

Master Plan



Original Dated 22 October 1988
Revised April 1995
Revised August 2008

INTRODUCTION

The purpose of this Master Plan is to provide a framework for decisions about the management of the Cary Institute of Ecosystem Studies lands. Cary Institute lands are dedicated to serve and support the Institute's stated mission; this mission includes the creation, dissemination and application of knowledge about ecological systems. At the same time, under the terms of the deed from the Mary Flagler Cary Charitable Trust, Cary Institute lands must be maintained as a natural area and preserved from development.

The Mission Statement, dated November 2007, outlines the Institute's goals and themes and serves as a reference point for the Cary Institute of Ecosystem Studies into the foreseeable future. This Master Plan seeks to provide a similar reference point for the care of the Institute's property in support of the Institute's goals.

MANAGEMENT PHILOSOPHY

The goals of the Cary Institute set forth in the Mission Statement (Appendix A) are fairly specific. However, it is also recognized that good science is done by individuals with the freedom to explore leads impossible to identify in advance. Thus, "management with flexibility in mind" is an important message of this Master Plan.

On occasion, it may be a great advantage to the Cary Institute's mission to acquire certain adjacent lands. Candidate properties should be either isolated in-holdings or border the Institutes main parcel. These properties may represent sensitive or critical habitats or habitat types that are unique or in short supply to Institute programs; acquisition would prevent a type of development that could have negative consequences for Institute programs or the environment; acquisition would enhance security for our main parcel and facilities and/or address issues of encroachment or trespass facilitated by a properties location; or, acquisition would facilitate enhanced management/use of Institute lands (improved or additional access).

Because all of the land known as the Cary Arboretum is restricted by deed to the purposes of the Institute, and because both The New York Botanical Garden (NYBG) and the Mary Flagler Cary Charitable Trust (Trust) have deeded rights in that land, any sale of land that may no longer be needed for the purposes of the Institute can only be accomplished with the approval of both NYBG and of the Trust, so long as the Trust is in existence. Candidate properties should be isolated from the main land parcel and be of questionable value to the Institute's mission (consider historical contributions). Other reasons for considering the divestiture of such a property might include: abundance of a representative habitat type, poor or difficult access; difficult to manage/secure (chronic encroachment and trespass issues); a parcel may represent a resource to assist in acquiring a more desirable parcel.

Divestiture of Institute lands should be done with great caution. Discussion and comment from the scientific staff would be essential in confirming mission centric value. Efforts should be made to add covenants to lands sold or traded to limit development of those lands.

GENERAL LAND USE & MAINTENANCE CONSIDERATIONS

All decisions about land use, maintenance, elimination of maintenance, road or building construction, planting, cutting, chemical application, etc., should involve questions such as:

- What use does this foreclose on this site next year? Ten years hence?
- What is the impact on the surrounding area next year and in the future?
- What are the short and long-term implications for soil, air, surface and groundwater quality?
- Is there an impact downstream, downhill or downwind?

Most of the Institute's land has been designated for ecological research. With the exception of areas and facilities for which specific management policies have been outlined below, all of the forests, fields, streams and ponds are to be managed as an ecological reserve to provide resources to further the research and education programs of the Cary Institute. Any use of Institute land apart from its maintenance as a reserve should be consistent with the goals and programs of the Institute as described in the Mission Statement. Access to field research sites is by written application. This process is facilitated by the Manager of Field Research Facilities and approved by the President under the procedure described in Appendix B.

RESOURCES

Cary Institute lands offer a variety of resources helpful to the research and education programs of the Institute. Some of these have been introduced by humans, such as buildings, roads, ponds and utility rights-of-way. Other areas, such as the upland forests and old fields, are thought of as "natural", although the effects of human use of the land can be observed at virtually any location.

Each of these resources needs to be managed to support and promote the goals of the Institute as outlined in the Mission Statement. The following paragraphs describe each resource and the assumption behind its management. Appendices provide more detailed guidelines designed for reference by the manager having responsibility for that area.

ANIMAL AND PLANT POPULATION

Populations of animals and plants, both resident and transient, are an integral part of the Institute's landscape. Their dependence upon each other, their impact on the environment, and of the environment on them, are evident to those studying smaller defined ecosystems as well as broader landscapes. Management practices must therefore take into consideration the needs of particular scientists for populations to study as well as the potential impact of manipulations on other on-going research. State and federal regulations impose additional constraints and record-keeping requirements (special permits, regulated wetlands etc.). Appendix C provides guidelines for managing animal populations in support of educational and research programs.

