

Spring 2018 Meeting of the Natural Area Advisory Committee – Minutes

12 April 2018, NATL Academic Pavilion, Noon

In attendance:

Eben Broadbent (Geomatics)

Erika Brownson (Undergrad TA)

Raelene Crandall (Forest Resources and Conservation)

Jennifer Gillet-Kaufman (Entomology and Nematology)

Jessica Hong (Graduate TA)

Erik Lewis (Facilities Planning and Construction)

Lexie Nielson (Invasive Species Intern)

Emily Steffes (Minigrant Recipient)

Emma Weeks (NATL Chair)

Emma Weeks welcomed everyone to the NAAC meeting and members introduced themselves. Eben Broadbent joined the meeting and was inducted as a new committee member for the NAAC.

1. Fiscal report for FY 2017-2018 and Fiscal plan FY 2018-2019

Jessica Hong (Jesh) gave an overview of the budget for 2017-2018. The amount brought over from the previous year was larger than normal because NATL was unable to burn due to weather conditions. At the time of the meeting, NATL was still unable to burn. Upon hearing this, Rae Crandall thought a burn should be able to occur soon and suggests there may be alternatives to get a burn in if Tom Workman Forestry is too busy. Next, the projected income for the 2018-2019 was discussed, Jesh described that it remains the same as in

the previous year. \$500 is expected to be carried over from the previous year. This is because the prescribed fire quote for the upland pine area had increased from \$2500 to \$3200, which accounts for some of the differences. In addition, NATL had hired an additional undergraduate TA to complete some much needed projects such as managing gridlines and sign building maintenance. With a slight deficit in the budget, Jennifer Gillett-Kaufman suggests promoting online donations for alternative funds. Emma Weeks agrees that shifting use towards NATL online donations is a possibility since they have not been previously done so. Emma made a motion to approve the proposed budget plan for the fiscal year of 2018-2019. Erik seconded the motion and voters approved the budget unanimously.

2. Updates on possible capital improvements and funding sources

Emma Weeks provided the updates on recent improvements in NATL since the last meeting. Emma highlights the white board installation in the pavilion, refinished tables in the pavilion and NAP, additional tables in the pavilion, and the lockers that were recently installed. Emma noted that the white board's low height makes it wheelchair assessable. Jennifer Gillett-Kaufman noted that wheelchair access to the white board may be difficult because the current table arrangement serves as an obstacle. Emma acknowledges this predicament, however, mentions the classes tend to move the tables to their needs. Future improvements involve installing a water fountain in NAP, which may need funding. Erik Lewis stated that Jeanna Mastrodicasa provided funding for the current water fountain and may be a resource. Emma states that water fountain in the NAP may require significantly more money to run the same connection due to distance and foundations issues in the road. Rae Crandall suggests possibly finding funding by honoring donors to put their name on the NATL pavilion. Jennifer replied with possibly talking to the Foundation to look for someone to name the boardwalk for donations. Eben Broadbent says there may be a possibility to make a connection with the Cultural Plaza for donations because of their proximity.

3. NATL Use Report (Jen, Erika)

Moving on, Jen Eells provided updates on NATL use and current items being worked on such as: pre-recorded tours, education material plans for classes, demo plots, and LiDAR use with geomatics. Eben Broadbent states he has been using NATL a lot and is returning the next day with the board of directors for tourism (~30-40 people). Eben shared and displayed what was collected from the GatorEye from the drone ecology class and hopes to compile more images over time. The class collects multi-temporal dataset each time they come out to NATL and can print 3-dimensional graphics. These graphics could possibly be put in the Harn Museum of Art. Erik Lewis asked if this data could possibly count trees without having to manually. Eben replied that there are many applications to this data: dbh measurements, QT readers, and hydrologic mapping of SEEP. After this conversation concluded, Eben had to depart the meeting for other obligations.

a. People counter summary (Jen, Erika)

Next, Erika Brownson provided a summary of the people counters. From January 2016-2018, there have been technical difficulties such as battery failure and overall trail master failure. With such unreliability, Erika stated that a new trail master may need to be purchased. Erika also provided a volunteer summary and highlighted NATL's volunteer events such as Fall Day of Service and the Coral Ardisia Roundup. Erik thought the coral ardisia had long been eradicated. Emma Weeks stated that coral ardisia populations had been reduced in the recent years, however, the hurricane had revived many sub-populations. These areas were unable to be managed while the debris blocked entrance to the grid plots.

