

E. EARLY SUCCESSIONAL FOREST MANAGEMENT PLAN
Rheinstrom Hill Audubon Sanctuary & Center
225 Cambridge Rd
Hillsdale, NY 12529
11/28/2017

- I. **LANDOWNER/CLIENT GOALS AND OBJECTIVES:** The Audubon Society's goals for this property is to manage the land for wildlife, particularly birds. They want to provide a mosaic of habitats to offer feeding and nesting areas for a variety of species.
- II. **RESOURCE INVENTORY:** The forest is comprised of mixed hardwoods. The first stand we visited consisted of trees in the 6"-14" dbh range. Tree species included oak, sugar maple, white pine, birch, hickory, and cottonwood. The understory was mostly striped maple, blueberry, and witch hazel. The second stand we visited consisted of trees in the 6-14" range. Tree species included oak, maple, white pine, birch, and aspen. The understory was sparse having made up of barberry, witch hazel and oak seedlings.
- III. **THREATENED OR ENDANGERED SPECIES DOCUMENTED ON-SITE:** There is no record of any threatened or endangered species on the property through Natural Heritage and none were observed during the site visits.
- IV. **OTHER DECLINING EARLY SUCCESSIONAL SPECIES TARGETED BY ESFMP:** The property is located in the American woodcock focus area. Eastern towhees and an indigo bunting were observed by Audubon staff in the two acre young forest cut they performed in previous years.
- V. **RESOURCE CONCERNS IDENTIFIED:** (should reflect results of Wildlife Habitat Suitability Index and personal observations). The area consist of maturing forest. Little shrubland habitat exists in the area. Shrubland is an important and declining habitat type and home to many rare and endangered species. The identified resources concerns include reduced species composition due to closed canopy. By removing the canopy cover, the shrub layer will dominate and species composition will increase. Other resource concerns include invasive species including Japanese barberry, Oriental bittersweet, and multiflora rose. Most of the invasive species occur in the specific areas or along the edge of a heavy density clearing done previously by Audubon. Removing these before the canopy cover is opened should reduce their dominance allowing native shrubs to regenerate.
- VI. **NRCS CONSERVATION PRACTICES AVAILABLE TO ADDRESS RESOURCE CONCERNS:** 612 Tree and Shrub Establishment with Protection, 647 Early Successional Development/Management (Heavy Density Clearing) and 314 Brush Management (chemical, individual plant treatment and chemical, intense individual plant treatment).

The purpose of the project is to establish diverse, native shrub habitat. During the summer of Year 1 all invasive woody vegetation is treated with herbicide. This includes an individual chemical plant treatment in the area of heavy density clearing (outlined in pink). In addition, patches with high concentrations of Japanese barberry will receive an intense individual chemical plant treatment (outlined in blue). After 85% kill has been achieved, a heavy density clearing can occur. A deer fence should be erected immediately after the heavy density clearing takes place, ideally April – May. Allowing animals to browse the coarse woody debris during the winter will provide a food source for them. The following summer (Year 2) all areas (blue and pink) are to be monitored and any invasive plant or woody vegetation should be treated with herbicide (chemical, individual plant treatment). For contracting purposes, the time table for Field 1 and Field 2 can be staggered by a

year.

Field 1:

Summer Year 1:

314 Chemical, Intense Individual Plant Treatment: 3.5 acres

314 Chemical, Light Individual Plant Treatment: 2.5 acres

Fall/Winter Year 1:

647 Heavy Density Clearing: 6 acres

Spring Year 1:

612 Tree and Shrub Establishment with Protection (deer fence): 2.6 acres

Summer Year 2:

314 Chemical, Light Individual Plant Treatment: 6 acres

Field 2:

Summer Year 1 (or Year 2)

314 Chemical, Intense Individual Plant Treatment: 1.3 acres

314 Chemical, Light Individual Plant Treatment: 5.2 acres

Fall/Winter Year 1 (or Year 2):