FIELDS

Most of the Institute's land consists of a number of former farms purchased by Mary and Melbert Cary years ago. Some were inactive at the time of purchase, others continued as farmland long after the change of ownership. The open fields are those which have been mowed at varying intervals up to the present time; other fields are in various stages of succession. Appendix D reaffirms the decision to maintain these areas as open fields to retain the flexibility to offer such sites to scientists and educators as the need arises.

SPECIAL ECOLOGICAL DISPLAYS

Special ecological displays offer visitors illustrations of ecological principles. For example, the Fern Glen displays indigenous plant taxa grown in representative habitats and communities. The Bluestem Meadow area shows the constant beauty of a little bluestem meadow, and can inform visitors about the management practices that enhance the growth of this native grass. Appendix E provides guidelines for those charged with managing these special displays.

RESIDENCES, BUILDINGS AND THE GROUNDS ASSOCIATED WITH THEM

The Cary Institute property contains twenty-five buildings ranging from old farmhouses renovated for residences and dormitories to modern research laboratories and a contemporary auditorium building. Landscaping around these buildings should enhance their appearance, be low maintenance, avoid the use of any invasive species and, in general, give a visual impression consistent with the mission of the Institute. Appendix F provides management guidelines toward this end.

PUBLIC EDUCATION CORRIDOR

The public education and visitor programs of the Institute require access to varied habitats for educational purposes. These purposes may include destructive sampling and other practices that, if done throughout the property, could result in a cumbersome approval process or potential interference with research programs. In recognition of this, a "public education corridor" spanning a portion of the land from the Plant Science Building to beyond the Gifford House, has been designated. Objectives and guidelines of the Public Education Corridor, bounded on the north by the East Branch Wappinger Creek and on the south by Rt. 44, are reflected in Appendix G.

Within this corridor, education and visitor activities that are part of an approved public education program may be conducted without the need for case-by-case approval as long as any disturbance is minimal.

SURFACED INTERNAL ROADS

The internal system of paved roads laid out in the early 1970's facilitates access to various portions of Institute lands. These roads provide access for research, education and property maintenance activities. Some of these roads also provide access for public visitation. Prudent management of the road surfaces and roadsides will extend the life of this investment. Appendix H provides maintenance guidelines for this resource.

WOODS ROADS

A series of woods roads provides access to fields and forest areas not directly accessible from paved roads. These woods roads require a four-wheel drive vehicle and are used only for authorized public education, research and management activities. Oversight of use and maintenance coordination is the responsibility of the Manager of Field Research Facilities. Appendix I provides a statement of maintenance practices.

OTHER RESOURCES

Located at the former Greenhouse site is the associated nursery area. The nursery irrigation system has been dormant for many years; its functionality is presently unknown. This area is presently available for the research and education programs. Adjacently located are a large Cold Storage Building and a Rearing Facility. Both of these buildings contribute to present and future Cary Institute program needs. See the Cary Institute Facilities Statement for details on what these resources have to offer.

The former, “Research Field” on Lovelace Drive will continue to play a role in Institute programs and should be maintained accordingly. Mowing schedules or other specific treatments will be a function of specific project needs. Located in the western portion of this field is the Cary Institute’s meteorological station. For complete details of this facility consult the Cary Institute’s Facilities Statement.

No active management is recommended for the East Branch of Wappinger Creek or the upland forest areas. These areas offer valuable sites for research and education but management intervention will be limited to that required for approved programs or to address issues such as log jam removal to curtail flooding into unwanted areas. The procedure for monitoring the stream is outlined in Appendix J.

Maintenance of the power line right-of-way running through Institute property is the responsibility of Central Hudson Gas and Electric Company. Close coordination with that utility is essential to insure that management practices do not have an adverse effect on nearby research plots.

THE INSTITUTE'S PURPOSE

The Cary Institute of Ecosystem Studies is dedicated to the creation, dissemination and application of knowledge about ecological systems. This knowledge is created through scientific research, disseminated through teaching, writing, and exhibits, and applied through participation in decision-making regarding the ecological management of natural resources and through promotion of a broader awareness about the importance of ecological relationships to human welfare.

