



## Invasive Species Management Plan (ISMP): Shrubby Bush Clover at Daketown State Forest

### A Framework for Control

#### **Purpose:**

*The Invasive Species Management Plan (ISMP) template is a working document to help guide invasive species treatments after early identification and surveys have been conducted. The guide includes steps for post treatment monitoring and restoration over a five year period. The ISMP template is designed to treat a specific infestation at a given location. Multiple ISMP can be deployed over a larger geography. In such a case a more comprehensive plan should be considered when prioritizing multiple treatments in a park or preserve like setting.*

*The framework built into this template helps to identify all the variables that are more likely to result in more successful treatments with lasting effects into the future. All management strategies should consider an Integrated Pest Management (IPM) approach. Invasive species management plans should be independently reviewed by a project manager or a Capital Region PRISM Coordinator.*

#### **Section 1: Project Summary**

*The project summary provides an overview of the site with a description including contact information, location, current land use, species present, and other related parcel characteristics. The project description identifies the treatment target. Survey maps and reports are included in this segment, potential land managers/owners are identified with approval. Map(s) outlining the project site and infestation area are clearly marked. Elements from preexisting survey reports can be used to supplement this segment. All permits are secured and completed before commencement of treatment. [State Environmental Quality Review \(SEQR\)](#) checklist should be completed at this stage. SEQR requires the sponsoring or approving governmental body to identify and mitigate the significant environmental impacts of the activity it is proposing or permitting. [The Environmental Assessment Forms](#)*

*The project summary includes a step to determine if the proposed work is feasible and justifiable by completing an [Invasive Plant Management Decision Analysis Tool \(IPMDAT\)](#) simulation. The Capital Region PRISM recommends using the tool to help determine if an invasive plant control project is likely to be successful and if it warrants an investment of their agency's resources. To justify spending resources on an invasive plant control project: The invasive species must cause serious environmental or economic harm or harm to human health.*

*In addition work in a specific geography can be assessed to see if it falls into an area relevant for protection on the New York Invasive Species Prioritization Models. These models were created to highlight areas of the state that have high ecological significance, a high risk of spread of invasive(s) into the area and a high value according to their protected status. The models can be used to help guide and justify invasive species efforts. The map can be accessed at the [Capital Region PRISM Prioritization](#) page.*

#### **Section 2: Implementation Summary**

*The implementation summary will provide guidance on treatment methods with best management practices, monitoring, and restoration strategies. After a 3-5 year period a new assessment using the ISMP template may need to be conducted based on changing site conditions and parcel priorities.*

#### **Section 3: Project Implementation**

*The implementation segment contains treatment timelines and post season summaries. Always consider the phenology of the invasive target when deploying a treatment to be effective. A post season summary will be completed to document successes,*





failures, and needed adjustments to the management approach. Future treatment timelines in a calendar will reflect such reassessment needs.

**Saving Plans**

Please submit your Invasive Species Management Plan to the Capital Region PRISM for review. ISMP will be saved in an on line repository for historical purposes and future considerations. All survey and treatment data associated with the project should be reported in the [New York iMap Invasives](#) online data base. Please contact the PRISM for survey report forms.

**Section 1: Project Summary**

Project Name	<i>Shrubby Bushclover Eradication</i>
Location	Daketown State Forest/ 261 Daketown Road, Greenfield Center, NY 12833
Latitude Longitude	Latitude: 43.10569 °Longitude: -73.92506 °
Project Manager / Title	Sam Schultz Terrestrial Invasive Species Coordinator
Address	50 West High Street, Ballston Spa, NY 12020
Phone	518.321.0189
Email	ss986@cornell.edu

Site Description: Provide existing conditions of the site, including species present, ecologic condition, current land use, stakeholders and or historical uses.

*Daketown State Forest*

*This area is a low traffic state forest with log trails extending throughout the land. There are a couple of clear-cut openings where infestations of Autumn Olive and the Bush Clover have occurred. The trails are used mostly by hunters in the spring and fall.*

Project Description: Provide a clear and concise of the work to be conducted, conservation targets and desired future conditions.

