Minutes of meeting of Natural Area Advisory Committee: *7 December 2006*

Thursday, 1-3pm, NATL pavilion. Members present were Mark Clark (chair), Donald Dickson, Donald Graetz, Susan Jacobson, Kaoru Kitajima, Doug Levey, Jack Putz, Erick Smith, and Tom Walker (admin. asst.). NATL TA Kevin Ratkus also attended.

1. Self guided nature trails

During the spring of 2006, the committee in charge of the $500,000 Environmental Stewardship Project of the Capital Improvement Trust Fund [CITF] awarded $100,000 for NAAC to develop four self-guided nature trails in NATL

Tom Walker reported that the pathways for the three upland trails have been established and that the Upland Pine Nature Trail and the Old Field Nature Trail are in service. Along each trail are about 20 points of interest. These are marked with numbered stakes and explained in a trail guide. The current trail guides are designated as "advanced"—i.e. they are lengthy and intended for museum docents, biology majors, and serious naturalists. Museum staff may opt to produce "basic" versions intended for the general public. Because what is conspicuous along the trails changes dramatically with the seasons, some of the points of interest, and the guides, must be updated approximately monthly to remain timely. A three-panel kiosks at the trailhead for the Upland Pine and Old Field trails and a two panel kiosk at the trailhead for the Hammock Trail are planned. A map of the trails and descriptive material is at http://natl.ifas.ufl.edu/SGNTpage.htm. Three graduate students from a class in Environmental Interpretation have proposed materials for the three-panel kiosk and for a basic version of the Upland Pine field guide.

Mark Clark reported that plans for the SEEP Nature Trail included a boardwalk that would enter SEEP about midway on its west side and exit SEEP on its east side just north of the berm. To avoid the need for railings, the boardwalk surface will be within 36" of the substrate and have a 4-inch high curb along each edge. Unusually high water, occurring less than once per year, will cover and temporarily close the boardwalk. Keeping the cost of the boardwalk within budget is a major issue. Engineering and design alone could use most of the available funds. Consequently, the following cost-saving possibilities are under investigation: (1) limiting the engineering to typical sections of the boardwalk (rather than contracting for an overall, detailed design), (2) making the boardwalk-portion of the trail as short as possible, (3) using volunteer labor for some of the construction. To comply with ADA requirements as to maximum grade, the north end of the trail will require a switchback. Three graduate students from a class in Environmental Interpretation have proposed materials for a trailhead kiosk and for signs along the trail.

2. CITF fencing

Mark Clark reported that during the spring of 2006, the committee in charge of the $500,000 Environmental Stewardship Project of the Capital Improvement Trust Fund allocated $200,000 for fences and signs for UF's 23 on-campus conservation areas. Subsequently the Lakes and Natural Areas Subcommittee of the Lakes, Vegetation and Landscaping Committee gave NATL's fencing needs first priority. These needs, described in detail in Appendix 1, are currently estimated to cost at least $63,000. Some

have expressed concern that the 6-ft galvanized chain link fence proposed for the outer boundaries of NATL is unattractive, but funds for more attractive fencing have not been offered.

3. Upland Pine management

Tom Walker reported that in May he and Ken Prestwich planted 333 container-grown small longleaf pines at 62 sites in the restricted-area upland pine. In July, they planted 600 wiregrass slips in the public-area pine and 400 in the restricted-area pine. In October, Alan Long arranged for the Florida Division of Forestry to mulch the undergrowth in the restricted-area pine, while avoiding the 135 flagged small pines at 60 sites. Survival of transplanted longleaf pines and of flagged naturally germinated seedlings is currently 54% for the 52 2-m pines planted in 2004, 94% for the 289 1-gal pines planted in 2005, 18% for the 333 container-grown pines planted in May 2006, and 30% for the 233 seedlings flagged in April 2006.

4. Storage shed

Tom Walker described the need for a NATL storage building and passed out proposed specifications for the building and a sheet describing construction options prepared by Frank Tipton of IFAS Facilities Operations (Appendix 2). Members expressed concern over the susceptibility of such a building to termites.. A motion was passed unanimously that the building be of the type made by Nelson's Lark Portable Buildings, which has steel framing with a metal roof and Hardi-panel siding.

5. Graduate Assistant report

Kevin Ratkus described his accomplishments as the NATL Graduate Teaching Assistant during the summer and fall semesters of 2006 (Appendix 3). He also explained his plan for further reducing cogongrass, which is the most serious invasive exotic species in NATL's old-field ecosystem (Appendix 4).

6. Long-term source of assistantship funding

Mark Clark reported that the hoped-for long-term funding of the NATL Teaching Assistant through the School of Natural Resources & Environment had not been realized but that Kirby Barrick, Dean of the College of Agriculture and Life Sciences had funded the position for the 2006-07 School Year. Mark then led a discussion of the what should be done to obtain longer-term support for NATL's needs.

7. Other business

Mark Clark noted that Shibu Jose, Associate Professor in the School of Forest Resources and Conservation, was interesting in becoming a member of NAAC. Those attending the meeting unanimously supported offering him membership.

8. Tour of upland self-guided nature trails

Beginning at the trailhead on North Trail, the group walked the Upland Pine Nature Trail as Tom Walker briefly explained the 21 points of interest that are more fully described in the Upland Pine trail guide. The group then walked the Old-Field Nature Trail from its end on Main Trail to its beginning on North Trail and were told about its 22 points of interest in reverse order from that in the Old-Field trail guide.

9. *Baccharis* control in Old-Field Plot C

The group discussed how much, if any, of the saltbush (*Baccharis halimifolia*) in Plot C should be removed in order to produce, for the next 33 years, successional stages more nearly typical of the succession on agricultural fields. Several options were discussed, including doing nothing and cutting all saltbush in the plot. In the end, the group unanimously supported a plan to leave the saltbush south of gridline 5 and to remove all of it north of that gridline. That option leaves the densest stand of saltbush intact but clears the saltbush from approximately two-thirds of the plot.

Appendix 1: Fencing Improvements for NATL-west and NATL-east

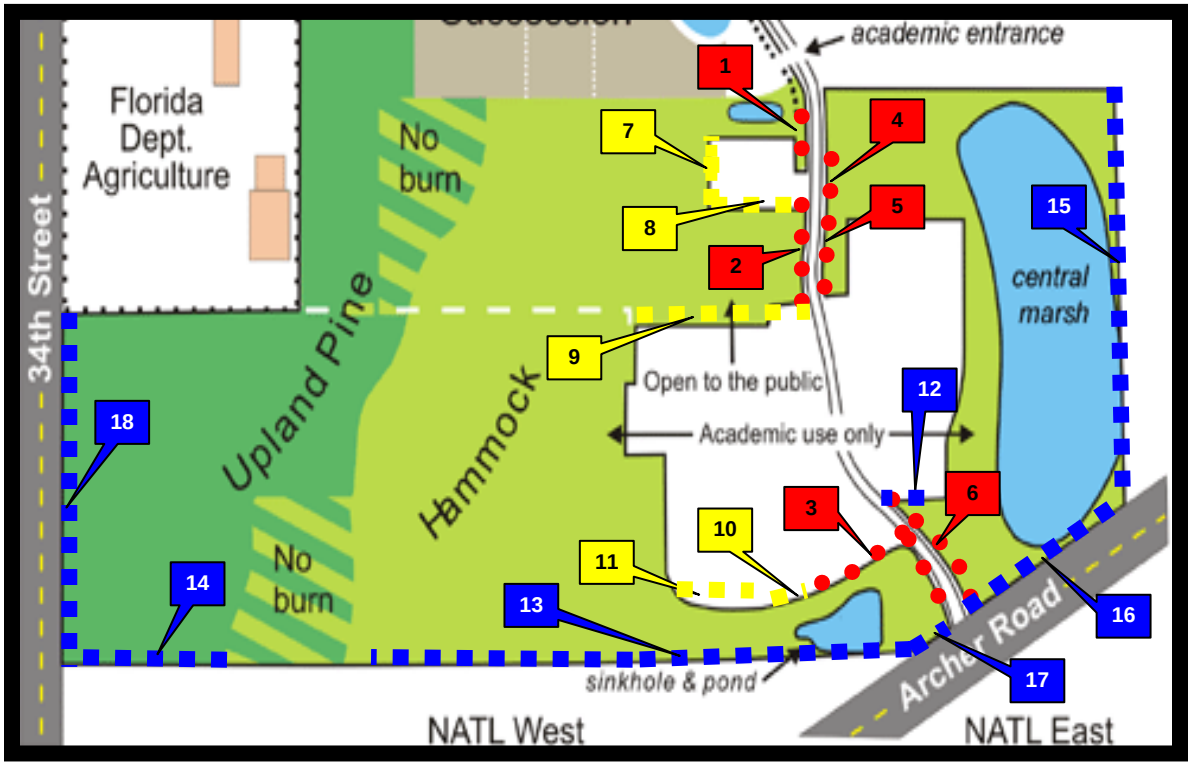
Three to four types of fence are proposed, Corral fence, Field fence, Galvanized chain link or Colored Vinyl coated chain link. Depending on price and possible cost sharing with neighbor property, Galvanized chain link fencing will be substituted with Colored Vinyl Coated fencing. Distances and special considerations along each run are outlined below. Additional information about property corners and lot lines are available upon request.

Proposed NATL Fencing

Four board corral

Field

6 ft. galvanized chain link - possibly black vinyl coated depending on cost estimate and cost share (Emmer Property)



Layout of fence segments and fencing types to be erected in NATL. Detailed description of segments are outlined below, grouped by fence type.

Corral fence for NATL

SUMMARY

1463 or 1499 ft of new corral fence to be erected

72 ft of recently erected corral fence to be moved

West side of Natural Area/Surge Area Drive

(1) Extend the existing corral fence southward to the north side of the drive into the Mini Warehouses keeping 12 ft from road except for 13 ft at south end to pass west of the utility pole.

96 ft

80 ft N-S

16 ft E-W

(2) Erect a new segment of corral fence from the south side of the drive into the Mini Warehouses southward to where the Surge Area once again fronts on Natural Area Drive keeping 12 ft from road except 13 ft at north end and a 6-ft-deep, 8 ft inset to keep a fire plug outside the fenced in area.

275 ft

75 + 8 + 148 = 231 ft N-S

16 + 6 + 6 + 16 = 44 ft E-W

(3) Erect a new segment of corral fence beginning near the Microfabritech loading dock and ending at Archer Road, keeping 6 ft from driveway and from Surge Area Drive. This segment will have a 4 ft gap to provide new entrance into NATL-west (across the street from a matching entrance to NATL-east).

407 ft (or 425 ft)

232 ft along Microfabritech drive

179 - 4 = 175 ft along Surge Area Drive

(18 more ft, if chain link is used along Archer Road)

Note: If the Archer Road fence west of Surge Area Drive is fancy, that fence will need to be 18 ft longer than previously measured. (It will require three 6-ft panels to make a proper transition from fancy to corral fence.)

East side of Natural Area/Surge Area Drive

(4) Move existing corral fence 4 ft west

4 ft new fence (E-W section must be lengthened 4 ft)

72 ft old fence to be moved (N-S section is 16 ft + 4ft gap + 56 ft)

(5) Extend existing fence southward to housing compound keeping 8 ft from edge of pavement.

370 ft

352 ft N-S

18 ft E-W

(6) Starting near south end of housing compound extend fence southward to Archer Road keeping 8 ft from edge of pavement for first 80 ft, angling to 6 ft from edge of pavement at 128 ft (across from south side of drive into Microfabritech). Leave 4 ft gap across from similar gap in fence on west side of Surge Area Drive.

311 ft (or 329 ft)

80 + 48 +72 + 75 - 4 = 271 ft N-S

16 + 24 =40 ft E-W

Add 18 ft if fence on Archer Road is chain link

Note: The new configuration around the huge valves doesn't change the length of the east Archer Road fence as previously measured if that fence is fancy, but it shortens it by 18 ft if it is chain length.

Field fence for NATL

SUMMARY

706 ft of new field fence to be erected

240 ft of field fence to be moved

West side of Natural Area/Surge Area Drive

(7) Erect new field fencing along back side of mini storage area 8 ft set back from paved surface. Tie into existing field fence to north running that runs east west.

116 ft

(8) Erect new field fencing along south side of pavement in mini storage area with 8 ft setback from pavement. Run along south side of pavement until connection with corral fence.

180 ft

(9) Erect new field fencing in line with stakes from end of corral fence to existing chain link fence due west.

170 ft

(10) Erect new field fencing to connect end of corral fence to existing field fence just to the south of the microfabritec building. The line should be 6 ft back from edge of the concrete drive. Remove existing field fence.

88 ft

(11) Erect new field fencing to north of existing field fence and follow staked layout of fence line. Remove existing fence line.

152 ft

Chain link fencing for NATL

Fencing for these segments will be 6' galvanized fence unless cost sharing with neighboring property or final estimate will allow for vinyl color coating of black or green. Priority fence segments for use of color vinyl coated chain link would be #18, #16, and #15

(12) Erect new chain link fence to realign existing fence parallel to back of cabinet shop. Remove old fence.

45 ft

(13) Erect new chain link fence from end of ornamental fencing along Archer Road 1029 ft along south property boundary and existing fence line. Remove existing field fence.

1029 ft

(14) Erect new chain link fence from property corner abutting 34th street back along the south property line 400 ft along existing field fence line. Remove existing field fence.

400 ft

(15) Erect new chain link fence between NATL East and Emmer property. Follow existing fence line and remove existing field fence.

832 ft

(16) Erect new chain link fence 2 ft. setback from sidewalk from Emmer property boundary to entrance to Surge Area Drive. At ends of fence line extent fencing back three panels along adjacent boundary line.

426ft

(17) Erect new chain link fence 2 ft setback from sidewalk from Surge Area Drive to point at which UF property line deviates from archer road. At ends of fence line extend fencing back three panels along adjacent boundary line. At western end of this fence line, the slope may not allow for installation of Ornamental Fence. If Ornamental Fence can not be installed then install black vinyl coated chain link fence to replace three panel extension back.

126 ft

(18) Erect new chain link fence along 34th avenue along existing fence line. Install 2-3ft gate centered at 353ft (from either end where existing gate is). Tie ends of fence into existing chain link fences to the north and south.

706 ft

Appendix 2: Specifications for NATL Storage Building

Project Title: Storage building for Natural Area Teaching Laboratory (NATL).

Unit Making Request: NATL's Natural Area Advisory Committee

Funding: To be arranged.

Project Location: West end of the retention pond that serves UF's Mini-Storage facility (Building 794) [also just south of NATL's Main Trail ca 100' west of its Academic Pavilion (Bldg. No. 796)].

Intended use: To securely store tools, supplies, and equipment owned by the Natural Area Advisory Committee and used in the Natural Area Teaching Laboratory.

Items to be stored:
John Deere Gator 4x2 utility vehicle (8'9"x5' LxW)
Kee KC22 bicycle-tire mower (5'6"x 26" LxW)
Poulon 16" chain saw
Stihl brush cutter
Fuel and oil for above
Soho 3.5 gal backpack sprayer
B&G 1 gal sprayer
(pesticides will be stored in EYN pesticide storage facility)
Fire rake
Dibble
Shovels
Posthole digger
Other hand tools
Garden hose
10-foot and shorter lengths of metal conduit and PVC pipe
Gloves for volunteers
Marking tape and marking flags
[Except for the mower, these items are already owned by the Natural Area Advisory Committee. They are used to maintain and improve NATL.]

Building specifications: Must keep the contents dry and secure. Must have a footprint of 12'x12' or slightly greater. Must have a door that will not only allow the Gator to drive in and out but will admit enough daylight to illuminate the interior. Must be lockable and not subject to easy break-ins. Door(s) should be easily opened, closed, and locked. No utilities are required.

Notes: The building will be in a UF conservation area. Plans for it must be approved by UF committees, including Lakes, Vegetation and Landscaping and Land Use and Facilities Planning.

NATURAL AREA TEACHING LABORATORY
NEW STORAGE BUILDING OPTIONS

There are three types of storage buildings that were explored to find the most durable, versatile and cost effective structure for the storage of a John Deere Gator along with multiple tools and equipment.

The first is a metal shed building manufactured by the Arrow Company. Although this building is the least expensive of the three options, it is also the least durable. These type of structures usually only have a relatively small lifespan before they would have to be replaced.

Second is a site-built storage building. Although this building is very durable the cost to construct is cost preventative.

Third is a portable building built with the users' specific needs in mind. The structure is almost as durable as option 2 but with the benefit that it can be relocated if so desired. The cost to install this type of structure is less than half the cost of the site-built storage building. Two companies have provided proposals to supply, deliver and set a 12' x 14' building. Each building will have a metal roof, Hardiboard siding, reinforced floor, roll-up door and a side door. The companies are Nelson's Lark Portable Buildings and Red Barn Home Center. **The approximate costs for the specified buildings from the two companies are $5,600 (Lark) and $5,000 (Red Barn).**

Below are photos of buildings by the two companies (NOT of the dimensions or configuration specified above).

Lark

Red Barn

Research and information provided by Frank Tipton, UF/IFAS Facilities Planning and Operations

Appendix 3

NATL TA Summer '06 Summary

- **Upland pine trail clearing**
- **Plant long leaf Pine**
- **Spray invasive plant species**
- **Dr. Fox's invasive species class involvement in using NATL class projects**
- **Summer Plunge volunteer event**
    - **Mulch NAP**
    - **Plant sweet gum tree**
    - **Trim NAP trees**
- **Fabrication and instillation of weir panels**
- **Cleared all of NATL trails (encroaching vegetation)**
- **Chain sawed downed trees**
- **Submitted work orders to PPD**
- **Prepare for Gator Plunge volunteer event**
- **Edit NATL introduction Power Point**
- **NATL linked on more UF departmental web sites**
- **Refresh kiosk information (brochures, annual notices, large displays)**
- **Patrol NATL tails for inappropriate use of site and clean trash from trail**
- **Final design of critter-proof trashcan**
- **SEEP boardwalk construction preparation**
    - **EHS/ADA, Nature Operations, Office of Sustainability**

Investigation of building material

NATL TA Fall '06 Summary

- **Self-guided Trail: Clearing of Hammock & Field Succession Plots**
- **Spray invasive plant species:**
  - **Cogongrass**
    - **Management Plan: Experiment**
    - **Site visit by Dr. Mac Donald**
  - **Japanese Climbing Fern**
  - **Alamo Vine / Noyau Vine**
  - **Arrowhead Vine**
- **Initiated herbicide donations from Dr. Mac Donald (Agronomy Dept.)**
- **Prompted Dr. Fox's invasive species class visit NATL**
- **Gator Plunge volunteer event (~50 students/ 5 project)**
  - **Mulch NAP**
  - **Nature-scaped stream bed (rocks, cypress, spartina grass)**
  - **NATL-E trash clean-up**
  - **Weed restoration islands in Upland Pine area**
  - **Built up SEEP earthen berm**
- **Prep for Jan 27th volunteer event**
  - **vegetation fence CPA/ Self-guided Trail**
  - **Prep Upland Pine for prescribed fire**
- **Built 3 Benches for Self-guided Trail (downed pine trees)**
- **Provided NATL tours to classes**
- **"Greening" of NATL storage shed**
  - **USGBC: Student Chapter (NATL mini-grant)**
  - **Dr. Kibert's Construction Ecology & Metabolism class**
    - **Design / Build**
- **Submitted work orders to PPD**
- **NATL linked on more UF departmental web sites**
- **Refresh kiosk information (brochures)**
- **Patrol NATL tails for inappropriate use of site and clean trash from trail**
- **Initiate Dr. Jose as being on Natural Area Advisory Committee**
- **Increase the Office of Sustainability's awareness of NATL**

Appendix 4

Cogongrass

Non-native Invasive Plant Management
Natural Are Teaching Lab (NATL)

Cogongrass *Imperata cylindrica* is a perennial, rhizomatous plant in the grass family (Poaceae) that grows approximately 2 to 5 feet in height. Cogongrass can invade and overtake natural, planted and disturbed areas by forming dense mat of thatch and live grass blade canopies that make it nearly impossible for other plants to coexist. In addition, its rhizomes can pierce (grow into) surrounding roots and damage them. Cogongrass also secretes allelophathic chemicals to compete with surrounding vegetation. Its native range is Southeast Asia, Philippines, China and Japan. It was first introduced to the United States, via Alabama, in 1912 through crate packing. It was subsequently introduced into Florida in the 1930's & 1940's as potential forage and for soil stabilization purposes. It is currently distributed through the entire southeastern US. Cogongrass reproduces both vegetatively and from there small abundant seeds. The seeds may be disperses by wind, and either the seed or rhizomes may be relocated by animals, soil transportation, or site work equipment.

The University of Florida has established cogongrass populations scattered through out campus, and have programs in place to control it. The Natural Area Teaching Lab started to manage its spread of cogongrass through NATL in March of 2005. The seed source or rhizomes were most likely brought in to NATL on earth moving equipment. The old-field plots A & C and sections of the public area upland pine are where the majority of the infestation of cogongrass was originally spotted and treated. Since that time, it has been repeatedly found growing in NATL where the light conditions are sufficient. Any new cogongrass patches found or re-sprouting of older patches have been treated with herbicides. NATL has kept a log of all its treatments. This log includes a location map of cogongrass growth plots, corresponding herbicide treatment and an estimate of the size of each patch. The two types of herbicides NATL has to treat cogongrass are Glyphosate (Round-up) and Imazapyr (Arsenal). Glyphosate has been used much more frequently than Imazapyr.

The literature states several techniques can be used to control cogongrass. They can be used independent of each other, but the most success is when several combinations of these tactics are used in conjunction with each other at specific times of the year. These techniques include mowing, burning, 6" to 8"disking/tilling and several herbicide options. Eradication can take 3 to 5 years of efforts.

An herbicide spray treatment of 2% concentration of Glyphosate or 1 to 1 ½ % concentration of Imazapyr is recommended. Glyphosate or Imazapyr should be applied on (min.) 12" live leaf blades. This spray should cover the leaf blade surface until the point it would roll off the leaf blade. The treatment needs to have a minimum of 5hrs, or ideally, one full day before rainfall to allow the active ingredient to penetrate the leaf

surface. The most effective use of Glyphosate or Imazapyr is just prior to the first frost in the fall season when the plant is pulling sugars down from the leaves and storing carbohydrates & starches into its rhizomes for the winter. In October and November cogongrass will translocate the greastest amount of active ingredient into its roots and provide the most effective use of the herbicide. In addition, to use Imazapyr effectively the site must have exposed mineral soil. All "thatch" or dead leaves must be removed (mowing/fire) to allow herbicide to penetrate settle in the soil. This residual Imazapyr in the upper soil horizon will kill newly emerging vegetation shoots. Note: Glyphosate has an average soil half-life of 47 days. Imazapyr has an average soil half-life of 25 to 140 days.

Draft NATL's Cogongrass Plan

(November 2006)

NATL management will focus efforts in the fall season (October/November) and apply 2% Glyphosate to all above ground growth. This will insure that the herbicide use kill the highest amount of cogongrass rhizomes. This procedure will keep the aboveground vegetation suppressed till the next late spring early summer's rains stimulate any remaining rhizomes to sprout. This should minimized the ability of the cogongrass to "go to seed" in the spring. All actions to control Cogongrass will be documented in the Map and Treatment Log for Cogongrass. The only remaining question is whether to 1) retreat areas sprayed the previous fall immediately upon signs of cogon grass re-emergent or 2) delay any additional treatments until the next fall when treatment efficiency should be the highest. There are arguments for and against each of these options:

The drawbacks of using method #1:

- Not much of the herbicide is not being translocated to the rhizomes
- May not allow the grass blades to get large enough to take in the herbicide for the ideal fall spraying

The drawback of using method #2:

- By not spraying through the year there is more rhizome development during the warm rainy summer.

To evaluate which of these two options might be the most effective in terms of control, time and herbicide expense an experiment will be set up on a subset of Cogongrass infestations within NATL. For those infestations not part of the experiment, a variation of treatment method 1 (year round "as needed" application) will be implemented.

Draft Experimental Design

NATL currently has 35 individual cogongrass infestation areas that are being treated and are mapped.

Six of these 35 sites could be used to carry out an experiment to compare and contrast treatment 1 vs. treatment 2. These six plots are selected on the basis that they are sufficiently large to apply side by side treatments without overspray and with sufficient buffer between treatments for rhizome translocation and overlap to be accounted for. These six plots range in size from ~50sq ft to ~400 sq ft.

Plots selected: 1, 4, 10, 13, 17, 34

Treatments:
Each pot would be divided in half and a random assignment of treatment 1 or 2 would be allocated to one side or another.

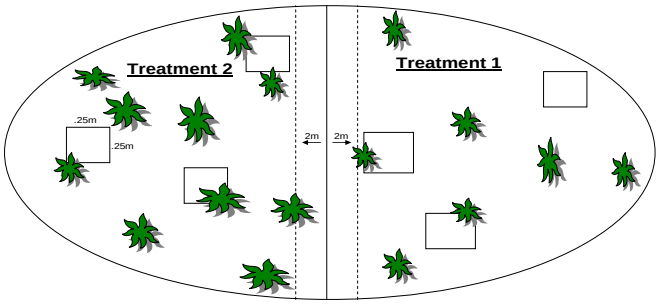
Treatments 1 and 2 include a complete application of 2% Glyphosate in late fall (October/November).

Treatment 1 will include additional applications of 2% Glyphosate on an "as needed" bases. "As needed" will be determined based on monthly visual assessment of plots beginning June 1st and if any re-emergence of Cogongrass has occurred these new shoots will be sprayed.

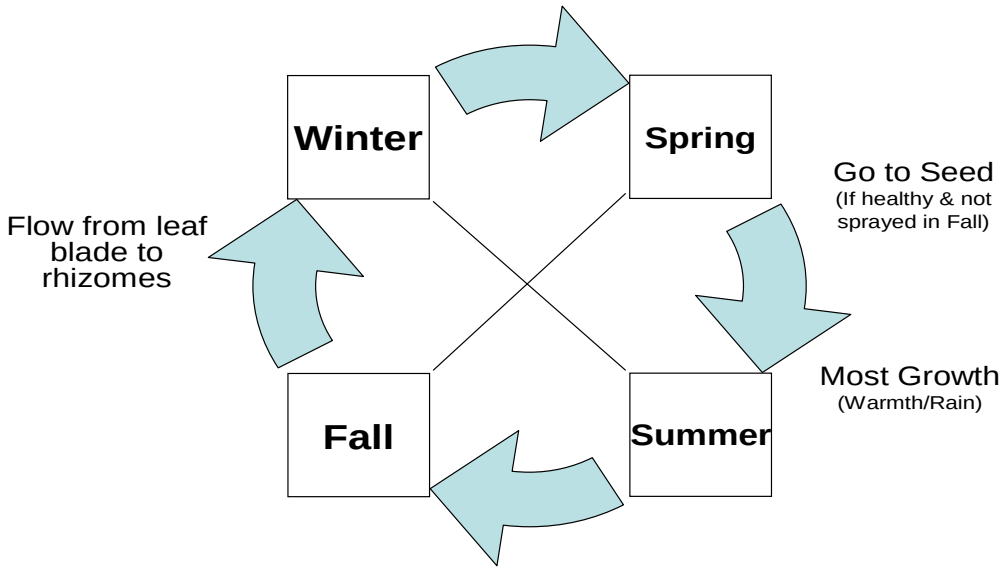
Monitoring:
Three randomly placed 0.25 m^2 quadrats will be located within each treatment plot at least 2 meters away from the boundary between treatments. Within each quadrate a count of Cogongrass stems/clusters will be determined. Treatment effect monitoring will be conducted once a year at the beginning of June prior to any Glyphosate treatments.

The amount of time required for treatments as well as an estimate of the amount of herbicide applied will also be documented.

Single Study Plot



Cogongrass Life History



Cogongrass Herbicide Application