THE INSTITUTE'S GOALS

1. To advance the basic understanding about the structure, function and temporal development of ecological systems.
2. To provide knowledge needed for the solution of environmental problems.
3. To develop an understanding of how people learn about the processes of science, and about ecological concepts.
4. To enhance the general understanding of ecology by students, policymakers, and the public.
5. To train a new generation of ecologists capable of addressing and solving complex environmental problems important to human societies.

IMPLEMENTATION OF GOALS

To reach these critically important goals, the Cary Institute has developed a working environment and philosophy unique among ecological research centers in North America. In addition to empirical research of the highest order, the staff has set itself the task of promoting synthesis in ecological understanding. The search for generalizations and unifying models has unusual promise for advancing basic ecology and making ecological understanding relevant for addressing the urgent environmental problems confronting humanity. Solving such environmental problems requires a scientific foundation of the highest quality.

The work of the Institute contributes to an understanding and resolution of pressing environmental problems in two fundamental ways:

Basic science is the foundation for environmental problem solving. Indeed, basic science often is the window through which critical environmental problems are first recognized. Examples include acid rain in North America, eutrophication of aquatic ecosystems, the ecological origins of Lyme disease and the global CO₂ increase. Environmental problems cannot be evaluated or solved without answers to questions like, "How much? How extensive? What has been the change with time? What is the impact on different system components? What are the feedback and amplification pathways?" Research programs at the Cary Institute contribute answers to such questions. For example, Cary Institute staff can state how their research projects relate to global environmental change, biodiversity, air and water pollution, eutrophication, forestry practices, and sustainable development.

Second, Cary Institute staff members are committed to making scientific information available to the public, managers, and decision-makers. The consensus document on "Sustained Ecological Research: A Critical Need" arising out of the international 1989

Cary Conference organized by the Institute, reflects this commitment. Other examples include workshops on science and the media, public field trips and excursions led by Cary Institute staff, concerted staff review of New York State Department of Environmental Conservation plans and programs, and interactions with local, state, and federal officials and agencies. Specific examples include regional commissions concerning the Hudson River, town planning boards and conservation commissions, the New York Governor's Environmental Advisory Board, the New York City Parks Department, and the USDA Forest Service.

In addition, the Cary Institute Education Program attempts to increase scientific literacy in elementary and high schools, and the National Science Foundation funded Research Experiences for Undergraduates Program aggressively recruits women and students from minority groups, and from schools where research is not likely to be an option for college undergraduates. The intense involvement of Cary Institute staff in these pursuits is remarkable and unusual even when compared to centers of ecology at leading universities.

ACCESS TO FIELD RESEARCH SITES

Procedure for filing application for access to field research sites at the Cary Institute of Ecosystem Studies in Millbrook, New York are as follows:

1. Submit requests for application material and return completed forms to:

Raymond Winchcombe
Manager, Field Research Facilities
Cary Institute of Ecosystem Studies
PO Box AB; 2801 Sharon Turnpike
Millbrook, New York 12545

2. Applications must be accompanied by a project proposal describing precisely what you want to do and why you want to do it on Institute property. When appropriate, include the numbers of plants/animals that will be collected, captured, tagged, removed, etc. Also, include copies of current New York and Federal permits as required for your work.
3. Applications will be reviewed and discussed by our scientific staff and applicants will be notified in writing of the decision. Please allow at least two weeks for this process. Successful applicants will meet with the Manager of Field Research Facilities to select sites, receive access permits and to discuss access regulations.
4. A brief project report/update must be submitted at the end of each field season.
5. A reprint or copy of the final project report must be submitted following completion of the project.
6. All materials (stakes, flagging, traps, etc.) must be removed from field sites following completion of the project.
7. The Institute must be acknowledged as the site where your work was conducted in any publications that result from this work. The proper way to acknowledge the Institute is as follows:

Cary Institute of Ecosystem Studies
Millbrook, New York

8. Applications for access must be renewed and updated each year.

MANAGEMENT OF ANIMAL AND PLANT POPULATIONS

This policy is intended to serve as a guide for decisions about populations of animals and plants on properties of the Cary Institute. The execution of Institute research, education, and management programs may have impacts on the Institute's flora and fauna.