Treatment Method: A 563 ft perimeter was set up with the goal of total eradication of the Shrubby Bush Clover. Spades, shovels, loppers, and grubbing tools were used by a team of 4 to target satellite locations within the main infestation to dissect the earthen material, extract the roots of the Shrubby Bush Clover. Goldenrod and other native plants were on site in the immediate area. The site will need multiple retreatments to eradicate the plant locally using this lesser management practice. The site is socially valuable and ecologically significant.

- <https://www.invasive.org/eastern/srs/SL.html>

Overall Project Size:

SEQR Form Complete? [Add as an Appendix]

0.33 acres

N/A





Does the work proposed fall into a well-defined area of ecologic significance and risk as indicated on the NY Invasive Species Prioritization Models?

Yes

[Optional Step/Include in Map Section]

Invasive Plant Management Decision Analysis Tool ([IPMDAT](#)) Recommendations. [Optional Step/Include in Map Section]

N/A

Pesticide Use Proposed?

No

Aquatic Pesticide Permits: <https://www.dec.ny.gov/chemical/8530.html>

Pesticide Laws and Regulations: <https://www.dec.ny.gov/chemical/112881.html>

List Associated Master Plan if relevant to a larger project: [link file URL or attach as an Appendices]

N/A

Map: Develop a map of the project area showing the geography and extent of infestation. Partners are strongly encouraged to use [iMap Invasives](#) or to define survey and treatment areas using points and/or polygons.





*The brown area indicates the area of treatment from 07/29/2021 and size of the infestation.*

## **Section 2: Implementation Summary**

*This page provides descriptions of any treatment methods, restoration, and monitoring efforts occurring over the course of the plan.*

**Treatment:** *Describe in detail treatment methods selected for the site and why they were chosen along with any alternatives considered. [Best management practice(s) should be outlined and sourced] State the estimate the number or abundance of species to be treated/removed and method of disposal. Describe the level of anticipated site disturbance and mitigation. If using a pesticide, provide the chemical name and application method.*

*Manual: Removal with Spades, shovel, lopper and hedge trimmer to remove root balls from satellite populations and limit regrowth on the bushes cut last year.*

***Vegetative material above and below the surface removed was left to solarize. The site will need multiple retreatments to eradicate the plant locally using this management practice. The site is socially valuable and ecologically significant. There were some plants that were in flower.***

**Restoration:** *Briefly explain the revegetation efforts that will occur. If doing active restoration, make sure to attach a list of native plants to be used, seed mixes, and any preferred nurseries. Describe if when native seeds will be collected on site. If a separate restoration plan was developed, reference it here. If not actively restoring, explain why. (ex. Allelopathy, native seed source in place, minimal disturbance).*

*---- Goldenrod and other native plants were on site in the immediate area. Plant species should be propagated from the local area and native seed banks should be encouraged. Follow up will occur late spring.*

**Post-Monitoring:** *Explain the monitoring procedure, when it will occur and why, and who will complete it.*

The Capital Region PRISM staff will visit this site on an annual basis, either once or twice during a field season. First visit should be planned for July to ensure treatment previous to seed set. A follow-up visit can be conducted for native seed restoration in the fall.





**Treatment, Post-Treatment (Monitoring), and Restoration Calendar:** *Briefly outline when treatment, restoration efforts, and post treatment monitoring are anticipated to occur with a date range. When completed check the box next to the targeted date range with an initial.*

	Year 1 (2020)	Year 2 (2021)	Year 3 (2022)	Year 4 (2023)	Year 5
Early Spring	<input type="checkbox"/> Post treatment monitoring and restoration continues	<input type="checkbox"/> Post treatment monitoring and restoration continues	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Late Spring	<input type="checkbox"/>	<input type="checkbox"/> Shovel, bush pruner, loppers, pruners, and weed-wrench to cut all plants down, digging out root balls and piled on site	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Summer	<input type="checkbox"/>	<input type="checkbox"/> Shovel, bush pruner, loppers, pruners, and weed-wrench to cut all plants down, digging out root balls and piled on site	<input type="checkbox"/> Shovel and grubbers to cut all plants down, digging out root balls and removing stems	<input type="checkbox"/> Grubbers to dig out all saplings	<input type="checkbox"/>
Early Autumn	<input type="checkbox"/> Loppers, pruners, and weed-wrench to cut all plants down and piled on site.	<input type="checkbox"/> Shovel, bush pruner, loppers, pruners, and weed-wrench to cut all plants down, digging out root balls and piled on site	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Late Autumn	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