647 Heavy Density Clearing: 6.5 acres

Spring Year 1 (or Year 2):

612 Tree and Shrub Establishment with Protection (deer fence): 2.8 acres

Summer Year 2 (or Year 3):

314 Chemical, Light Individual Plant Treatment: 6.5 acres

Tree and Shrub Establishment with Protection – 612

Install a 10' tall high tensile wire fence around the area you wish to protect from deer. The purpose of the fence is to exclude deer so trees, shrubs, and herbaceous plants can grow without getting browsed. To build the fence:

1. Determine your perimeter and flag low-value trees to serve as living fence posts. Try to locate a tree every 40-50 feet (avoid spans greater than 60 feet). If possible, select trees to be on the "inside" of the fence. Avoid abrupt corners on the fence. Best results occur if trees are selected before any harvesting occurs, and those trees must be protected from damage or removal during the harvest.
2. To simplify access, clear significant brush from fence line. It may be less expensive to re-position the fence than to clear the brush.
3. Attach plastic insulator to batten strips using deck screws or joist hanger nails. Attach insulators from bottom of batten at approximately 10", 20", 30", 40", 54", 68", 82", and 96".
4. Position batten strips at selected trees. Before nailing board to tree, thread the top wire in the uppermost insulator of each board.

5. Attach batten strip with a nail and fender washer near ground line and one additional nail and washer at any location along the batten that will secure the board.
6. Thread 12-gauge wire through insulators, and tighten using wire tensioner and splicing clips. Thread and tighten one wire at a time to avoid intertwining wires. Tightening the wire helps secure the boards to the tree.
7. If ground topography leaves gaps under fence, pile brush or slash to prevent deer from crawling under the fence. A continuous windrow of brush or slash on the outside edge of the fence will enhance the effectiveness of the fence, and obviate the need for baling twine in step #9.
8. Use trees that are sufficient in diameter and firmness at angled points in the fence because they will be under significant side strain.
9. Install baling twine approximately 30" offset from fence and 30" off ground. Height is important, but distance from fence can vary from 1 foot to 4 feet. Wrap twine around saplings, around wooden stakes, or use fiberglass rods with clips.

Operation and Maintenance:

Check fence regularly (at least once a month year-round and after storms) for breaks in wire or tunneled holes under the fence. Check vegetation within fence to make sure it is not suffering from deer browse. Fence may be removed after 7 years.

647 Early Successional Habitat Management and Development 647 HDC – Shrubland

Create early successional, brushy habitat for shrubland species such as song birds, turkeys, woodcock and grouse, using heavy density clearing. Cut 85% of the canopy cover to release a lower shrub and tree habitat. Cut all 2 - 12" dbh trees from November 1st to March 31st to avoid bird nesting and bat roosting season. Avoid larger trees and those that have peeling bark and crevices such as shagbark hickory and large, mature maples which are important habitat for Indiana and other bats. Retain 10-12 nut, fruit or other trees per acre. For aspen, cut all trees larger than 4" dbh during the dormant period (November 1st to March 1th).

Utilize "chop and drop" methods. Using a chainsaw cut trees and keep poles and tops where they fall. Aim to have crowns evenly covering most of the ground. Tops and poles will provide structure for wildlife and will protect regenerating trees and shrubs from deer browse. Leaving coarse woody debris on the ground stores carbon, conserves moisture, improves habitat for mycorrhizae fungi (which helps trees gather nutrients), mitigates soil compaction, and provides nutrients to plants. It hosts insects which are a food source for birds and bears. Rotting logs are habitat for salamanders and snakes.

Do not use heavy machinery as that will disturb soil and lead to invasive species such as Japanese stilt grass invading. Do not chip woody debris. Hinge cut all trees in the 2 – 6" dbh range. Hinge cutting encourages coppicing or suckering of the cut tree and can provide quick shrubland habitat. Smaller trees can be cut part way through and pushed over so that there remains tree tissue connection to the stump. Larger trees may require a 'T-cut' so that they don't break when they lean over. The first cut is a 'plunge cut' straight into the tree. After the first plunge cut is made, cut into the trunk horizontally to form a T with the plunge cut.