Definitions

1. *Animals* - any wild, introduced, and/or exotic animals that appear as residents, transients, or migrants on Institute properties. This includes mammals, birds, reptiles, amphibians and insects. Domestic animals and pets are addressed by other Institute policies.
2. *Protected Species* are species that are protected by law. These include endangered, threatened and game species.

Objectives

1. To ensure that activities at the Institute conform to all relevant local, state and federal statutes concerning animal and plant populations.
2. To guide the development and operation of management plans for species that are considered to be a threat to the ecological integrity of existing communities within the Institute.
3. To provide for protection of plant and animal species and habitats when presence is deemed critical to the program of the Cary Institute.

Guidelines

1. Research, education and/or management activities involving animals must be conducted under a valid New York State Scientific Collector's Permit or a New York State hunting, fishing, or trapping license. Some plant species may also require special permits. All staff will abide by the conditions of any permits and licenses issued by the New York Department of Environmental Conservation or any Federal Agencies.
 - a. Scientific Collector's Permit - The Cary Institute's Scientific Collector's Permit covers the activities of designated agents when working with unprotected species. To work with protected species (game animals, species that are endangered, threatened, or of special concern), proposals must be submitted to the New York Department of Environmental Conservation and describe in detail all activities. When approved, conditions and procedures will be prescribed in the permit and must be adhered to during the course of the activities.
 - b. Hunting, fishing, and trapping licenses - Some activities require a valid hunting, fishing, and/or trapping license. The means for taking game animals, the season for taking, and number that may be possessed are prescribed by either the New York Department of Environmental Conservation, or by this Institute.

2. Certain species of animals and plants may occasionally pose a threat to the integrity of terrestrial or aquatic ecosystems within the Institute. Examples might include extremely high levels of herbivores such as deer or gypsy moths, or the displacement of native species by exotic species. In some cases, these phenomena might be viewed as simply a natural component of the dynamics of ecosystems within the Institute, or as an important subject for research. However, the same phenomena may, in some cases, initiate changes in the fields, forests, streams and ponds of the Institute that threaten their value as sites for ecological research.

There are five stages to the development and implementation of management plans to deal with such threats:

- a. identification of a threat;
- b. evaluation of the severity of the threat;
- c. identification of options for dealing with the threat;
- d. selection and implementation of an action plan; and
- e. evaluation of the consequences and success of the implemented plan.

Stage a. - Identification. Any staff member who perceives such a threat should bring it to the attention of the scientific staff via a staff meeting or email.

Stages b. and c. - Evaluation of the severity and identification of options. The President may assign staff with appropriate expertise to evaluate further the severity of the threat and the identification of options for dealing with it, or may bring in outside experts to provide this information.

Stage d. - Selection and implementation of a plan. The President will decide what actions, if any, will be taken after weighing all the facts and considering recommendations made by the person(s) investigating the problem. Implementation will be done by either Institute staff (if time, resources and expertise exist), or outside experts as necessary.

Stage e. - Evaluation of consequences and success of plan. The President will generally request appropriate individuals to evaluate the impact of the plan ultimately adopted.

It is not possible to provide detailed guidelines for dealing with all potential threats. However, the general philosophy behind any plan should be to intervene only when the threat is considered significant, and then to use techniques that produce the least disturbance to other components of the ecosystem in the long term.

3. In addition to relevant state and federal statutes that provide protection for rare and endangered plant species, the management of field research areas will provide for explicit protection of plant and animal species and/or local habitats when presence within the Institute is deemed critical or important to the Institute's programs. As these critical/important, species/habitats, are identified, efforts to protect these resources will be coordinated by the Manager of Field Research Facilities.

MAINTENANCE OF OPEN FIELD HABITATS

Definition

Fields are non-forested areas dominated by herbaceous vegetation. See attached map.

Objective

To maintain a number of fields at the Institute for current or potential research and/or public education projects. Maintaining a diversity of habitats and species richness at the Institute is also an important objective.

Guidelines

1. Fields are to be maintained in accordance with the most currently accepted management plan. The Manager of Field Research Facilities oversees the implementation of the maintenance plan.
2. Mowing or other management practices may be discontinued or otherwise changed as fields are designated for research or public education purposes and as the needs of these programs dictate.
3. Typically, field mowing takes place after August 1st each year on a biennial schedule using a hammer-knife mower.

Attachments: Map showing fields that are actively managed. Mowing schedule through 2011.

MAINTENANCE OF SPECIAL ECOLOGICAL DISPLAYS

Definition

Special ecological displays refer to the Fem Glen, Bluestem Meadows, and the, “Points of Science” along our public walking trails and roads).

Objectives

1. To develop and maintain special ecological displays that illustrate ecological themes, principles and/or management.
2. To keep these displays in a healthy, vigorous, and attractive condition using best management practices.
3. To keep facilities and paths accessing the displays open, safe, and presentable.
4. To maintain accurate indigenous plantings and interpretive material for public education.

Guidelines

Maintenance includes, but is not restricted to, the following cultural practices:

1. Burning and/or mowing (to promote little bluestem grass and discourage woody growth).
2. Application of appropriate pesticides to curtail invasive species (*e.g. Lythrum salicaria, Adelges tsugae*) or herbivory.
3. Periodic acquisition of plants of the appropriate regional genotypes to replace or supplement display material.
4. Inspection and maintenance of path systems and physical structures (i.e., decks, walls, etc.).
5. Grass paths and trails should be mowed and maintained to insure safe and clear passage. Trails used by the public will be clearly marked and maps provided to facilitate hiking. Problems of drainage and erosion, which might require rerouting or substantial re-working of a pathway, will be solved with a minimum of impact to the surrounding areas.

Maintenance for Ecological Displays and the Nature Trails is the responsibility of the Manager of Displays/Public Visitation.

MAINTENANCE OF GROUNDS ASSOCIATED WITH RESIDENCES AND BUILDINGS

Definition

These grounds include the landscaped areas surrounding each of the Institute's buildings and residences.

Objective

To keep landscaped/managed areas in an attractive, healthy and manageable condition using best management practices.

Guidelines

1. Grounds dedicated to turf should be kept to a minimum. Turfed areas should utilize the best grass varieties for the site. Wherever practicable, alternatives to traditional turf should be considered. Where turf is identified as the best ground cover for a particular site, tall turf-type fescues or similar varieties (e.g. low-growing fescue varieties) should be selected.
2. The use of chemical pesticides should be discouraged. An integrated pest management (IPM) utilizing a biorational approach to disease and pest problems should be followed throughout all landscaped areas.
3. The use of inorganic fertilizers should be discouraged. An organically-based program for turf and ornamental care should be followed throughout the landscaped areas of the grounds.
4. In addition to meeting the identified landscaping needs, plants selected for landscaping should meet the following criteria: low moisture and fertility needs; inherently disease and pest resistant; long lived; non-invasive; and low maintenance. Whenever practicable, indigenous native plants, representative of the surrounding existing habitat(s) should be utilized. Plantings should be kept simple, low maintenance, attractive and replaced as necessary. Best management practices should be used in establishing and maintaining landscape plantings.

MANAGEMENT OF THE PUBLIC EDUCATION CORRIDOR

Definitions

The "public education corridor" is that strip of land bordered on the east by our property boundary; on the north by the Wappinger Creek; on the west by the powerline right-of-way and on the south by Route 44. Included are the fields adjacent to the Gifford Tenant House and the Gifford House and the area around the Plant Science Building complex. Also included are the forests and old fields along the Wappinger Creek and Cary Pines Trails. Display areas and public trails within the corridor are excluded from this section as they are discussed elsewhere.

Objectives

1. Provide the Education and Public Visitation Programs with a piece of ground containing diverse habitats to facilitate various educational and interpretive program activities. Oversight and restrictions of use will be more, "relaxed", compared to other Institute lands.
2. Provide a network of hiking/walking trails through the corridor that are safe, attractive and traverse a diversity of habitats.
3. To make the Public Education Corridor the primary focus area for special ecological displays or Points of Science.

Guidelines

1. The Education Program has preferred access to lands within the Public Education Corridor. Education Program needs will take precedence over Visitor Program needs during conflicts across space and time.
2. Minor destructive sampling, local disturbances and off-trail activities are permitted in the corridor if they are part of an approved educational program. Examples of such activities include: digging of small soil pits (less than 0.5 square meter surface disturbed); coring trees; collecting samples of soil, twigs, litter, herbs; or tapping of maple trees.
3. Uses which involve major impacts on the land or potential impacts on adjacent land and water must pass the normal review procedure coordinated by the Manager of Field Research Facilities. Examples of such activities include: digging of large soil pits; cutting down trees; plowing or burning fields; application of pesticides; or establishment of long-term manipulations of the natural communities.
4. Land within the corridor is available for use and/or protection for research purposes. Such uses should be reviewed in the standard fashion. Education Program needs will be considered in this process.

5. The Education Program should consider utilization of lands within the corridor for high-impact activities before seeking to pursue such activities on other Institute lands. For example, long-term research demonstrations should be established in the corridor if it provides suitable sites.
6. Management of the lands within the corridor will be as specified for fields, forests, streams, research areas, special ecological displays and trails in other portions of the Master Plan. Other specific management activities may be implemented based on considerations of public safety, aesthetic appearance or special needs. Persons desiring such specific management activities should bring their request to the attention of the Head of Education and the Manager of Field Research Facilities.

MAINTENANCE OF SURFACED INTERNAL ROADS

Definition

Surfaced roads are defined as internal roads topped with two types of wearing surfaces. All Institute surfaced roads started out as a "pug" road - gravel and oil mixed, spread, and rolled. Some sections have been topped with an asphalt wearing surface, while others were topped with an oil and stone wearing surface. In a few cases (i.e., Plant Science Building and former Greenhouse area road systems), conventional asphaltting was undertaken (underlayment of a binder asphalt topped with a wearing surface).

Objectives

1. To prolong the surface life and integrity of the road.
2. To discourage regeneration of woody and in some cases herbaceous vegetation along the shoulders of the roads.
3. To keep erosion and runoff problems to a minimum.
4. To eliminate unsafe conditions (i.e., danger trees, deadfalls, snow and/or ice, poor visibility).

Guidelines

Implementation of the following guidelines is the responsibility of the Cary Institute's grounds crew.

1. The shoulder (generally 36 inches) should be mowed at varying intervals to insure a consistent grass edge. The remaining shoulder and areas associated with drainage structures, should be mowed annually (or on the schedule of any adjoining field) to discourage the establishment of woody vegetation. Where an annual mowing for control of woody vegetation is impractical (i.e., steep banks, rock outcroppings, etc.) where identified critical for the integrity of the road, an application of an herbicide may be used unless scientists object. The extent of maintenance of road shoulders is confined to the original grading of those shoulders to the points of cut and fill.
2. Consideration should be given for allowing regeneration of desirable woody plants that would hasten canopy envelopment where roads traverse woodland habitats. It is recognized that in some cases, this will present additional challenges to road surface maintenance and preservation but, it is desirable to have a closed canopy condition where roads travel through wooded habitats.
3. Swales, catch basins, culverts, and waterways should be kept open and flowing (i.e., no brush, unintended vegetation debris, or animal disturbance interfering with the drainage plan).
4. Side pruning of shoulder trees in wooded road sections should be kept to a minimum consistent with safety considerations.
5. There should be a periodic removal of the sod and thatch layer from road edges with a follow-up reseeded to insure drainage off the road surface.

6. Where vegetation erupts through the surface of the road, an application of an herbicide is recommended to preserve the road unless there is an ecological hazard.
7. Road shoulders and surfaces should be periodically swept or blown to remove leaves and/or runoff silt and gravel.
8. Drainage, erosion or visibility problems at the intersection of internal roads and public roads should be monitored and corrected in conjunction with appropriate public entities .
9. "Pug" road surfaces should be topped with oil and stone or asphalt when deterioration is evident.
10. Asphalted roads should be patched when necessary and resurfaced when appropriate.
11. Surfaced roads should be plowed in winter when vehicle access is necessary or closed to vehicular traffic during winter months.
12. Catch basins and culverts should be kept open year-round (regardless if the road is open or closed to traffic).
13. Shoes should be used on the snowplow on pug surfaces.
14. Sand (no salt added) should be applied for winter traction when necessary.
15. Permanent gates should be inspected annually and adjusted as necessary.
16. Bridges should be inspected annually and repaired or maintained as necessary.

MAINTENANCE OF WOODS ROADS

Definition

Woods roads are unpaved roads that provide access to fields and forested areas throughout the Cary Institute (see attached map).

Objective

To keep the woods roads open and passable for access by four wheel drive vehicles for fire protection, research, education and management activities.

Guidelines

The Manager of Field Research Facilities is responsible for coordinating maintenance and use of the woods roads.

1. Periodically remove fallen trees and limbs from the roadway.
2. Periodically “topdressing” roadways with suitable fill (e.g. “Item # 4” and/or crushed stone).
3. Trees, shrubs or vines growing out into the roadway should be cut as necessary to permit unimpeded vehicle passage.
4. Existing culverts should be maintained; gravel, waterbars and/or new culverts should be installed where necessary to prevent erosion.
5. All road maintenance activities are to be approached with the philosophy of human safety and minimal disturbance.

Attachment: Map showing maintained woods roads (red dashed lines).

STREAM MANAGEMENT

Definition

Streams refer to the East Branch Wappinger Creek and Ham Creek where they are within the boundaries of the Cary Institute property.

Objective

To manage the streams in support of research and/or education projects.

Guidelines

1. Stream banks adjacent to buildings, bridges, roads or other permanent structures will be monitored by the Manager of Field Research Facilities. If erosion or water issues threaten a structure (i.e. changes in stream channel), a full review will be made to determine the impact on the stream before taking corrective measures (plantings, riprap or realignment).
2. All necessary local and state permits will be obtained prior to altering stream bed or banks. All work will be done with the philosophy of minimal disturbance.
3. Regulated fishing will be authorized only when it is compatible with research or education activities, including permanent monitoring stations. A separate Institute fishing policy governs this activity (see policy & procedures manual).

Cary Institute Managed Fields- Mowing schedule for 2007 & beyond

(mowing begins after Aug. 1 except where noted; hammer knife mower)

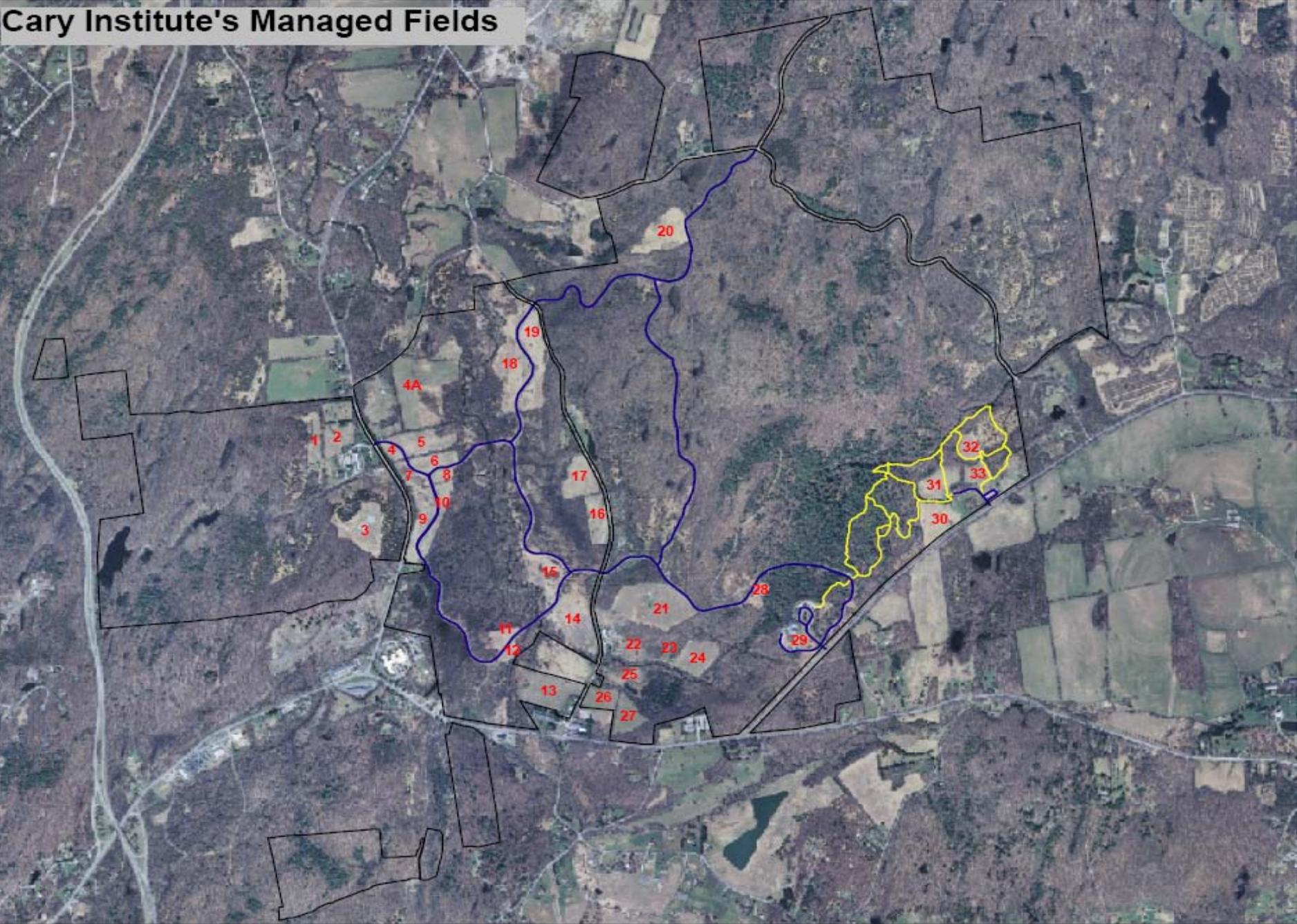
Fields in Green get mowed that year

Field #	Central Grids	Local Name	Property Location	2007	2008	2009	2010	2011	
1	156-158	Upper Nursery	West of 82						
2	163-164	Lower Nursery	West of 82						
3	168-169	S of Rearing Facility	West of 82	1/2 only	Alt 1/2	1/2 only	Alt 1/2	1/2 only	
4	191	E of 82	W lowlands						
4A	211-212	Olson's Meadow	Nardone Rd.	na	?	?	?	?	
5	289,222	S of Olson's meadow	W lowlands						
6	223	W of N bridge & N of road	W lowlands						
7	207	E of Rt. 82 & between hedgerows	W lowlands						
8	224	W of N bridge & S of road	W lowlands						
9	205,206	E of Rt. 82 & W of W. Flagler	W lowlands						
10	226,227	E side of W. Flagler Dr.	W lowlands						
11	312	W of S bridge & N of road	S lowlands	*		*		*	
12	367	W of S bridge & S of road	S lowlands						
13	373,369	Behind Smith house	S lowlands	Hay - Ed Olson					
14	430,431	W of Auto shop	S lowlands						
15	364,379	E of S bridge, old willow coll.	S lowlands	1/2 only	Alt 1/2	1/2 only	Alt 1/2	1/2 only	
16	439	Maple coll. field	W of Fowler rd.						
17	424,425	N of Maple coll. Field	W of Fowler rd.						
18	324,325	W side of Red Wing Dr.	N lowlands						
19	353-356	E side of Red Wing Dr.	N lowlands						
20	510,526	Tire field	NE Knapp Dr.	LBS October mowing					
21	493,494	Weather station field	Weather Sta. Area	1/2 only	Alt 1/2	1/2 only	Alt 1/2	1/2 only	
22	490	Behind Conover Hse.	Conover house						
23	na	Wood pile	Conover house						
24	551	Old Sweetgum coll.	Conover house						
25	na	Smith Pond field	Smith property	1/2 only	Alt 1/2	1/2 only	Alt 1/2	1/2 only	
26	na	Training Ctr. Field	Smith property	Hay - Ed Olson					
27	na	Behind Training Ctr.	Smith property	Hay - Ed Olson					
28	621,675	S or below Tea House rd.	Tea House Rd.	LBS October mowing					
29	688	PSB meadow	Plant Sci. Bldg.	LBS October mowing					
30	870	S of Gifford Hse.	Gifford House	LBS October mowing					
31	872	Behind Carriage Hse.	Gifford House						
32	907	NW of Spring Hse. Hedgerow	Gifford House						
33	913	SW of Spring Hse. Hedgerow	Gifford House						

* - mow in early May or Late October for ragged fringed orchids

LBS - Little Bluestem Fields

Cary Institute's Managed Fields





Cary Institute
of Ecosystem Studies