*Notes: First year of treatment, high cut larger stumps about three feet above ground. The second year of treatment, cut off suckers. The third year, there was 90% mortality for those larger stumps with only about 5 suckers being seen per plant that did not die. This has been a very effective treatment, focus for the third year onwards will focus on removing any saplings that arise from the seedbank.*





### Section 3: Project Implementation - Year 1 (2020)

Treatment Schedule: Plan out when and how treatments will occur. Attach and reference separate spreadsheet if more space is needed for additional species. Include the [tier level and threat ranking](#) of each species.

Target Species Tier and Rank	Area Infested	Specie Abundance%	Target Goal % Cover	Treatment Window	Treatment Method	Disposal Method
Shrubby bushclover Tier 2 Ranking medium	0.22 acres	60%	0%	Spring/Summer/Autumn	Seedlings, stems, and plants that are regrowing from previous treatment efforts were dug up using shovels, pulled using grubbing tools, and cut by loppers to weaken the roots	Pile plants and leave to decompose

### Post Season Report

#### End-of-Year Summary:

Explain any successes, failures, or needed adjustments. Including restoration, missed treatments, not monitoring, etc.

Trimming the bush down seemed to weaken the root system some and limit regrowth. There were some suckers that sprouted, but continuously cutting the suckers will continue to weaken the plant. One visit was not enough for a noticeable difference. Recommend that there be 2 to 3 visits a year to continue to battle them.

#### Adjustments Needed:

Explain any changes to be made for future years and update treatment restoration and calendars.

**Reminder:** if the project changes drastically (i.e., switch from manual control to chemical control) it may require a new SEQR review.

Add more visits to schedule to help better beat down the bush clover.

#### Year 1 Notes:

N/A







### Section 3: Project Implementation - Year 2 (2021)

Treatment Schedule: Plan out when and how treatments will occur. Attach and reference separate spreadsheet if more space is needed for additional species. Include the [tier level and threat ranking](#) of each species.

Target Species Tier and Rank	Area Infested	Species Abundance%	Target Goal % Cover	Treatment Window	Treatment Method	Disposal Method
Shrubby bushclover Tier 2 Ranking medium	.33 acres, or a 563 foot perimeter around the main infestation	40-50%	0%	Spring/Summer/Autumn	Seedlings, stems, and plants that are regrowing from previous treatment efforts were dug up using shovels, pulled using grubbing tools, and cut by lopers to weaken the roots	Pile plants and leave to decompose

### Post Season Report

#### End-of-Year Summary:

Explain any successes, failures, or needed adjustments. Including restoration, missed treatments, not monitoring, etc.

2 trips were made, both with the goal of limiting satellite populations and trimming large stems down to cause stress.

#### Adjustments Needed:

Explain any changes to be made for future years and update treatment restoration and calendars.

**Reminder:** if the project changes drastically (i.e., switch from manual control to chemical control) it may require a new SEQR review.

Trim large bushes in the sun down to roots to cause stress and solarization, plants trimmed down in shade suckered more, so dig up root balls instead.  
If plants look small enough to pull (seedling/shoots) hand pull or grub will be effective  
For the plants that need to be cut above the root base, 2-3 trips per year will be necessary to weaken the root systems enough.

#### Year 2 Notes:

Satellite plants 90% removed, about 50% of yearling stems removed and 30 large root stumps remain in the main infestation. Shoveling as much as possible of yearling and seedling plants will yield best results.  
Hypothesis: Bushes in the sun store nutrients in their leaves to promote further leaf growth, compared to bushes in the shade that hold nutrients in the roots to create larger root systems, which causes more suckering if trimmed in the shade and stress if trimmed in the sun.





### Section 3: Project Implementation - Year 3 (2022)

Treatment Schedule: Plan out when and how treatments will occur. Attach and reference separate spreadsheet if more space is needed for additional species. Include the [tier level and threat ranking](#) of each species.