4. Minigrant update and 2017 planning (Jen)

Emma Weeks provided the update on minigrants. This year, NATL was able to support 3 new minigrants. The previous minigrants (moss, seedbank, and ground-nesting bees) have been completed and their reports are online. In addition, a display from the ground-nesting bee group may be inherited. The 2018 minigrants consists of bird species with habitat, guineagrass project, and a non-crop host project. Erik Lewis inquired if the seasonality of the bird appearances will be covered, which Emma Weeks confirmed. Emily Steffes gave a brief description of her project and the challenges of finding guineagrass in this season. At the end of the semester, Emily will deliver a management plan of guineagrass for the future. Erik suggested Steffes' difficulty may be caused by the change in growth ecology due to how dry it was last year. Jennifer Gillett-Kaufman suggested that it could be a result of increased nematode abundance and recommended taking a few pieces of the root to the nematology department. Emma Weeks stated that an expert grass tour is coming the following week to aid in identification. This reminded Erik that there is a grant meeting with the FWC that allots small contractor grants to help with invasive species if NATL happens to have a major invasive species issue.

5. [Facebook](#), [Twitter](#) and [Instagram](#) updates

Jen Eells, is now managing the Facebook page and Twitter, Emma Weeks provided a brief update in her absence and affirmed that NATL has a consistent rise in followers over time. Laura Harmon, a NATL volunteer, manages the Instagram account (also not present). NATL will soon upload student profiles of NATL staff and what they do on social media.

6. Invasive plant update (Emily & Lexie)

Lexie Nielson gave an update on what has been accomplished this year. Guineagrass has not been a major issue at this point of the year and cogon grass is currently in question of identification. Mimosa has also not been as major a problem as it was the previous year. With that

point, Jennifer Gillett-Kaufman points out three mimosas by the pavilion. Lately, Lexi has been focusing on coral ardisia that have been popping up along the gridlines in the hammock.

7. Nature trail update, boardwalk concerns (Erika)

Erika Brownson provided a description of how the trails are maintained routinely with some help from volunteer groups. Sequences along the nature trails are maintained as well. Erik Lewis asks if there was any news about the SEEP boardwalk repairs. Emma Weeks stated that a proposal from Mark Clark was expected however, it has not yet been received. The boardwalk cost \$80,000 to build but how much to replace the whole thing is in question. Jessica Hong stated that the Wetlands Club has a scheduled repair for the following week. Erik mentions the CITF meeting is happening soon and would be a resource for funding. Jennifer Gillett-Kaufman recommends a social media campaign to renovate boardwalk. In addition, for the CITF meeting, Jennifer suggested filling up the room at the CITF meeting with supporters of the SEEP and its boardwalk such as GREBE, agronomy, Wetlands Club, etc. Erika continues her update about hurricane Irma damage along the nature trails. It required frequent chainsaw work and took about 3 months to chop away all the trees. Also, 3 new signs were added along the nature trails as well as all the gridlines were cleared this year in preparation for the 10 year photos.

8. BioBlitz

Emma Weeks provided details about BioBlitz which was hosted with Butterfly Fest. The initial experience was fruitful as NATL identified new species to add to the biota list. Organizing the event this year provided wisdom on how to improve next year (1 day instead of 2, more guest experts, etc.).

9. Restoration of Upland Pine

Jessica Hong provided plans for the restoration of upland pine. There are 5 different treatment plots (burn, herbicide, burn/herbicide, burn/mow, and mowing). These treatments will be conducted after the burn occurs.

10. Looking for new volunteers/potential TAs (Ask NAAC to spread the word)

NATL is always looking for volunteers. Emma Weeks stated NATL is looking for an undergraduate TA as Emily will be leaving at the end of spring and Erika will be leaving at the end of the summer. In addition, NATL is also looking for a new vice-chair to attend weekly meetings and stand in for the NATL chair. Emma is also possibly looking for an assistant chair.

11. Vote, Next NAAC meeting date and time.

Emma Weeks proposed a date and time for the next NAAC meeting of September 13th at noon. Jennifer Gillett-Kaufman seconded, all voters approved.

Appendix 1. Fiscal Report for FY 2017-18

NATL Fiscal Plan for FY 2017-18				12 April 2017 Report for FY 2017-18	
Approved 13 April 2017					
Funds available for 2017-18, excluding stipends for Graduate TAs*.				Receipts	
				Already received	Projected
	Brought forward from 2016-17		3,182	3,182	3182
	Projected income for 2017-18				
	Provost	6,000		6,000	6,000
	NATL endowment	5,283		3,874	4625
	Sum		11,283		
	Grand Total		\$14,465	13,056	13,807
Spending plan for 2017-18				Expenditures	
				Already spent or encumbered	Projected
	Personnel (OPS)				
	Undergraduate TAs	4,322		4,654	5,387
	Control of invasives	1,320		1320	1,320
	Sum		5,642		6,707
	Other Expenses				
	Miscellaneous expenses	2,500		1,752	2,000
	Upland pine restoration	2,500		3,200	3,200
	2000 NT fliers	400		0	400
	2 minigrants @\$500 each	1,000		1,000	1,000
	Sum		6,400	5,952	6,600
	Grand Total		\$12,042		13,307
	To be carried forward		\$2,423		500
NATL improvement fund (from online donations)					
	Online donations to NATL (implemented March 2012)	\$	921		
* The Provost and the CALS Dean will each pay the stipend for a NATL Graduate Teaching Assistant					

Appendix 2. Fiscal Plan for FY 2018-19

Initial NATL Fiscal Plan for FY 2018-19			Comments
Final version to be approved at Fall meeting			
Funds available for 2018-19, excluding stipends for Graduate TAs*.			
Brought forward from 2017-18	500		
Projected income for 2015-16			
Provost	6,000		Assumes no change
NATL endowment	4,625		Assumes no change
Sum	11,125		
Grand Total		\$11,125	
Spending plan for 2018-19			
OPS			
Undergraduate TAs	4,322		Experienced help, 8 hrs/week (does most of routine maintenance of nature trails)
Control of invasives	1,320		Invasive specialist, 2 hrs/week
Sum	5,642		
OE			
Miscellaneous expenses	1,500		
Upland pine restoration	3,200		Continues efforts to restore 13 acres to llp ecosystem Prescribed burn quote increase since 2016
2000 NT fliers	400		Based on quote
2 minigrants @\$500 each	1,000		Program attracts student proposals to fulfill NATL needs
Sum	6,100		
Grand Total		\$11,742	
To be carried forward		-\$617	
NATL improvement fund (from online donations)			
Online donations to NATL (implemented March 2011; \$ 921			

Appendix 3. Capital Improvements Updated Spring 2018 Report

The following items were discussed and compiled by the NATL Operations Committee and modified based on a week's discussion by NAAC members. Some items have an associated web link that is an example of the item described.

Long Range NATL Wish List: 2011-2021 Vision Plan

We recognize that NATL already has tremendous value to the local UF community. This Vision Plan seeks to strengthen and enhance these indigenous values of NATL and, in addition, provide mechanisms for bringing the educational values of NATL to an unlimited online environmental community of users. We present the plan in the form of a two-part outline of infrastructure and other developments, focusing on both in-person and online users of NATL.

This list is not static; additional items may be added to the list. Items will be removed from the list if more than half of the NAAC members feel that the item would not enhance the use of NATL. Funding for items could come from donations to the UFF on behalf of NATL or by writing specific items into future grant proposals.

A. Enhancing in-person access

- ~~1. Bike parking areas at each primary NATL entrance. Completed 2012.~~
- ~~2. Extend 110v AC to the pavilion and the NATL shed (two weather proof duplex outlets at the pavilion and hook up the wiring that came with the prefab storage shed). Completed 2013.~~
- ~~3. Extend potable water service to the pavilion area to provide access to water for drinking, bottle filling, hand washing, and class-related low volume uses. This could include a sink and associated drain board if restraints on cost, design, and context are met. Completed 2016.~~
- ~~4. Two or more locking cupboards for class use (to reduce the risk associated with students leaving valuables unattended in the pavilion during class time). (Design and placement not yet considered.) Completed 2017.~~
5. Natural Area Park water fountain. (Design and placement not yet considered.)

6. ~~Additional seating areas at NATL Park and along NATL trails. (If the UF Foundation approves the plan, donors might pay enough for benches with commemorative inscriptions to fund other items on this wish list).~~ **Completed 2017.**
7. Add a classroom and/or lab building to facilitate NATL use. To avoid using land in the NATL-west Conservation Area, the building might best be situated on an out-parcel south of the pavilion. (A representative of the UF Foundation believes NATL might attract a donation of \$1 million or more. Having a plan for using such a donation might help the donor decide to make it. An alternative plan for using such a donation would be to set up an endowment for the benefit of NATL.)
8. ~~Improve access to NATL nature trails from Cultural Plaza for those with disabilities. New boardwalk/ramp from Cultural Plaza entrance, curb dropped and all trails trimmed to 80 inches in height to be compliant with the Americans with Disabilities Act (ADA). (Trimming has been initiated and we are awaiting a quote from a contractor for the boardwalk/ramp.)~~ **Completed 2015.**
9. ~~Pavilion upgrades selected based on feedback from the NATL user survey including a white board for writing or projecting on, extra tables, lockers and potable water.~~ **Funding for white board, extra tables (including refinishing of all tables, replacement of wood on tables in NAP) and lockers from CALS. Lockers and tables have been done! Waiting on PPD for white board. Completed 2018**

B. Instituting remote access (and security) and real-time online interaction with NATL

1. ~~Update the look of the NATL website while improving its usefulness as a distance natural laboratory. This change will maintain the historical information on the website now; it will not be lost in the change—just repackaged.~~ **Completed 2012.** Website additions could include a NATL "virtual collection"/species inventory with photos and audio recordings of sounds such as resident bird, frog and insect calls for groups interested in taking virtual field trips. **Completed 2013.**
2. ~~Complete and enhance Wi-Fi coverage in NATL. With this, we could lead live tours of NATL using camera abilities built into iPads and other electronic devices. This would allow teachers and students the ability to direct the tour by asking their NATL tour guide to zoom in on subjects of interest. This would be a wonderful opportunity for our students in the ecotourism track to lead tours for students around the world.~~ **Completed 2014.**
3. ~~Install webcams in NATL at carefully selected venues. These cameras could be used by researchers studying animal behavior in NATL as well as giving access to NATL to teachers in their classrooms. Example of broadcasts: [LINK](#)~~ **Completed 2015**

4. In partnership with FLMNH, develop a program using an interactive whiteboard (e.g., SMART board) to use digital material from NATL to involve K-12 students in learning about ecological concepts and problems. Including grade-level specific, standards-based curriculum materials (field investigation activities) that can be implemented as part of school field trips or summer enrichment programs. Make available as downloadable files for use by home schooled children, scout groups and others. NATL TA Jennifer Eells is currently working on this. **In progress- Upland pine ecosystems, Invasive Species and Fire Ecology lesson plans including information, glossaries, pictures, activities and questions are ready to be uploaded to the website.**
5. Prepare pre-recorded guided tours that will be filmed and then available online for those that cannot visit NATL in person. Offer live guided tours for schools and other groups of people that would not be able to visit NATL in person due to distance from the site or disability. **In progress – Morgan and Jen will incorporate this into the environmental education project with paired videos and study guides.**

C. Enhancing the research and teaching usage of NATL

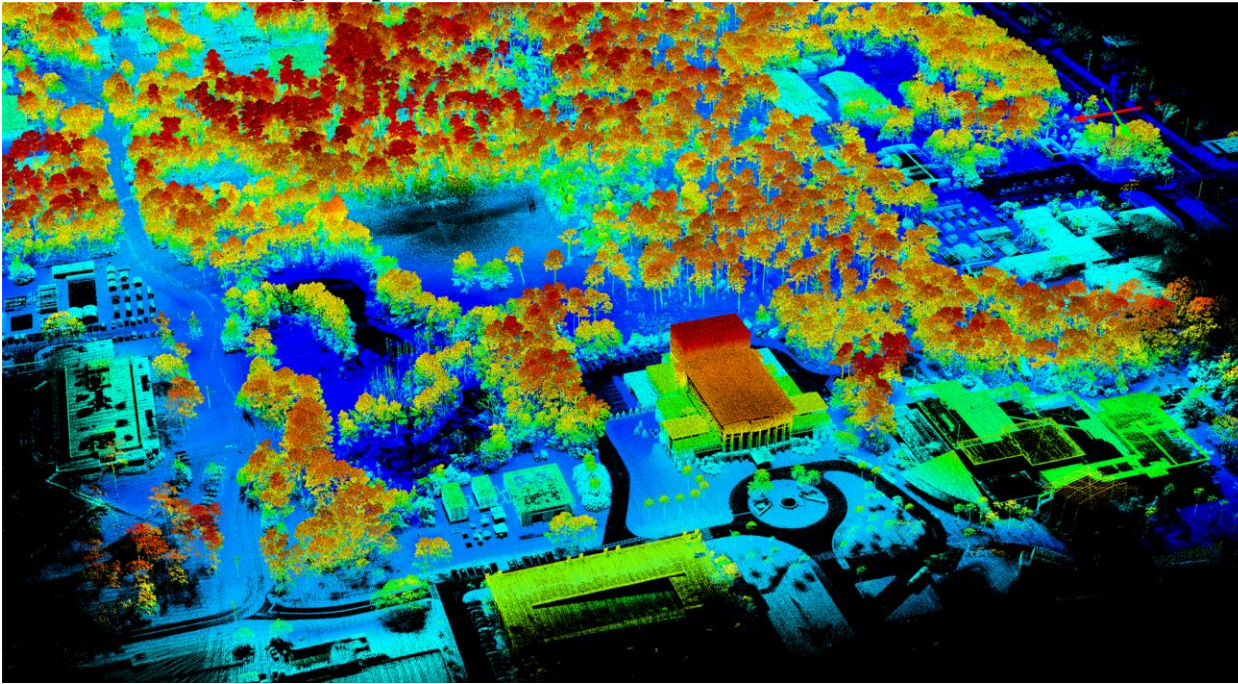
In collaboration with the School of Forest Resource and Conservation (SFRC), the NATL Operations Committee is discussing the implementation of several demonstration plots in the Restricted Area Upland Pine. Depending on the needs of SFRC and other users plots could include those that have been managed with burning, herbicides, mowing and combinations thereof, as well as different planting techniques. **Completed 2016, ongoing.**

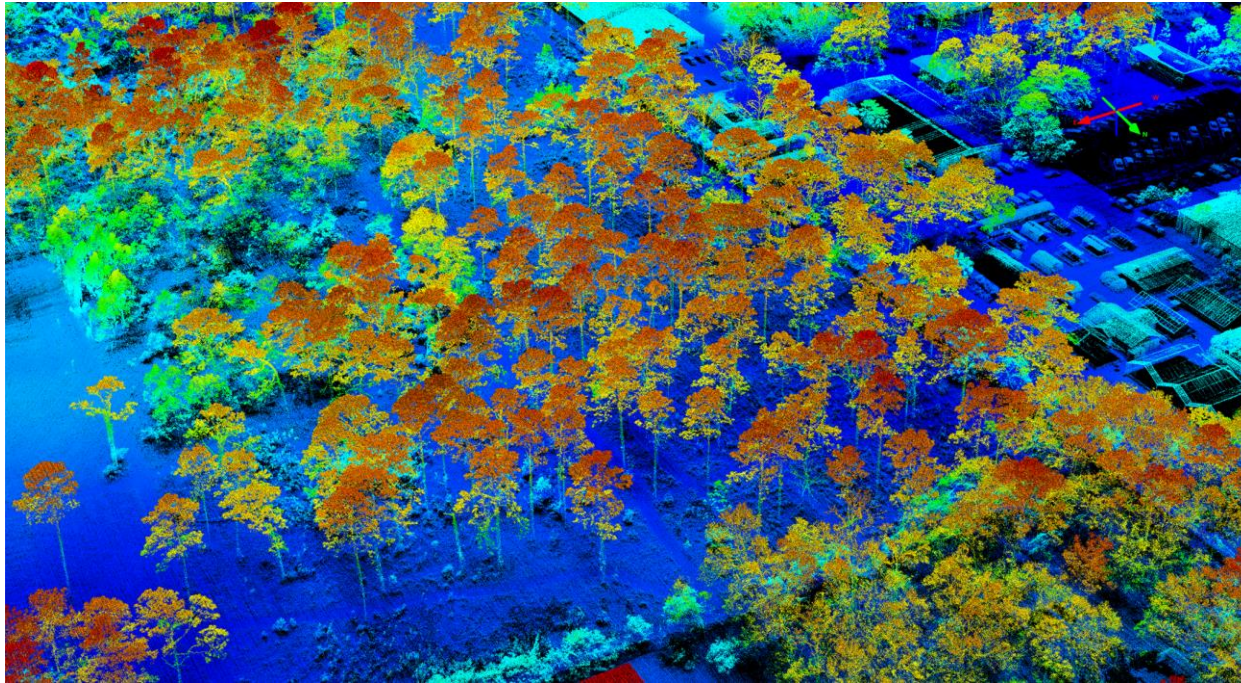
Establish a grant program costing approximately \$10,000 a year providing small grants (\$500-\$5,000 grants) to foster data collection, proposal submissions and distance curriculum development utilizing NATL. Distance curriculum developed using seed grant funding would be made freely available on the NATL website. \$1,000 per year earmarked for a grant that would support one or more citizen science projects in NATL. Citizen Science projects could fund some NATL specific ideas as well as support the partnership of NATL with national initiatives.

On February 27th 2018 the Spatial Ecology and Conservation (SPEC) Lab conducted a Drone Ecology class at NATL. According to the Graduate TA for the class, Beatriz Lopez Gutierrez: “The purpose of the forest ecology module is to develop an experimental protocol which would incorporate the use of drones to gather data such as hyperspectral, GPS could points through LiDAR, and other pertinent data in NATL. The data NATL has posted on their site has been very useful for us to understand the various ecological conditions represented

in the area and find that incorporating drones to be very promising.” They have since provided the images they captured (see below) and it has intriguing possibilities for use in NATL management.

Pic 1 & 2: Drone images captured of NATL and provided by Eben Broadbent.





Appendix 4. People Counter Summary

Three TrailMaster units are installed in NATL, one at the Academic, Cultural Plaza and Natural Area Park Entrances, respectively. These units measure NATL usage by counting the number of people passing through each entrance. The Cultural Plaza Entrance has had a TrailMaster installed since July 2010, however initial technical difficulties yielded unreliable data in the first few months. Subsequently, two additional units were installed at the Academic Entrance (June 2011) and Natural Area Park Entrance (April 2012). Figure 1 and Table 1 summarize information collected by the TrailMaster units. NATL visitors are counted twice (as they enter and exit), so all counts are divided by two to estimate the number of visitors NATL receives. Some technical difficulties related to battery failures provided unreliable data at the Academic Entrance for March, May, June, and August 2017. The Cultural Plaza Entrance and Academic Entrance for September, October and November 2017 also produced non reliable data due to equipment failure.

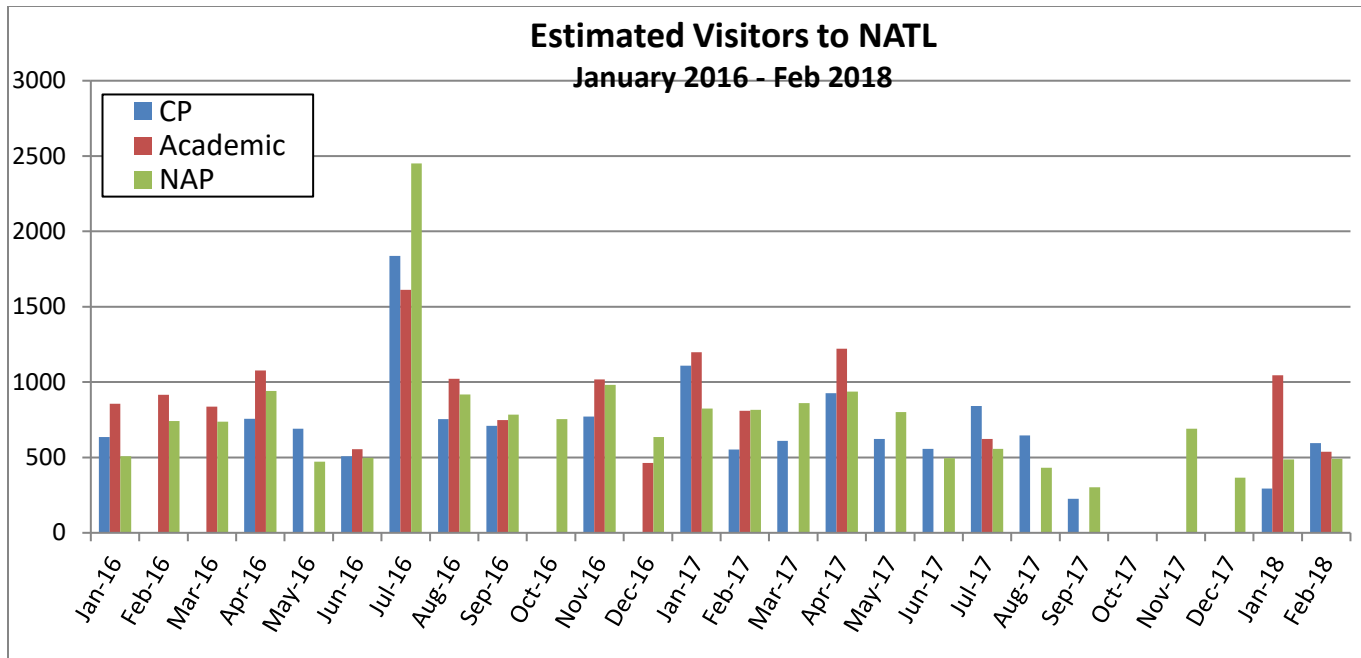


Figure 1. Summary of TrailMaster counts from January 2015 to July 2017 at the Cultural Plaza, Academic and NAP entrances. All numbers are TrailMaster counts/2 because users are counted twice, as they enter and exit.

Table 1. Summary of NATL usage estimates via TrailMaster counts. All numbers are TrailMaster counts/2 because users are counted twice, as they enter and exit. *Technical difficulties

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
CP													
2010												323.5	323.5
2011	465	456.5	527.5	636	427.5	421.5	686	526.5	282.5	365.5	329.5	299.5	5423.5
2012	355.5	411.5	529	1531.5*	312	477.5	521	582	373	696.5	705.5	543	7038
2013	673	795.5	428	443	315*	498*	486*	449*	346	379.5	279	253	3597
2014	338.5	305.5	487*	694	318	518.5	451	316	427.5	511.5	432	454.5	4767
2015	500.5	518.5	546	630	671	713.5	636	417.5	528.5	595.5	767	723	7247
2016	635.5	N/A*	N/A*	757	691.5	508.5	1837	755	710	N/A*	772	0	6666.5



On February 2nd, NATL along with the Florida Museum of Natural History co-hosted the Watch Your Step (5K) Race. NATL provided trails for the run as well as staff to help direct and encourage runners along the way. NATL chair Emma Weeks participated in the run and she was cheered on by staff!