Retain or create at least 5 snags (dead trees) per acre. Snags can be created by girdling trees. Choose trees over 12" dbh and those located away from trails or edges of fields. To girdle a tree to kill it, make a cut all the way around the tree near the base that penetrates 1- 1 1/2" into the wood. Make a second, similar cut 6" above the lower cut to create 2 rings to prevent water and nutrients going from the roots to the tree. Do not girdle red or silver maple as they will often not die from girdling.

Birds, small mammals, and other wildlife use snags for nests, nurseries, storage areas, foraging, roosting, and perching. Snags (standing dead trees) provide a wealth of food and habitat. For example they directly support

35 bird species who will nest in cavities (i.e. wood ducks) or eat insects in the tree (i.e. woodpeckers). They provide great blue heron and raptor perches and nesting habitat. Snags occurring along streams and shorelines eventually may fall into the water, adding important woody debris to aquatic habitat.

Snags also provide essential habitat requirements for cavity-using amphibians, reptiles and mammals. Insectivorous birds such as woodpeckers and nuthatches depend heavily on snags as a source of food. Cavities left in standing dead trees can become excellent, low maintenance "wood duck boxes." Thirty percent of all solitary bee species, including those important for agriculture such as leaf cutter bees and mason bees, use cavities left by insects in snags. Maintaining the area as a refugia for insectivorous birds, beneficial insects and pollinators would support the farm's goals of a productive, low-spray fruit and vegetable farm that incorporates IPM.

Drum logs and guard trees can be created for ruffed grouse. Drum logs should be cut high or places near a snag that is 3 to 6 feet high. On level sites, grouse prefer to be 10 – 14 inches above the ground with unobstructed visibility for a radius of 50 – 60 feet around the drum log. Drum trees should be between 10 – 14 inches dbh and will be felled and placed within 12 inches of the guard tree. The butt of the drum tree (tree that is to be cut) should not be more than 3' from its stump. The drum shall be cut at a height of 2 to 4' to provide a stump or snag 3-6' above the butt of the log. The butt of the drum tree shall be between 5-10' from the guard tree. Drum trees shall be placed across the slope or on a small rise if the tree is felled on level ground. Drum logs cut 6-8' in length may be piled up to 16" high if drum trees are not available.

Note that NRCS can only reimburse for acres or partial acres where work was actually completed which may be less than what is in the contract. Work may be completed ahead of schedule during appropriate times of the year as indicated above.

Operation and Maintenance: After management, allow shrubs to naturally regenerate to revegetate the site. Do not de-stump trees.

314 Brush Management

Remove, reduce, or manipulate brush species to achieve the desired native plant community. Undesirable woody vegetation listed on DEC's New York State Prohibited and Regulated Invasive Species list (NYCRR Part 575) and NY NRCS Interim Invasive Species List for Programs such as multi-flora rose, Japanese barberry, buckthorn, and honeysuckle, will be controlled using appropriate mechanical or chemical means.

Japanese barberry will be eliminated in the heavy infestation area in Year 1 prior to heavy density clearing. In Year 2 the heavy infestation area will be treated again as well as the entire cut area in case invasive shrubs have established.

Shrubs can be treated with herbicide during the growing season by either applying to the cut stump or foliar sprayed. Immediately after cutting the invasive species' stems, spot spray or paint cut stems with a prescribed herbicide. Small shrubs can have a foliar application. Follow label and permit requirements for mixing/application setbacks from wells, intermittent streams and water bodies. Reapplication may be needed if stem re-sprouting occurs.

Herbicide recommendations must be made by a licensed herbicide applicator with the appropriate New York State Pesticide Applicator Certification or using researched references. A control plan and documentation of application should be maintained and should include recommended chemical, application rate, timing and method approved for use for the invasive species identified onsite. Remove and treat invasive brush for at least 2 years before heavy density clearing and 1 year following. Mowing or cutting invasive shrubs without using herbicide is not recommended as cutting may only encourage growth. Care should be taken during the cutting

process to avoid rutting up wet areas, and causing soil erosion and sedimentation problems. It is the responsibility of the applicant to secure any permit needed for herbicide application (i.e. NYS Department of Environmental Protection Freshwater Wetlands Permit).

Note that NRCS can only reimburse for acres where work was actually completed in the areas shown on the map which may be less than what is in the contract. Work may be completed ahead of schedule during appropriate times of the year. Please note that if spraying is done after September 30th, certification of payment will not be made until after May 30th of the following year.

NRCS will consider the treatment acceptable when:

- A. >85% of the targeted invasive plant population has been killed with the first treatment.
- B. >90% of the targeted invasive plant population has been killed with the second treatment.

A control plan or documentation from a licensed herbicide applicator will include recommended chemical, application rate, timing and method approved for use for the invasive species identified onsite.

Operations and Maintenance: Maintain herbicide application records of brush/shrub control for two years. Site should be monitored at least twice during the growing season and treated for re-growth of invasive shrubs for 10 years. Invasive species can often be spotted at the end of March and early to mid-April as they green up faster than native species.

612 Tree and Shrub Establishment with Protection Install a 10' tall high tensile wire fence around the area you wish to protect from deer. The purpose of the fence is to exclude deer so trees, shrubs, and herbaceous plants can grow without getting browsed. To build the fence:

10. Determine your perimeter and flag low-value trees to serve as living fence posts. Try to locate a tree every 40-50 feet (avoid spans greater than 60 feet). If possible, select trees to be on the "inside" of the fence. Avoid abrupt corners on the fence. Best results occur if trees are selected before any harvesting occurs, and those trees must be protected from damage or removal during the harvest.
11. To simplify access, clear significant brush from fence line. It may be less expensive to re-position the fence than to clear the brush.
12. Attach plastic insulator to batten strips using deck screws or joist hanger nails. Attach insulators from bottom of batten at approximately 10", 20", 30", 40", 54", 68", 82", and 96".
13. Position batten strips at selected trees. Before nailing board to tree, thread the top wire in the uppermost insulator of each board.
14. Attach batten strip with a nail and fender washer near ground line and one additional nail and washer at any location along the batten that will secure the board.
15. Thread 12-gauge wire through insulators, and tighten using wire tensioner and splicing clips. Thread and tighten one wire at a time to avoid intertwining wires. Tightening the wire helps secure the boards to the tree.
16. If ground topography leaves gaps under fence, pile brush or slash to prevent deer from crawling under the fence. A continuous windrow of brush or slash on the outside edge of the fence will enhance the effectiveness of the fence, and obviate the need for baling twine in step #9.
17. Use trees that are sufficient in diameter and firmness at angled points in the fence because they will be under significant side strain.
18. Install baling twine approximately 30" offset from fence and 30" off ground. Height is important, but distance from fence can vary from 1 foot to 4 feet. Wrap twine around saplings, around wooden stakes, or use fiberglass rods with clips.

Operation and Maintenance:

Rhinestrom Hill

Check fence regularly (at least once a month year-round and after storms) for breaks in wire or tunneled holes under the fence. Check vegetation within fence to make sure it is not suffering from deer browse. Fence may be removed after 7 years.

- VII. **Client's Record of Decisions:** Resource concerns identified on the property are the lack of young forest / shrubland habitat and the encroachment of invasive plant species. Recommended practices are 647 Early Successional Development/Management (Heavy Density Clearing) and 314 Brush Management (removal of invasive shrubs).

- VIII. **Alternatives:** No action. If no action is taken then the invasive species will continue to spread throughout the field and into forest. The trees will continue to age and the understory will continue to be sparse resulting in no improvement in forage or cover for wildlife.

- IX. **Appendix**
 - a. Conservation Assistance Notes (Con6) documenting at a minimum:
 - i. Initial site visit with landowner to determine objectives and identify problems and concerns;
 - ii. All phases of the planning process, including discussions with client, alternatives reviewed with client, and decisions made by the client (client's record of decision).
 - b. Resource Concern Evaluation:
 - i. Resource Concern Checklist completed through field evaluation;
 - ii. NY Wildlife Habitat Suitability Index;
 - iii. Documentation of Client Input;
 - iv. Documentation of Planner Observations;
 - v. Other Assessment Tools Completed.
 - c. Conservation Plan Map: Follow Number 3, "Requirements for All Conservation Plans", New York Guide to Developing Conservation Plans, July 2017.
 - d. Topographic Map (provide LiDAR when available).
 - e. Soil Map, showing practice locations, and Soil Map Unit Descriptions.
 - f. National Wetland Inventory and NYSDEC Wetland Maps
 - g. NY-ECS-23
 - h. NRCS-CPA-52
 - i. NRCS Implementation Requirements for Practices Selected by Client for Implementation.

I agree this plan reflects my decisions regarding implementation of conservation on my property.

Name _____


Landowner

Signature and Date _____

Landowner

I concur with the plan preferred alternative(s) as documented and confirm the client has reviewed and finds alternative(s) acceptable to proceed with conservation planning. I recommend this Early Successional Forest Management Plan for approval by the NRCS Certified Conservation Planner.

Name Elizabeth Marks, Biologist
NRCS Technical Specialist

Signature and Date  12/13/17
NRCS Technical Specialist

I concur this Early Successional Forest Management Plan follows NRCS planning policy.

Name  12/14/17
NRCS Certified Planner

Signature and Date  12/14/17
NRCS Certified Planner

Participant Name NATIONAL AUDUBON SOCIETY INC. Application number SE Habitat 742C31180C8

Planner(s) Jim Unser, NRCS Resource Conservationist, E. Marks, Area Biologist County Columbia Date 12/17

Attach maps and other supporting documentation as necessary.

Location (Tract / Field)	Landuse	Resource Concern	Conservation Practice	Amount, Unit	Deemed Feasible	Reviewer Initials
T2415	Forest Land	Degraded Plant Cond - Inadequate Str.	314 - Brush Management	20.20 ac	Yes	DS
T2415	Forest Land	Degraded Plant Cond - Inadequate Str.	314 - Brush Management	4.80 ac	Yes	DS +
T2415	Forest Land	Degraded Plant Cond - Inadequate Str.	647 - Early Successional Habitat Devel	12.50 ac	Yes	DS +
T2415	Forest Land	Degraded Plant Cond - Inadequate Str.	612 - Tree/Shrub Establishment	5.40 ac	Yes	DS +

Participant Name NATIONAL AUDUBON SOCIETY INC. Application number SE Habitat 742C31180C8

Notes:

Plan developed in conjunction with Elizabeth Marks, NRCS Area Biologist and Kaylee Resha, RCPP Biologist with NWTF.

The planned NY NRCS conservation practices described above meet all of the following criteria: address a documented resource concern, conform to the purpose stated in the conservation practice standard, are described at the actual location and required amount, include all required supporting practices, and have undergone environmental evaluation per National Environmental Policy Act (NEPA).

Planner, title **JAMES UNSER** Date 1/16/2018
Digitally signed by JAMES UNSER
Date: 2018.01.16 09:27:46 -05'00'

The undersigned secondary reviewers certify the above criteria are met and that they possess required NY NRCS job approval authority (JAA) in the amounts described, in the required disciplines, for the planned practices reviewed.

Digitally signed by DIANNA STANTON
Date: 2018.01.16 10:44:03 -05'00'

Plan reviewer (CCP) **DIANNA STANTON** Date 1/16/2018
Engineer reviewer _____ Date _____