Target Species Tier and Rank	Area Infested	Species Abundance%	Target Goal % Cover	Treatment Window	Treatment Method	Disposal Method
Shrubby bushclover Tier 2 Ranking medium	0.24 acres	20%	0%	Spring/ Summer/ Autumn	Seedlings, stems, and plants that are regrowing from previous treatment efforts were dug up using shovels, pulled using grubbing tools, and cut by loppers to weaken the roots	Left to decompose

### Post Season Report

#### End-of-Year Summary:

Explain any successes, failures, or needed adjustments. Including restoration, missed treatments, not monitoring, etc.

Trip made 7/28/2022. Population significantly lower with high mortality on larger stumps that were high cut first year of treatment and had suckers cut the second year. There were eleven established adults that had suckers after two years of treatment but no more than five per plant. Those individuals were completely removed. Plants that were hand-pulled last year and placed back on disturbed soil re-sprouted. No plants had gone to seed and young seedlings were a result of the seed bank. All plant material was left on site to decompose.

7/28/2022 - 220 Stems, 59 Shrubs, and 11 Rootballs removed

#### Adjustments Needed:

Explain any changes to be made for future years and update treatment restoration and calendars.

**Reminder:** if the project changes drastically (i.e., switch from manual control to chemical control) it may require a new SEQR review.

Continue to grub seedlings and saplings that arise from seedbank. Use shovels to reduce soil disturbance and tamp down soil following removal. Monitor for swallowwort and remove any plants found. Continue to restore area with goldenrod, deer tongue grass and other native species found in the area.

#### Year 3 Notes:

Swallow-wort was detected (~12 plants) with one plant having gone to seed (Seed pods were removed). Three adult mulleins had already gone to seed and were removed. Bristly lady's thumb, *Persicaria longiseta* detected at the beginning of the trail clearly being transported via traffic along the trail. Additionally, high stump cuts on buckthorn (~3 ft) had no suckering the next year. Goldenrods will be important in native restoration and progress on reclaiming disturbed areas should be monitored.







### Section 3: Project Implementation - Year 4 (2023)

Treatment Schedule: Plan out when and how treatments will occur. Attach and reference separate spreadsheet if more space is needed for additional species. Include the [tier level and threat ranking](#) of each species.

Target Species Tier and Rank	Area Infested	Species Abundance%	Target Goal % Cover	Treatment Window	Treatment Method	Disposal Method
Shrubby bushclover Tier 2 Ranking medium	0.59 acres	20%	0%	07/25/23	Grubbing	Left on site

### Post Season Report

#### End-of-Year Summary:

Explain any successes, failures, or needed adjustments. Including restoration, missed treatments, not monitoring, etc.

Small saplings were removed via grubbing by TIS team and Rich McDermott throughout the area previously known. Search was conducted outside known infested area and no new stems were found. Swallowwort was not detected this year. Some of the autumn olive within the treated area were cut back. No large individuals found, continue to work to remove saplings emerging from the seedbank.

#### Adjustments Needed:

Explain any changes to be made for future years and update treatment restoration and calendars.

**Reminder:** if the project changes drastically (i.e., switch from manual control to chemical control) it may require a new SEQR review.

Continue to treat any saplings that arise within the treatment area. Continue to communicate with Rich McDermott when treatments occur in this state forest.

#### Year 4 Notes:





### Section 3: Project Implementation - Year 5

Treatment Schedule: Plan out when and how treatments will occur. Attach and reference separate spreadsheet if more space is needed for additional species. Include the [tier level and threat ranking](#) of each species.

Target Species Tier and Rank	Area Infested	Species Abundance%	Target Goal % Cover	Treatment Window	Treatment Method	Disposal Method

### Post Season Report

#### End-of-Year Summary:

Explain any successes, failures, or needed adjustments. Including restoration, missed treatments, not monitoring, etc.

#### Adjustments Needed:

Explain any changes to be made for future years and update treatment restoration and calendars.

**Reminder:** if the project changes drastically (i.e., switch from manual control to chemical control) it may require a new SEQR review.

#### Year 5 Notes:

