecological health and economic vitality. Maine faces substantial pressure from aggressive invasive plant species, leading to habitat degradation and biodiversity loss. Licensed pesticide applicators manage these species near waterways, adhering to best practices for herbicide application, they have expressed interest in data to confirm they are doing so effectively and responsibly.

Effective control of invasive species along waterways often requires targeted herbicide applications, even when adhering to IPM principles. In some cases, this necessitates obtaining variance permits from the Board of Pesticides Control when treatments occur within regulated buffer zones. A significant number of these variances have been granted for invasive species management. The BPC has the opportunity to utilize its water quality program and available funding to ensure that these essential control measures are implemented without negatively impacting adjacent waterbodies. Simultaneously, this presents a valuable chance to enhance our understanding of best management practices for applicators. To address these considerations, we propose a focused water quality study to be conducted during the summer of 2025. This study

will investigate potential contamination resulting from permitted herbicide treatments for invasive species management near waterways, leveraging data from past variance requests.

Currently, it is unknown whether pesticides are detectable in sediment and surface water after they are applied to invasive plants near water bodies in Maine. Our proposal seeks to address this knowledge gap. This novel project seeks to use the allocated 2025 lab funds from the EPA to evaluate the mitigation measures required by variances, specifically those involving herbicide applications for invasive plant control near waterways, on water quality. The study will involve collecting environmental samples from selected water bodies and adjacent areas to characterize the presence and concentration of relevant substances. If this proposal is funded- and upon completion of the project- the Board of Pesticide Control will present a report that contributes to a broader understanding of the environmental implications of current management practices.

Research Questions

Are herbicides used to control invasive plant species within the required buffer zone of waters of the state detectable in the waters post-treatment?

Research Design and Methodology

Study Objectives

This study aims to:

1. Inform the board and applicators about the potential negative effects of forgoing buffer zones when applying pesticides for invasive species.
2. Provide data on specific active ingredients to help applicators understand risks near water.
3. Improve the variance permitting process.
4. Gather broader data on the presence of various pesticides in Maine's surface water by testing for a wide range of active ingredients.

We will answer the research questions by collecting quantitative data on active ingredients and concentrations alongside qualitative insights into application methods gained through applicator collaboration and BPC record review.

Sample Size

94 samples – 2 grab samples and one sediment sample will be taken from 38 locations granted Chapter 29 variances between 2019 and 2024

13 Control Samples – Sediment and grab sample duplicates and field blanks

Timing

Planning: June – July 2025, exact sampling locations will be selected and access points located, dates and staffing can be coordinated during this time

July – September 2025 – Sampling begins immediately following the planning stage and will conclude before September 30, 2025

Sampling Plan

- All sites of unique variances granted for invasive species, and one granted for total vegetation elimination between 2019-2024 will be tested, a total of 38 sites.
- Some variances encompass multiple water bodies, all sources will be sampled separately
- 2 grab samples will be taken at all freshwater sites, while single sediment samples will be taken at all sites.
- 5 surface water duplicates, 5 surface water field blanks, and 3 sediment field duplicates will be collected for quality control and quality assurance.
- Water and sediment samples will be shipped to Montana Analytical Laboratory for pesticide analysis. The laboratory is accredited and has a current Quality Assurance Project Plan (QAPP), which is required by the Environmental Protection Agency (EPA) as part of the Cooperative Agreement between the EPA and Maine.
- The analysis method employed for sediment samples will be the Montana Department of Agriculture "Universal Method for the Determination of Polar Pesticides in Water Using Solid Phase Extraction and Liquid Chromatography/Mass Spectrometry/ Mass Spectrometry" and analyzes for 102 pesticides.
- The analysis method employed for sediment samples will be the Montana Department of Agriculture, PYR_SI, Revision 2: January, 2014"Determination of Pyrethroids in Sediment Using Solid Phase Extraction and GC/MS/NCI and /or GC/MS/MS E1.

Ethics and Privacy Concerns

- All sites of variance are being sampled, and sampling will occur if we can obtain access to the area
- Results will be posted without street addresses or current resident personal information
- Detailed naming convention outlined in SOP for sampling will be implemented to develop sample identification numbers
- BPC will create a process for obtaining written land access consent for samples taken on private property.

Data Collection Methods

- Operating Procedure for Collecting Surface Water Samples for Pesticides Analysis Adapted for 2025 Water Quality Assessment: Tracking Herbicide Impacts from Invasive Plant Control

- Operating Procedure for Collecting Surface Water Samples for Pesticides Analysis Adapted for 2025 Water Quality Assessment: Tracking Herbicide Impacts from Invasive Plant Control

Chemical analysis

Consistent with BPC practice, the collected samples will be transported, on ice, to the office and stored at 4°C until ready to ship. Samples are packed on ice and shipped to the Montana Agricultural Laboratory for analysis. The water samples are processed through a pesticide analysis panel that can identify up to 102 unique analytes (roughly 80 parent compounds plus their degradation products).

Data Analysis

Raw data received from the Montana Analytical Laboratory will be organized into a comprehensive report and presented by BPC staff to the board and the public in the Fall of 2026. At a minimum, this report will include data analysis (summary statistics). Additionally, we can mine the data to explore possible relationships between pesticide concentrations in samples and distance from the waterbody to the pesticide application; this linear regression will report the Pearson correlation coefficient between the two variables. We can also explore whether or not there are statistical differences between groups (*e.g.* application methods) using Student's t-test and ANOVA. All data analysis will be conducted in Excel or R, and saved on the Board of Pesticide Control internal drive.

Estimated Project Budget

Analysis

Grab and Sediment Sample Analysis - $36,100

Equipment and Materials – $150 (Gloves, safety glasses)

Shipping - $1,815

Total - $38,065

The BPC has been granted $40,000 by our EPA cooperative agreement to facilitate laboratory testing in 2025. Many of the supplies being used are already being kept in storage such as jars, packing materials, and PPE outlined in the standard operating procedure.

Notice of Aerial Pesticide Application to the Board of Pesticides Control & Maine Poison Center

Instructions: For forest insect notices to the Board complete sections 1 - 6. For forest insect notices to the Poison Center complete Sections 1 - 5. For other than forest insect notices skip section 5.

Section 1 Company/Agency Information

Company/Agency Filing Notice: JBI Helicopters working for the Maine Budworm Response Coalition

Contact Person: Ronald C. Lemin, Jr **Street Address:** 291 Lincoln St

City: Bangor **State:** MAINE **Zip Code:** 04401

Telephone Number: (207) 944-6160

Section 2 Type of Application

■ Forest Insect	☐ Forest Vegetation	☐ Other Forest
☐ Ornamental	☐ Right-of-Way	☐ Biting Fly/Public Health

Date(s) of Proposed Application: Predicted between May 20 and June 25, 2025. The application will be targeting the L4 instar phase and is most likely to be starting the last week of May given current weather conditions.

General Description of Application Area: In the Aroostook County towns of Allagash, Big Twenty Twp., New Canada, St. John Plt., T11 R15, T13 R15, T13 R16, T14 R11, T14 R12, T14 R14, T14 R15, T14 R16, T15 R10, T15 R11, T15 R12, T15 R13, T15 R14, T15 R15, T16 R12, T16 R13, T16 R14, T16 R5, T17 R12, T17 R13, T17 R14, T17 R4, T17 R5, T18 R10 T18 R11, T18 R12, T18 R13, T19 R11, T19 R12, and Wallagrass.

Total Acres Scheduled for Treatment: **240,300 acres**

Section 3 Spray Contracting Firm

Firm Name: JBI Helicopter Services

Street Address: 720 Clough Mill Road

City: Pembroke **State:** NH **Zip Code:** 03275

Telephone #: (603)225-3134 **License #:** SCF15193

Delivery Mechanism: Aerial – Helicopter and fixed wing with Micronair nozzles Over

Section 4 Pesticides/Acres to be Treated

BRAND NAME	ACTIVE INGREDIENT(S), % of Mixture	EPA REG. No.	ACRES
Mimic 2LV	Tebufenozide - 24%	8033-113-73049	**238,644**
Foray 76B	BTK -Bacillus thuringiensis subsp. 18.44%	73049-49	**1656 (sprayed twice within the notification period)**

Diluent(s): Water

Experimental Rate? Yes (No) (Circle One)

Section 5 Forest Insect Only

Aircraft Summary: JBI Helicopters (3 total) and Fixed wing airplanes (8 total)

Monitors: Ronald Lemin (Master for the fixed wing), Chris Huston, Kurt West and Thomas Wolf

Spotters: Chris Huston, Jason Desjardin, Ray Newcomb, Roanld Lemin, Rick Dionne

Storage & Mixing Facilities: _____Frenchville Airport_____

Maintenance Personnel: Fixed Wing maintenance crews and mechanics at the Frenchville airport, each Helicopter has a mechanic an 2 ground crew support

Section 6 Required For Board Notice Only

Please Enclose copies of:

1. Detailed map(s) showing area(s) of application and which pesticide(s) to be used on each area, sensitive areas and major public routes of ingress and egress.

2. Copies of the newspaper notice and notification posters

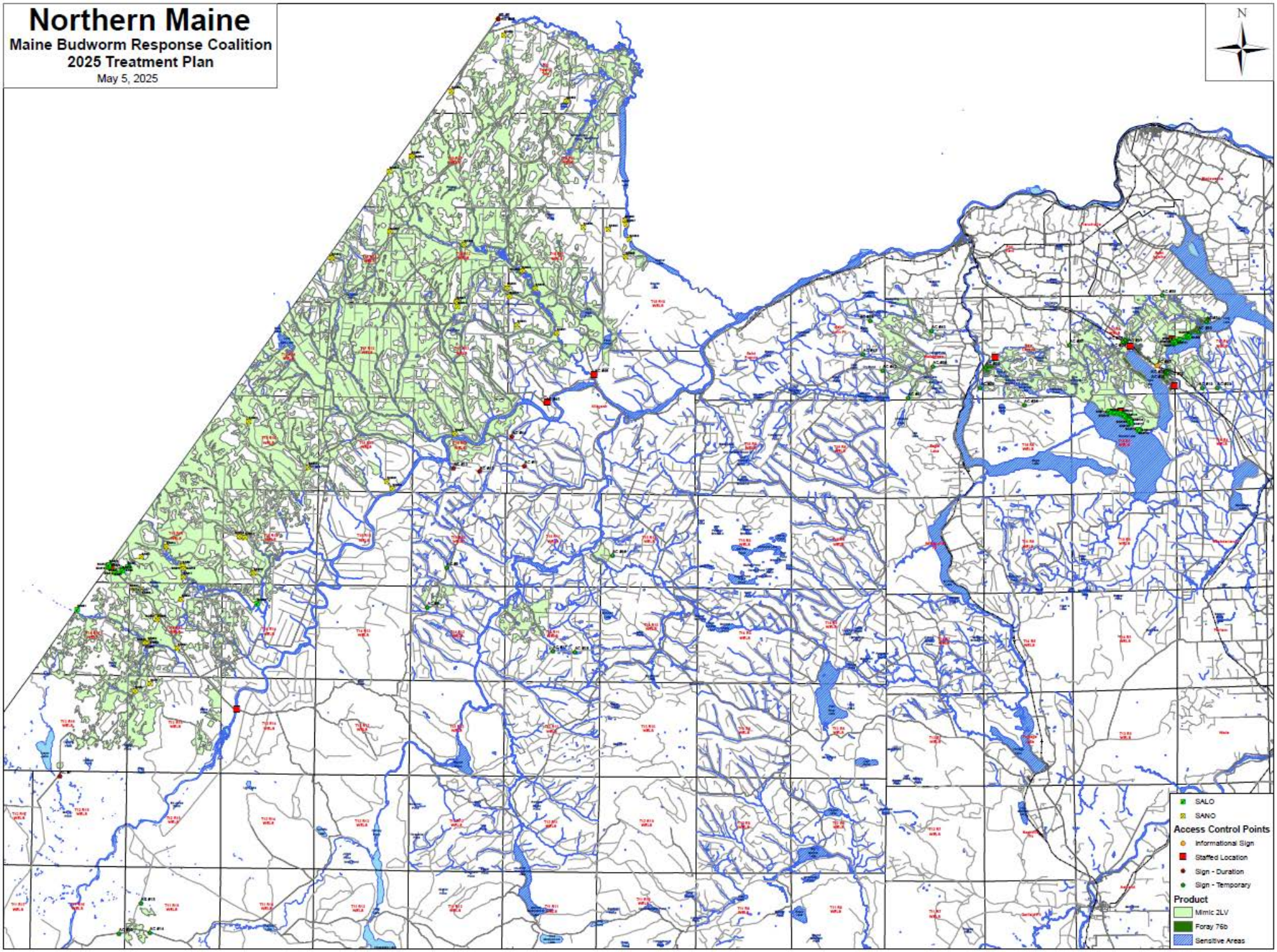
Please send to:

Board of Pesticides Control
28 State House Station
Augusta, ME 04333-0028
Tel: (207)287-2731 Fax: (207)287-7548

Maine Poison Control Center
Maine Medical Center
Department of Emergency Medicine
22 Bramhall Street
Portland ME 04102
Tel: 1(800)222-1222 Fax: (207)871-6226

Northern Maine

Maine Budworm Response Coalition
2025 Treatment Plan
May 5, 2025



VALENT BIOSCIENCES

Valent BioSciences LLC
1910 Innovation Way, Suite 100
Libertyville, IL 60048 USA
Tel: (1) 847-968-4700

May 5, 2025

Alexander R. Peacock, Director
Board of Pesticides Control
Maine Department of Agriculture, Conservation and Forestry
28 State House Station
Augusta, ME 04333-0028

RE: Important PFAS Information on Packaging of Valent BioSciences Forest Health Products

Dear Director Peacock:

Thank you for your inquiry to Valent BioSciences regarding the presence of PFAS substances in Valent BioSciences' Forest Health products packaged for the State of Maine.

I confirm to you that Valent BioSciences does not utilize PFAS compounds as added active or inert ingredients in any of our Forest Health products, nor do the ingredients in our Forest Health products break down into short-chain PFAS chemicals. Additionally, we do not utilize fluorinated containers in any of our Forest Health products used in the State of Maine.

At Valent BioSciences, our purpose within the Public Health & Forest Health Division is straightforward: To improve human lives and protect our forests globally by effectively controlling disease-carrying and nuisance pests with biorational products that are naturally benign to people and the environment. We feel privileged to play a role in this important work. We maintain that role by keeping the safety of our products top of mind in everything we do.

Please feel free to contact me if you require any additional information.

Sincerely,

Jason D. Clark

Jason Clark
Global Director, Public Health & Forest Health

Email: jason.clark@valentbiosciences.com

Valent BioSciences LLC
1910 Innovation Way, Suite 100
Libertyville, IL 60048

maine

BOARD OF
PESTICIDES CONTROL

DEPARTMENT OF AGRICULTURE,
CONSERVATION & FORESTRY

Tebufenozide and BT_K: Toxicity and Risk Assessment

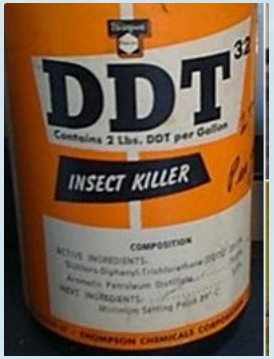
Doug Van Hoewyk, PhD. Toxicologist. Maine Board of Pesticide Control

doug.vanhoewyk@maine.gov

www.thinkfirstspraylast.org

Risk considers both:

1) the hazard



2) and the likelihood of exposure to the hazard.

For pesticides, exposure includes drinking water, diet, dermal, and inhalation routes.

What makes an effective pesticide?

- **Capable of solving the problem, *e.g.* spruce budworm outbreak.**
  - **Insect potency at low concentrations**
  - **Minimal applications**

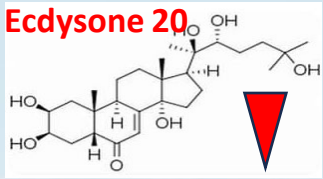
- **Does not create other problems (*i.e.* adverse events).**
  - **Low toxicity to off-target organisms including humans, wildlife, aquatic organisms, insects, *etc*.**
  - **Low environmental impact. Does the pesticide volatilize, leach into groundwater, bioaccumulate, or persist in the soil?**

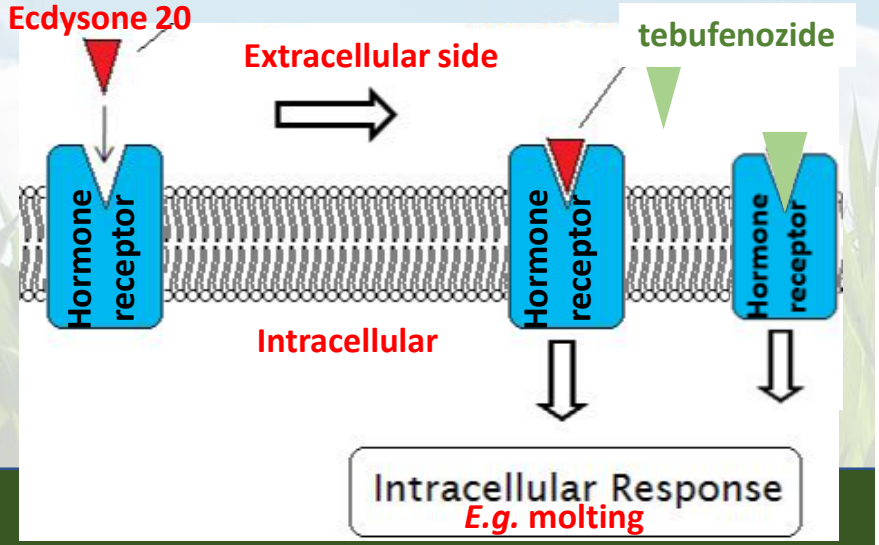
TEBUFENOZIDE

Understanding the biology of spruce budworm guides the effective design of insecticides.

- **Molting is an essential developmental process in spruce budworm**
  - **This process is regulated by the molting hormone, ecdysone 20.**
  - **This hormone is highly specific to the SBW's hormone receptor.**

Ecdysone 20





Tebufenozide has greater affinity to the hormone receptor compared to Ecdysone 20. This initiates premature molting. The disruption of the physiological and developmental process in SBW causes lethality.

TEBUFENOZIDE

I. Risk Assessment for humans and mammals

Toxicity is determined by LD_{50} assays in laboratories

- **Lethal dose for 50% of the individuals**
- **these data inform thresholds for human toxicity**

Examples of LD_{50} data in rats

	rat (mg/kg)
cyanide	3.6
DDT	87
aspirin	250
table salt	3000
Tebufenozide	>5000

EPA Categories

Table 2. Categories of Toxicity for Terrestrial Organisms

Oral dose LD_{50} (mg/kg-bw)	Toxicity Category
< 10	Very highly toxic
10 - 50	Highly toxic
51 - 500	Moderately toxic
501 - 2000	Slightly toxic
> 2000	Practically nontoxic

Conclusion: practically non-toxic to mammals, including humans.
It is also practically non-toxic to birds, earthworms, and reptiles.

TEBUFENOZIDE

II. Risk Assessment for other organisms

LD_{50} for honey bees is 234 ug/bee

Table 3. Categories of Toxicity for Bee (EPA)

Bee Acute Contact LD_{50} (µg/bee)	Toxicity Category
<2	Highly toxic
2 – 10.99	Moderately toxic
≥ 11	Practically nontoxic

- In contrast, LD_{50} assays indicate that tebufenozide is slightly to moderately toxic to aquatic life (*e.g.* trout, water fleas, lobster, *etc*).

  - However, the risk to aquatic organisms is minimal because:
    1. the applied concentration is lower than the LD_{50} conc. (↓toxicity)
    2. risk of exposure is low (risk for lobsters < trout < water fleas)
       - 100 foot setback from streams and water surfaces.

- Consumption of tebufenozide will be lethal to non-target caterpillars.

III. Environmental Risk Assessment

The chemical properties of tebufenozide prevents:

- Volatilization- movement into the atmosphere
- Leaching- movement into the groundwater
- Persistence in the soil- 90% is broken down in 100 days
- Bioaccumulation in the food chain
  - 90% is excreted in fish after 15 days.
  - In trout, less than 0.5% of ingested tebufenozide would remain in edible tissue after 15 days.
    - Extremely low risk to anglers.

Additional information about Tebufenozide

- No evidence that it is carcinogenic, neurotoxic, or an endocrine disruptor in humans.

- Recipient of EPA's first Green Chemistry Award in 1998.

BTk

- Bt_k contains spores of the naturally occurring bacterium *Bacillus thuringiensis*, subspecies *kurstaki* (Btk).

- Spores contain a dormant endotoxin that is only activated in caterpillars upon consumption.

- Used to control insects for > 50 years.

- Used on organic crops in Maine.

I. Organismal Risk Assessment for BT_k

- Even less toxic than tebufenozide.

  - EPA has waived the maximum residue limit on crops and food.
  - LD50 in rats is >5000 mg/kg. It is practically nontoxic to mammals, birds, aquatic organisms, and most insects.
  - However, it will be toxic to nontarget caterpillars upon consumption.

BTk

II. Environmental Risk Assessment

- Half-life on leaves is 2-4 days.
- Low-persistence in soil (10-fold decrease after 2 weeks).
- Low risk of leaching (trapped in the top 3 inches of soil and quickly degrades).
- No risk of bioaccumulation in the food chain.

Conclusions

- Environmental risks associated with tebufenozide and BTk are anticipated to be minimal.
- Risk of tebufenozide and BTk to most organisms is low at the expected environmental concentrations.
- Anticipated low risk to birds that prey upon caterpillars; foraging habits might be altered.
- Consumption of both insecticides will be lethal to nontarget caterpillars.

Questions?

Doug Van Hoewyk, PhD. Toxicologist. Maine Board of Pesticide Control

doug.vanhoewyk@maine.gov

www.thinkfirstspraylast.org

STATE OF MAINE
DEPARTMENT OF AGRICULTURE, CONSERVATION AND FORESTRY
BOARD OF PESTICIDES CONTROL
28 STATE HOUSE STATION
AUGUSTA, MAINE 04333

JANET T. MILLS
GOVERNOR

AMANDA E. BEAL
COMMISSIONER

May 6, 2025

Parterre Ecological
Shana Hostetter
14 Braintree St.
Portland, ME 04103

RE: Variance permit for CMR 01-026 Chapter 29, Parterre Ecological/Parterre Garden Services

Greetings,

The Board of Pesticides Control considered your application for a variance from Chapter 29 for 20 Sea Spray Drive in Biddeford. The variance is approved, provided that all products to be used are currently registered in the State of Maine or were registered at the time of purchase and that any application is made above the high-water line.

The Board authorizes the issuance of two-year permits for Chapter 29, therefore this permit is valid until December 31, 2026, as long as applications are consistent with the information provided on the variance request. Please notify the Board in advance of changes, particularly if you plan to use a different product from those listed.

Please bear in mind that your permit is based upon your company adhering to the precautions listed in Section X of your Chapter 29 variance request.

I will alert the Board at its next meeting that the variance permit has been issued. If you have any questions concerning this matter, please feel free to contact me at 287-2731.

Sincerely,

Alexander Peacock

Alexander Peacock
Director

ALEXANDER PEACOCK, DIRECTOR
90 BLOSSOM LANE, DEERING BUILDING

maine DEPARTMENT OF Agriculture Conservation & Forestry

PHONE: (207) 287-2731
THINKFIRSTSPRAYLAST.ORG

BOARD OF PESTICIDES CONTROL
APPLICATION FOR VARIANCE PERMIT
(Pursuant to Chapter 29, Section 6 of the Board's Regulations)

I.

Shana Hostetter		(717) 587-5355	
Name		Telephone Number	
Parterre Ecological			
Company Name			
20 Sea Spray Drive	Biddeford	ME	04005
Address	City	State	Zip

II.

Shana Hostetter		CMA-6371	
Master Applicator (if applicable)		License Number	
14 Braintree Street	Portland	ME	04103
Address	City	State	Zip

III. **As part of your application, please send a revegetation plan and digital photos showing the target site and/or plants and the surrounding area, particularly showing proximity to wetlands and water bodies, to pesticides@maine.gov**

IV. Area(s) where pesticide will be applied:

See attached Land Management Plan for more details. The invasive plant pressue is mild medium in intensity. It is spread throughout the existing native vegetation.

V. Pesticide(s) to be applied:(Including EPA Registration Number)

Round Up Custom, 524-343
Garlon 3A, 62719-37

VI. Purpose of pesticide application:

To control invasive plant species and replant with native vegetation.

VII. Approximate dates of spray application:

May 2025- December 2027

VIII. Application Equipment:

Cut Stump Application (Buckthorn blaster), backpack sprayer, hand held foamer

IX. Standard(s) to be varied from:

Chapter 29, Section 6, Section A

X. Method to ensure equivalent protection:

When using the backpack sprayer we will be using large droplet sizes to minimize drift. We will only apply herbicide when the wind is less than 15mph. Spray only when the ground is dry and not saturated with water. Avoid spraying when forecasts show a threat of heavy rains. Do not spray on rainy days and cease spray operations if rain is in the immediate forecast.

XI. Revegetation Plan (attach separately if necessary)

See attached Land Management Plan

Signed:_____Shana Hostetter_____Date:___1/23/25_____

Return completed form to: **Board of Pesticides Control, 28 State House Station, Augusta, ME 04333-0028**
OR E-mail to: pesticides@maine.gov

Rev. 8/2013

LAND MANAGEMENT PLAN

A NARRATIVE FOR INVASIVE MANAGEMENT & NATIVE PLANT RESTORATION

20 SEA SPRAY DRIVE, BIDDEFORD, MAINE

PARTERRE
ECOLOGICAL

CONTENTS

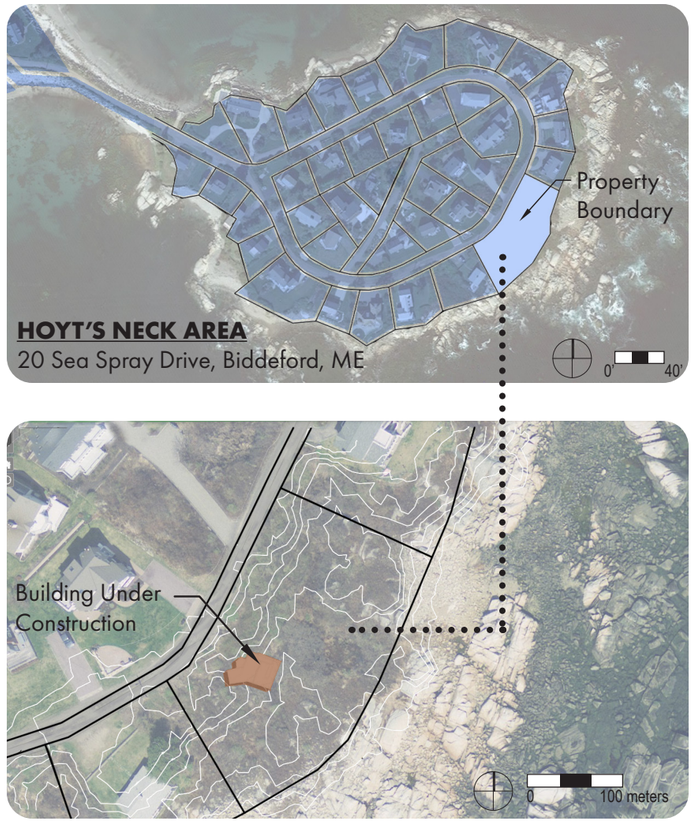
PROJECT INTRODUCTION

This plan addresses a proposed invasive management and restoration planting on the property at 20 Sea Spray Drive in Biddeford, Maine. This oceanfront lot, which spans just over 1.25 acres, is located on the tip of Hoyt's Neck in the Biddeford coastal area. Plans are underway for building a home on the property, and construction has begun.

Moderate invasive plant pressure exists along the edges of a previously disturbed area. Remedying the invaded edges now could spare the rest of the vegetated property to the north and south and retain its native plant habitat.

The invasive population on site is mature and self-perpetuating. These species will inevitability displace the remnant native population unless decisive action is taken. These invasives include common invasives such as bittersweet, common tansy, honeysuckle, knotweed, and purple loosestrife.

This plan identifies the invasive plants we propose to remove, describes each, and details best management practices for control and management. It also includes a proposed Landscape Concept and Plant Palette, specifying plant species. Finally, it provides a detailed maintenance calendar for all aspects of proposed management over an extended timeline.



Building under construction on the vacant land of 20 Sea Spray Drive.

PROJECT GOALS

With Department of Environmental Protection (DEP) and Town approval, we will identify and remove invasive plant species at the residence using manual hand removal, a cut-and-dab method, and a foliar spray application that is away from the coastline.

Native plant restoration will be managed by the Knickerbocker Group.

EXISTING CONDITIONS: INVASIVE PLANT SPECIES

(Above) Tanacetum vulgare, Common Tansy, line the edges of the distrubed areas.

(Below) Celastrus orbiculatus, Bittersweet, is interspersed throughtout the landscape.

(Below) Lonicera japonica, Honeysuckle, can be seen at the edges of the driveway

INVASIVE SPECIES PLANT

BOTANICAL NAME	COMMON NAME
Celastrus orbiculatus	Bittersweet
Lonicera japonica	Honeysuckle
Lythrum salicaria	Purple Loosestrife
Reynoutria japonica	Knotweed
Tanacetum vulgare	Common Tansy
Toxicodendron radicans	Poison Ivy

(Above) Tanacetum vulgare, Posion Ivy, can be seen amongst the vegetation.

(Below) Lythrum salicaria, Purple Loosestrife is interspersed throughout the landscape.

(Below) Reynoutria japonica, Knotweed, is sprouting by the distrubed areas.

PROPOSED INVASIVE MANAGMENT TECHNIQUES

IMPORTANT NOTE ON HERBICIDE APPLICATIONS BY COASTLINE AREA

Because some of the areas we will treat with herbicide are adjacent to the coastline, every effort will be made to perform these applications safely. We will prioritize manual removal where possible. We will use cut and dab herbicide applications when working in sensitive areas. We will only work with herbicide during dry stretches of weather and on calm days to minimize drift. We will use wetland safe herbicides only (Garlon 3A and Roundup Custom).

FOLIAR SPRAY:

Directed foliar sprays are herbicide/water mixes targeting invasive plant foliage. A certified herbicide technician will apply using a backpack sprayer—with low pressure and away from the coastline, drift inhibitors, and a spray shield—to enhance precision and cover all leaves to the point of runoff. Ideally, a water-soluble dye should be incorporated into the solution to track application and alert the technician to any unwanted spray drift.

CUT AND DAB TREATMENT:

All invasive plant species that have a base greater than 1" in caliper will be addressed with herbicide application. Invasive plants of this size usually have extensive fibrous root systems which provide beneficial soil stabilization and are best left in situ. Unfortunately, they also maintain the ability to resprout, which is why we propose a cut and dab method with Garlon 3A™ (a triclopyr-based herbicide) on individual cut stumps. Licensed Herbicide Applicators will complete all treatments.

Foliar herbicide application by licensed technician

Licensed applicators with required Personal Protective Equipment paint the stems of invasive species after cutting.

FOLIAR FOAM:

For larger mature stands of Knotweed, stands should be cut in May, and foliar or stem herbicide should be applied in late summer. The May mowing or cutting causes the knot-weed to regrow to a more manageable height in late summer, at which point the leaves can be easily painted with a 6.0% Aquaneat (glyphosate) solution before the plant pulls its nutrients back into the roots in preparation for winter.

CUT AND FILL:

For smaller patches of Knotweed, the stem should be cut between the 1st and 3rd node, and a 50% solution of glyphosate should be added to the hollow stem. For low-density patches, treat every third stem. This should be done for a consecutive 2-5 seasons.

Foliar herbicide application by licensed technician

Herbicide application by licensed technician

Foliar herbicide application by licensed technician

EXISTING CONDITIONS: NATIVE PLANT SPECIES

NATIVE SPECIES

BOTANICAL NAME	COMMON NAME
Aster	Coneflower
Ilex verticillata	Winterberry Holly
Myrica	Bayberry
Parthenocissus quinquefolia	Virginia Creeper
Rhus typhina	Staghorn Sumac
Spirea	Meadowsweet

PLANTING & RESTORATION

The Knickerbocker Group will manage the restoration of the site and has prepared a Planting Plan and Plant Palette, which can be found on the following pages.

(Above) Varieties of Asters are intermixed amongst Myrica (Bayberry), which make up the majority of the native species found on site.

(Below) A small stand of Rhus typhina (Staghorn Sumac) is growing amongst the boulders.

(Above) The male Ilex verticillata (Winterberry Holly) will not develop berries in the winter and can be seen scattered throughout the site.

(Below) Parthenocissus quinquefolia (Virginia Creeper) & Spirea (Meadowsweet) grow amongst invasive Lonicera japonica (Honeysuckle).

MANAGEMENT CALENDAR FOR TREATMENT

TASK	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Hand removal woody seedlings < 1" caliper	■	■	■	■	■						▫	▫
Hand pulling herbaceous species			■	■	■			▫	■	■	▫	
Mechanical management of woody invasives	■	■	■	■	■	▫	▫	▫	▫	▫	▫	▫
Cut and dab herbicide on woody invasives	▫	▫	▫	▫	▫	■	■	■	■	■	■	■
Japanese Knotweed Cutback				■	■	■						
Japanese Knotweed Chemical Treatment								■	■	■		

■ Optimal timing and efficiency

■ Not optimal but mostly effective

▫ Possible, but not ideal

The timing of various containment and restoration strategies is critical to their success. Fortunately, the calender provides ample opportunity for action at any time of the year. Tasks should be performed by trained ecological technicians and licensed herbicide applicators. These recommendations for restoration take into consideration the long term health of the East Point Audubon Sanctuary. Once invasive plants have been managed in a particular area, the restoration of native species should begin.

PROPOSED MANAGEMENT AND MAINTENANCE SCHEDULE

WINTER/EARLY SPRING 2025 (WITH DEP AND TOWN APPROVAL)

» Systematically remove woody invasive plants according to priority.

EARLY TO MID SUMMER 2025

» Treat woody plant reprouts with herbacide (foliar treatment of foam or spray)

» Hand pull any invasive seedlings less than 1" in diameter; foliar treat invasive herbaceous perennials (foam or spray) and remove seed heads of Loosestrife.

MID SUMMER TO FALL 2025

» Monitor plant response and continue hand pulling and herbicide application methods on resprouting invasive plant species.

ONGOING MAINTENANCE AND MONITORING:

» After the treatments up until this point, the management plan should be evaluated. If treatments have been successful, only monitoring and minimal hand removal need be continued to keep invasive plant species at bay. Native trees, shrubs, and herbaceous forbs should dominate the minimally invaded areas.

PLANT PALETTE

Penstemon hirsutus
Foxglove Beardtongue
2′-3′ ht.
Blooms May - June
Native

Juniperus ‘Sea Green’
Sea Green Juniper
4′-6′ ht.
Evergreen

Sesleria autumnalis
Autumn Moor Grass
2′-2.5′ ht.

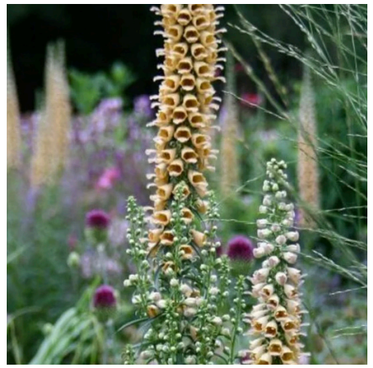
Ilex verticillata
Winterberry
4′-8′ ht.
Native
Strong Winter Interest

Deschampsia flexuosa
Crinkled Hair Grass
2′-3′ ht.
New England Native-ar

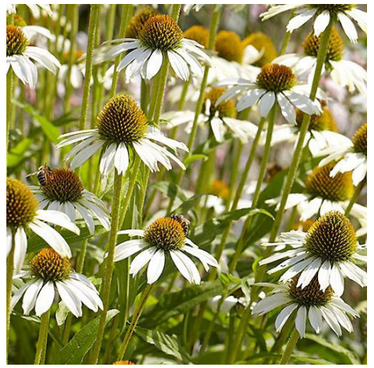
Calamagrostis ac. ‘Karl Foerster’
Feather Reed Grass
4′-6′ ht.
Strong Winter Interest

Calamintha nepeta
White Calamint
1.5′-2.5′ ht.
Blooms June - September
Pollinator Magnet

Amsonia hubrichtii
Threadleaf Bluestar
2.5′-4′ ht.
Blooms May - June
Strong Fall Interest
U.S. Native



Digitalis ferruginea
Rusty Foxglove
3′-5′ ht.
Blooms May - June



Echinacea p. ‘White Swan’
White Swan Coneflower
2.5′-3.5′ ht.
Blooms July - September
U.S. Native-ar

Eutrochium maculatum
Joe Pye Weed
4′-6′ ht.
Blooms August - October
New England Native

Pennisetum alop. ‘Hameln’
Dwarf Fountain Grass
1.5′-2.5′ ht.

Nepeta ‘Junior Walker’
Catmint
2′-2.5′ ht.
Blooms May - August
Pollinator Magnet

Cornus sericea ‘Arctic Fire’
Redtwig Dogwood
3′-6′ ht.
Blooms May
Native-ar
Strong Winter Interest

Aster ‘Wood’s Light Blue’
Wood’s Light Blue Aster
1.5′-2.5′ ht.
Blooms August - Frost
Pollinator Magnet
New England Native

Panicum virgatum ‘Shenandoah’
Switchgrass
3′-4′ ht.
New England Native-ar

Comptonia peregrina
Sweetfern
2.5′-5′ ht.
Native

Amelanchier canadensis
Serviceberry
10′-15′ ht.
Blooms April - May
Native

GENERAL NOTES:

1. CONDITIONS IN THE FIELD MAY DIFFER FROM THOSE SHOWN; CONDITIONS SHALL BE VERIFIED ON-SITE BY CONTRACTOR, AND DISCREPANCIES SHALL BE SHARED WITH LANDSCAPE ARCHITECT.

2. ANY UNFORESEEN SITE CONDITIONS WHICH WILL ALTER OR AFFECT PLANS SHALL BE SHARED WITH LANDSCAPE ARCHITECT FOR REVIEW.

3. EXCAVATION WORK SHALL BE DONE IN COORDINATION WITH (811) DIG SAFE TO PROTECT EXISTING UTILITIES. DAMAGED UTILITIES DURING CONSTRUCTION SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.

4. CONTRACTOR MUST CHECK AND CONFIRM SPOT ELEVATIONS WITH LANDSCAPE ARCHITECT PRIOR TO BEGINNING EARTH WORK.

5. WORK SHALL BE CONDUCTED IN ACCORDANCE WITH THE MAINE STATE BUILDING CODE.

6. CONTRACTOR SHALL RECEIVE ALL NECESSARY WORK PERMITS PRIOR TO BEGINNING CONSTRUCTION.

7. EXCESS SOILS & MATERIAL STORED ON-SITE SHALL BE APPROVED AND LOCATED BY LANDSCAPE ARCHITECT.

LARGE FORMAT FLAGSTONE FOR DRIVEWAY & WALK:
DODLIN HILL GRANITE OR APPROVED ALTERNATIVE

CHARACTER OF PLANTING

CHARACTER OF BOULDERS TO RETAIN SLOPE(S):
SALVAGED FROM SITE

PLANTING SCHEDULE					
ID	Qty	Latin Name	Common Name	Scheduled Size	Notes
TREES					
AC	1	Amelanchier canadensis	Serviceberry	6'-7' ht.	
PR	3	Pinus rigida	Pitch Pine	10'-12' ht.	
SHRUBS					
CP	23	Comptonia peregrina	Sweet Fern	#3	
CS	9	Cornus sericea 'Arctic Fire'	Red Twig Dagwood	#7	
IVWR	15	Ilex verticillata 'Winter Red'	Winterberry	#7	
JP	6	Juniperus x pfitzeriana 'Sea Green'	Chinese Juniper	2.5'-3' ht.	
PERENNIALS					
AH	196	Amsonia hubrichtii	Blue Star	#2	
AL	10	Aster linariifolius	Stiff Leaved Aster	2qt	
AO	8	Aster obl. Wood's Light Blue	Woods Light Blue Aster	#1	
ARF	58	Aster oblongifolius 'Raydon's Favorite'	Aromatic Aster	#1	
CKF	32	Calamagrostis x acutiflora 'Karl Foerster'	Feather Reed Grass	#2	
CNN	7	Calamintha nepeta subs. nepeta	Calamint	#1	
CA	50	Carex appalachica	Appalachian Sedge	#1	
DC	86	Deschampsia cespitosa 'Goldtau'	Tufted Hair Grass	#2	
DF	7	Digitalis feruginea	Rusty Foxglove	#1	
EPW	23	Echinacea purpurea 'White Swan'	Coneflower	#1	
ED	8	Eupatorium dubium 'Baby Joe'	Joe Pye Weed	#1	
Nwl	5	Nepeta 'Walker's Low'	Walker's Low Catmint	#1	
PV	218	Panicum virgatum 'Heavy Metal'	Switchgrass	#2	
PAC	26	Pennisetum alopecuroides 'Cassian'	Fountain Grass	#2	
PH	38	Penstemon hirsutus	Hairy Beardtongue	#1	
PA	10	Perovskia atriplicifolia	Russian Sage	#1	
SS	4	Schizachyrium scoparium 'Standing Ovation'	Little Bluestem	#2	
SA	247	Sesleria autumnalis	Autumn Moor Grass	#1	
SF	18	Solidago 'Fireworks'	Fireworks Goldenrod	#1	

NOT FOR CONSTRUCTION

KNICKERBOCKER GROUP

KNICKERBOCKERGROUP.COM
207.633.3818

ROCK HOUSE

20 SEA SPRAY DRIVE
BIDDEFORD, MAINE

ISSUED LOG

LANDSCAPE CONCEPT	10/25/24

JOB No. 10664

L-1.0

LANDSCAPE CONCEPT

STATE OF MAINE
DEPARTMENT OF AGRICULTURE, CONSERVATION AND FORESTRY
BOARD OF PESTICIDES CONTROL
28 STATE HOUSE STATION
AUGUSTA, MAINE 04333

JANET T. MILLS
GOVERNOR

AMANDA E. BEAL
COMMISSIONER

May 6, 2025

Parterre Ecological
Shana Hostetter
14 Braintree St.
Portland, ME 04103

RE: Variance permit for CMR 01-026 Chapter 29, Parterre Ecological/Parterre Garden Services

Greetings,

The Board of Pesticides Control considered your application for a variance from Chapter 29 for 690 Seashore Avenue on Peaks Island. The variance is approved, provided that all products to be used are currently registered in the State of Maine or were registered at the time of purchase and that any application is made above the high-water line.

The Board authorizes the issuance of two-year permits for Chapter 29, therefore this permit is valid until December 31, 2026, as long as applications are consistent with the information provided on the variance request. Please notify the Board in advance of changes, particularly if you plan to use a different product from those listed.

Please bear in mind that your permit is based upon your company adhering to the precautions listed in Section X of your Chapter 29 variance request.

I will alert the Board at its next meeting that the variance permit has been issued. If you have any questions concerning this matter, please feel free to contact me at 287-2731.

Sincerely,

Alexander Peacock

Alexander Peacock
Director

ALEXANDER PEACOCK, DIRECTOR
90 BLOSSOM LANE, DEERING BUILDING

PHONE: (207) 287-2731
THINKFIRSTSPRAYLAST.ORG

BOARD OF PESTICIDES CONTROL
APPLICATION FOR VARIANCE PERMIT
(Pursuant to Chapter 29, Section 6 of the Board's Regulations)

I.

Shana Hostetter		(717) 587-5355	
Name		Telephone Number	
Parterre Ecological			
Company Name			
690 Seashore Ave	Peaks Island	ME	04108
Address	City	State	Zip

II.

Shana Hostetter		CMA-6371	
Master Applicator (if applicable)		License Number	
14 Braintree Street	Portland	ME	04103
Address	City	State	Zip

III. **As part of your application, please send a revegetation plan and digital photos showing the target site and/or plants and the surrounding area, particularly showing proximity to wetlands and water bodies, to pesticides@maine.gov**

IV. Area(s) where pesticide will be applied:

See attached Land Management Plan for more details. The invasive plant pressure is high in intensity. Mostly Knotweeed, with some woody invasive pressure as well.

V. Pesticide(s) to be applied:(Including EPA Registration Number)

Round Up Custom, 524-343

Garlon 3A, 62719-37

VI. Purpose of pesticide application:

To control invasive plant species and replant with native vegetation.

VII. Approximate dates of spray application:

September 2025- December 2027

VIII. Application Equipment:

Cut Stump Application (Buckthorn blaster), backpack sprayer, hand held foamer

IX. Standard(s) to be varied from:

Chapter 29, Section 6, Section A

X. Method to ensure equivalent protection:

When using the backpack sprayer we will be using large droplet sizes to minimize drift. We will only apply herbicide when the wind is less than 15mph. Spray only when the ground is dry and not saturated with water. Avoid spraying when forecasts show a threat of heavy rains. Do not spray on rainy days and cease spray operations if rain is in the immediate forecast.

XI. Revegetation Plan (attach separately if necessary)

See attached Land Management Plan

Signed: Shana Hostetter Date: 1/31/25

Return completed form to: **Board of Pesticides Control, 28 State House Station, Augusta, ME 04333-0028**
OR E-mail to: pesticides@maine.gov

Rev. 8/2013

LAND MANAGEMENT PLAN

A NARRATIVE FOR INVASIVE MANAGEMENT & NATIVE PLANT RESTORATION

LANDSMAN PROPERTY • PEAKS ISLAND, PORTLAND, MAINE

PARTERRE
ECOLOGICAL

A view of the Landsman residence and the vegetation behind the home. The orange vegetation shows a Knotweed monoculture that extends beyond the property boundary.

CONTENTS

PROJECT INTRODUCTION

This plan addresses proposed invasive management and contains a native restoration narrative at the Landsman property on Peaks Island, Portland, Maine. The oceanfront property sits on the East side of the Island spanning just over 0.5 acres in a residential area. The property abuts large natural areas to the West and Wharf Cove in the Atlantic Ocean to the East. As a monoculture of mature Knotweed from the western natural areas encroach on the Landsman property, little more than invasive and a few nonnative ornamental plants comprise the property's vegetation. With approval from the Department of Environmental Protection (DEP), removing invasive species will allow Matthew Cunningham Landscape Design (MCLD) team, specializing in native plant garden design, to manage the restoration planting.

Map the of residential parcels on Peaks Island including the Landsman property boundary and the large natural area parcels to the West.

The invasive population on-site and on the entirety of Peaks Island is mature and self-perpetuating. These invasive species outcompete native trees, shrubs, and wildflowers in Peaks Island's natural habitats, create monoculture stands devoid of biodiversity, create habitat for ticks, and reduce habitat for native wildlife. These species will inevitably displace the remnant native population of the Island and are considered a highly invasive threat to entire ecosystems unless decisive action is taken. The invasive on the Landsman property are classified as "widespread" and "severely invasive" by the Maine Natural Areas Program (MNAP), which is within the Maine Department of Agriculture, Conservation, and Forestry.

Significant invasive plant pressure exists on the site of highly invasive and mature Knotweed, Asiatic Bittersweet, Shrub Honeysuckle, and Multiflora Rose. Additionally, the deep, matted root system of Knotweed poses a threat to the septic system on-site and has prompted the interest of the property owner to work collaboratively with abutters to help abate Knotweed growth. Action to remedy the densely invaded property boundary on the western part of the site now could spare the rest of the property from invasion and allow MCLD to restore the property to a healthy and biodiverse ecosystem.

This plan identifies the invasive plants we propose to remove, describes each, and details best management practices for control and management. The plan also includes a narrative for proposed native restoration and specifying plant species. Finally, it provides a detailed maintenance calendar for all aspects of proposed management and ecological restoration over an extended timeline.

PROJECT GOALS

The Landsman property is on the Eastern side of Peaks Island, Maine. The property abuts Wharf Cove in the Atlantic Ocean to the East, large natural areas to the West, and several residential properties to the North and South. Little more than invasive plant varieties and a few nonnative ornamental plants comprise the property's vegetation as the invasive species dominate the native ecosystems that are present. This Land Management Plan aims to present an inventory of the invasive species, share our Invasive Plant Management strategies, and propose native species to replace the removed invasive plants.

Native plant restoration will be managed by Matthew Cunningham Landscape Design (MCLD), a team specializing in native plant garden design.

An aerial view of the Landsman property shows the bright orange vegetation of a mature Knotweed monoculture encroaching from the West. The area of Knotweed that this plan proposes for invasive management and removal is highlighted in blue.

EXISTING CONDITIONS: INVASIVE PLANT SPECIES

INVASIVE SPECIES PLANT KEY

BOTANICAL NAME	COMMON NAME
Celastrus orbiculatus	Bittersweet
Lonicera morrowii	Shrub Honeysuckle
Ligustrum vulgare	Privet
Fallopia japonica	Knotweed
Rosa multiflora	Multiflora Rose

(Above) A bramble of Celastrus orbiculatus, Bittersweet, at the front of the property.

(Below) Mature Lonicera morrowii Shrub Honeysuckle, along the foundation of the home.

(Above) Fallopia japonica, Knotweed, is encroaching on the property from the West.

(Below) Rosa multiflora, Multiflora Rose & Lonicera japonica, Shrub Honeysuckle are intertwined.

An aerial view of the Landsman residence. The orange vegetation shows a Knotweed monoculture that extends beyond the property boundary. The area that this plan proposes for invasive management and removal is highlighted in blue and includes Knotweed, Shrub Honeysuckle, and Bittersweet.

INVASIVE PLANT MANAGEMENT TECHNIQUES

IMPORTANT NOTE ON HERBICIDE APPLICATIONS BY COASTLINE AREA

Because some of the areas we will treat with herbicide are adjacent to the coastline, every effort will be made to perform these applications safely. We will prioritize manual removal where possible. We will use cut and dab herbicide applications when working in sensitive areas. We will only work with herbicide during dry stretches of weather and on calm days to minimize drift. We will use wetland safe herbicides only (Garlon 3A and Roundup Custom).

FOLIAR SPRAY:

Directed foliar sprays are herbicide/water mixes targeting invasive plant foliage. A certified herbicide technician will apply using a backpack sprayer—with low pressure and away from the coastline, drift inhibitors, and a spray shield—to enhance precision and cover all leaves to the point of runoff. Ideally, a water-soluble dye should be incorporated into the solution to track application and alert the technician to any unwanted spray drift.

CUT AND DAB TREATMENT:

All invasive plant species that have a base greater than 1" in caliper will be addressed with herbicide application. Invasive plants of this size usually have extensive fibrous root systems which provide beneficial soil stabilization and are best left in situ. Unfortunately, they also maintain the ability to resprout, which is why we propose a cut and dab method with Garlon 3A™ (a triclopyr-based herbicide) on individual cut stumps. Licensed Herbicide Applicators will complete all treatments.

Foliar herbicide application by licensed technician

Licensed applicators with required Personal Protective Equipment paint the stems of invasive species after cutting.

FOLIAR FOAM:

Cutting alone is not an effective tool for managing Knotweed. However, cutting can be integral to managing this plant, particularly when combined with follow-up herbicide application. An adequately timed cutting will eliminate the tall canopy and simplify follow-up operations. For more extensive mature stands of Knotweed, stands should be cut in May, and foliar or stem herbicide should be applied in late summer. The cutting in May causes the Knotweed to regrow to a more manageable height in late summer. At this point, the leaves can be easily painted with a 6.0% Aquaneat (glyphosate) solution before the plant pulls its nutrients back into the roots in preparation for winter. Cutting later than June reduces your operational window to chemically treat knotweed, and waiting too late in the season can result in almost no regrowth.

After the Knotweed has been cut in early June, the plant will respond by utilizing stored carbohydrates, further reducing the plant's vigor. The herbicides used for a foliar application move through the plant. To control the rhizomes, the application needs to be made later in the season, when the movement of carbohydrates is back to the rhizomes for growth and storage.

Foliar herbicide application by licensed technician

CUT AND FILL:

When foliar application is not an option (Knotweed in sensitive areas and/or mixed with desired plants) or for smaller patches of Knotweed stem application is an option. For large populations, the large stems are cut at 18 inches. The remaining stems are then treated between the first and second nodes with a 50% solution of glyphosate that is put into the hollow tube of the stem and its walls. This should be done for consecutive 2-5 seasons.

Herbicide application by licensed technician

Foliar herbicide application by licensed technician

PROPOSED MANAGEMENT PER INVASIVE SPECIES

ORIENTAL BITTERSWEET

CELASTRUS ORBICULATUS

DESCRIPTION:

Celastrus orbiculatus, Asiatic Bittersweet is a deciduous climbing vine common in areas of disturbance in our New England forests. It has glossy, rounded leaves that are alternate with finely toothed margins. The leaves turn yellow in the fall. The fruiting plants produce small greenish flower clusters from leaf axils that mature in fall to produce high numbers of fruiting seed. The seed are noticeably yellow, globular capsules that split open at maturity to reveal red-orange fruiting seeds. Roots are also distinctly orange.

HABITAT:

Bittersweet spreads easily into forest edges, woodlands, unmanaged meadows and old fields. Most disturbed sites that are not being actively managed that receive full sun are susceptible. The vine can tolerate shade but is often found in more open, sunny areas.

MANAGEMENT:

Small seedlings can be hand pulled, but bittersweet resprouts prolificate to form root fragments, so more aggressive measures must be taken on all specimens. For established plants, vines should be cut to the ground to reduce mass and treated with the cut-and-dab method. Bittersweet aggressively suckers after cutting, so it is essential to cut and treat during or after its flowering period (late June to December).

SHRUB HONEYSUCKLE

LONICERA MORROWII

DESCRIPTION:

Lonicera morrowii, Morrow's honeysuckles are upright, deciduous shrubs that typically have a multi-stem mounding appearance. Oval leaves are opposite along the stem with smooth edges (no teeth or lobes) and hairy on the underside. Mature stems are often hollow on the interior and peeling on the outer bark. In the spring pairs of fragrant, tubular flowers less than an inch long are borne along the stem in the leaf axils. The fruits are red to orange, and fleshy.

HABITAT:

Honeysuckles are relatively shade-intolerant and usually colonize forest edges, abandoned fields, and other open, upland habitats. Grazed meadows and disturbed woodlands are especially vulnerable. Woodlands and open meadows, especially those that have been grazed or otherwise disturbed and are left unmanaged are also highly susceptible. Morrow's Honeysuckle are highly adaptable and can grow in even challenging environments such as roadsides and wetland edges.

MANAGEMENT:

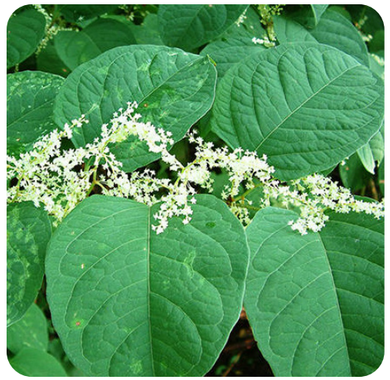
Honeysuckle management can combine mechanical mowing and manual hand pulling with cut and dab herbicide treatments. Small specimens may be removed manually as honeysuckle root systems are fairly shallow. Root resprouting can persist for a few years and several seasons of management may be required to fully control the population.

JAPANESE KNOTWEED

Fallopia japonica

HABITAT:

that forms dense monocultures on various site conditions, from roadsides to stream banks. Knotweed is a relative of buckwheat, smartweed, and the Noxious Weed mile-a-minute vine. Japanese knotweed was introduced to the U.S. as ornamentals during the late 1800s. However, it has become an invasive plant in our natural areas due to its imposing height, dense growth habit, aggressive spread, and seeming indifference to control methods.



DESCRIPTION:

Knotweed, Fallopia japonica, is a tall-growing, hollow-stemmed, perennial plant that can grow to over 10 feet in height. Stems of Japanese knotweed are smooth, stout and swollen at joints where the leaf meets the stem. Although leaf size may vary, they are normally about 6 inches long by 3 to 4 inches wide on a mature plant, broadly oval to somewhat triangular and pointed at the tip. The greenish-white flowers occur as branched sprays in summer and are followed soon after by small winged fruits. Seeds are triangular, shiny, and very small, about 1/10 inch long.

MANAGEMENT:

Knotweed management can combine foliar spray and cut-and-fill herbicide treatments. Precisely timed cuttings of Knotweed increase the operational window to chemically treat. Either of these treatments should be done for consecutive 2-5 seasons.

MULTIFLORA ROSE

Rosa multiflora

DESCRIPTION:

Rosa multiflora, Multiflora Rose is a shrub with arching canes and a mounding shape in the landscape. The leaves are divided into five to eleven sharply toothed leaflets. The base of each leaf stalk has a pair of fringed bracts, which is a key identifier of the plant from other wild roses. Beginning in early summer, clusters of showy white flowers appear. The flowers are followed by developing red fruit, or hips, during the summer that remain on the plant through the winter.

HABITAT:

Multiflora Rose thrives in early successional habitat. The rose has a wide tolerance for various soil, moisture, and light conditions. It occurs in dense woods, along river banks and roadsides and in open unmanaged fields. It can form a dense understory that suppresses growth of native plant species. The seed is readily dispersed by birds, and the extended productivity of the fruit into winter months allows widespread distribution of the plant.

MANAGEMENT:

Manual methods of hand-pulling seedlings is effective. For more established shrubs, a combination of pruning to reduce mass followed by cut & dab treatments with a triclopyr-based herbicide is recommended. Persistent root infestations may require repeat cutting over several seasons. Rake any seeds present, bagging and disposing of correctly.

MANAGEMENT CALENDAR FOR TREATMENT & PLANTING

TASK	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Hand removal woody seedlings < 1" caliper												
Hand pulling herbaceous species												
Mechanical management of woody invasive												
Cut and dab herbicide on woody invasive												
Japanese Knotweed Cutback												
Japanese Knotweed Chemical Treatment												

Optimal timing and efficiency

Not optimal but mostly effective

Possible, but not ideal

The timing of various containment and restoration strategies is critical to their success. Fortunately, the calender provides ample opportunity for action at any time of the year. Tasks should be performed by trained ecological technicians and licensed herbicide applicators. These recommendations for restoration take into consideration the long term health of the East Point Audubon Sanctuary. Once invasive plants have been managed in a particular area, the restoration of native species should begin.

PROPOSED MANAGEMENT AND MAINTENANCE SCHEDULE

LATE SPRING/ EARLY SUMMER 2025 (WITH DEP APPROVAL)

» Systematically remove woody invasive plants according to priority.

» Cut and remove all Japanese Knotweed

LATE SUMMER/FALL 2025

» Treat Japanese Knotweed reprouts with herbicide (foliar treatment of spray or foam)

» Treat woody plant reprouts with herbicide (foliar treatment of spray or foam)

» If the invasive plant management schedule holds, it is possible to plant larger trees and shrubs into the disturbed areas in the late fall of 2025. However, due to the intense nature of the Knotweed monoculture, we would recommend waiting until the following year to plant.

2026

» Continue the same pattern as the 2025 season.

2027

» Assess the effectiveness of the management in the past 2 years.

Landsman Residence
Preliminary Planting Proposal

690 Seashore Ave, Peaks Island, Portland, ME

The proposed planting plan for the site will focus on enhancing local biodiversity by implementing primarily native trees, shrubs, and perennials that are well-adapted to the region's climate and soil conditions. These plants will provide various ecosystem services and promote soil health, structure, and water retention. By prioritizing native species, the proposed planting plan aims to create a sustainable and resilient landscape that requires less maintenance and reduces the need for irrigation and fertilization. Overall, this approach will contribute to the long-term ecological health of the site and promote positive environmental and aesthetic outcomes. Please refer to the subsequent list for specific information regarding suggested plant species and cultivars.

Trees	
Acer rubrum 'Red Sunset'	Red Sunset Red Maple
Amelanchier canadensis	Shadblow Serviceberry
Ilex opaca	American Holly
Juniperus virginana	Eastern Red Cedar
Picea abies	Norway Spruce
Thuja plicata 'Green Giant'	Green Giant Arborvitae
Shrubs	
Aronia arbutifolia 'Brilliantissima'	Red Chokeberry
Cephalanthus occidentalis	Buttonbush
Clethra alnifolia	Summersweet
Clethra alnifolia 'Hummingbird'	Hummingbird Summersweet
Comptonia peregrina	Sweetfern
Fothergilla gardenii	Dwarf Fothergilla
Hamamelis virginiana	Common Witchhazel
Hydrangea paniculata 'Tardiva'	Tardiva PeeGee Hydrangea
Hydrangea quercifolia 'Pee Wee'	Pee Wee Oakleaf Hydrangea
Ilex glabra 'Shamrock'	Dwarf Inkberry
Ilex verticillata 'Red Sprite'	Red Sprite Winterberry
Ilex verticillata 'Southern Gentleman'	Southern Gentleman Winterberry
Juniperus communis	Common Juniper
Myrica gale	Sweetgale
Myrica pensylvanica	Northern Bayberry
Prunus maritima	Beach Plum
Rhododendron arborescens	Sweet Azalea
Rhus aromatica 'Gro-Lo'	Fragrant Sumac
Rosa virginiana	Virginia Rose
Viburnum dentatum	Arrowwood Viburnum
Perennials	
Alchemilla mollis	Lady's Mantle
Amsonia hubrichtii	Bluestar
Anemone canadensis	Canada Anemone
Anemone x hybrida 'Honorine Jobert'	Honorine Jobert Japanese Anemone
Arctostaphylos uva-ursi	Bearberry
Astilbe 'Bridal Veil'	Bidal Veil Astilbe
Athyrium filix-femina	Lady Fern
Carex pensylvanica	Oak Sedge
Dennstaedia punctiloba	Hay-Scented Fern
Echinacea purpurea 'Magnus'	Magnus Purple Conetlower
Eragrostis spectabilis	Purple Love Grass
Eupatorium dubium 'Baby Joe'	Baby Joe Pye Weed
Geranium 'Rozanne'	Rozanne Cranesbill
Nepeta x faassenii 'Walker's Low'	Walker's Low Catmint
Pennisetum alopecuroides 'Hameln'	Dwarf Fountain Grass
Rudbeckia fulgida 'Goldsturm'	Goldsturm Black-Eyed-Susan
Salvia 'May Night'	May Night Sage
Schizachyrium scoparium 'Carousel'	Carousel Little Bluestem
Sporobolus heterolepsis	Prairie Dropseed
Symphyotrichum novi-belgii 'Wood's Light Blue'	Wood's Light Blue New York Aster

STATE OF MAINE
DEPARTMENT OF AGRICULTURE, CONSERVATION AND FORESTRY
BOARD OF PESTICIDES CONTROL
28 STATE HOUSE STATION
AUGUSTA, MAINE 04333

JANET T. MILLS
GOVERNOR

AMANDA E. BEAL
COMMISSIONER

7c

May 15, 2025

Wilkinson Ecological Design, Inc.
Dylan Brown
28 Lots Hollow Rd.
Orleans, MA 02653

RE: Variance permit for CMR 01-026 Chapter 29, Wilkinson Ecological Design, Inc., 73 Lester B Orcutt Blvd, Biddeford

Greetings,

The Board of Pesticides Control considered your application for a variance from Chapter 29. The variance is approved, provided that all products to be used are currently registered in the State of Maine or were registered at the time of purchase and that any application is made above the high-water line.

The Board authorizes the issuance of two-year permits for Chapter 29, therefore this permit is valid until December 31, 2026, as long as applications are consistent with the information provided on the variance request. Please notify the Board in advance of changes, particularly if you plan to use a different product from those listed.

Please bear in mind that your permit is based upon your company adhering to the precautions listed in Section X of your Chapter 29 variance request.

I will alert the Board at its next meeting that the variance permit has been issued. If you have any questions concerning this matter, please feel free to contact me at 287-2731.

Sincerely,

Alexander Peacock

Alexander Peacock
Director

ALEXANDER PEACOCK, DIRECTOR
90 BLOSSOM LANE, DEERING BUILDING

DEPARTMENT OF Agriculture Conservation & Forestry

PHONE: (207) 287-2731
THINKFIRSTSPRAYLAST.ORG

BOARD OF PESTICIDES CONTROL
APPLICATION FOR VARIANCE PERMIT
(Pursuant to Chapter 29, Section 6 of the Board's Regulations)

I.

Dylan Brown			(508) 246-7087
Name			Telephone Number
Wilkinson Ecological SCF-2735			
Company Name			
28 Lots Hollow Road	Orleans	MA	02653
Address	City	State	Zip

II.

Dylan Brown		CMA-6433	
Master Applicator (if applicable)		License Number	
28 Lots Hollow Road	Orleans	MA	02653
Address	City	State	Zip

III. **As part of your application, please send a revegetation plan and digital photos showing the target site and/or plants and the surrounding area, particularly showing proximity to wetlands and water bodies, to pesticides@maine.gov**

IV. Area(s) where pesticide will be applied:

73 Lester B Orcutt Boulevard
Biddeford, ME 04005

Referring to the attached PDF plan of the target site, herbicide will be applied to all areas highlighted in orange where invasive plants are present. Herbicides will be used selectively only on invasive plants.

V. Pesticide(s) to be applied:(Including EPA Registration Number)

RoundUp Custom (EPA 524-343)
Garlon 3A (EPA 62719-037)
Cide-Kick II (adjuvant)

VI. Purpose of pesticide application:

To control the invasive plant species found in treatment areas outlined in Section IV above.

VII. Approximate dates of spray application:

June 2025 - October 2026

VIII. Application Equipment:

Hand-powered backpack sprayer, drip bottle, dauber

IX. Standard(s) to be varied from:

Hand-powered backpack sprayer, drip bottle, dauber

X. Method to ensure equivalent protection:

For environment - Backpack sprayers will only be used on days with winds less than 10 miles per hour and no threat of rain in the forecast. Spray applications will be made using low pressure and large droplet size while specifically targeting invasive vegetation. Vegetation to be sprayed near water has been previously mowed down to reduce potential for drift. When applicable, herbicides will be applied directly to the stems of invasive plants with use of drip bottles and daubers.
For applicators - Proper PPE will be used according to herbicide labels.
For public - Trails throughout the Audubon and surrounding properties will be closed.

XI. Revegetation Plan (attach separately if necessary)

See Parterre Ecological Land Management Plan (also attached) for neighboring East Point Audubon Sanctuary property with similar site conditions. Given vast quantity and variety of native vegetation already in place, as seen on page 14 titled "Existing Conditions: Native Species Inventory", native plants will re-naturalize the areas treated with herbicides.

Signed: _____ Date: 5/12/25

Return completed form to: **Board of Pesticides Control, 28 State House Station, Augusta, ME 04333-0028**
OR E-mail to: pesticides@maine.gov

Rev. 8/2013

LAND MANAGEMENT PLAN

A NARRATIVE FOR INVASIVE MANAGEMENT & NATIVE PLANT RESTORATION

View of the Pitch Pine Forest along the coast.

EAST POINT AUDUBON SANCTUARY • BIDDEFORD POOL, MAINE

PARTERRE
ECOLOGICAL

PROJECT INTRODUCTION

This plan addresses a proposed invasive management and restoration planting at the East Point Audubon Sanctuary located at the end of Lester B. Orcutt Blvd. in Biddeford Pool, ME. There are about 22 acres of natural space at this property. It is situated along the coast and is a neighboring property of the Abenakee Golf Club.

Overall this property is densely vegetated with woody trees and shrubs. There is significant invasive plant pressure in the wild space, mostly along the edges. The interior of the property is minimally effected by invasive species. Action to remedy the densely invaded edges now could spare the rest of the property and retain its native plant habitat.

The invasive population on site is mature and self-perpetuating. These species will inevitability displace the remnant native population unless decisive action is taken. These invasives include common culprits such as privet, bittersweet, honeysuckle, barberry, buckthorn and Norway maple.

The purpose of this plan is to identify the invasives plants we propose to remove, provide a description of each, and detail best management practices for control and management. The plan also includes a narrative for proposed native restoration, specifies plant species and delineates planting methods.

Finally, it provides a detailed maintenance calender for all aspects of proposed management and ecological restoration over an extended timeline.

CONTENTS

EAST POINT SANCTUARY GEOGRAPHY & GOALS

The East Point Audubon Sanctuary is situated at the end of the Biddeford Pool peninsula. The property borders Saco Bay and the Gulf of Maine, The Abenakee Club, and several residential properties. There is a short trail open to the public that hugs the coastline through uplands, sandy coastlines, shrublands, and meadows. There is a mix of native and invasive plant vegetation. The invasive plants are mostly concentrated on the edges of the wild spaces and are starting to dominate the native ecosystems that are present. The goal of this Land Management Plan is to present an inventory of the native and invasive species, identify the level of invasive plant pressure, share our Invasive Plant Management strategies, and propose native species to replace the removed invasives if necessary.

Property Boundary of East Point Audubon Sanctuary

Wild Spaces Where Invasive Plant Management Will Occur

0' 100' 200' 300'

EXISTING CONDITIONS: INVASIVE PLANT IMAGES

Privet has escaped from ornamental residential gardens is shown here along the trail. (Trail to Property Line Area)

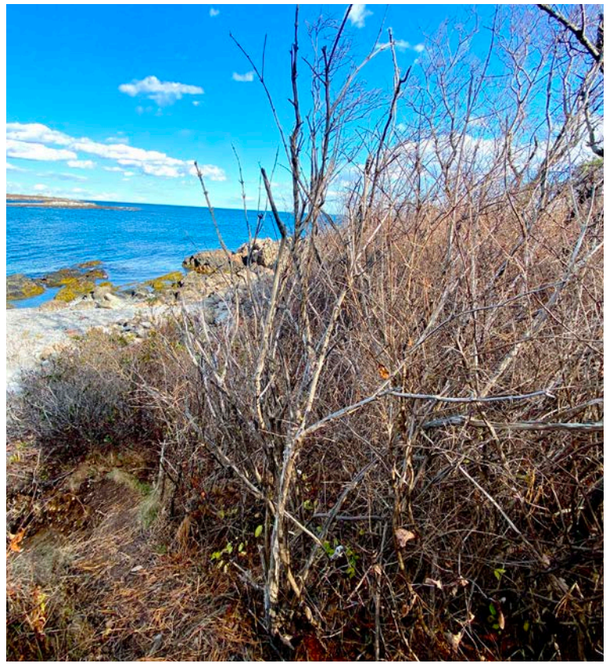
Bittersweet shown here choking out trees.(Pitch Pine Forest)

Bittersweet vines produce red berries in the fall that are eaten by birds and spread throughout natural areas. (Early Succeesional)

EXISTING CONDITIONS: INVASIVE PLANT IMAGES

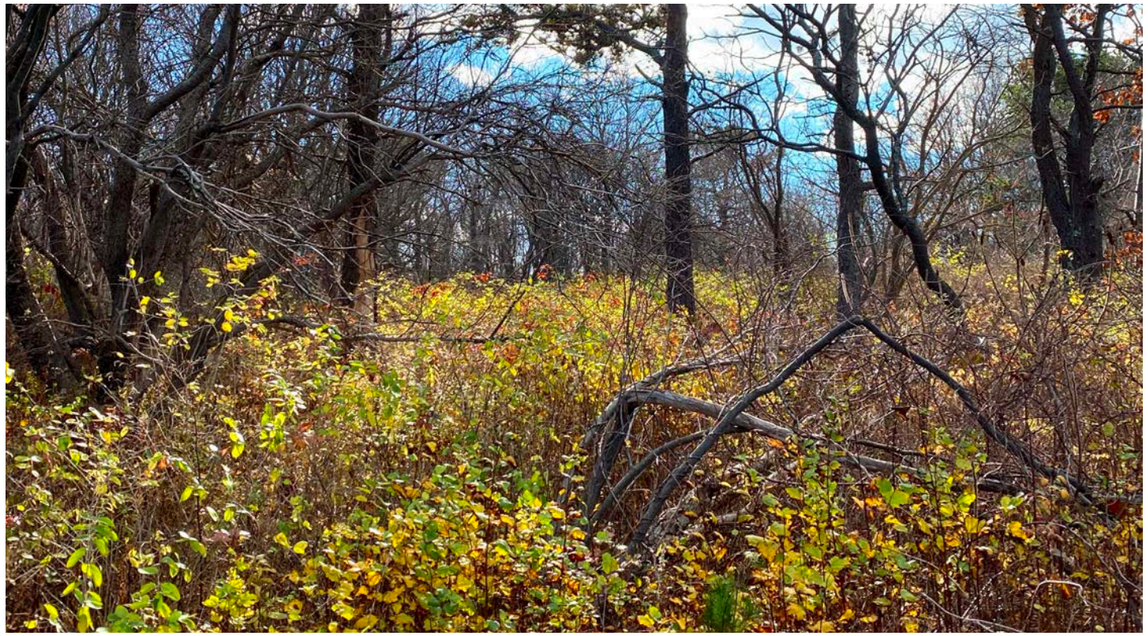
The light green leaves of honeysuckle are easy to spot in the fall. (Clearing Area)

Small sprigs of burning bush are starting to pop up. (Clearing Area)



Honeysuckle shown here taking over the coastal areas. (Pitch Pine Forest)

EXISTING CONDITIONS: INVASIVE PLANT IMAGES



Buckthorn thicket forming in the understory of the ‘Pitch Pine Forest.’

Patches of honesuckle are sprinkled in the understory of the ‘Early Successional Area.‘

EXISTING CONDITIONS: INVASIVE SPECIES INVENTORY

Early Successional Area

Invasive Pressure: Medium
Edges worse than interior

INVASIVES/UNDESIRABLE NON-NATIVES:

TREES/SHRUBS/WOODY VINES

Ligustrum sp. (Privet)
Rosa multiflora (Multiflora Rosa)
Celastrus orbiculatus (Asiatic Bittersweet)
Lonicera sp. (Bush Honeysuckle)
Berberis vulgaris (Barberry)
Acer platanoides (Norway Maple)

HERBACEOUS PLANTS

Solanum dulcamara (Bittersweet Nightshade)
Rubus phoenicolasius (Wineberry)

Clearing Area

Invasive Pressure: Low - Medium
Edges worse than interior

INVASIVES/UNDESIRABLE NON-NATIVES:

TREES/SHRUBS/WOODY VINES

Euonymus alatus (Burning Bush)
Celastrus orbiculatus (Asiatic Bittersweet)
Lonicera sp. (Bush Honeysuckle)
Berberis vulgaris (Barberry)
Ligustrum sp. (Privet)

HERBACEOUS PLANTS

Rubus phoenicolasius (Wineberry)

Pitch Pine Forest

Invasive Pressure: Low- Medium
Edges worse than interior

INVASIVES/UNDESIRABLE NON-NATIVES:

TREES/SHRUBS/WOODY VINES

Ligustrum sp. (Privet)
Rosa multiflora (Multiflora Rosa)
Celastrus orbiculatus (Asiatic Bittersweet)
Lonicera sp. (Bush Honeysuckle)
Berberis vulgaris (Barberry)
Acer platanoides (Norway Maple)
Frangula alnus (Glossy Buckthorn)

HERBACEOUS PLANTS

Solanum dulcamara (Bittersweet Nightshade)
Rubus phoenicolasius (Wineberry)

Trail To Property Line

Invasive Pressure: Low- Medium
Edges worse than interior

INVASIVES/UNDESIRABLE NON-NATIVES:

TREES/SHRUBS/WOODY VINES

Ligustrum sp. (Privet)
Rosa multiflora (Multiflora Rosa)
Celastrus orbiculatus (Asiatic Bittersweet)
Lonicera sp. (Bush Honeysuckle)
Berberis vulgaris (Barberry)
Acer platanoides (Norway Maple)

HERBACEOUS PLANTS

Rubus phoenicolasius (Wineberry)

PROPOSED GENERAL INVASIVE MANAGEMENT TECHNIQUES

MANUAL HAND REMOVAL METHODS:

Manual methods of invasive plant management - including hand pulling and cutting - will be prioritized whenever possible. For tenacious woody plants, use of a weed-wrench is recommended. To minimize soil disturbance (which can activate invasive seed banks), only shallow-rooted invasive plants less than 1" in caliper should be hand pulled from the soil. Invasive plant species greater than 1" caliper are best cut and treated. Invasive plant material will be disposed of off site, chipped and spread, or piled discreetly in the woods as habitat piles.

Hand pulling invasives will be prioritized.

MECHANICAL MANAGEMENT:

Mechanical methods of invasive control include mowing, string-trimming, and sawing down of single large specimens or extensive stands of a particular plant. In a few cases repeated mowing or cutting is all that is needed to weaken a plant's resources to the point of die-off. With most aggressive invasives however, mowing and cutting are only the first step in a more intensive program plan that involves selective herbicidal treatments.

Mechanical mowing of a dense stand of phragmites.

PROPOSED GENERAL INVASIVE MANAGEMENT TECHNIQUES

IMPORTANT NOTE ON HERBICIDE APPLICATIONS IN ALONG THE COAST

Because some of the areas we will treat with herbicide are along the coast, every effort will be made to perform these applications as safely and as cautiously as possible. We will prioritize manual and mechanical removal where possible. We will use foam and cut and dab herbicide applications when working in sensitive areas. We will only work with herbicide during dry stretches of weather and on calm days to minimize drift. We use will wetland safe herbicides only (Garlon 3A and Roundup Custom).

CUT AND DAB TREATMENT:

All invasive plant species that have a base greater than 1" in caliper will be addressed with herbicide application. Invasive plants of this size usually have extensive fibrous root systems which provide beneficial soil stabilization and are best left in situ. Unfortunately, they also maintain the ability to resprout, which is why we propose a cut and dab method with Garlon 3A™ (a triclopyr-based herbicide) on individual cut stumps. Licensed Herbicide Applicators will complete all treatments.

Licensed applicators with required Personal Protective Equipment paint the stems of invasive species after cutting.

FOAM APPLICATION:

Some invasives, particularly persistent herbaceous plants like Japanese Knotweed, or resprouting woodies, are best managed with a foliar foam application. This technique allows the technician to systematically target the new green growth of a plant, where herbicide is absorbed most effectively. The foam adheres to the foliage and the herbicide is trans-located through the vascular system of the plant. Foliar foam wipes are best performed in late summer to fall when the plant is actively reserving energy in the rootstock.

Highly targeted foliar foam applications adhere to leaf surface.

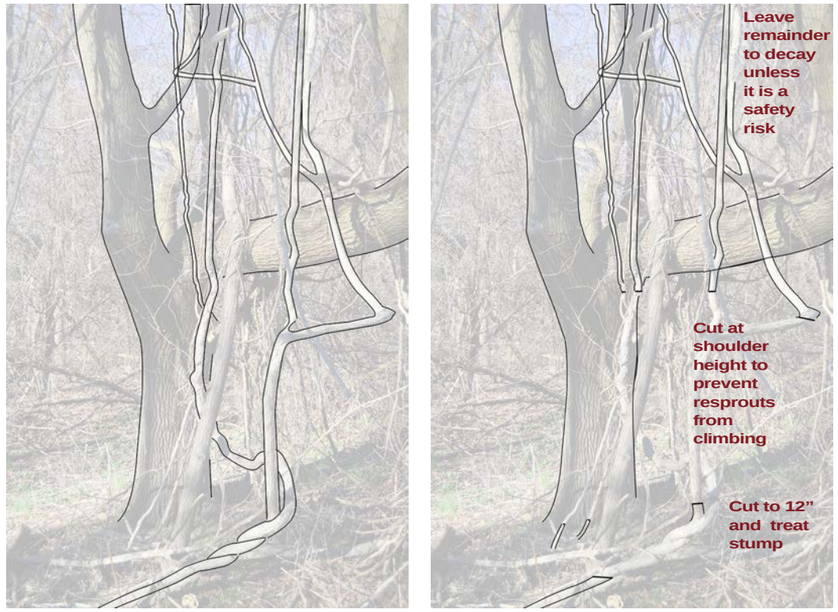
SPRAY APPLICATION:

Herbicide can be applied to invasive shrubs, woody vines, and herbaceous plants through a targeted, low volume spray. This method of herbicide application should only be used when there is no wind and when the targeted species are less than waist height to prevent herbicide drift onto non-target species. Herbicide spray can be a very effective method for treating dense patches of invasives.

RIGHT: Licensed applicators with necessary Personal Protective Equipment will target individual species with herbicide spray.

SPECIALIZED INVASIVE PLANT MANAGEMENT TECHNIQUES
INVASIVE BITTERSWEET (CELASTRUS ORBICULATUS)

Invasive Bittersweet (Celastrus orbiculatus) has the capacity to girdle, weaken, and even kill mature canopy trees. Without consistent management, vines will eventually open large holes in the canopy while suppressing saplings from filling the gaps. They readily resprout after being cut and can damage the aesthetic and ecological value of meadows and forests alike.

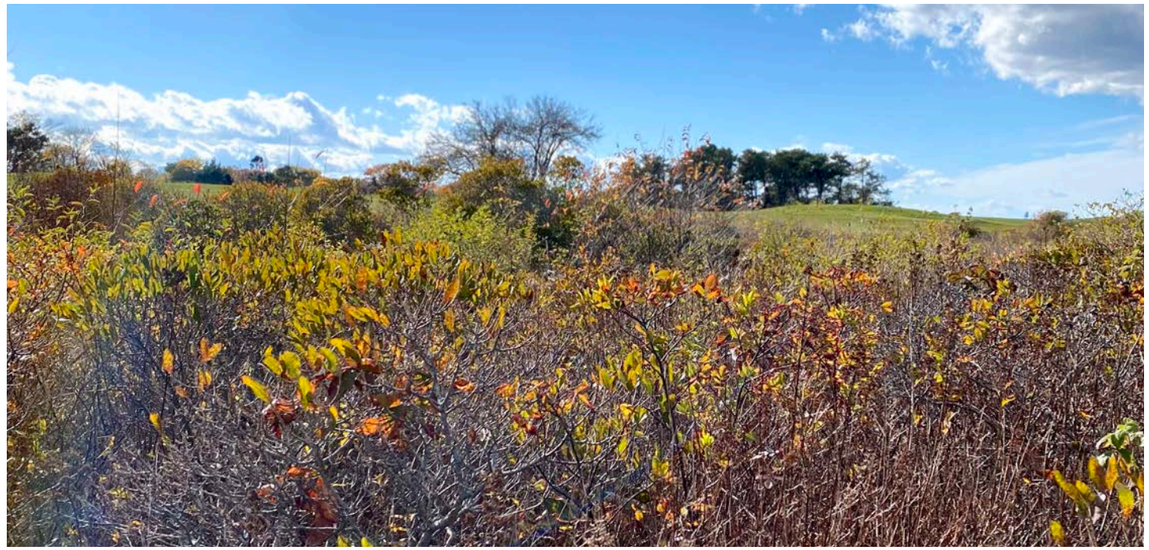


Removing the entire vines from trees is often dangerous and unnecessary (unless it poses safety risk). Best management practice involves making cuts at shoulder height followed by a cut at 12" and immediate herbicide treatment. Bittersweet aggressively suckers after cutting so it is important to cut and treat during or after its flowering period (late June to December).

Established vines produce thousands of bright red berries that mature in late fall and are spread by birds.

View of the boundary between the 'Early Successional Area and the Clearing Area'

EXISTING CONDITIONS: NATIVE PLANT IMAGES

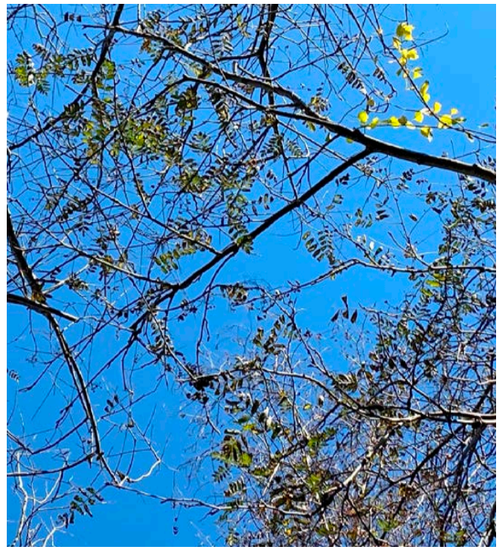


Bayberry colonies have a good hold on the interior of the ‘Clearing Area.’

Above: Mature Serviceberry trees.(Early Succesional)
Below: Ninebark shrubs along the coast. (Pitch Pine Forest)

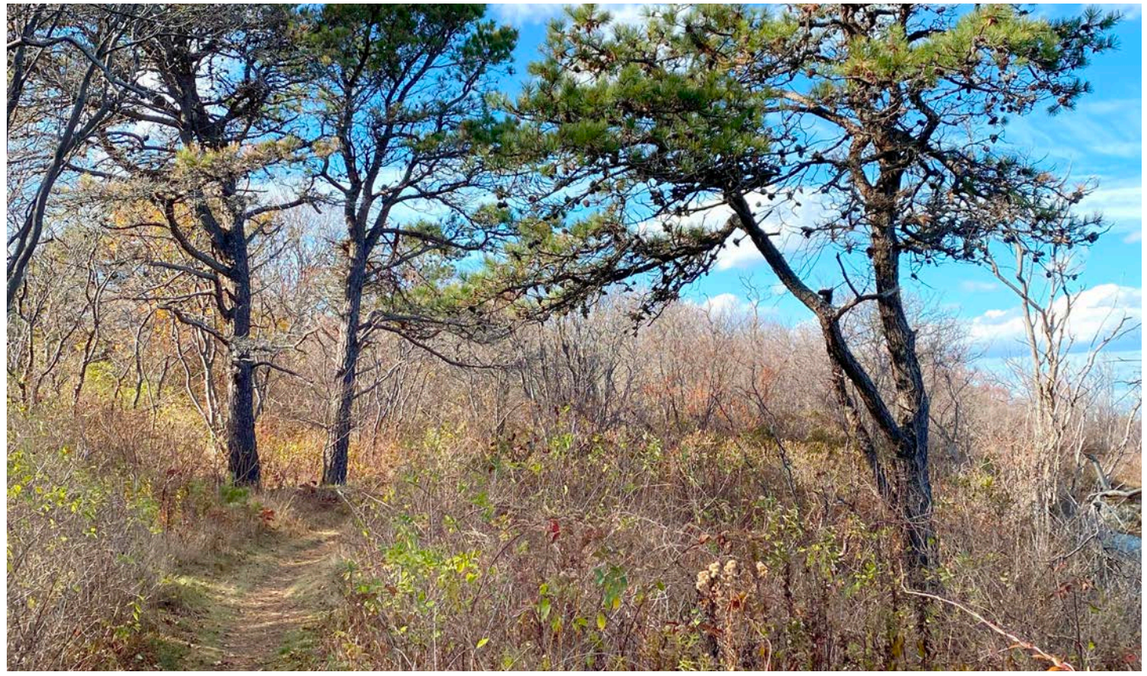
Many mature red oaks make up the overstory. (Trail to Property Line)

EXISTING CONDITIONS: NATIVE PLANT IMAGES



Small mountain ash in the overstory.
(Trail to Property Line)

Gorgeous female winterberry showing off in the fall. (Clearing Area)



Pitch Pines line the public trail along the coast. (Pitch Pine Forest)

EXISTING CONDITIONS: NATIVE SPECIES INVENTORY

See map on page 7 for location of zones

Early Successional Area

Invasive Pressure: Medium
Edges worse than interior

NATIVES:

TREES/SHRUBS/WOODY VINES

Prunus sp. (Cherry)
Pinus strobus (White Pine)
Crataegus sp. (Hawthorn)
Rhus typhina (Staghorn Sumac)
Amelanchier sp. (Serviceberry)
Spiraea alba (Meadowsweet)
Rubus sp. (Raspberry, Blackberry, etc.)
Myrica pensylvanica (Bayberry)
Rosa sp. (Native Roses)
Juniperus communis (Common Juniper)
Acer rubrum (Red Maple)

HERBACEOUS PLANTS

Solidago sp. (Goldenrods)
Euthamia sp. (Grass-leaved Goldenrod)
Symphyotrichum sp. (Asters)
Achillea millefolium (Yarrow)
Schizachyrium scoparium (Little Bluestem)
Asclepias sp. (Milkweed)

Clearing Area

Invasive Pressure: Low - Medium
Edges worse than interior

NATIVES:

TREES/SHRUBS/WOODY VINES

Myrica pensylvanica (Bayberry)
Prunus pumila (Sand Cherry)
Prunus sp. (Cherry)
Spiraea alba (Meadowsweet)
Cornus racemosa (Gray Dogwood)
Pinus rigida (Pitch Pine)
Rosa sp. (Native Roses)
Ilex verticillata (Winterberry)
Spiraea alba (Meadowsweet)
Juniperus communis (Common Juniper)
Viburnum dentatum (Arrowood Viburnum)
Acer rubrum (Red Maple)
Rubus sp. (Blackberry)

HERBACEOUS PLANTS

Solidago sp. (Goldenrods)
Euthamia sp. (Grass-leaved Goldenrods)
Achillea millefolium (Yarrow)

Pitch Pine Forest

Invasive Pressure: Low - Medium
Edges worse than interior

NATIVES:

TREES/SHRUBS/WOODY VINES

Picea sp. (Spruce)
Pinus rigida (Pitch Pine)
Acer rubrum (Red Maple)
Quercus rubra (Red Oak)
Quercus alba (White Oak)
Poplus sp. (Poplar)
Aronia arbutifolia (Red Chokeberry)
Pinus strobus (White Pine)
Vaccinium sp. (Blueberry)
Physocarpus opulifolius (Common Ninebark)
Viburnum trilobum (Highbush Cranberry)
Rhus typhina (Staghorn Sumac)
Malus sp. (Crab Apple)

HERBACEOUS PLANTS

Rubus sp. (Raspberry, Blackberry, etc.)
Euthamia sp. (Grass-leaved Goldenrod)
Solidago sp. (Goldenrods)

Trail to Property Line

Invasive Pressure: Low - Medium
Edges worse than interior

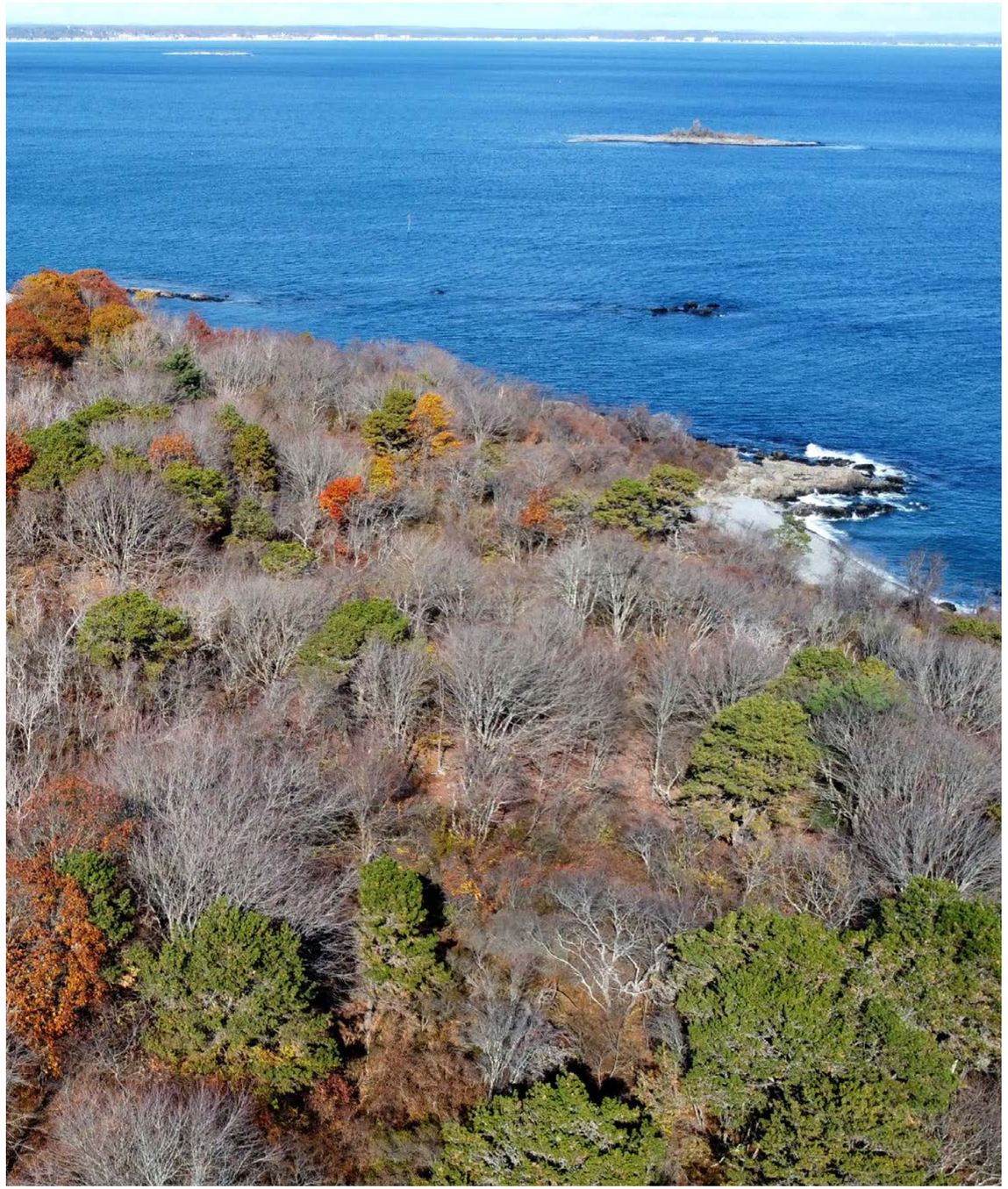
NATIVES:

TREES/SHRUBS/WOODY VINES

Ilex verticillata (Winterberry)
Pinus strobus (White Pine)
Acer rubrum (Red Maple)
Quercus rubra (Red Oak)
Rhus typhina (Staghorn Sumac)
Sorbus americana (Mountain Ash)
Spiraea alba (Meadowsweet)
Malus sp. (Crab Apple)
Pinus rigida (Pitch Pine)
Pinus strobus (White Pine)
Salix nigra (Black Willow)
Rubus sp. (Blackberry)

HERBACEOUS PLANTS

Dennstaedtia punctilobula (Hay-scented Fern)
Solidago sp. (Goldenrods)



View of 'Trail to Property Line Area'

RESTORATION PLANTING RECOMMENDATIONS

Restoration planting will happen once a substantial amount of the Invasive Plant Management has occurred. In the areas where the invasive plant pressure is low, we recommend letting the existing native plants creep in and take over. Where the invasive plant pressure is moderate or high, we recommend replanting with native trees, shrubs, or perennials based on the soil type and sun exposure. We recommend planting small restoration grade trees and shrubs in large open areas (post invasive removal). Sowing seed would be recommended over planting plugs or perennial pots to maximize species diversity and provide more coverage.

See following page for examples of native trees, shrubs and perennials that we would recommend being planted in the wild areas of the East Point Sanctuary.

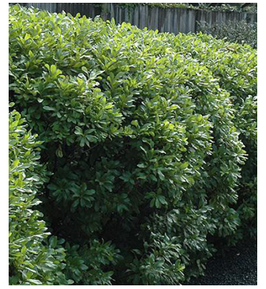
A Cedar Waxwing bird feasts on the berries of a Serviceberry tree.

SHRUBS

Rosa virginiana
Virginia Rose

Aronia arbutifolia
Red Chokeberry

Prunus maritima
Beach Plum



Myrica pensyvanica
Northern Bayberry

SMALL TREES

Amelanchier canadensis
Serviceberry

Betula papyrifera
Paper Birch

Prunus pensylvanica
Fire Cherry

Craetegus mollis
Downy Hawthorn

PERENNIALS

Asclepias syriaca
Common Milkweed

Solidago sempervirens
Seaside Goldenrod

Pycnanthemum tenuifolium
Mountain Mint

*Lathyrus japonicus*Iron
Beach Pea

SEED

NEW ENGLAND COASTAL SALT TOLERANT GRASS MIX

SOURCE: NEW ENGLAND WETLAND PLANTS

Species:

Elymus canadensis (Canada Wild Rye), *Festuca rubra* (Red Fescue), *Panicum amarum* (Atlantic Coastal Panic Grass), *Andropogon gerardii* (Big Bluestem), *Sorghastrum nutans* (Indian Grass), *Panicum virgatum* (Switch Grass), *Juncus tenuis* (Path Rush)

NATIVE RESTORATION TECHNIQUES: PLUGS AND POTS

Many native herbaceous perennials and grasses are best installed as plugs, quarts, or even 1-gallon specimens for the more immediate coverage, impact, and stabilization they provide. They can be used to establish an herbaceous layer entire or overlaid in a matrix on a newly-seeded area. Container plants also allow for the creation of drifts and masses of plants in a way that simple seeding cannot. Planted correctly, their roots will quickly expand, stabilizing soils and creating an understory of healthy native vegetation.

PLANTING PLUGS

- Plugs and container plants are small, with compact root systems, and must be kept moist at all times. Water thoroughly two to three hours before planting. This also facilitates laying out as the roots will not be as liable to dessicate.
- Determine the spacing of the plugs. Dependent on species and container size, this could range anywhere from 8” to 3’ on center, in a grid formation. If massing species together, take care to put taller varieties towards the “back” of the meadow or plot; shorter plants in “front”.
- Planting holes will be dug with a variety of tools - trowels, picks, soil knives, shovels, even augers, mechanical or otherwise (especially useful in highly compacted soil). The plug’s or plant’s crown should sit at soil level and be gently tamped down around its base. Water immediately, and continue to water on a regular basis the first year of establishment.
- Mulch helps conserve soil moisture and reduces weed pressure. We recommend 2” of shredded leaf much immediately after planting.
- Whole plants will fill in more quickly than seeded areas, but weed pressure may still be high. Be vigilant in maintenance.

Plugs and container plants will have dense root systems that must be kept moist.

NATIVE RESTORATION TECHNIQUES: SEEDING DISTURBED SOILS

RESTORATION SEEDING

- The first step in seeding is a thorough site evaluation. Environmental factors such as sun exposure, soil type, topography, grade, and existing vegetation must all be considered. These attributes determine the native plant community best suited for the area.
- The second very crucial task is management of existing invasive species. This can be done though manual and mechanical means, or through the targeted and elective use of herbicides.
- Prepare the site for sowing and planting. Clear off leaves and debris, pick up twigs and sticks, and scarify the soil surface in preparation for sowing.
- Hand-broadcasting seed is the preferred method in delicate wetland soils. Plugs and container plants can be installed at the same time or can be planted once the seedlings have emerged.
- Finally, mulch the area after sowing. Mainely Mulch® protects germinating seeds while providing room for them to emerge. Thick wood chips, sawdust, or other bulky mulches will not be used.
- A three-year maintenance plan is recommended to ensure greatest success. If a newly seeded installation is managed intensively and responsibly during its establishment, it will become self-regulating and require very little to no maintenance in the future.

Clear the space of debris

Seed mixes can be hand broadcast if the space is small enough to permit it.

Newly seeded meadow with straw mulch.

MANAGEMENT CALENDER FOR TREATMENT AND PLANTING

TASK	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Hand removal woody seedlings < 1” caliper												
Hand pulling herbaceous species												
Mechanical management of woody												
Cut and dab herbicide on woody invasives												
Japanese Knotweed Cutback												
Japanese Knotweed Chemical Treatment												
Restoration: Seeding												
Restoration: Planting												
Restoration: Live staking												

Optimal timing and efficiency

Not optimal but mostly effective

Possible, but not ideal

The timing of various containment and restoration strategies is critical to their success. Fortunately, the calender provides ample opportunity for action at any time of the year. Tasks should be performed by trained ecological technicians and licensed herbicide applicators. These recommendations for restoration take into consideration the long term health of the East Point Audubon Sanctuary. Once invasive plants have been managed in a particular area, the restoration of native species should begin.

PROPOSED MANAGEMENT, RESTORATION & MAINTENANCE SCHEDULE

WINTER/EARLY SPRING 2025

» Systematically remove woody invasive plants according to priority (determined by Audubon and Selected Contractor).

» Apply herbicide to freshly cut stumps (if seasonally applicable).

SPRING 2025

» Continue to remove invasive woody plants from wild areas.

EARLY TO MID SUMMER 2025

» Repeat cut and dab herbicide application to any resprouting invasive tree, shrub, and vine species.

» Hand pull any invasive seedlings less than 1” in diameter; stem treat invasive perennials and remove seed heads.

MID SUMMER TO FALL 2025

» Monitor plant response and continue hand pulling and herbicide application methods on resprouting invasive plant species.

» Apply spray or foam herbicide application to herbaceous invasive plants two times during growing season.

» Plant native shrubs in the fall in the areas where invasive plant removal was heaviest. (mostly the edges)

» Plant plugs/sow seed in the areas where invasive plant removal was heaviest. (mostly edges)

ONGOING MAINTENANCE AND MONITORING:

» After the treatments up until this point, the management plan should be evaluated. If treatments have been successful, only monitoring and minimal hand removal need be continued to keep invasive plant species at bay. Native trees, shrubs, and herbaceous forbs should dominate the minimally invaded areas.

» Continue to plant native plants to restore the areas most damaged by invasive plants. Revegetation/Restoration should be started in late fall 2025 and finished by the fall of 2026.

APPENDIX A: INVASIVE PLANT PAGES

NORWAY MAPLE
ACER PLATANOIDES

DESCRIPTION:

Acer platanoides, Norway Maple is a tree occurring in all regions of the state in upland and wetland habitats. It is especially common in urban areas. It grows in full sun to shade. It out-competes native vegetation, including sugar maple, Acer saccharum which it is frequently confused with. Norway autumn color is yellow, while Sugar is orange/red. Norway has white sap, while Sugar has clear sap in the petiole (stems). Norway maple leaf points reduce to a fine “hair”, while the tips of the points on Sugar leaves are rounded.

HABITAT:

Norway maple is well adapted to various soils, grows in dry conditions, and can tolerate areas of soil pollution. Norway maples were widely planted in the United States as street trees and have escaped to natural habitats. Trees produce large numbers of seeds that are wind dispersed and invade natural areas, displacing native trees. Quickly establishing, they create a canopy of dense shade that prevents regeneration of native seedlings. May be alleopathic (capable of inhibiting neighboring plants’ growth). Norway Maple produces copious amounts of seeds, and multitudes of seedlings can be found even one mature tree,

MANAGEMENT:

Manual methods of hand-pulling seedlings is recommended. For larger saplings, a ‘Weed Wrench’ is effective. Girdling the tree by cutting through the bark (cambium) layer all around the trunk is also an option as is basal bark treatment with a Triclopyr-based herbicide. Girdling is most effective in spring and should include reducing the canopy for safety, but consider leaving trunks for habitat value.

JAPANESE BARBERRY
BERBERIS THUNBBERGII

DESCRIPTION:

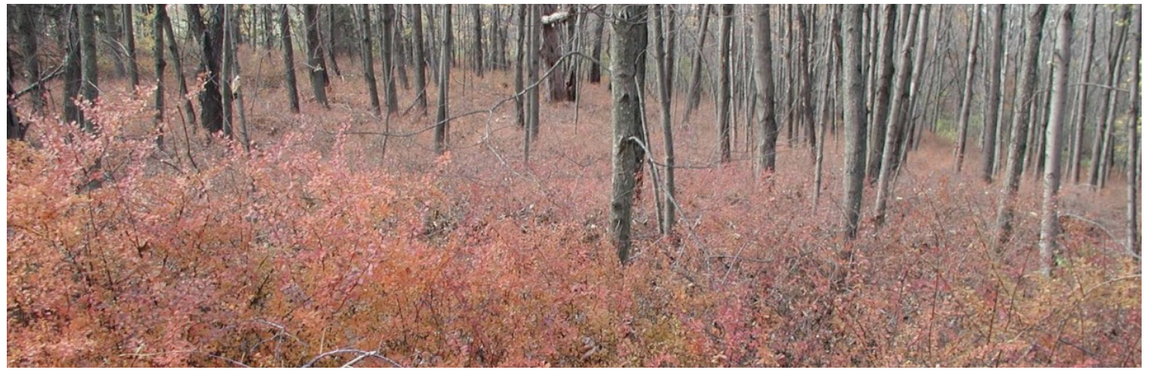
Japanese Barberry, or Berberis thunbergii, makes a dense, deciduous shrub understory that grows to 8 feet. Branches are brown, deeply grooved, zigzag in form and bear a single sharp spine at each node. The leaves are small (½ to 1 ½ inches long), oval shaped, green, bluish-green, or dark reddish purple. Flowering occurs from mid-April to May in the northeast. Pale yellow flowers about ¼ in. Across hang in umbrella-shaped clusters of 2-4 flowers along the length of the stem. The fruits are bright red berries about 1/3” long that are borne on narrow stalks. They mature during late summer and fall and persist through the winter.

HABITAT:

Japanese Barberry is shade tolerant, drought resistant, and adaptable to a variety of open and forested habitats, and disturbed areas. It prefers to grow in full sun, but will flower and fruit even in heavy shade. There is also strong research to support the surprise benefit of controlling Japanese Barberry in the reduction of black legged (or deer) tick populations.

MANAGEMENT:

Japanese Barberry is produces seed prolifically, and with a high germination rate, so removal of fruiting branches is high priority. However, barberry also spreads by rhizome, so underground root fragments should be removed. Manual methods of hand pulling sprouts works well in small populations, but large populations may require chemical applications by applying a solution of glyphosate to foliage, or a triclopyr-based solution to cut stumps.



ORIENTAL BITTERSWEET
CELASTRUS ORBICULATUS

DESCRIPTION:

Celastrus orbiculatus, Asiatic Bittersweet is a deciduous climbing vine common in areas of disturbance in our New England forests. It has glossy, rounded leaves that are alternate with finely toothed margins. The leaves turn yellow in the fall. The fruiting plants produce small greenish flower clusters from leaf axils that mature in fall to produce high numbers of fruiting seed. The seed are noticeably yellow, globular capsules that split open at maturity to reveal red-orange fruiting seeds. Roots are also distinctly orange.

HABITAT:

Bittersweet spreads easily into forest edges, woodlands, unmanaged meadows and old fields. Most disturbed sites that are not being actively managed that receive full sun are susceptible. The vine can tolerate shade but is often found in more open, sunny areas.

MANAGEMENT:

Small seedlings can be hand pulled, but bittersweet resprouts prolifically from root fragments, so more aggressive measures need be taken on all specimens but the very smallest. For established plants, vines should be cut to ground to reduce mass, but repeat cuttings will promote resprouting roots and should be avoided in most cases. Rake any seeds present, bagging in plastic bags, tying, and disposing of correctly.

MORROW'S HONEYSUCKLE
LONICERA MORROWII

DESCRIPTION:

Lonicera morrowii, Morrow's honeysuckles are upright, deciduous shrubs that typically have a multi-stem mounding appearance. Oval leaves are opposite along the stem with smooth edges (no teeth or lobes) and hairy on the underside. Mature stems are often hollow on the interior and peeling on the outer bark. In the spring pairs of fragrant, tubular flowers less than an inch long are borne along the stem in the leaf axils. The fruits are red to orange, and fleshy.

HABITAT:

Honeysuckles are relatively shade-intolerant and usually colonize forest edges, abandoned fields, and other open, upland habitats. Grazed meadows and disturbed woodlands are especially vulnerable. Woodlands and open meadows, especially those that have been grazed or otherwise disturbed and are left unmanaged are also highly susceptible. Morrow's Honeysuckle are highly adaptable and can grow in even challenging environments such as roadsides and wetland edges.

MANAGEMENT:

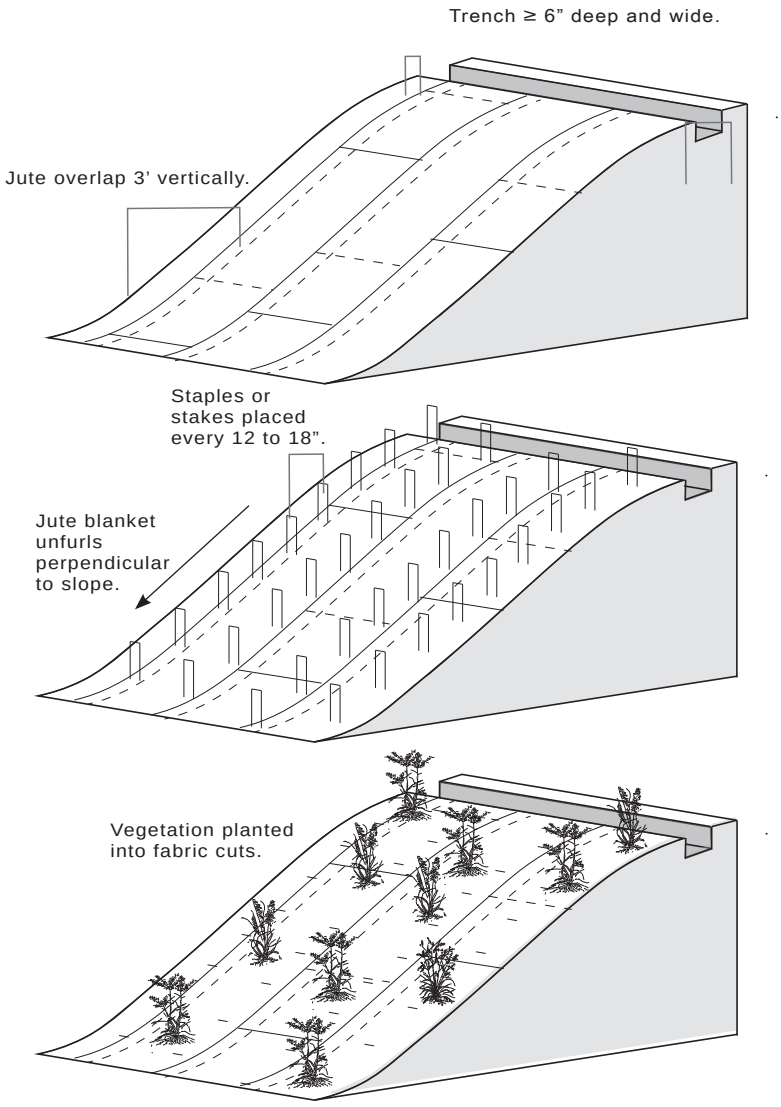
Honeysuckle management can combine mechanical mowing and manual hand pulling with cut and dab herbicide treatments. Small specimens may be removed manually as honeysuckle root systems are fairly shallow. Root resprouting can persist for a few years and several seasons of management may be required to fully control the population.

APPENDIX B: EROSION CONTROL PLANS (PLANTING ON SLOPES)

COIR / JUTE EROSION CONTROL

- After invasive species have been cut and treated, and debris cleared from the surface, we will seed the area with a seed mix, plant plugs or small shrubs. When planting seeds, light compaction enhances soil to seed contact and reduces opportunities for erosion.
- Once the slope is seeded, we dig a trench 6" deep and 6" wide along its ridge. The ends of the fabric are buried in the trench and the coir blanket unrolls perpendicular to the slope.
- The flat coir blanket must have full contact with the soil. It will be spliced to go evenly around and places where rocks or vegetation prevent soil contact.
- Wooden stakes or staples are installed every 12" - 18."
- The coir blanket overlay horizontally by approximately 6" and 3' vertically.
- Indicated vegetation is planted by cutting through the coir.
- The blanket biodegrades over time as plantings grow up from within it.

JUTE PLANTING DETAIL



Application for Variance Permit

Maine Board of Pesticide Control, Wilkinson Ecological Design

73 Lester B. Orcutt Blvd, Biddeford, ME 04005

Site Photos – 73 Lester B. Orcutt Blvd

Areas where invasive plant resprouts are to be treated. Corresponding to 1 & 2 on previous aerial.

Site Photos – 73 Lester B. Orcutt Blvd

Areas where invasive plant resprouts are to be treated. Corresponding to 3 & 4 on previous aerial.

Site Photos – 73 Lester B. Orcutt Blvd

Areas where invasive plant resprouts are to be treated. Corresponding to 5 & 6 on previous aerial.

STATE OF MAINE
DEPARTMENT OF AGRICULTURE, CONSERVATION AND FORESTRY
BOARD OF PESTICIDES CONTROL
28 STATE HOUSE STATION
AUGUSTA, MAINE 04333

JANET T. MILLS
GOVERNOR

AMANDA E. BEAL
COMMISSIONER

May 15, 2025

Wilkinson Ecological Design, Inc.
Dylan Brown
28 Lots Hollow Rd.
Orleans, MA 02653

RE: Variance permit for CMR 01-026 Chapter 29, Wilkinson Ecological Design, Inc., East Point Audubon Sanctuary, Biddeford

Greetings,

The Board of Pesticides Control considered your application for a variance from Chapter 29. The variance is approved, provided that all products to be used are currently registered in the State of Maine or were registered at the time of purchase and that any application is made above the high-water line.

The Board authorizes the issuance of two-year permits for Chapter 29, therefore this permit is valid until December 31, 2026, as long as applications are consistent with the information provided on the variance request. Please notify the Board in advance of changes, particularly if you plan to use a different product from those listed.

Please bear in mind that your permit is based upon your company adhering to the precautions listed in Section X of your Chapter 29 variance request.

I will alert the Board at its next meeting that the variance permit has been issued. If you have any questions concerning this matter, please feel free to contact me at 287-2731.

Sincerely,

Alexander Peacock
Director

ALEXANDER PEACOCK, DIRECTOR
90 BLOSSOM LANE, DEERING BUILDING

DEPARTMENT OF Agriculture Conservation & Forestry

PHONE: (207) 287-2731
THINKFIRSTSPRAYLAST.ORG

BOARD OF PESTICIDES CONTROL
APPLICATION FOR VARIANCE PERMIT
(Pursuant to Chapter 29, Section 6 of the Board's Regulations)

I.

Dylan Brown			(508) 246-7087
Name			Telephone Number
Wilkinson Ecological SCF-2735			
Company Name			
28 Lots Hollow Road	Orleans	MA	02653
Address	City	State	Zip

II.

Dylan Brown		CMA-6433	
Master Applicator (if applicable)		License Number	
28 Lots Hollow Road	Orleans	MA	02653
Address	City	State	Zip

III. **As part of your application, please send a revegetation plan and digital photos showing the target site and/or plants and the surrounding area, particularly showing proximity to wetlands and water bodies, to pesticides@maine.gov**

IV. Area(s) where pesticide will be applied:

East Point Audubon Sanctuary
Biddeford, ME 04005

Referring to the Land Management Plan supplied by Parterre Ecological, herbicide will be applied to all highlighted areas where invasive plants are present, indicated as "Wild Spaces Where Invasive Plant Management Will Occur" on page 3. Herbicides will be used selectively only on invasive plants.

V. Pesticide(s) to be applied:(Including EPA Registration Number)

RoundUp Custom (EPA 524-343)
Garlon 3A (EPA 62719-037)
Cide-Kick II (adjuvant)

VI. Purpose of pesticide application:

To control the invasive plant species found in treatment areas outlined in Section IV above.

VII. Approximate dates of spray application:

June 2025 - October 2026

VIII. Application Equipment:

Hand-powered backpack sprayer, drip bottle, dauber

IX. Standard(s) to be varied from:

Chapter 29, Standards for Water Quality Protection, Section 6, Part A

X. Method to ensure equivalent protection:

For environment - Backpack sprayers will only be used on days with winds less than 10 miles per hour and no threat of rain in the forecast. Spray applications will be made using low pressure and large droplet size while specifically targeting invasive vegetation. Vegetation to be sprayed near water has been previously mowed down to reduce potential for drift. When applicable, herbicides will be applied directly to the stems of invasive plants with use of drip bottles and daubers.
For applicators - Proper PPE will be used according to herbicide labels.
For public - Trails throughout the Audubon and surrounding properties will be closed.

XI. Revegetation Plan (attach separately if necessary)

See Parterre Ecological Land Management Plan (attached). Given vast quantity and variety of native vegetation already in place, as seen on page 14 titled "Existing Conditions: Native Species Inventory", native plants will re-naturalize the areas treated with herbicides.

Signed: _____ Date: 5/12/2025

Return completed form to: **Board of Pesticides Control, 28 State House Station, Augusta, ME 04333-0028**
OR E-mail to: pesticides@maine.gov

Rev. 8/2013

LAND MANAGEMENT PLAN

A NARRATIVE FOR INVASIVE MANAGEMENT & NATIVE PLANT RESTORATION

View of the Pitch Pine Forest along the coast.

EAST POINT AUDUBON SANCTUARY • BIDDEFORD POOL, MAINE

PARTERRE
ECOLOGICAL

PROJECT INTRODUCTION

This plan addresses a proposed invasive management and restoration planting at the East Point Audubon Sanctuary located at the end of Lester B. Orcutt Blvd. in Biddeford Pool, ME. There are about 22 acres of natural space at this property. It is situated along the coast and is a neighboring property of the Abenakee Golf Club.

Overall this property is densely vegetated with woody trees and shrubs. There is significant invasive plant pressure in the wild space, mostly along the edges. The interior of the property is minimally effected by invasive species. Action to remedy the densely invaded edges now could spare the rest of the property and retain its native plant habitat.

The invasive population on site is mature and self-perpetuating. These species will inevitability displace the remnant native population unless decisive action is taken. These invasives include common culprits such as privet, bittersweet, honeysuckle, barberry, buckthorn and Norway maple.

The purpose of this plan is to identify the invasives plants we propose to remove, provide a description of each, and detail best management practices for control and management. The plan also includes a narrative for proposed native restoration, specifies plant species and delineates planting methods.

Finally, it provides a detailed maintenance calender for all aspects of proposed management and ecological restoration over an extended timeline.

CONTENTS

EAST POINT SANCTUARY GEOGRAPHY & GOALS

The East Point Audubon Sanctuary is situated at the end of the Biddeford Pool peninsula. The property borders Saco Bay and the Gulf of Maine, The Abenakee Club, and several residential properties. There is a short trail open to the public that hugs the coastline through uplands, sandy coastlines, shrublands, and meadows. There is a mix of native and invasive plant vegetation. The invasive plants are mostly concentrated on the edges of the wild spaces and are starting to dominate the native ecosystems that are present. The goal of this Land Management Plan is to present an inventory of the native and invasive species, identify the level of invasive plant pressure, share our Invasive Plant Management strategies, and propose native species to replace the removed invasives if necessary.

Property Boundary of East Point Audubon Sanctuary

Wild Spaces Where Invasive Plant Management Will Occur

0' 100' 200' 300'

EXISTING CONDITIONS: INVASIVE PLANT IMAGES

Privet has escaped from ornamental residential gardens is shown here along the trail. (Trail to Property Line Area)

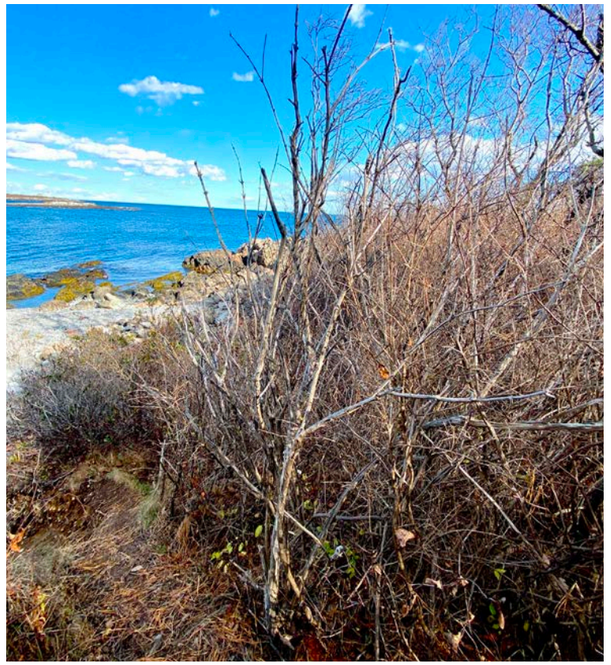
Bittersweet shown here choking out trees.(Pitch Pine Forest)

Bittersweet vines produce red berries in the fall that are eaten by birds and spread throughout natural areas. (Early Succeesional)

EXISTING CONDITIONS: INVASIVE PLANT IMAGES

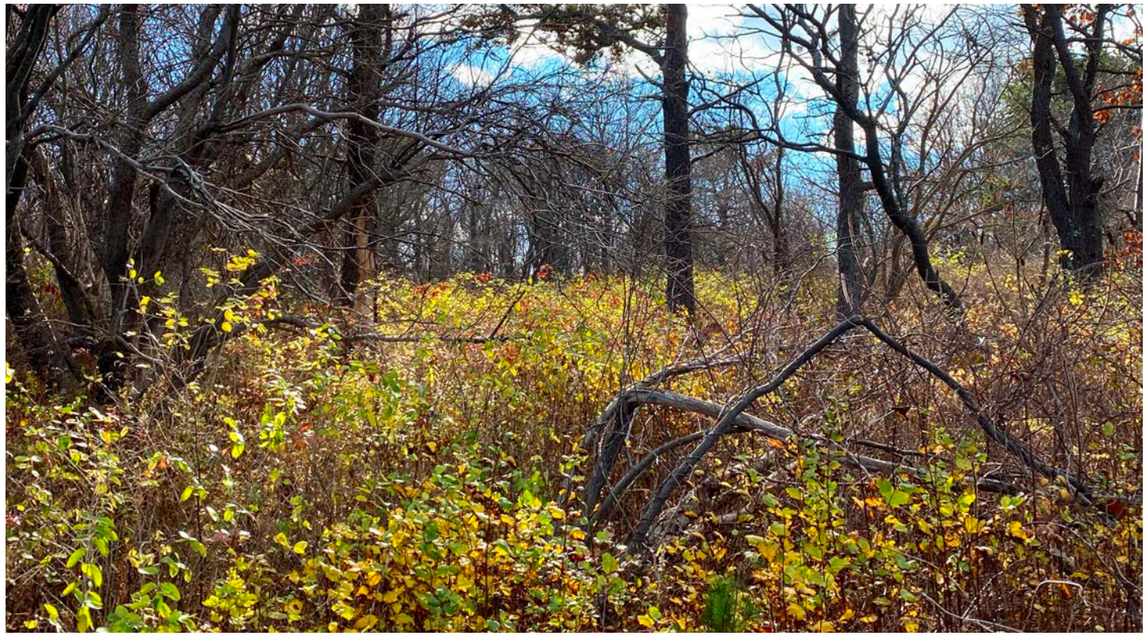
The light green leaves of honeysuckle are easy to spot in the fall. (Clearing Area)

Small sprigs of burning bush are starting to pop up. (Clearing Area)



Honeysuckle shown here taking over the coastal areas. (Pitch Pine Forest)

EXISTING CONDITIONS: INVASIVE PLANT IMAGES



Buckthorn thicket forming in the understory of the ‘Pitch Pine Forest.’

Patches of honesuckle are sprinkled in the understory of the ‘Early Successional Area.‘

EXISTING CONDITIONS: INVASIVE SPECIES INVENTORY

Early Successional Area

Invasive Pressure: Medium
Edges worse than interior

INVASIVES/UNDESIRABLE NON-NATIVES:

TREES/SHRUBS/WOODY VINES

Ligustrum sp. (Privet)
Rosa multiflora (Multiflora Rosa)
Celastrus orbiculatus (Asiatic Bittersweet)
Lonicera sp. (Bush Honeysuckle)
Berberis vulgaris (Barberry)
Acer platanoides (Norway Maple)

HERBACEOUS PLANTS

Solanum dulcamara (Bittersweet Nightshade)
Rubus phoenicolasius (Wineberry)

Clearing Area

Invasive Pressure: Low - Medium
Edges worse than interior

INVASIVES/UNDESIRABLE NON-NATIVES:

TREES/SHRUBS/WOODY VINES

Euonymus alatus (Burning Bush)
Celastrus orbiculatus (Asiatic Bittersweet)
Lonicera sp. (Bush Honeysuckle)
Berberis vulgaris (Barberry)
Ligustrum sp. (Privet)

HERBACEOUS PLANTS

Rubus phoenicolasius (Wineberry)

Pitch Pine Forest

Invasive Pressure: Low- Medium
Edges worse than interior

INVASIVES/UNDESIRABLE NON-NATIVES:

TREES/SHRUBS/WOODY VINES

Ligustrum sp. (Privet)
Rosa multiflora (Multiflora Rosa)
Celastrus orbiculatus (Asiatic Bittersweet)
Lonicera sp. (Bush Honeysuckle)
Berberis vulgaris (Barberry)
Acer platanoides (Norway Maple)
Frangula alnus (Glossy Buckthorn)

HERBACEOUS PLANTS

Solanum dulcamara (Bittersweet Nightshade)
Rubus phoenicolasius (Wineberry)

Trail To Property Line

Invasive Pressure: Low- Medium
Edges worse than interior

INVASIVES/UNDESIRABLE NON-NATIVES:

TREES/SHRUBS/WOODY VINES

Ligustrum sp. (Privet)
Rosa multiflora (Multiflora Rosa)
Celastrus orbiculatus (Asiatic Bittersweet)
Lonicera sp. (Bush Honeysuckle)
Berberis vulgaris (Barberry)
Acer platanoides (Norway Maple)

HERBACEOUS PLANTS

Rubus phoenicolasius (Wineberry)

PROPOSED GENERAL INVASIVE MANAGEMENT TECHNIQUES

MANUAL HAND REMOVAL METHODS:

Manual methods of invasive plant management - including hand pulling and cutting - will be prioritized whenever possible. For tenacious woody plants, use of a weed-wrench is recommended. To minimize soil disturbance (which can activate invasive seed banks), only shallow-rooted invasive plants less than 1" in caliper should be hand pulled from the soil. Invasive plant species greater than 1" caliper are best cut and treated. Invasive plant material will be disposed of off site, chipped and spread, or piled discreetly in the woods as habitat piles.

Hand pulling invasives will be prioritized.

MECHANICAL MANAGEMENT:

Mechanical methods of invasive control include mowing, string-trimming, and sawing down of single large specimens or extensive stands of a particular plant. In a few cases repeated mowing or cutting is all that is needed to weaken a plant's resources to the point of die-off. With most aggressive invasives however, mowing and cutting are only the first step in a more intensive program plan that involves selective herbicidal treatments.

Mechanical mowing of a dense stand of phragmites.

PROPOSED GENERAL INVASIVE MANAGEMENT TECHNIQUES

IMPORTANT NOTE ON HERBICIDE APPLICATIONS IN ALONG THE COAST

Because some of the areas we will treat with herbicide are along the coast, every effort will be made to perform these applications as safely and as cautiously as possible. We will prioritize manual and mechanical removal where possible. We will use foam and cut and dab herbicide applications when working in sensitive areas. We will only work with herbicide during dry stretches of weather and on calm days to minimize drift. We use will wetland safe herbicides only (Garlon 3A and Roundup Custom).

CUT AND DAB TREATMENT:

All invasive plant species that have a base greater than 1" in caliper will be addressed with herbicide application. Invasive plants of this size usually have extensive fibrous root systems which provide beneficial soil stabilization and are best left in situ. Unfortunately, they also maintain the ability to resprout, which is why we propose a cut and dab method with Garlon 3A™ (a triclopyr-based herbicide) on individual cut stumps. Licensed Herbicide Applicators will complete all treatments.

Licensed applicators with required Personal Protective Equipment paint the stems of invasive species after cutting.

FOAM APPLICATION:

Some invasives, particularly persistent herbaceous plants like Japanese Knotweed, or resprouting woodies, are best managed with a foliar foam application. This technique allows the technician to systematically target the new green growth of a plant, where herbicide is absorbed most effectively. The foam adheres to the foliage and the herbicide is trans-located through the vascular system of the plant. Foliar foam wipes are best performed in late summer to fall when the plant is actively reserving energy in the rootstock.

Highly targeted foliar foam applications adhere to leaf surface.

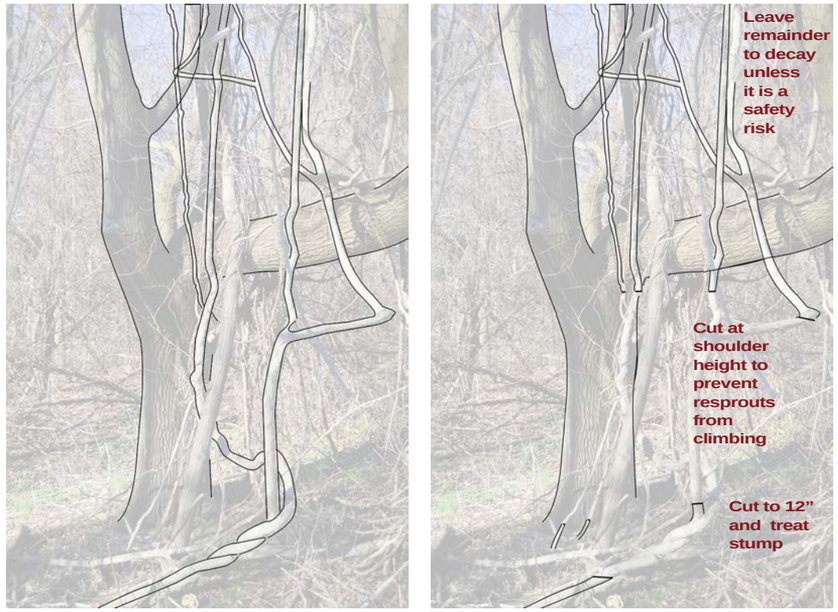
SPRAY APPLICATION:

Herbicide can be applied to invasive shrubs, woody vines, and herbaceous plants through a targeted, low volume spray. This method of herbicide application should only be used when there is no wind and when the targeted species are less than waist height to prevent herbicide drift onto non-target species. Herbicide spray can be a very effective method for treating dense patches of invasives.

RIGHT: Licensed applicators with necessary Personal Protective Equipment will target individual species with herbicide spray.

SPECIALIZED INVASIVE PLANT MANAGEMENT TECHNIQUES
INVASIVE BITTERSWEET (CELASTRUS ORBICULATUS)

Invasive Bittersweet (Celastrus orbiculatus) has the capacity to girdle, weaken, and even kill mature canopy trees. Without consistent management, vines will eventually open large holes in the canopy while suppressing saplings from filling the gaps. They readily resprout after being cut and can damage the aesthetic and ecological value of meadows and forests alike.

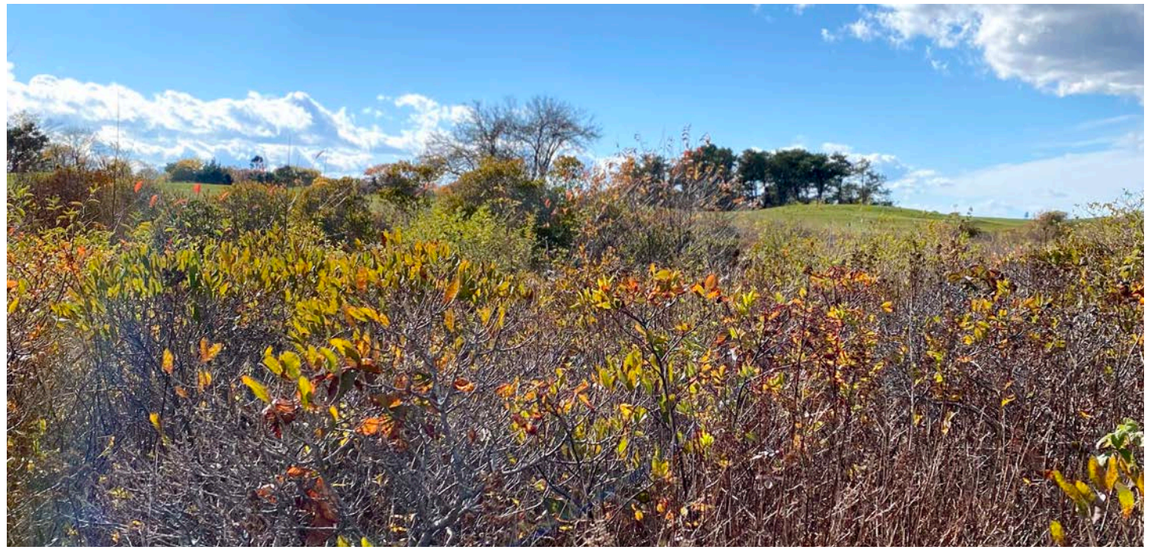


Removing the entire vines from trees is often dangerous and unnecessary (unless it poses safety risk). Best management practice involves making cuts at shoulder height followed by a cut at 12" and immediate herbicide treatment. Bittersweet aggressively suckers after cutting so it is important to cut and treat during or after its flowering period (late June to December).

Established vines produce thousands of bright red berries that mature in late fall and are spread by birds.

View of the boundary between the 'Early Successional Area and the Clearing Area'

EXISTING CONDITIONS: NATIVE PLANT IMAGES

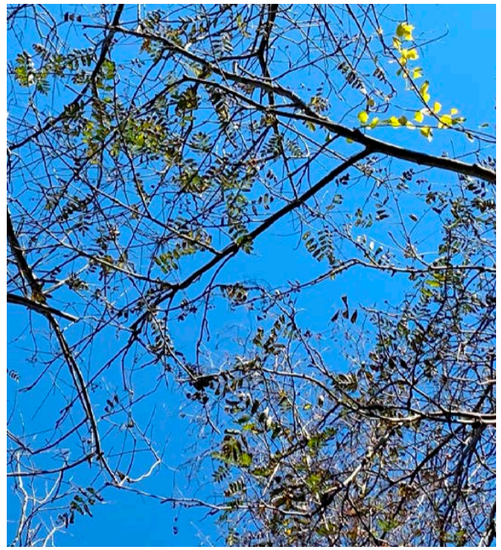


Bayberry colonies have a good hold on the interior of the ‘Clearing Area.’

Above: Mature Serviceberry trees.(Early Succesional)
Below: Ninebark shrubs along the coast. (Pitch Pine Forest)

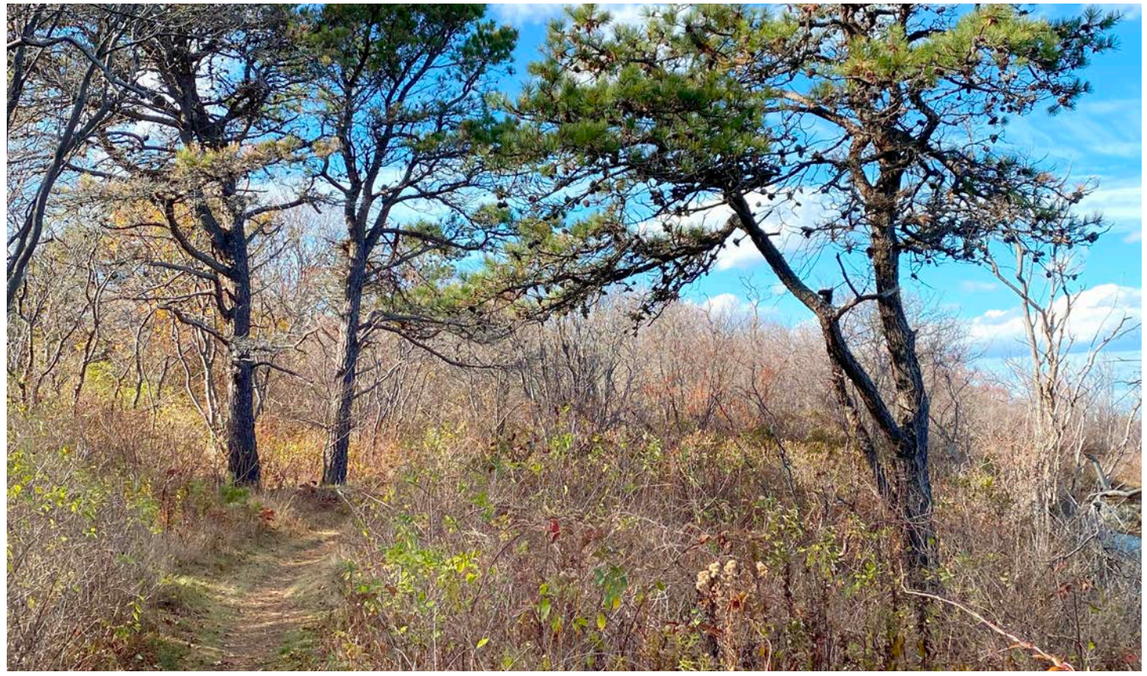
Many mature red oaks make up the overstory. (Trail to Property Line)

EXISTING CONDITIONS: NATIVE PLANT IMAGES



Small mountain ash in the overstory.
(Trail to Property Line)

Gorgeous female winterberry showing off in the fall. (Clearing Area)



Pitch Pines line the public trail along the coast. (Pitch Pine Forest)

EXISTING CONDITIONS: NATIVE SPECIES INVENTORY

See map on page 7 for location of zones

Early Successional Area

Invasive Pressure: Medium
Edges worse than interior

NATIVES:

TREES/SHRUBS/WOODY VINES

Prunus sp. (Cherry)
Pinus strobus (White Pine)
Crataegus sp. (Hawthorn)
Rhus typhina (Staghorn Sumac)
Amelanchier sp. (Serviceberry)
Spiraea alba (Meadowsweet)
Rubus sp. (Raspberry, Blackberry, etc.)
Myrica pensylvanica (Bayberry)
Rosa sp. (Native Roses)
Juniperus communis (Common Juniper)
Acer rubrum (Red Maple)

HERBACEOUS PLANTS

Solidago sp. (Goldenrods)
Euthamia sp. (Grass-leaved Goldenrod)
Symphyotrichum sp. (Asters)
Achillea millefolium (Yarrow)
Schizachyrium scoparium (Little Bluestem)
Asclepias sp. (Milkweed)

Clearing Area

Invasive Pressure: Low - Medium
Edges worse than interior

NATIVES:

TREES/SHRUBS/WOODY VINES

Myrica pensylvanica (Bayberry)
Prunus pumila (Sand Cherry)
Prunus sp. (Cherry)
Spiraea alba (Meadowsweet)
Cornus racemosa (Gray Dogwood)
Pinus rigida (Pitch Pine)
Rosa sp. (Native Roses)
Ilex verticillata (Winterberry)
Spiraea alba (Meadowsweet)
Juniperus communis (Common Juniper)
Viburnum dentatum (Arrowood Viburnum)
Acer rubrum (Red Maple)
Rubus sp. (Blackberry)

HERBACEOUS PLANTS

Solidago sp. (Goldenrods)
Euthamia sp. (Grass-leaved Goldenrods)
Achillea millefolium (Yarrow)

Pitch Pine Forest

Invasive Pressure: Low - Medium
Edges worse than interior

NATIVES:

TREES/SHRUBS/WOODY VINES

Picea sp. (Spruce)
Pinus rigida (Pitch Pine)
Acer rubrum (Red Maple)
Quercus rubra (Red Oak)
Quercus alba (White Oak)
Poplus sp. (Poplar)
Aronia arbutifolia (Red Chokeberry)
Pinus strobus (White Pine)
Vaccinium sp. (Blueberry)
Physocarpus opulifolius (Common Ninebark)
Viburnum trilobum (Highbush Cranberry)
Rhus typhina (Staghorn Sumac)
Malus sp. (Crab Apple)

HERBACEOUS PLANTS

Rubus sp. (Raspberry, Blackberry, etc.)
Euthamia sp. (Grass-leaved Goldenrod)
Solidago sp. (Goldenrods)

Trail to Property Line

Invasive Pressure: Low - Medium
Edges worse than interior

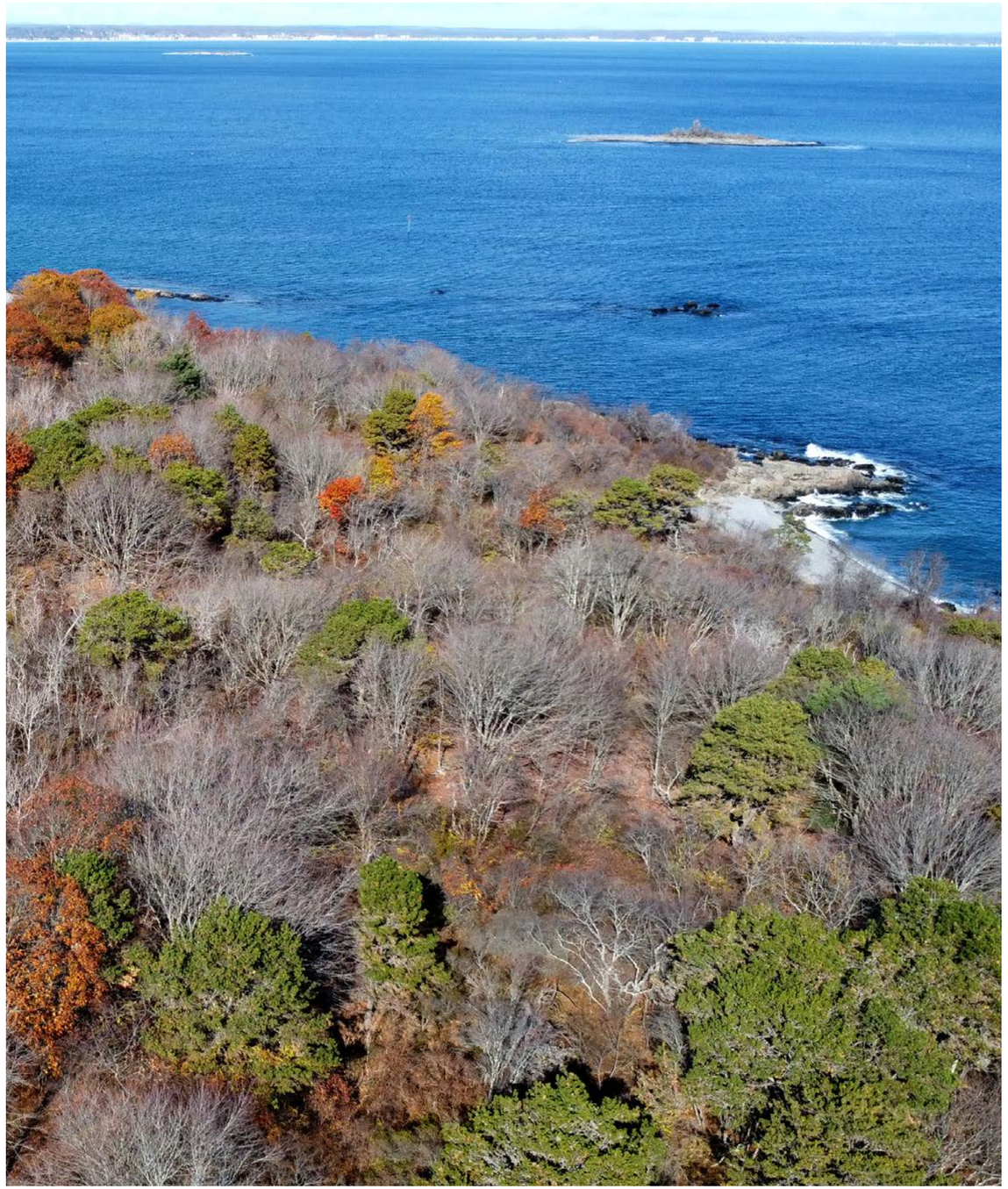
NATIVES:

TREES/SHRUBS/WOODY VINES

Ilex verticillata (Winterberry)
Pinus strobus (White Pine)
Acer rubrum (Red Maple)
Quercus rubra (Red Oak)
Rhus typhina (Staghorn Sumac)
Sorbus americana (Mountain Ash)
Spiraea alba (Meadowsweet)
Malus sp. (Crab Apple)
Pinus rigida (Pitch Pine)
Pinus strobus (White Pine)
Salix nigra (Black Willow)
Rubus sp. (Blackberry)

HERBACEOUS PLANTS

Dennstaedtia punctilobula (Hay-scented Fern)
Solidago sp. (Goldenrods)



View of 'Trail to Property Line Area'

RESTORATION PLANTING RECOMMENDATIONS

Restoration planting will happen once a substantial amount of the Invasive Plant Management has occurred. In the areas where the invasive plant pressure is low, we recommend letting the existing native plants creep in and take over. Where the invasive plant pressure is moderate or high, we recommend replanting with native trees, shrubs, or perennials based on the soil type and sun exposure. We recommend planting small restoration grade trees and shrubs in large open areas (post invasive removal). Sowing seed would be recommended over planting plugs or perennial pots to maximize species diversity and provide more coverage.

See following page for examples of native trees, shrubs and perennials that we would recommend being planted in the wild areas of the East Point Sanctuary.

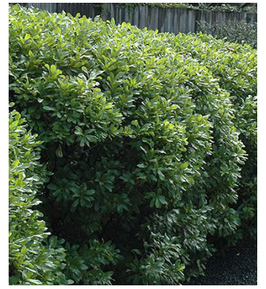
A Cedar Waxwing bird feasts on the berries of a Serviceberry tree.

SHRUBS

Rosa virginiana
Virginia Rose

Aronia arbutifolia
Red Chokeberry

Prunus maritima
Beach Plum



Myrica pensyvanica
Northern Bayberry

SMALL TREES

Amelanchier canadensis
Serviceberry

Betula papyrifera
Paper Birch

Prunus pensylvanica
Fire Cherry

Craetegus mollis
Downy Hawthorn

PERENNIALS

Asclepias syriaca
Common Milkweed

Solidago sempervirens
Seaside Goldenrod

Pycnanthemum tenuifolium
Mountain Mint

*Lathyrus japonicus*Iron
Beach Pea

SEED

NEW ENGLAND COASTAL SALT TOLERANT GRASS MIX

SOURCE: NEW ENGLAND WETLAND PLANTS

Species:

Elymus canadensis (Canada Wild Rye), *Festuca rubra* (Red Fescue), *Panicum amarum* (Atlantic Coastal Panic Grass), *Andropogon gerardii* (Big Bluestem), *Sorghastrum nutans* (Indian Grass), *Panicum virgatum* (Switch Grass), *Juncus tenuis* (Path Rush)

NATIVE RESTORATION TECHNIQUES: PLUGS AND POTS

Many native herbaceous perennials and grasses are best installed as plugs, quarts, or even 1-gallon specimens for the more immediate coverage, impact, and stabilization they provide. They can be used to establish an herbaceous layer entire or overlaid in a matrix on a newly-seeded area. Container plants also allow for the creation of drifts and masses of plants in a way that simple seeding cannot. Planted correctly, their roots will quickly expand, stabilizing soils and creating an understory of healthy native vegetation.

PLANTING PLUGS

- Plugs and container plants are small, with compact root systems, and must be kept moist at all times. Water thoroughly two to three hours before planting. This also facilitates laying out as the roots will not be as liable to dessicate.
- Determine the spacing of the plugs. Dependent on species and container size, this could range anywhere from 8” to 3’ on center, in a grid formation. If massing species together, take care to put taller varieties towards the “back” of the meadow or plot; shorter plants in “front”.
- Planting holes will be dug with a variety of tools - trowels, picks, soil knives, shovels, even augers, mechanical or otherwise (especially useful in highly compacted soil). The plug’s or plant’s crown should sit at soil level and be gently tamped down around its base. Water immediately, and continue to water on a regular basis the first year of establishment.
- Mulch helps conserve soil moisture and reduces weed pressure. We recommend 2” of shredded leaf much immediately after planting.
- Whole plants will fill in more quickly than seeded areas, but weed pressure may still be high. Be vigilant in maintenance.

Plugs and container plants will have dense root systems that must be kept moist.

NATIVE RESTORATION TECHNIQUES: SEEDING DISTURBED SOILS

RESTORATION SEEDING

- The first step in seeding is a thorough site evaluation. Environmental factors such as sun exposure, soil type, topography, grade, and existing vegetation must all be considered. These attributes determine the native plant community best suited for the area.
- The second very crucial task is management of existing invasive species. This can be done though manual and mechanical means, or through the targeted and elective use of herbicides.
- Prepare the site for sowing and planting. Clear off leaves and debris, pick up twigs and sticks, and scarify the soil surface in preparation for sowing.
- Hand-broadcasting seed is the preferred method in delicate wetland soils. Plugs and container plants can be installed at the same time or can be planted once the seedlings have emerged.
- Finally, mulch the area after sowing. Mainely Mulch® protects germinating seeds while providing room for them to emerge. Thick wood chips, sawdust, or other bulky mulches will not be used.
- A three-year maintenance plan is recommended to ensure greatest success. If a newly seeded installation is managed intensively and responsibly during its establishment, it will become self-regulating and require very little to no maintenance in the future.

Clear the space of debris

Seed mixes can be hand broadcast if the space is small enough to permit it.

Newly seeded meadow with straw mulch.

MANAGEMENT CALENDER FOR TREATMENT AND PLANTING

TASK	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Hand removal woody seedlings < 1” caliper												
Hand pulling herbaceous species												
Mechanical management of woody												
Cut and dab herbicide on woody invasives												
Japanese Knotweed Cutback												
Japanese Knotweed Chemical Treatment												
Restoration: Seeding												
Restoration: Planting												
Restoration: Live staking												

Optimal timing and efficiency

Not optimal but mostly effective

Possible, but not ideal

The timing of various containment and restoration strategies is critical to their success. Fortunately, the calender provides ample opportunity for action at any time of the year. Tasks should be performed by trained ecological technicians and licensed herbicide applicators. These recommendations for restoration take into consideration the long term health of the East Point Audubon Sanctuary. Once invasive plants have been managed in a particular area, the restoration of native species should begin.

PROPOSED MANAGEMENT, RESTORATION & MAINTENANCE SCHEDULE

WINTER/EARLY SPRING 2025

» Systematically remove woody invasive plants according to priority (determined by Audubon and Selected Contractor).

» Apply herbicide to freshly cut stumps (if seasonally applicable).

SPRING 2025

» Continue to remove invasive woody plants from wild areas.

EARLY TO MID SUMMER 2025

» Repeat cut and dab herbicide application to any resprouting invasive tree, shrub, and vine species.

» Hand pull any invasive seedlings less than 1” in diameter; stem treat invasive perennials and remove seed heads.

MID SUMMER TO FALL 2025

» Monitor plant response and continue hand pulling and herbicide application methods on resprouting invasive plant species.

» Apply spray or foam herbicide application to herbaceous invasive plants two times during growing season.

» Plant native shrubs in the fall in the areas where invasive plant removal was heaviest. (mostly the edges)

» Plant plugs/sow seed in the areas where invasive plant removal was heaviest. (mostly edges)

ONGOING MAINTENANCE AND MONITORING:

» After the treatments up until this point, the management plan should be evaluated. If treatments have been successful, only monitoring and minimal hand removal need be continued to keep invasive plant species at bay. Native trees, shrubs, and herbaceous forbs should dominate the minimally invaded areas.

» Continue to plant native plants to restore the areas most damaged by invasive plants. Revegetation/Restoration should be started in late fall 2025 and finished by the fall of 2026.

APPENDIX A: INVASIVE PLANT PAGES

NORWAY MAPLE
ACER PLATANOIDES

DESCRIPTION:

Acer platanoides, Norway Maple is a tree occurring in all regions of the state in upland and wetland habitats. It is especially common in urban areas. It grows in full sun to shade. It out-competes native vegetation, including sugar maple, Acer saccharum which it is frequently confused with. Norway autumn color is yellow, while Sugar is orange/red. Norway has white sap, while Sugar has clear sap in the petiole (stems). Norway maple leaf points reduce to a fine “hair”, while the tips of the points on Sugar leaves are rounded.

HABITAT:

Norway maple is well adapted to various soils, grows in dry conditions, and can tolerate areas of soil pollution. Norway maples were widely planted in the United States as street trees and have escaped to natural habitats. Trees produce large numbers of seeds that are wind dispersed and invade natural areas, displacing native trees. Quickly establishing, they create a canopy of dense shade that prevents regeneration of native seedlings. May be alleopathic (capable of inhibiting neighboring plants’ growth). Norway Maple produces copious amounts of seeds, and multitudes of seedlings can be found even one mature tree,

MANAGEMENT:

Manual methods of hand-pulling seedlings is recommended. For larger saplings, a ‘Weed Wrench’ is effective. Girdling the tree by cutting through the bark (cambium) layer all around the trunk is also an option as is basal bark treatment with a Triclopyr-based herbicide. Girdling is most effective in spring and should include reducing the canopy for safety, but consider leaving trunks for habitat value.

JAPANESE BARBERRY
BERBERIS THUNBBERGII

DESCRIPTION:

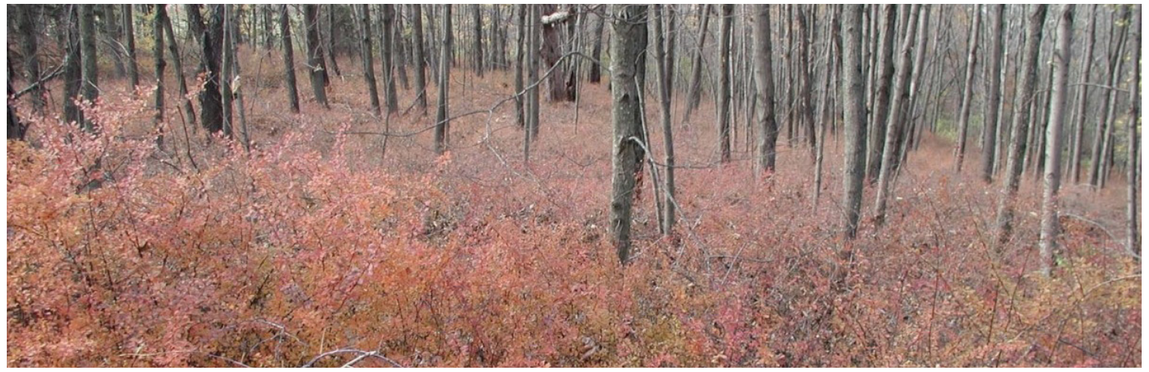
Japanese Barberry, or Berberis thunbergii, makes a dense, deciduous shrub understory that grows to 8 feet. Branches are brown, deeply grooved, zigzag in form and bear a single sharp spine at each node. The leaves are small (½ to 1 ½ inches long), oval shaped, green, bluish-green, or dark reddish purple. Flowering occurs from mid-April to May in the northeast. Pale yellow flowers about ¼ in. Across hang in umbrella-shaped clusters of 2-4 flowers along the length of the stem. The fruits are bright red berries about 1/3” long that are borne on narrow stalks. They mature during late summer and fall and persist through the winter.

HABITAT:

Japanese Barberry is shade tolerant, drought resistant, and adaptable to a variety of open and forested habitats, and disturbed areas. It prefers to grow in full sun, but will flower and fruit even in heavy shade. There is also strong research to support the surprise benefit of controlling Japanese Barberry in the reduction of black legged (or deer) tick populations.

MANAGEMENT:

Japanese Barberry is produces seed prolifically, and with a high germination rate, so removal of fruiting branches is high priority. However, barberry also spreads by rhizome, so underground root fragments should be removed. Manual methods of hand pulling sprouts works well in small populations, but large populations may require chemical applications by applying a solution of glyphosate to foliage, or a triclopyr-based solution to cut stumps.



ORIENTAL BITTERSWEET
CELASTRUS ORBICULATUS

DESCRIPTION:

Celastrus orbiculatus, Asiatic Bittersweet is a deciduous climbing vine common in areas of disturbance in our New England forests. It has glossy, rounded leaves that are alternate with finely toothed margins. The leaves turn yellow in the fall. The fruiting plants produce small greenish flower clusters from leaf axils that mature in fall to produce high numbers of fruiting seed. The seed are noticeably yellow, globular capsules that split open at maturity to reveal red-orange fruiting seeds. Roots are also distinctly orange.

HABITAT:

Bittersweet spreads easily into forest edges, woodlands, unmanaged meadows and old fields. Most disturbed sites that are not being actively managed that receive full sun are susceptible. The vine can tolerate shade but is often found in more open, sunny areas.

MANAGEMENT:

Small seedlings can be hand pulled, but bittersweet resprouts prolifically from root fragments, so more aggressive measures need be taken on all specimens but the very smallest. For established plants, vines should be cut to ground to reduce mass, but repeat cuttings will promote resprouting roots and should be avoided in most cases. Rake any seeds present, bagging in plastic bags, tying, and disposing of correctly.

MORROW'S HONEYSUCKLE
LONICERA MORROWII

DESCRIPTION:

Lonicera morrowii, Morrow's honeysuckles are upright, deciduous shrubs that typically have a multi-stem mounding appearance. Oval leaves are opposite along the stem with smooth edges (no teeth or lobes) and hairy on the underside. Mature stems are often hollow on the interior and peeling on the outer bark. In the spring pairs of fragrant, tubular flowers less than an inch long are borne along the stem in the leaf axils. The fruits are red to orange, and fleshy.

HABITAT:

Honeysuckles are relatively shade-intolerant and usually colonize forest edges, abandoned fields, and other open, upland habitats. Grazed meadows and disturbed woodlands are especially vulnerable. Woodlands and open meadows, especially those that have been grazed or otherwise disturbed and are left unmanaged are also highly susceptible. Morrow's Honeysuckle are highly adaptable and can grow in even challenging environments such as roadsides and wetland edges.

MANAGEMENT:

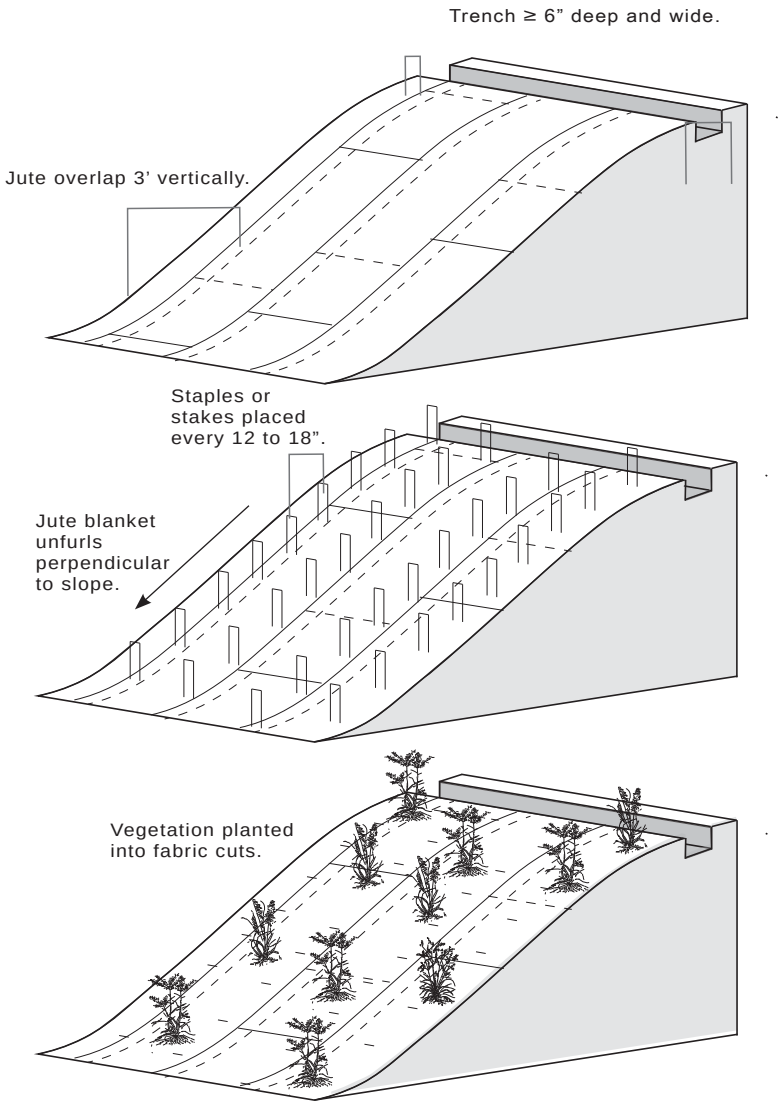
Honeysuckle management can combine mechanical mowing and manual hand pulling with cut and dab herbicide treatments. Small specimens may be removed manually as honeysuckle root systems are fairly shallow. Root resprouting can persist for a few years and several seasons of management may be required to fully control the population.

APPENDIX B: EROSION CONTROL PLANS (PLANTING ON SLOPES)

COIR / JUTE EROSION CONTROL

- After invasive species have been cut and treated, and debris cleared from the surface, we will seed the area with a seed mix, plant plugs or small shrubs. When planting seeds, light compaction enhances soil to seed contact and reduces opportunities for erosion.
- Once the slope is seeded, we dig a trench 6" deep and 6" wide along its ridge. The ends of the fabric are buried in the trench and the coir blanket unrolls perpendicular to the slope.
- The flat coir blanket must have full contact with the soil. It will be spliced to go evenly around and places where rocks or vegetation prevent soil contact.
- Wooden stakes or staples are installed every 12" - 18."
- The coir blanket overlay horizontally by approximately 6" and 3' vertically.
- Indicated vegetation is planted by cutting through the coir.
- The blanket biodegrades over time as plantings grow up from within it.

JUTE PLANTING DETAIL



STATE OF MAINE
DEPARTMENT OF AGRICULTURE, CONSERVATION AND FORESTRY
BOARD OF PESTICIDES CONTROL
28 STATE HOUSE STATION
AUGUSTA, MAINE 04333

JANET T. MILLS
GOVERNOR

AMANDA E. BEAL
COMMISSIONER

May 21, 2025

Wilkinson Ecological Design, Inc.
Dylan Brown
28 Lots Hollow Rd.
Orleans, MA 02653

RE: Variance permit for CMR 01-026 Chapter 29, Wilkinson Ecological Design, Inc., Abenakee Golf Club, Biddeford

Greetings,

The Board of Pesticides Control considered your application for a variance from Chapter 29. The variance is approved, provided that all products to be used are currently registered in the State of Maine or were registered at the time of purchase and that any application is made above the high-water line.

The Board authorizes the issuance of two-year permits for Chapter 29, therefore this permit is valid until December 31, 2026, as long as applications are consistent with the information provided on the variance request. Please notify the Board in advance of changes, particularly if you plan to use a different product from those listed.

Please bear in mind that your permit is based upon your company adhering to the precautions listed in Section X of your Chapter 29 variance request.

I will alert the Board at its next meeting that the variance permit has been issued. If you have any questions concerning this matter, please feel free to contact me at 287-2731.

Sincerely,

Alexander Peacock

Alexander Peacock
Director

ALEXANDER PEACOCK, DIRECTOR
90 BLOSSOM LANE, DEERING BUILDING

DEPARTMENT OF Agriculture Conservation & Forestry

PHONE: (207) 287-2731
THINKFIRSTSPRAYLAST.ORG

BOARD OF PESTICIDES CONTROL
APPLICATION FOR VARIANCE PERMIT
(Pursuant to Chapter 29, Section 6 of the Board's Regulations)

I. **Dylan Brown** (508) 246-7087
Name Telephone Number

Wilkinson Ecological SCF-2735
Company Name

28 Lots Hollow Road | Orleans | MA | 02653
Address | City | State | Zip

II. Dylan Brown CMA-6433
Master Applicator (if applicable) License Number

28 Lots Hollow Road | Orleans | MA | 02653
Address | City | State | Zip

III. **As part of your application, please send a revegetation plan and digital photos showing the target site and/or plants and the surrounding area, particularly showing proximity to wetlands and water bodies, to pesticides@maine.gov**

IV. Area(s) where pesticide will be applied:

Referring to the Parterre Land Management Plan, we will be applying herbicide to invasive plants in the bordering shrub thicket and old field areas adjacent to managed golf area.

V. Pesticide(s) to be applied:(Including EPA Registration Number)

RoundUp Custom for Aquatic (524-343), Garlon 3A (62719-37), Cide-Kick II Surfactant (not EPA registered)

VI. Purpose of pesticide application:

To control the invasive plant species found in treatment areas in section IV above.

VII. Approximate dates of spray application:

March 2025 - October 2027

VIII. Application Equipment:

Drip bottle, Herbicide Dauber, Backpack Sprayer.

IX. Standard(s) to be varied from:

Chapter 29, Standards for Water Quality Protection, Section 6, Part A.

X. Method to ensure equivalent protection:

The majority of herbicide treatment will be applied with drip bottles (cut/drip) or herbicide daubers minimizing volume and movement of herbicide off the target plant.

When a backpack sprayer is used we minimize herbicide drift by adjusting nozzles to maximize droplet size, and to prohibit use of backpacks on days with winds >10 mph, and any threat of rain.

XI. Revegetation Plan (attach separately if necessary)

See Parterre Ecological Land Management Plan

Summary: all openly disturbed areas to be seeded with a salt-tolerant seed mix. After control of invasive plants, an extensive native shrub planting is planned. Species include Virginia Rose, black chokeberry, bayberry, among others.

Signed: _____ Date: 3/25/25

Return completed form to: **Board of Pesticides Control, 28 State House Station, Augusta, ME 04333-0028**
OR E-mail to: pesticides@maine.gov

STATE OF MAINE
DEPARTMENT OF AGRICULTURE, CONSERVATION AND FORESTRY
BOARD OF PESTICIDES CONTROL
28 STATE HOUSE STATION
AUGUSTA, MAINE 04333

JANET T. MILLS
GOVERNOR

AMANDA E. BEAL
COMMISSIONER

October 17, 2024

Parterre Ecological/Parterre Garden Services
Shana Hostetter
14 Braintree St.
Portland, ME 04103

RE: Variance permit for CMR 01-026 Chapter 29, Parterre Ecological/Parterre Garden Services

Greetings,

The Board of Pesticides Control considered your application for a variance from Chapter 29. The variance is approved, provided that all products to be used are currently registered in the State of Maine or were registered at the time of purchase and that any application is made above the high-water line.

The Board authorizes the issuance of two-year permits for Chapter 29, therefore this permit is valid until December 31, 2025, as long as applications are consistent with the information provided on the variance request. Please notify the Board in advance of changes, particularly if you plan to use a different product from those listed.

Please bear in mind that your permit is based upon your company adhering to the precautions listed in Section X of your Chapter 29 variance request.

I will alert the Board at its next meeting that the variance permit has been issued. If you have any questions concerning this matter, please feel free to contact me at 287-2731.

Sincerely,

Alexander Peacock

Alexander Peacock
Director

ALEXANDER PEACOCK, DIRECTOR
90 BLOSSOM LANE, DEERING BUILDING

PHONE: (207) 287-2731
THINKFIRSTSPRAYLAST.ORG

BOARD OF PESTICIDES CONTROL
APPLICATION FOR VARIANCE PERMIT
(Pursuant to Chapter 29, Section 6 of the Board's Regulations)

I. Shana Hostetter (717) 587-5355
Name Telephone Number

Parterre Ecological
Company Name

3 Stonecliff Road, Biddeford, Maine, 04005
Address City State Zip

II. Shana Hostetter CMA-6371
Master Applicator (if applicable) License Number

14 Braintree Street, Portland, Maine, 04103
Address City State Zip

III. **As part of your application, please send a revegetation plan and digital photos showing the target site and/or plants and the surrounding area, particularly showing proximity to wetlands and water bodies, to pesticides@maine.gov**

IV. Area(s) where pesticide will be applied:
See Attached Land Managment Plan for more details. We will apply pesticides in the 'wild spaces' at the Abenakee Golf Club. There are approximately 12 acres of wild spaces that have varied levels of invaisve plant species intermingled in within the native vegetation. The largest swath of 'wild space' is coastal and contains a wetland.

V. Pesticide(s) to be applied:(Including EPA Registration Number)
Round Up Custom, 524- 343
Garlon 3A, 62719-37

VI. Purpose of pesticide application:
To control invasive plant species in the 'wild spaces' at the Abenakee Club.

VII. Approximate dates of spray application:

November 2024 - November 2026

VIII. Application Equipment:

Cut Stump Application (Buckthorn Blaster), Backpack Sprayer, Hand-held Foamer

IX. Standard(s) to be varied from:

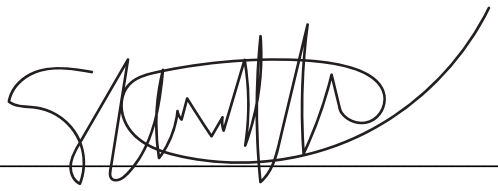
Chapter 29, Section 6, Section A

X. Method to ensure equivalent protection:

When using backpack sprayer we will be using large droplet sizes to minimize drift. We will only apply herbicide when the wind is less than 15mph. Spray only when ground is dry and not saturated with water. Avoid spraying when forecasts show a threat of heavy rains. Do not spray on rainy days and cease spray operations if rain is in the immediate forecast.

XI. Revegetation Plan (attach separately if necessary)

See attached Land Management Plan

Signed:  Date: 10/11/24

Return completed form to: **Board of Pesticides Control, 28 State House Station, Augusta, ME 04333-0028**
OR E-mail to: pesticides@maine.gov

Rev. 8/2013

LAND MANAGEMENT PLAN

A NARRATIVE FOR INVASIVE MANAGEMENT & NATIVE PLANT RESTORATION

View of the Lower Wet Area and Beach Edge

ABENAKEE GOLF CLUB • BIDDEFORD POOL, MAINE

PARTERRE
ECOLOGICAL

PROJECT INTRODUCTION

This plan addresses a proposed invasive management and restoration planting at the Abenakee Golf Club located at 2 Stone Cliff Road in Biddeford Pool, Maine. There is about 12 acres of wild space on this golf course. Most of that acreage is buffer space between the greens of the golf course and the coast. There is a smaller section of wild space called 'The Pit,' and a 20-30' strip that boarders the Audubon's property.

Over all the wild spaces are densely vegetated with woody trees and shrubs, although there are pockets of mowed meadow. There is significant invasive plant pressure in these wild spaces especially along the edges. The interior of the largest swath of wild space does contain a wetland. This area seems to be minimally invaded and consists mostly of native species. See Appendix B for more details.

The invasive population on site is mature and self-perpetuating. These species will inevitability displace the remnant native population unless decisive action is taken. These invasives include common culprits such as privet, bittersweet, honeysuckle, barberry, Norway maple, sycamore maple, and a very small patch of Japanese Knotweed.

Knotweed is the most aggressive of invaders, and one that requires aggressive and immediate means of control. Luckily, there is only a small and very manageable patch currently. Immediate action should be taken to control that patch before it takes hold and creates a bigger problem.

The purpose of this plan is to identify the invasives plants we propose to remove, provide a description of each, and detail best management practices for control and management. The plan also includes a narrative for proposed native restoration, specifies plant species and delineates planting methods.

Finally, it provides a detailed maintenance calender for all aspects of proposed management and ecological restoration over an extended timeline.

CONTENTS

ABENAKEE CLUB GEOGRAPHY & GOALS

The Abenakee Club is situated in the middle of the Biddeford Pool peninsula. The property borders Wood Island Harbor to the north, the Audubon Sanctuary and the East Point Sanctuary is to the east, and residential properties make up the southern and western borders. Most of the property consists of manicured greens for playing golf. About 12 acres of the property are wild spaces that contain wetlands, uplands, sandy coastlines, shrublands, and meadows. There is a mix of native and invasive plant vegetation. The invasive plants are mostly concentrated on the edges of the wild spaces and are starting to dominate the native ecosystems that are present. The goal of this Land Management Plan is to present an inventory of the native and invasive species, identify the level of invasive plant pressure, share our Invasive Plant Management strategies, and propose native species to replace the removed invasives if necessary.

Property Boundary of the Abenakee Golf Club

Wild Spaces Where Invasive Plant Management Will Occur

0' 100' 200' 300'

EXISTING CONDITIONS: INVASIVE PLANT IMAGES

‘The Pit’ is starting to be dominated by bittersweet, honeysuckle and barberry.

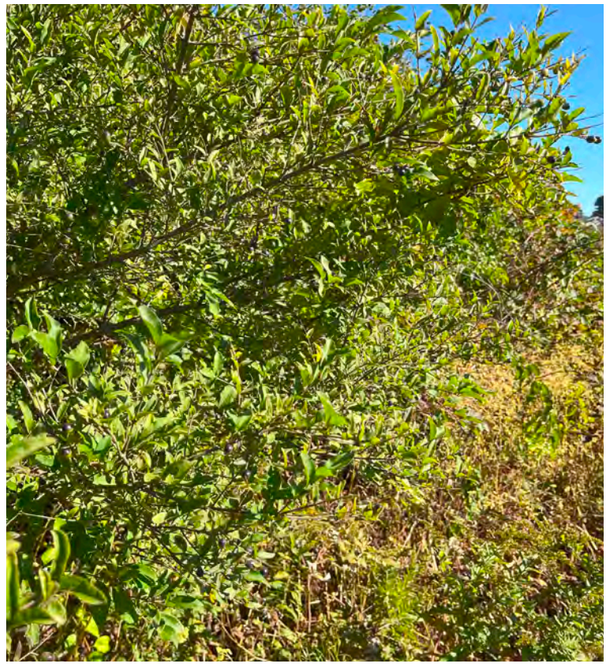
Small patch of knotweed located on the path toward the coast.(Path to Beach)

There are several large invasive trees like Norway maples and sycamore maples on site. These trees will continue to grow bigger and produce offspring that will start to dominate the overstory. (Lookout Tower Area)

EXISTING CONDITIONS: INVASIVE PLANT IMAGES

Bittersweet is one of the most prolific invasive species on site. It is seen here dominating the native alders, willows and asters. (Lower Wet Area)

Bittersweet is producing fruit on the wild edge along the course. (Lower Wet Area)



Privet has escaped from the hedge planted by the tennis courts and has taken hold in some of the wild spaces. (Lower Wet Area)

EXISTING CONDITIONS: INVASIVE PLANT IMAGES

Honeysuckle growing along the coast. (Beach Edge)

Bittersweet along the property line that borders residential properties. (Residential Edge)

EXISTING CONDITIONS: INVASIVE SPECIES INVENTORY

Upland Area

Invasive Pressure: Medium to High
Edges worse than interior

INVASIVES/UNDESIRABLE NON-NATIVES:

TREES/SHRUBS/WOODY VINES

Lonicera sp. (Shrub Japanese Honeysuckle)
Celastrus orbiculatus (Asiatic Bittersweet)
Acer platanoides (Norway Maple)

HERBACEOUS PLANTS

Solanum dulcamara (Bittersweet Nightshade)
Rubus phoenicolasius (Wineberry)

Upper Meadow

Invasive Pressure: Low
Area appears to be mowed frequently

INVASIVES/UNDESIRABLE NON-NATIVES:

WOODY VINE

Celastrus orbiculatus (Asiatic Bittersweet)

Beach Edge

Invasive Pressure: Medium to High

INVASIVES/UNDESIRABLE NON-NATIVES:

TREES/SHRUBS/WOODY VINES

Ligustrum sp. (Privet)
Rosa rugosa (Rugosa Rose)
Lonicera sp. (Bush Honeysuckle)
Celastrus orbiculatus (Asiatic Bittersweet)

HERBACEOUS PLANTS

Solanum dulcamara (Bittersweet Nightshade)

Lower Wet Area

Invasive Pressure: Medium-High
Edges worse than interior

INVASIVES/UNDESIRABLE NON-NATIVES:

TREES/SHRUBS/WOODY VINES

Trees/Shrubs/Woody Plants
Celastrus orbiculatus (Asiatic Bittersweet)
Ligustrum sp. (Privet)
Acer platanoides (Norway Maple)

HERBACEOUS PLANTS

Convolvulus arvensis (Field Bindweed)
Lythrum salicaria (Purple Loosestrife)
Rubus phoenicolasius (Wineberry)
Securigera varia (Crown Vetch)
Cirsium arvense (Canada Thistle)

Path to Beach

Invasive Pressure: Medium to High
Edges worse than interior

INVASIVES/UNDESIRABLE NON-NATIVES:

TREES/SHRUBS/WOODY VINES

Acer platanoides (Norway Maple)
Lonicera sp. (Shrub Japanese Honeysuckle)
Celastrus orbiculatus (Asiatic Bittersweet)
Rosa rugosa (Rugosa Rose)

HERBACEOUS PLANTS

Fallopia japonica (Japanese Knotweed)

Lookout Tower Area

Invasive Pressure: Low

INVASIVES/UNDESIRABLE NON-NATIVES:

TREES/SHRUBS/WOODY VINES

Lonicera sp. (Shrub Japanese Honeysuckle)
Ligustrum sp. (Privet)
Celastrus orbiculatus (Asiatic Bittersweet)
Acer platanoides (Norway Maple)

The Pit

Invasive Pressure: Medium

INVASIVES/UNDESIRABLE NON-NATIVES:

TREES/SHRUBS/WOODY VINES

Celastrus orbiculatus (Asiatic Bittersweet)
Lonicera sp. (Shrub Japanese Honeysuckle)
Berberis vulgaris (Barberry)

HERBACEOUS PLANTS

Rubus phoenicolasius (Wineberry)
Artemisia vulgaris (Mugwort)
Securigera varia (Crown Vetch)

Residential Edge

Invasive Pressure: Spotty, low

INVASIVES/UNDESIRABLE NON-NATIVES:

TREES/SHRUBS/WOODY VINES

Lonicera sp. (Shrub Japanese Honeysuckle)
Ligustrum sp. (Privet)
Celastrus orbiculatus (Asiatic Bittersweet)
Solanum dulcamara (Bittersweet Nightshade)

EXISTING CONDITIONS: NATIVE PLANT IMAGES

Bayberry, goldenrod and asters growing in a mowed area of the wild spaces at the Abenakee Club. (Upper Meadow)

Above: High bush cranberry fruiting in the fall.
Below: Winterberry shown here along the edge of the wild space and golf greens. (Lower Wet Area)

Black willow and pussy willow are prominent along the lower wet areas of the wild spaces. (Lower Wet Area)

EXISTING CONDITIONS: NATIVE PLANT IMAGES

Staghorn sumac with pitch pine in the distance. (The Pit)

Little Bluestem naturalizing in meadow areas. (The Pit)

Bayberry and Virginia rose intermingling on the edge of the wild areas. (Lookout Tower Area)

EXISTING CONDITIONS: NATIVE SPECIES INVENTORY

See map on page 7 for location of zones

Upland Area

Invasive Pressure: Medium to High
Edges worse than interior

NATIVES:

TREES/SHRUBS/WOODY VINES

Prunus sp. (Cherry)
Pinus strobus (White Pine)
Crataegus sp. (Hawthorn)
Rhus typhina (Staghorn Sumac)
Amelanchier sp. (Serviceberry)
Sorbus americana (Mountain Ash)
Viburnum trilobum (Cranberrybush Viburnum)
Spiraea alba (Meadowsweet)
Rubus sp. (Raspberry, Blackberry, etc.)
Myrica pensylvanica (Bayberry)
Rosa sp. (Native Roses)

HERBACEOUS PLANTS

Solidago sp. (Goldenrods)
Euthamia sp. (Grass-leaved Goldenrod)
Symphyotrichum sp. (Asters)

Upper Meadow

Invasive Pressure: Low
Area appears to be mowed frequently

NATIVES:

TREES/SHRUBS/WOODY VINES

Myrica pensylvanica (Bayberry)
Prunus sp. (Cherry)
Spiraea alba (Meadowsweet)
Vaccinium angustifolium (Lowbush Blueberry)
Viburnum dentatum (Arrowwood Viburnum)
Toxicodendron radicans (Poison Ivy)

HERBACEOUS PLANTS

Solidago sp. (Goldenrods)
Euthamia sp. (Grass-leaved Goldenrods)
Rubus sp. (Dewberry)
Achillea millefolium (Yarrow)
Fragaria virginiana (Wild Strawberry)
Rubus sp. (Blackberry)

Residential Edge

Invasive Pressure: Spotty, low

Mostly ornamental plants.

Lower Wet Area

Invasive Pressure: Medium-High
Edges worse than interior

NATIVES:

TREES/SHRUBS/WOODY VINES

Salix discolor (Pussy Willow)
Salix sp. (Willow)
Acer rubrum (Red Maple)
Ilex verticillata (Winterberry)
Cornus racemosa (Gray Dogwood)
Alnus sp. (Alder)
Viburnum trilobum (Cranberrybush Viburnum)
Parthenocissus quinquefolia (Virginia Creeper)

HERBACEOUS PLANTS

Symphyotrichum sp. (Asters)
Impatiens capensis (Jewelweed)
Typha sp. (Cattail)
Rubus sp. (Raspberry, Blackberry, etc.)
Euthamia sp. (Grass-leaved Goldenrod)
Solidago sp. (Goldenrods)

Path to Beach

Invasive Pressure: Medium to High
Edges worse than interior

NATIVES:

TREES/SHRUBS/WOODY VINES

Viburnum trilobum (Cranberrybush Viburnum)
Alnus sp. (Alders)
Cornus sericea (Redtwig Dogwood)
Viburnum dentatum (Arrowwood Viburnum)
Ilex verticillata (Winterberry)

HERBACEOUS PLANTS

Onoclea sensibilis (Sensitive Fern)
Symphyotrichum sp. (Asters)
Carex sp. (Sedges)
Impatiens capensis (Jewelweed)

Beach Edge

Invasive Pressure: Medium to High

NATIVES:

TREES/SHRUBS/WOODY VINES

Amelanchier sp. (Serviceberry)
Populus tremuloides (Quaking Aspen)
Quercus rubra (Red Oak)
Prunus sp. (Cherry)
Viburnum dentatum (Arrowwood Viburnum)

HERBACEOUS PLANTS

Symphyotrichum sp. (Asters)
Solidago sempervirens (Seaside Goldenrod)

Lookout Tower Area

Invasive Pressure: Low

NATIVES:

TREES/SHRUBS/WOODY VINES

Myrica pensylvanica (Bayberry)
Prunus sp. (Cherry)
Spiraea alba (Meadowsweet)
Juniperus communis (Common Juniper)
Rosa sp. (Roses)
Amelanchier sp. (Serviceberry)
Vaccinium corymbosum (Highbush Blueberry)

HERBACEOUS PLANTS

Solidago sp. (Goldenrods)
Symphyotrichum sp. (Asters)

The Pit

Invasive Pressure: Medium

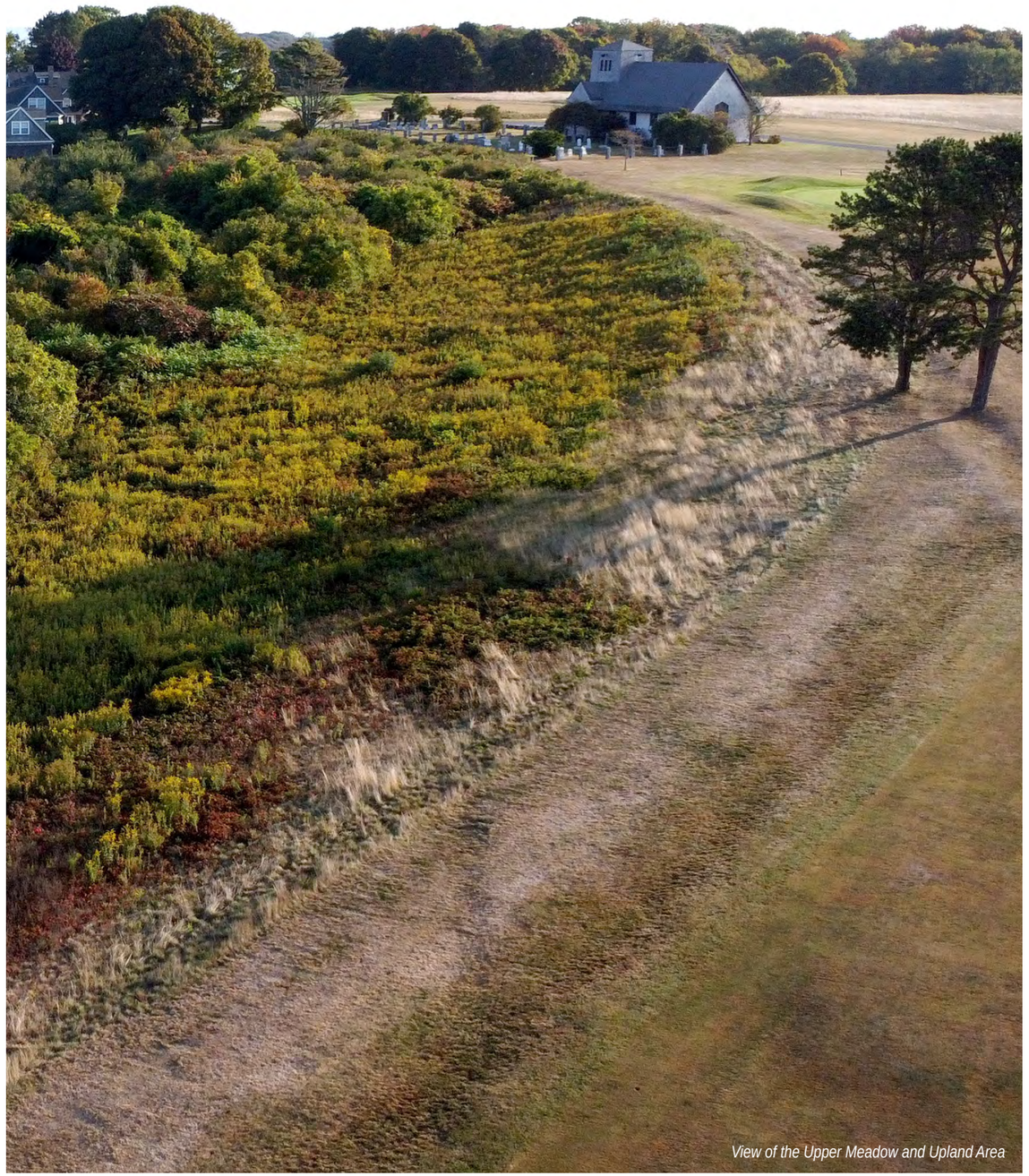
NATIVES:

TREES/SHRUBS/WOODY VINES

Comptonia peregrina (Sweet Fern)
Myrica pensylvanica (Bayberry)
Toxicodendron radicans (Poison Ivy)
Rhus typhina (Staghorn Sumac)
Salix sp. (Willow)
Amelanchier sp. (Serviceberry)
Spiraea alba (Meadowsweet)
Betula populifolia (Gray Birch)
Rosa sp. (Roses)
Quercus velutina (Black Oak)

HERBACEOUS PLANTS

Solidago sp. (Goldenrods)
Schizachyrium scoparium (Little Bluestem)



View of the Upper Meadow and Upland Area

PROPOSED GENERAL INVASIVE MANAGEMENT TECHNIQUES

MANUAL HAND REMOVAL METHODS:

Manual methods of invasive plant management - including hand pulling and cutting - will be prioritized whenever possible. For tenacious woody plants, use of a weed-wrench is recommended. To minimize soil disturbance (which can activate invasive seed banks), only shallow-rooted invasive plants less than 1” in caliper should be hand pulled from the soil. Invasive plant species greater than 1” caliper are best cut and treated. Invasive plant material will be disposed of off site, chipped and spread, or piled discreetly in the woods as habitat piles.

Hand pulling invasives will be prioritized.

MECHANICAL MANAGEMENT:

Mechanical methods of invasive control include mowing, string-trimming, and sawing down of single large specimens or extensive stands of a particular plant. In a few cases repeated mowing or cutting is all that is needed to weaken a plant’s resources to the point of die-off. With most aggressive invasives however, mowing and cutting are only the first step in a more intensive program plan that involves selective herbicidal treatments.

Mechanical mowing of a dense stand of phragmites.

PROPOSED GENERAL INVASIVE MANAGEMENT TECHNIQUES

CUT AND DAB TREATMENT:

All invasive plant species that have a base greater than 1” in caliper will be addressed with herbicide application. Invasive plants of this size usually have extensive fibrous root systems which provide beneficial soil stabilization and are best left in situ. Unfortunately, they also maintain the ability to resprout, which is why we propose a cut and dab method with Garlon 3A™ (a triclopyr-based herbicide) on individual cut stumps. Licensed Herbicide Applicators will complete all treatments.

Licensed applicators with required Personal Protective Equipment paint the stems of invasive species after cutting.

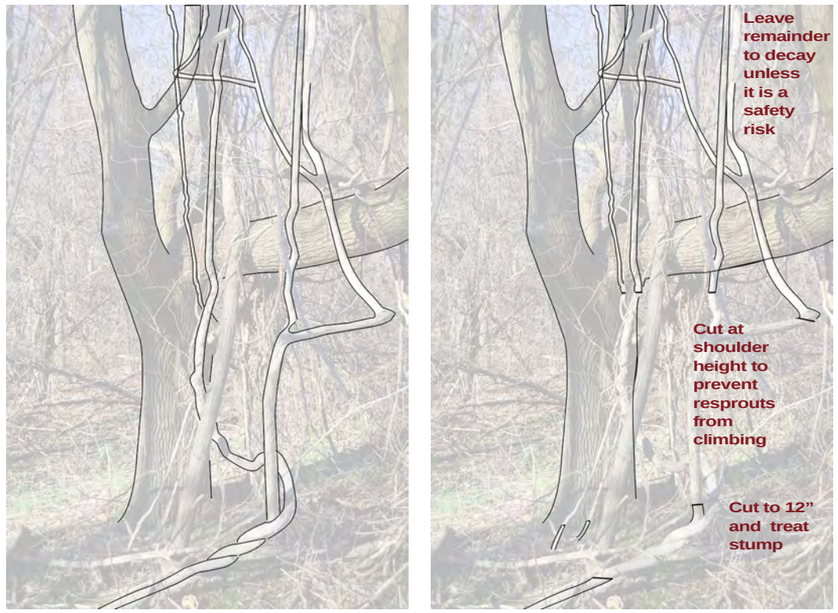
FOAM APPLICATION:

Some invasives, particularly persistent herbaceous plants like Japanese Knotweed, or resprouting woodies, are best managed with a foliar foam application. This technique allows the technician to systematically target the new green growth of a plant, where herbicide is absorbed most effectively. The foam adheres to the foliage and the herbicide is trans-located through the vascular system of the plant. Foliar foam wipes are best performed in late summer to fall when the plant is actively reserving energy in the rootstock.

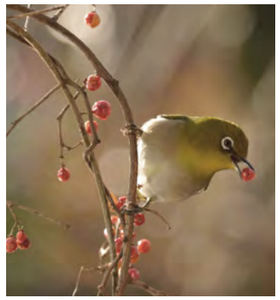
Licensed applicators with required Personal Protective Equipment paint the stems of invasive species after cutting.

SPECIALIZED INVASIVE MANAGEMENT TECHNIQUES: ASIATIC BITTERSWEET

Invasive Bittersweet (Celastrus orbiculatus) has the capacity to girdle, weaken, and even kill mature canopy trees. Without consistent management, vines will eventually open large holes in the canopy while suppressing saplings from filling the gaps. They readily resprout after being cut and can damage the aesthetic and ecological value of meadows and forests alike.



Removing the entire vines from trees is often dangerous and unnecessary (unless it poses safety risk). Best management practice involves making cuts at shoulder height followed by a cut at 12" and immediate herbicide treatment. Bittersweet aggressively suckers after cutting so it is important to cut and treat during or after its flowering period (late June to December).



Established vines produce thousands of bright red berries that mature in late fall and are spread by birds.

SPECIALIZED INVASIVE MANAGEMENT TECHNIQUES: JAPANESE KNOTWEED

Japanese Knotweed (Fallopia japonica) is one of the most difficult invasive species to control. Its main mode of spreading is through cut portions of its rhizomes or stem, which can actively resprout from a 1" fragment. Growing 10-15' and often shading out any competitors, Japanese Knotweed can quickly form a monoculture, especially along waterways and wetland edges.

Identification: Herbaceous perennial, with long heart shaped leaves and hollow stems. Young sprouts can be red.

Knotweed flowers in late August and early September.

Unfortunately, knotweed roots can extend over 6' below the ground making organic treatment nearly impossible. Even so, it can take 2-5 seasons to fully control it through repeat herbicide treatments. These are best undertaken during August and September when the plant is in its weakest stage and nutrients are flowing back into the roots There are two ways to approach treatment.

1. Cut and treat: For small patches, cut the stem between the 1st and 3rd node and add a 50% solution of a wetland-approved herbicide such as Aquaneat™ (glyphosate), generally 5 oz per treated stem. If density is < 5 ft per plant treat every third stem. Do this for 2-5 seasons.

2. Cut in May, with a foliar or stem application of herbicide in late summer. Best practice for dense mature stands of knotweed. The May mowing or cutting causes the knotweed to regrow to a more manageable height in the late summer, at which point the leaves an be easily painted with a 6.0% Aquaneat (glyphosate) solution before the plant pulls its nutrients back into the roots in preparation for winter.

RESTORATION PLANTING RECOMMENDATIONS

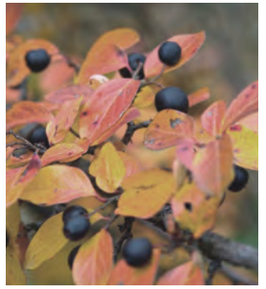
Restoration planting will happen once a substantial amount of the Invasive Plant Management has occurred. In the areas where the invasive plant pressure is low, we recommend letting the existing native plants creep in and take over. Where the invasive plant pressure is moderate or high, we recommend replanting with native trees, shrubs, or perennials based on the soil type and sun exposure.

For example, the areas along the Beach Edge can be naturally re-vegetated with neighboring native plants. However, the edge of the Lower Wet Area is heavily invaded with bittersweet. Once that bittersweet is removed, large gaps in the shrub layer will most likely be present. That would be a place where we would recommend replanting with native shrubs suitable to that area. See following page for examples of native trees, shrubs and perennials that we would recommend being planted in the wild areas of the Abenakee Club.

Aster novae-angliae (New England Aster) and Solidago spp. (Goldenrod) taking up space in a meadow. These would make great additions to a native meadow at the Abenakee Club as we manage out invasive vines like bittersweet.

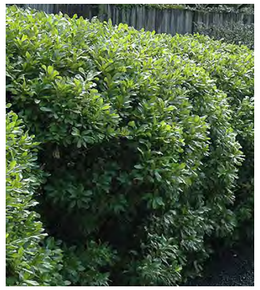
UPLAND SHRUBS

Rosa virginiana
Virginia Rose



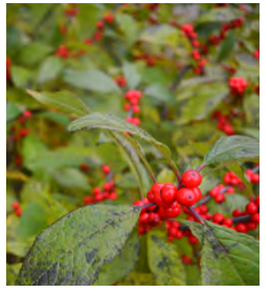
Aronia melanocarpa
Black Chokeberry

Diervilla lonicera
Northern Bush Honeysuckle

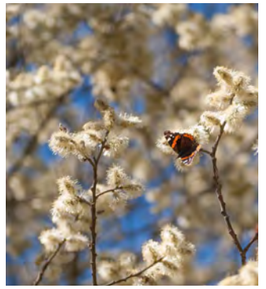


Myrica pensyvanica
Northern Bayberry

WETLAND SHRUBS



Ilex verticillata
Winterberry



Salix discolor
Pussy Willow

Clethra alnifolia
Summersweet

Sambucus canadensis
American Elderberry

SMALL TREES

Amelanchier canadensis
Serviceberry

Betula papyrifera
Paper Birch

Prunus pensylvanica
Fire Cherry

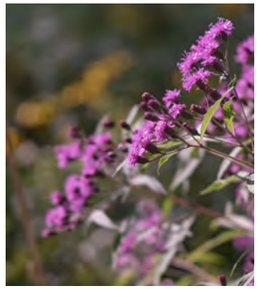
Craetegus mollis
Downy Hawthorn

PERENNIALS

Asclepias syriaca
Common Milkweed

Panicum virgatum
Switchgrass

Pycnanthemum tenuifolium
Mountain Mint



Vernonia lettermannii
Iron Butterfly Ironweed

NATIVE RESTORATION TECHNIQUES: PLUGS AND POTS

Many native herbaceous perennials and grasses are best installed as plugs, quarts, or even 1-gallon specimens for the more immediate coverage, impact, and stabilization they provide. They can be used to establish an herbaceous layer entire or overlaid in a matrix on a newly-seeded area. Container plants also allow for the creation of drifts and masses of plants in a way that simple seeding cannot. Planted correctly, their roots will quickly expand, stabilizing soils and creating an understory of healthy native vegetation.

PLANTING PLUGS

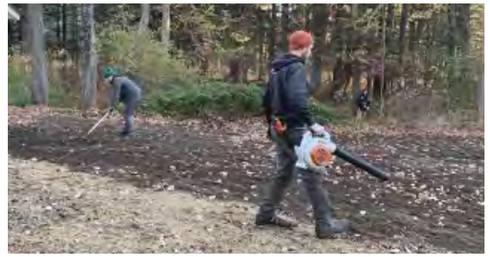
- Plugs and container plants are small, with compact root systems, and must be kept moist at all times. Water thoroughly two to three hours before planting. This also facilitates laying out as the roots will not be as liable to dessicate.
- Determine the spacing of the plugs. Dependent on species and container size, this could range anywhere from 8" to 3' on center, in a grid formation. If massing species together, take care to put taller varieties towards the "back" of the meadow or plot; shorter plants in "front".
- Planting holes will be dug with a variety of tools - trowels, picks, soil knives, shovels, even augers, mechanical or otherwise (especially useful in highly compacted soil). The plug's or plant's crown should sit at soil level and be gently tamped down around its base. Water immediately, and continue to water on a regular basis the first year of establishment.
- Mulch helps conserve soil moisture and reduces weed pressure. We recommend 2" of shredded leaf much immediately after planting.
- Whole plants will fill in more quickly than seeded areas, but weed pressure may still be high. Be vigilant in maintenance.

Plugs and container plants will have dense root systems that must be kept moist.

NATIVE RESTORATION TECHNIQUES: SEEDING DISTURBED SOILS

RESTORATION SEEDING

- The first step in seeding is a thorough site evaluation. Environmental factors such as sun exposure, soil type, topography, grade, and existing vegetation must all be considered. These attributes determine the native plant community best suited for the area.
- The second very crucial task is management of existing invasive species. This can be done though manual and mechanical means, or through the targeted and elective use of herbicides.
- Prepare the site for sowing and planting. Clear off leaves and debris, pick up twigs and sticks, and scarify the soil surface in preparation for sowing.
- Hand-broadcasting seed is the preferred method in delicate wetland soils. Plugs and container plants can be installed at the same time or can be planted once the seedlings have emerged.
- Finally, mulch the area after sowing. Mainely Mulch® protects germinating seeds while providing room for them to emerge. Thick wood chips, sawdust, or other bulky mulches will not be used.
- A three-year maintenance plan is recommended to ensure greatest success. If a newly seeded installation is managed intensively and responsibly during its establishment, it will become self-regulating and require very little to no maintenance in the future.



Clear the space of debris

Seed mixes can be hand broadcast if the space is small enough to permit it.

Newly seeded meadow with straw mulch.

MANAGEMENT CALENDER FOR TREATMENT AND PLANTING

TASK	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Hand removal woody seedlings < 1” caliper												
Hand pulling herbaceous species												
Mechanical management of woody												
Cut and dab herbicide on woody invasives												
Japanese Knotweed Cutback												
Japanese Knotweed Chemical Treatment												
Restoration: Seeding												
Restoration: Planting												
Restoration: Live staking												

Optimal timing and efficiency

Not optimal but mostly effective

Possible, but not ideal

The timing of various containment and restoration strategies is critical to their success. Fortunately, the calender provides ample opportunity for action at any time of the year. Tasks should be performed by trained ecological technicians and licensed herbicide applicators. These recommendations for restoration take into consideration the long term health of the Abenakee Club. Once invasive plants have been managed in a particular area, the restoration of native species should begin.

PROPOSED MANAGEMENT, RESTORATION & MAINTENANCE SCHEDULE

WINTER 2024 - 2025

» Systematically remove woody invasive plants according to priority (determined by Abenakee Club and Parterre Eco).

» Apply herbicide to freshly cut stumps (if seasonally applicable).

SPRING 2025

» Continue to remove invasive woody plants from wild areas.

EARLY TO MID SUMMER 2025

» Cut and control Japanese Knotweed.

» Repeat cut and dab herbicide application to any resprouting invasive tree, shrub, and vine species.

» Hand pull any invasive seedlings less than 1” in diameter; stem treat invasive perennials and remove seed heads.

MID SUMMER TO FALL 2025

» Monitor plant response and continue hand pulling and herbicide application methods on resprouting invasive plant species.

» Apply spray or foam herbicide application to herbaceous invasive plants two times during growing season.

ONGOING MAINTENANCE AND MONITORING:

» After the treatments up until this point, the management plan should be evaluated. If treatments have been successful, only monitoring and minimal hand removal need be continued to keep invasive plant species at bay. Native trees, shrubs, and herbaceous forbs should dominate the minimally invaded areas.

» Once the bulk of the heavier invaded areas are treated several times, a plan to re-vegetate with native restoration planting should be devised and implemented in the Summer of 2026.

APPENDIX A: INVASIVE PLANT PAGES

NORWAY MAPLE
ACER PLATANOIDES

DESCRIPTION:

Acer platanoides, Norway Maple is a tree occurring in all regions of the state in upland and wetland habitats. It is especially common in urban areas. It grows in full sun to shade. It out-competes native vegetation, including sugar maple, Acer saccharum which it is frequently confused with. Norway autumn color is yellow, while Sugar is orange/red. Norway has white sap, while Sugar has clear sap in the petiole (stems). Norway maple leaf points reduce to a fine “hair”, while the tips of the points on Sugar leaves are rounded.

HABITAT:

Norway maple is well adapted to various soils, grows in dry conditions, and can tolerate areas of soil pollution. Norway maples were widely planted in the United States as street trees and have escaped to natural habitats. Trees produce large numbers of seeds that are wind dispersed and invade natural areas, displacing native trees. Quickly establishing, they create a canopy of dense shade that prevents regeneration of native seedlings. May be alleopathic (capable of inhibiting neighboring plants’ growth). Norway Maple produces copious amounts of seeds, and multitudes of seedlings can be found even one mature tree,

MANAGEMENT:

Manual methods of hand-pulling seedlings is recommended. For larger saplings, a ‘Weed Wrench’ is effective. Girdling the tree by cutting through the bark (cambium) layer all around the trunk is also an option as is basal bark treatment with a Triclopyr-based herbicide. Girdling is most effective in spring and should include reducing the canopy for safety, but consider leaving trunks for habitat value.

JAPANESE BARBERRY
BERBERIS THUNBBERGII

DESCRIPTION:

Japanese Barberry, or Berberis thunbergii, makes a dense, deciduous shrub understory that grows to 8 feet. Branches are brown, deeply grooved, zigzag in form and bear a single sharp spine at each node. The leaves are small (½ to 1 ½ inches long), oval shaped, green, bluish-green, or dark reddish purple. Flowering occurs from mid-April to May in the northeast. Pale yellow flowers about ¼ in. Across hang in umbrella-shaped clusters of 2-4 flowers along the length of the stem. The fruits are bright red berries about 1/3” long that are borne on narrow stalks. They mature during late summer and fall and persist through the winter.

HABITAT:

Japanese Barberry is shade tolerant, drought resistant, and adaptable to a variety of open and forested habitats, and disturbed areas. It prefers to grow in full sun, but will flower and fruit even in heavy shade. There is also strong research to support the surprise benefit of controlling Japanese Barberry in the reduction of black legged (or deer) tick populations.

MANAGEMENT:

Japanese Barberry is produces seed prolifically, and with a high germination rate, so removal of fruiting branches is high priority. However, barberry also spreads by rhizome, so underground root fragments should be removed. Manual methods of hand pulling sprouts works well in small populations, but large populations may require chemical applications by applying a solution of glyphosate to foliage, or a triclopyr-based solution to cut stumps.

ORIENTAL BITTERSWEET
CELASTRUS ORBICULATUS

DESCRIPTION:

Celastrus orbiculatus, Asiatic Bittersweet is a deciduous climbing vine common in areas of disturbance in our New England forests. It has glossy, rounded leaves that are alternate with finely toothed margins. The leaves turn yellow in the fall. The fruiting plants produce small greenish flower clusters from leaf axils that mature in fall to produce high numbers of fruiting seed. The seed are noticeably yellow, globular capsules that split open at maturity to reveal red-orange fruiting seeds. Roots are also distinctly orange.

HABITAT:

Bittersweet spreads easily into forest edges, woodlands, unmanaged meadows and old fields. Most disturbed sites that are not being actively managed that receive full sun are susceptible. The vine can tolerate shade but is often found in more open, sunny areas.

MANAGEMENT:

Small seedlings can be hand pulled, but bittersweet resprouts prolifically from root fragments, so more aggressive measures need be taken on all specimens but the very smallest. For established plants, vines should be cut to ground to reduce mass, but repeat cuttings will promote resprouting roots and should be avoided in most cases. Rake any seeds present, bagging in plastic bags, tying, and disposing of correctly.

JAPANESE KNOTWEED
FALLOPIA JAPONICA

DESCRIPTION:

Fallopia japonica, or Japanese knotweed is an herbaceous perennial which was originally imported from Asia as a garden specimen. This relatively short, shrub-like plant forms large dense clumps that measure between 3-10 feet high and as wide as the space permits. It rarely reproduces by seed but instead relies on its large rhizomes which may reach a length of 15-18' feet. The stems are green tinged with reddish pink in, ridged, jointed and hollow. It is often confused with bamboo. The large heart-shaped leaves are alternate on the stem, with red venation. The white plumed flowers appear in late summer. It invades a wide variety of habitats and forms dense stands that crowd out other plants. It is especially pervasive on streambanks where its perennial roots do little to inhibit erosion while crowding out preferred native woody vegetation.

HABITAT:

Japanese knotweed often invades disturbed sunny sites, and is often found along roadsides and especially stream banks and shorelines. However, it also tolerates deep shade, mesic soils, heat and salinity. Reproduction occurs primarily both by its extensive rhizomes but has also been known to reproduce from cuttings, which makes it a challenge to eradicate.

MANAGEMENT:

If possible hand cut large stands early in the year so that the resprouting stalks will be more manageably-sized. Then apply a glycosophate-based solution to resprouted leaves during late summer flowering. Any portions of the root system not removed or killed by herbicide will potentially re-sprout, so follow up applications will be necessary to control population. See Sheet 15 for details.

MORROW'S HONEYSUCKLE

LONICERA MORROWII

DESCRIPTION:

Lonicera morrowii, Morrow's honeysuckles are upright, deciduous shrubs that typically have a multi-stem mounding appearance. Oval leaves are opposite along the stem with smooth edges (no teeth or lobes) and hairy on the underside. Mature stems are often hollow on the interior and peeling on the outer bark. In the spring pairs of fragrant, tubular flowers less than an inch long are borne along the stem in the leaf axils. The fruits are red to orange, and fleshy.

HABITAT:

Honeysuckles are relatively shade-intolerant and usually colonize forest edges, abandoned fields, and other open, upland habitats. Grazed meadows and disturbed woodlands are especially vulnerable. Woodlands and open meadows, especially those that have been grazed or otherwise disturbed and are left unmanaged are also highly susceptible. Morrow's Honeysuckle are highly adaptable and can grow in even challenging environments such as roadsides and wetland edges.

MANAGEMENT:

Honeysuckle management can combine mechanical mowing and manual hand pulling with cut and dab herbicide treatments. Small specimens may be removed manually as honeysuckle root systems are fairly shallow. Root resprouting can persist for a few years and several seasons of management may be required to fully control the population.

APPENDIX B: FB ENVIRONMENTAL WETLAND DETAILS

FB environmental

TO: Robert Searle, Golf Course Superintendent, Abenakee Club

FROM: Kevin Ryan, FB Environmental Associates

SUBJECT: **Site Reconnaissance – Biddeford Pool, Maine**

DATE: January 10, 2023

CC: Forrest Bell, FB Environmental

Attachments: 1) Cowardin Wetland Classification System 2) Site Reconnaissance Map; 3) Site Photographs

As requested by the Abenakee Club, FB Environmental Associates, LLC (FBE) conducted natural community reconnaissance at the Abenakee Club golf course property in Biddeford Pool, Maine. The specific Survey Area is an approximately 10-acre portion of a 50-acre parcel associated with the Abenakee Club's golf course (see attached map). FBE Ecological Services Division Lead and Senior Wetland Scientist Kevin Ryan, PhD, conducted the field investigation on 8 November 2022.

WETLAND AND TERRESTRIAL RECONNAISSANCE METHODOLOGY

Approximate boundaries of wetlands and terrestrial (i.e., non-wetland) cover types encountered during the survey were geo-located using a handheld GPS unit (Garmin GPSMAP 78) which is typically accurate to within 30 feet. Although cursory, the delineation of hydrologic features within the project area was based on the protocols described in the 1987 USACE Wetlands Delineation Manual[1] and the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region, Version 2.0[2]. This methodology involves identifying wetlands based on three criteria: the presence of hydrophytic vegetation, hydric soils, and wetland hydrology. For a given area to be considered a wetland, all three of these parameters must be met, with some exceptions for disturbed areas.

All wetlands were classified using the Classification of Wetlands and Deepwater Habitats of the United States[3] (Attachment 1). This water resource classification system was developed by the United States Fish and Wildlife Service (USFWS) and is commonly referred to as "Cowardin Classification". The Cowardin Classification is used to define wetlands and other aquatic resources by their landscape position, cover type, and hydrologic regime. Special modifiers can be added that describe water regime/chemistry, soil types, or disturbances.

WETLANDS OF SPECIAL SIGNIFICANCE

In Maine, Wetlands of Special Significance (WoSS) are regulated by the Maine Department of Environmental Protection under chapter 310 of the Maine Natural Resources Protection Act. All coastal wetlands and great ponds (inland bodies of water ›10 acres in size) are classified as WoSS. In addition, a freshwater wetland may be considered one of special significance if it: (1) contains a natural community that is critically imperiled or imperiled as defined by the Maine Natural Areas Program; (2) contains significant wildlife habitat; (3) is located within 250 feet of a coastal wetland; (4) is located within 250 feet of a great pond; (5) contains at least 20,000 square feet of aquatic vegetation, emergent marsh vegetation, or open water; (6) is inundated with floodwater

[1] Environmental Laboratory. (1987). Corps of Engineers Wetlands Delineation Manual, Technical Report Y-87-1, U.S. Army Engineer Waterways Experiment Station, Vicksburg, MS.
[2] U.S. Army Corps of Engineers. (2012). Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region (Version 2.0), ed. J. S. Wakeley, R. W. Lichvar, C. V. Noble, and J. F. Berkowitz. ERDC/EL TR-12-1. Vicksburg, MS: U.S. Army Engineer Research and Development Center.
[3] Cowardin, L. M., V. Carter, F. C. Golet, E. T. LaRoe. 1979. Classification of wetlands and deepwater habitats of the United States. U.S. Department of the Interior, Fish and Wildlife Service, Washington, D.C. 131 pp.

during a 100-year flood event based on flood insurance maps; (7) is or contains peatlands; or (8) is located within 25 feet of a river, stream or brook. FBE assessed the Survey Area for the presence of WoSS.

GENERAL SITE DESCRIPTION

The Survey Area consists of an unmanicured section of land east of Stonecliff Road, west of St. Martins Lane and in-between the Abenakee golf course to the south and Wood Island Harbor to the north. The area consists of a large, approximately 5.3-acre freshwater wetland complex surrounded by approximately 3.3 acres of shrub thicket comprised mainly of non-native, invasive plant species. A small, approximately 1.3-acre area of old field is situated in-between the manicured portion of the golf course and the terrestrial shrub thicket.

The Survey Area generally slopes north away from the golf course and towards the wetland and Wood Island Harbor. The wetland complex itself is relatively flat. The northeastern end of the Survey Area is particularly steep, consisting mainly of shrub thicket that is presumably difficult to manage due to the slope.

WETLAND AND TERRESRIAL COVER TYPES

A total of four separate cover types were mapped within the Survey Area – two of which are wetland and two are terrestrial. The wetland complex within the Survey Area meets the criteria to be considered WoSS, as much of it is within 250 feet of a coastal wetland. No potential vernal pools were observed within the Survey Area. Descriptions of mapped areas are below, and photos are provided in Attachment 3.

Scrub-Shrub Wetland (PSSIE)

The area mapped as Scrub-Shrub Wetland meets the classification of a seasonally flooded/saturated palustrine scrub-shrub wetland with broad-leaved, deciduous vegetation. The wetland is comprised of predominantly freshwater vegetation species. It does not appear that the wetland is regularly flooded with saltwater although it is a possibility during spring tides and/or significant storm events.

Small red maple trees are present, but not dominant in the wetland. The vegetation of the wetland is instead dominated by thick patches of common winterberry (*Ilex verticillata*) with bayberry (*Morella caroliniensis*), speckled alder (*Alnus incana*), meadowsweet (*Spiraea alba*), and large specimens of poison ivy (*Toxicodendron radicans*) also present in the shrub layer. Observed herbaceous vegetation in this portion of the wetland included cinnamon fern (*Osmundastrum cinnamomeum*) and skunk cabbage (*Symplocarpus foetidus*).

The interior of the wetland is dominated by native vegetation, with no noted presence of invasive vegetation. There are several patches of non-native, invasive purple loosestrife (*Lythrum salicaria*) present along the outskirts of the wetland.

Emergent Marsh Wetland (PEMID)

A stand of broad-leaved cattail (*Typha latifolia*) is situated within the center of the larger scrub-shrub wetland. The area meets the classification of a continuously saturated palustrine emergent wetland with persistent vegetation (PEMID). ("Persistent" means there is evidence that the vegetation remains throughout the winter until the next growing season). This area has a wetter hydrologic regime than the surrounding scrub-shrub wetland.

FB Environmental Associates | Abenakee Club Site Reconnaissance

Old Field

"Old field" is a term used in ecology that describes lands that were formerly cultivated or grazed but were later abandoned. Areas of old field, if left alone, typically regenerate into a cover type that would naturally be present. In the case of the Survey Area, if left unmowed the old field area will likely transition to a community similar to or identical to the adjacent shrub thicket (described below).

Shrub Thicket

A very dense area of shrub thicket surrounds the wetland complex within the Survey Area. This area is dominated by non-native, invasive plant species, namely Morrow's honeysuckle (*Lonicera morrowii*) and Asiatic bittersweet (*Celastrus orbiculatus*) with some Japanese barberry (*Berberis thunbergii*) also present. Native shrub species observed in the upland shrub thicket included raspberry (*Rubus* sp.), staghorn sumac (*Rhus hirta*), and willows (*Salix* sp.).

CONCLUSION

The wetland complex within the Survey Area meets the criteria to be considered WoSS, owing to its proximity to a coastal wetland. A formal wetland functions and values assessment was not part of the scope of this project; however, the wetland complex undoubtedly provides a number of important functions and values, specifically groundwater recharge/discharge, floodflow alteration, sediment/toxicant retention, nutrient removal, production export, sediment/shoreline stabilization, wildlife habitat, educational and scientific value, uniqueness/heritage, and visual quality/aesthetics.

This WoSS designation will likely result in increased permitting standards (i.e., increased time and cost) if alterations or development are proposed within the Survey Area. Due to its relatively pristine condition and proximity to the ocean, it would be environmentally and ecologically prudent to avoid any human disturbance to the wetland complex

ATTACHMENT 1. COWARDIN WETLAND CLASSIFICATION SYSTEM

WETLANDS AND DEEPWATER HABITATS CLASSIFICATION

System: L - Lacustrine

Subsystem	Class	Subclass
1 - Limnetic	RB – Rock Bottom	1 Bedrock 2 Rubble
	UB – Unconsolidated Bottom	1 Cobble-Gravel 2 Sand 3 Mud 4 Organic
	AB – Aquatic Bed	1 Algal 2 Aquatic Moss 3 Rooted Vascular 4 Floating Vascular
2 - Littoral	RB – Rock Bottom	1 Bedrock 2 Rubble
	UB – Unconsolidated Bottom	1 Cobble-Gravel 2 Sand 3 Mud 4 Organic
	AB – Aquatic Bed	1 Algal 2 Aquatic Moss 3 Rooted Vascular 4 Floating Vascular
	RS – Rocky Shore	1 Bedrock 2 Rubble
	US – Unconsolidated Shore	1 Cobble-Gravel 2 Sand 3 Mud 4 Organic 5 Vegetated
	EM – Emergent	2 Nonpersistent

System: P - Palustrine

Class	Subclass
RB – Rock Bottom	1 Bedrock 2 Rubble
UB – Unconsolidated Bottom	1 Cobble-Gravel 2 Sand 3 Mud 4 Organic
AB – Aquatic Bed	1 Algal 2 Aquatic Moss 3 Rooted Vascular 4 Floating Vascular
US – Unconsolidated Shore	1 Cobble-Gravel 2 Sand 3 Mud 4 Organic 5 Vegetated
ML – Moss-Lichen	1 Moss 2 Lichen
EM – Emergent	1 Persistent 2 Nonpersistent 5 *Phragmites australis*
SS – Scrub-Shrub	1 Broad-Leaved Deciduous 2 Needle-Leaved Deciduous 3 Broad-Leaved Evergreen 4 Needle-Leaved Evergreen 5 Dead 6 Deciduous 7 Evergreen
FO – Forested	1 Broad-Leaved Deciduous 2 Needle-Leaved Deciduous 3 Broad-Leaved Evergreen 4 Needle-Leaved Evergreen 5 Dead 6 Deciduous 7 Evergreen

MODIFIERS

In order to more adequately describe the wetland and deepwater habitats, one or more of the water regime, water chemistry, soil, or special modifiers may be applied at the class or lower level in the hierarchy. The farmed modifier may also be applied to the ecological system.

Water Regime			Special Modifiers	Water Chemistry			Soil
Nontidal	**Saltwater Tidal**	**Freshwater Tidal**		**Coastal Halinity**	**Inland Salinity**	**pH Modifiers for all Fresh Water**	
A Temporarily Flooded	L Subtidal	S Temporarily Flooded-Tidal	b Beaver	1 Hyperhaline	7 Hypersaline	a Acid	g Organic
B Saturated	M Irregularly Exposed	R Seasonally Flooded-Tidal	d Partly Drained/Ditched	2 Euhaline	8 Eusaline	t Circumneutral	n Mineral
C Seasonally Flooded	N Regularly Flooded	T Semipermanently Flooded-Tidal	f Farmed	3 Mixohaline (Brackish)	9 Mixosaline	i Alkaline	
E Seasonally Flooded/ Saturated	P Irregularly Flooded	V Permanently Flooded-Tidal	h Diked/Impounded	4 Polyhaline	0 Fresh		
F Semipermanently Flooded			r Artificial	5 Mesohaline			
G Intermittently Exposed			s Spoil	6 Oligohaline			
H Permanently Flooded			x Excavated	0 Fresh			
J Intermittently Flooded							
K Artificially Flooded							

WETLANDS AND DEEPWATER HABITATS CLASSIFICATION

System: M - Marine

Subsystem	Class	Subclass
1 - Subtidal	RB – Rock Bottom	1 Bedrock 2 Rubble
	UB – Unconsolidated Bottom	1 Cobble-Gravel 2 Sand 3 Mud
	AB – Aquatic Bed	1 Algal 3 Rooted Vascular
	RF – Reef	1 Coral 3 Worm
2 - Intertidal	AB – Aquatic Bed	1 Algal 3 Rooted Vascular
	RF – Reef	1 Coral 3 Worm
	RS – Rocky Shore	1 Bedrock 2 Rubble
	US – Unconsolidated Shore	1 Cobble-Gravel 2 Sand 3 Mud 4 Organic

System: E - Estuarine

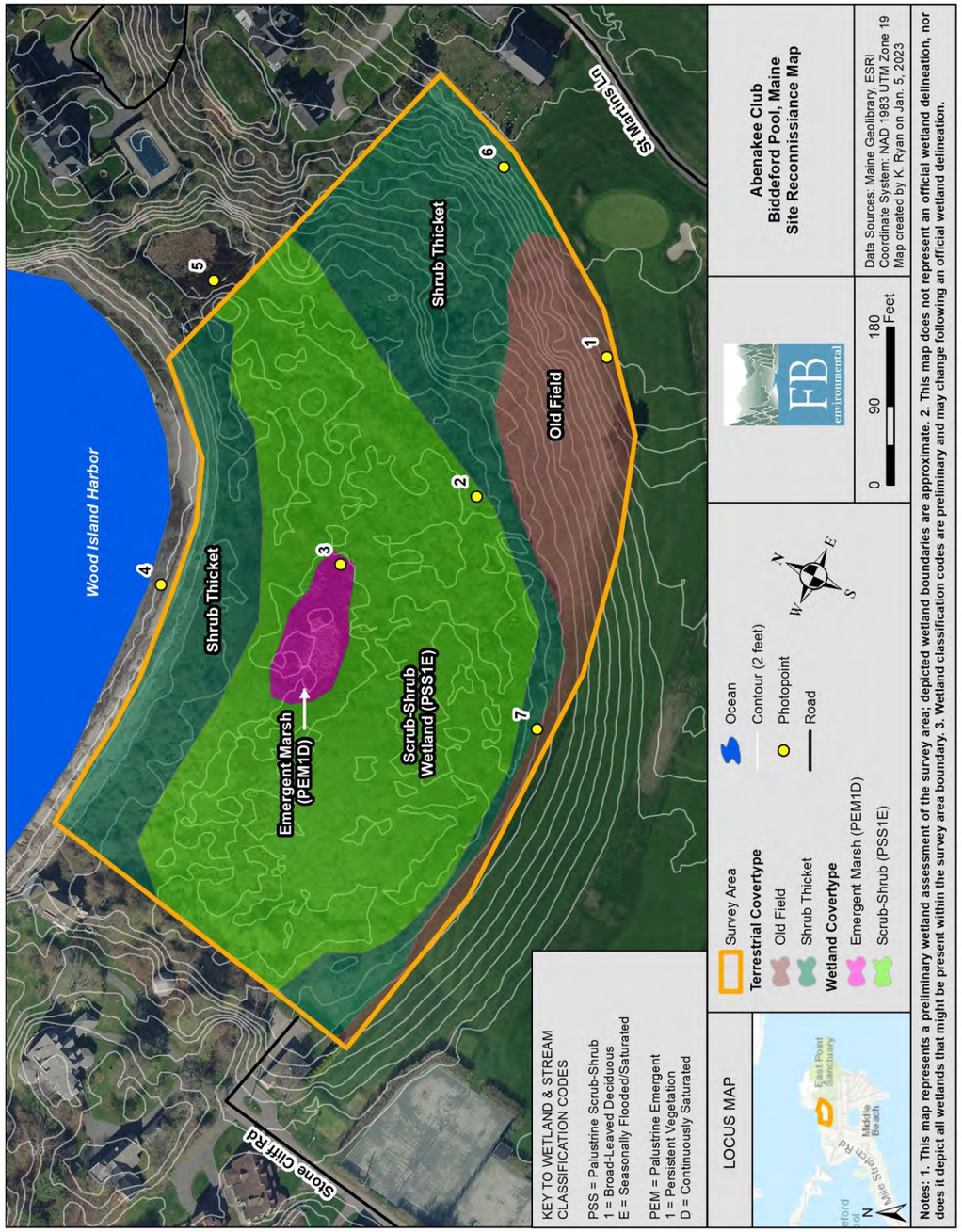
Subsystem	Class	Subclass
1 - Subtidal	RB – Rock Bottom	1 Bedrock 2 Rubble
	UB – Unconsolidated Bottom	1 Cobble-Gravel 2 Sand 3 Mud 4 Organic
	AB – Aquatic Bed	1 Algal 3 Rooted Vascular 4 Floating Vascular
	RF – Reef	2 Mollusk 3 Worm
2 - Intertidal	AB – Aquatic Bed	1 Algal 3 Rooted Vascular 4 Floating Vascular
	RF – Reef	2 Mollusk 3 Worm
	SB – Streambed	1 Bedrock 2 Rubble 3 Cobble-Gravel 4 Sand 5 Mud 6 Organic
	RS – Rocky Shore	1 Bedrock 2 Rubble
	US – Unconsolidated Shore	1 Cobble-Gravel 2 Sand 3 Mud 4 Organic
	EM – Emergent	1 Persistent 2 Non-persistent 5 *Phragmites australis*
	SS – Scrub-Shrub	1 Broad-Leaved Deciduous 2 Needle-Leaved Deciduous 3 Broad-Leaved Evergreen 4 Needle-Leaved Evergreen 5 Dead 6 Deciduous 7 Evergreen
	FO – Forested	1 Broad-Leaved Deciduous 2 Needle-Leaved Deciduous 3 Broad-Leaved Evergreen 4 Needle-Leaved Evergreen 5 Dead 6 Deciduous 7 Evergreen

System: R - Riverine

Subsystem	Class	Subclass
1 - Tidal 2 – Lower Perennial 3 – Upper Perennial 4* - Intermittent 5* – Unknown Perennial	RB** – Rock Bottom	1 Bedrock 2 Rubble
	UB – Unconsolidated Bottom	1 Cobble-Gravel 2 Sand 3 Mud 4 Organic
	SB** – Streambed	1 Bedrock 2 Rubble 3 Cobble-Gravel 4 Sand 5 Mud 6 Organic 7 Vegetated
	AB – Aquatic Bed	1 Algal 2 Aquatic Moss 3 Rooted Vascular 4 Floating Vascular
	RS – Rocky Shore	1 Bedrock 2 Rubble
	US – Unconsolidated Shore	1 Cobble-Gravel 2 Sand 3 Mud 4 Organic 5 Vegetated
	EM – Emergent	2 Nonpersistent

* **Intermittent** is limited to the **Streambed** Class;
Unknown Perennial is limited to **Unconsolidated Bottom** Class code **R5UB** only
** **Rock Bottom** is not permitted for the **Lower Perennial** Subsystem;
Streambed is limited to **Tidal** and **Intermittent** Subsystems

ATTACHMENT 2. WETLAND RECONNAISSANCE MAP



ATTACHMENT 3. SITE PHOTOGRAPHS

View of the Survey Area from the Abenakee Club golf course.

Photopoint 1. The area of old field in-between the golf course and the shrub thicket.

Photopoint 2. The interior of the scrub-shrub wetland.

Photopoint 3. View from the edge of the emergent marsh within the larger scrub-shrub wetland.

Photopoint 4. The interface between the beach and the shrub thicket.

Photopoint 5. Thick winterberry (*Ilex verticillata*) at the northeastern end of the Survey Area.

Photopoint 6. View over of shrub thicket on the steep slope at the northeast end of the Survey Area.

Photopoint 7. A stand of purple loosestrife at the edge of the wetland complex.

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EPA Announces Proposed Registration of New Active Ingredient Isocycloseram

Released on May 9, 2025

Today, the U.S. Environmental Protection Agency (EPA) is releasing for public comment its proposed registration decision for ten products containing the new active ingredient isocycloseram, a broad-spectrum contact insecticide proposed for use on agricultural crops, turf and ornamentals, as well as indoor and outdoor uses for commercial, industrial, and domestic sites. Some of the target pests for these products can cause significant crop damage and financial loss to growers, such as the tarnished plant bug in cotton, Colorado potato beetle in potatoes and diamondback moth in *Brassica* vegetables. This new active ingredient would give farmers an additional tool to help manage crops and grow more food for our country.

EPA's Risk Assessments

In addition to its proposed registration decision, EPA has also released its human health risk assessment, ecological risk assessment, and draft biological evaluation, with the latter including EPA's Likely to Adversely Affect (LAA) determination for isocycloseram under the Endangered Species Act (ESA). An LAA determination means that EPA reasonably expects at least one listed plant or animal species may be exposed to the pesticide at a sufficient level to have an adverse effect. No human health risks of concern were identified when isocycloseram is used according to the proposed labels. EPA did not identify risks of concern for aquatic and terrestrial plants. EPA did identify potential risks of concern to insect pollinators from spray application, aquatic

invertebrates from spray, seed and soil treatments, and chronic risks to birds and mammals ingesting treated rapeseed.

Proposed Mitigations

EPA is proposing the following mitigation measures to reduce potential ecological risks while providing growers with flexibility in controlling pests:

- Instructing users to access and follow any applicable endangered species bulletins from the Bulletins Live! Two web-based system for all additional directions and restrictions.
- Requiring various labels to include a link to the mitigation menu with run-off and erosion mitigations users can choose from.
- Labeling restricting application during rain and when soils are saturated or above capacity.
- Prohibiting aerial application for all uses except corn, cotton, potato, and soybean with geographical restrictions for uses on corn and soybean. Geographically specific restrictions will be in Bulletins using Pesticide Use Limitation Areas (PULAs).
- Requiring a spray drift buffer to most areas, for aerial, ground, and airblast applications.
- Prohibiting applications 3-days before and during bloom for orchard crops and applications during hours of the day when bees are most active for indeterminate blooming crops.
- Including best management practices, such as maintaining clear communication with local beekeepers, to help reduce the risk to pollinators and to promote the health and habitat of ground-nesting bees.
- Requiring advisories to protect pollinators from dust generated from abrasion of isocycloseram-treated seed coatings during planting.
- Instructing users on how to effectively cover or collect spilled treated seeds or treated seeds that have become exposed on the soil surface and for the management of excess treated seeds.

With these proposed mitigation measures and Bulletins with associated PULAs for eight listed species in place, EPA's draft biological evaluation predicts that the use of

isocycloseram will not result in a likelihood of future jeopardy for the survival of any listed species, or a likelihood of adverse modification for any designated critical habitat.

Next Steps

After considering public comments on the proposed registration and the draft effects determinations, EPA will decide whether the registration action meets the standard for registration under the Federal Insecticide, Fungicide, and Rodenticide Act. If EPA determines that the registration action can be granted, the agency will finalize its biological evaluation. If a final biological evaluation finds that isocycloseram may affect any listed species or critical habitats, then EPA will initiate ESA consultation and share its findings with the U.S. Fish and Wildlife Service or the National Marine Fisheries Service (collectively referred to as the Services), as appropriate.

During formal consultation, the Services use the information in EPA's final biological evaluation to inform their biological opinions. While EPA has made predictions about the likelihood of jeopardy and adverse modification as part of its biological evaluation, the Services are responsible for making any final jeopardy/adverse modification determinations. If the Services determine in their final biological opinions that additional mitigations are necessary to address any jeopardy or adverse modification determination or to address any incidental take, then EPA will work with the registrant to ensure that any necessary registration or labeling changes are made.

To read more about the proposed registration of isocycloseram and to comment, see docket ID EPA-HQ-OPP-2021-0641 at www.regulations.gov. The public comment period will be open for 30 days, closing on June 10, 2025.

Last updated on May 9, 2025

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EPA Releases Strategy to Better Protect Endangered Species from Insecticides Using Commonsense Practices, Provides Flexibilities to States and Growers

April 29, 2025

Contact Information
EPA Press Office (press@epa.gov)

WASHINGTON – Today, U.S. Environmental Protection Agency (EPA) released its final Insecticide Strategy that identifies practical protections for federally endangered and threatened species from the use of insecticides, while providing flexibility for pesticide users and growers. The Strategy identifies mitigations aimed at protecting more than 900 species listed by the U.S. Fish and Wildlife Service (FWS) that EPA considers when it registers a new insecticide or reevaluates an existing one.

"Today's action is another example of how protecting our environment and safeguarding our economy can go hand in hand," ***said EPA Administrator Lee Zeldin****. "We have found commonsense ways to keep endangered species safe that won't place unneeded burden on the growers who rely on these tools for their livelihood, and which are necessary to ensure a safe and plentiful food supply. We are committed to ensuring the agriculture community has the tools they need to protect our country, especially our food supply, from pests and diseases."*

"American agriculture demonstrates that production and stewardship go hand in hand," ***said U.S. Secretary of Agriculture Brooke Rollins.*** *"Thank you to Administrator Zeldin for working towards unleashing regulatory burdens for American farmers & ranchers with the release of this final insecticide strategy today. This strategy provides much needed improvements that will undoubtedly better protect U.S homegrown crops from pests and diseases. We look forward to continued partnership with EPA to ensure our growers continue to have the crop protection tools and flexibility needed to feed, fuel, and clothe our nation and the world."*

"EPA's numerous pragmatic improvements to the draft Insecticide Strategy have created a final strategy that can be better implemented by applicators while also protecting threatened and endangered species. We are grateful EPA has crafted this strategy by listening to, among others, constructive feedback from state agriculture departments, as they are the lead agency tasked with implementing and enforcing pesticide regulations in 43 states as well as the territory of Puerto Rico. The National Association of State Departments of Agriculture is eager to continue to work with EPA to ensure state lead agencies have the resources and clarity to meaningfully enforce this strategy," ***said National Association of State Departments of Agriculture CEO Ted McKinney.***

"Farmers are dedicated to responsibly using pesticides, and frequent updates to the pesticide strategies are important to ensure the health and safety of America's families. EPA understands there cannot be an effective conservation strategy as a nation without a meaningful partnership with farmers and ranchers. As we evaluate the final strategy in full, we urge EPA to continue to refine and improve upon the plan to enable farmers to grow healthy food for the nation while caring for, and improving, the natural resources they've been entrusted with," ***said American Farm Bureau Federation President Zippy Duvall.***

"The American Soybean Association appreciates EPA for incorporating common sense improvements into its Insecticide Strategy, especially with little time to do so before its court deadline. These enhancements will help make Endangered Species Act implementation easier for U.S. farmers; however, more work remains to be done, including reforming how EPA assesses risks to species to ensure the process is using the best available science. ASA thanks EPA for its progress to date and looks forward to working with the agency to advance additional improvements in the days ahead," ***said American Soybean Association President and Kentucky Soybean Farmer Caleb***

Ragland.

"We are appreciative of the EPA's efforts to identify commonsense ways of protecting endangered species from insecticides," ***said National Corn Growers Association President and Illinois Farmer Kenneth Hartman Jr.*** *"Our growers support the agency's approach to providing mitigation relief through enhanced conservation processes that give growers more credit for their participation than was initially proposed. We look forward to continued dialogue with the EPA as we move forward on the path to protect species as well as the food, feed and fuel supply."*

"We look forward to reviewing EPA's Insecticide Strategy and appreciate the Agency's continued efforts to engage stakeholders on mitigations that support fresh produce growers' ability to produce the healthy and nutritious food Americans require, while being protective of threatened and endangered species. We commit to working collaboratively with EPA to support this evolving effort and ensure that the strategy rewards grower innovations to reduce risk to species," ***said International Fresh Produce Association Vice President for U.S. Government Relations Rebeckah Adcock.***

"The National Cotton Council thanks the administration for listening to America's farmers in updating the EPA Insecticide Strategy. By updating buffer distances, tailoring mitigation to real-world conditions, and recognizing conservation efforts, the new strategy strengthens environmental protections without compromising our nation's safe and secure supply of food, feed and fiber," ***said National Cotton Council Chairman and Producer from Tunica, MS Patrick Johnson.***

"USA Rice applauds EPA Administrator Lee Zeldin's willingness to listen to the concerns of America's rice farmers and his commitment to developing a more practical, balanced Endangered Species Act Insecticide Strategy. We are particularly appreciative that Administrator Zeldin is improving these strategies with the goals of both protecting species, as well as the livelihoods of farmers. The revised strategy reflects the EPA's growing recognition of the real-world impacts of regulations at the field level and its efforts to provide the flexibility farmers need to comply. We are likewise optimistic that in the revised strategy, EPA is modifying buffer distance requirements to reflect the mitigating benefits of the technologies that have been developed and implemented by the agricultural sector to reduce spray drift. USA Rice looks forward to continuing to work closely with Administrator Zeldin and the EPA to ensure future policies remain grounded in practicality and science," ***said USA Rice Regulatory Affairs and Food Safety***

Committee Chairman and Arkansas Rice Farmer David Petter.

Earlier this year, Administrator Zeldin announced his Powering the Great American Comeback Initiative to advance the agency's core mission of protecting human health and the environment while energizing the American economy. Specifically, this Strategy advances Pillar Three: "permitting reform, cooperative federalism and cross-agency partnership." The final Strategy is the culmination of continued communication between EPA, its federal partners including the U.S. Department of Agriculture (USDA) and FWS, and other stakeholders.

EPA will continue to work with stakeholders to modify and update these documents as additional information becomes available. In addition, EPA anticipates continued engagement with stakeholders, including our federal and state partners, to ensure effective implementation of the Strategy.

Read the final Insecticide Strategy <https://epa.gov/endangered-species/strategy-protect-endangered-species-insecticides>. The Insecticide Strategy and accompanying support documents, including a Response to Comments document and an updated Ecological Mitigation Support Document describing mitigations and supporting data that inform implementation of both the herbicide and insecticide strategies, will be available on Regulations.gov <https://epa.gov/www.regulations.gov> in docket EPA-HQ-OPP-2024-0299 <https://www.regulations.gov/docket/epa-hq-opp-2024-0299>.

Background

The draft Insecticide Strategy <https://www.regulations.gov/document/epa-hq-opp-2024-0299-0005> was released in July 2024 and was followed by a 60-day public comment period during which more than 26,000 comments were received, with over 230 unique comments. In response to information provided through the public comments, EPA made several changes in the final Strategy, supported by scientific analyses, to provide greater flexibility and options for the agricultural community, while ensuring that endangered species are protected. Some of the science-based modifications include:

- Reducing buffer distances across all application methods;
- Providing credit for any reduction in the proportion of a treated field for ground applications;

- Developing a process to qualify conservation programs that will give growers more credit for being part of a conservation program than initially proposed;
- Developing a process to qualify external parties that would assess a grower's farms and determine the existing mitigation points that could be achieved by practices a grower already has in place;
- Updating key data sources and identification of invertebrate species that may occur on agricultural fields; and

Adding a Pesticide Use Limitation Area (PULA) group for generalist species that reside in wetlands to reduce mitigations applied outside of wetland habitats.

Last updated on April 29, 2025