Picture 4: NATL staff at the Watch Your Step (5K) Race: Jessica Hong, Erika Brownson, Jennifer Eells, Cory Gillis, Laura Harmon, Emily Steffes and Emma Weeks.



The Big Event will take place on April 7th and we plan to have student volunteers help remove trash as well as rocks from the old field plot D.

Table 2. Volunteer Hours September 2017-April 2018

Miscellaneous	64 hours
Tom Walker	247 hours
Laura Harmon	64 hours
Lary Reeves	160 hours
Total	535 hours

Appendix 6. Minigrant Update

The 2017-2018 minigrants are completed. We have three new mini-grants for the 2018-2019 season! More details can be found on the [NATL minigrant webpage](#). A short description and update on the past and current projects are as follows:

An inventory of NATL's resident mosses (2017) –The project resulted in a species checklist of moss species in NATL, both paper and online versions, several signs for different moss species and his final report ([Moss Final Report](#)).

Soil seed bank composition in NATL: A preliminary study (2017) –This study resulted in a booklet with photos of different species found from the seeds that were germinated which is available online ([Seed Final Report](#)).


Ground-nesting bee preference among different successional habitats (2017) - This study resulted in a list of ground nesting bee species within NATL. The group also submitted a poster (see below) and their final report ([Bee Final Report](#)).


Over 300 species of native bees live in Florida and the majority construct nests in the ground.

Common Ground-nesting Bees and Wasps in NATL

In forested habitats, ground-nesting bees and wasps are the most common pollinators.

COMMON BEE SPECIES





Striped Sweat Bee: *Agapostemon splendens*

Sweat bees are named because they are often attracted to the salts found in sweat. Most sweat bees are bright metallic green.

Sweat Bee: *Lasioglossum* sp.

Sweat bees are important pollinators for many crops such as sunflower and alfalfa. They nest underground, inside tree trunks, or in hollow wood.


Variegated Cuckoo Bee: *Epeolus zonatus*

The term "cuckoo" comes from this bee being cleptoparasitic: the female will lay her eggs on pollen masses made by other bees.



Soil emergent traps are a novel way to test where ground-nesting bees may be present in an ecosystem.

COMMON WASP SPECIES





Spider Wasp: *Anoplius* sp.

This wasp earns its name by feeding on arachnids. The wasp paralyzes its prey with its stinger. Luckily, these wasps are not typically aggressive towards people.

Velvet Ant: Mutillidae

Velvet ants are not ants but actually solitary wasps that are visitors of flowers. They receive their misnomer from the fact that females do not have wings.

Flower Wasp: *Tiphia* sp.

Adults drink nectar from flowers, but many species larva are parasitoids of beetle larvae, thus providing biological control of some pest species.

Author: Grace Cope
Co-Author: Dr. Joshua Campbell
Pictures: Jeff Hollenbeck; Lynette Schimming; Sam Droege; Eric R. Eaton; Lyle Buss, University of Florida; Jon Hart




Avian Species Richness Surveys and Checklists (2018) - The PI for the project is Zachary Holmes, the president of the student group GREBE and a student in the Department of Wildlife Ecology and Conservation. His academic advisor is Dr. Katie Sieving. The group plans to conduct avian point count surveys and fully evaluate which species use NATL throughout the year. From these surveys, they will make bird checklists to be placed in NATL so visitors can learn what species of birds they observe and if they are permanent or temporary residents. Then GREBE would like to make and implement signs stating which species are the most common in the different ecosystems located in NATL: pond, cypress swamp, field, pine savannah, or hardwood hammock.



Pic 5: Members of GREBE provided the above poster as a preview of what they will provide as a poster later.

Non-Crop hosts of agriculturally important organisms in the Natural Area Teaching Lab (2018) – The PI is Cory Penca, a dual enrolled DPM/PhD student in the Entomology and Nematology Department, representing the Doctor of Plant Medicine Student Organization. Their academic advisor is Dr. Amanda Hodges also in the Department of Entomology and Nematology. The proposed project aims to broadly survey NATL for insects, nematodes, fungi and plant pathogens that are known to impact agricultural systems. Their goal is to produce a fact sheet, available for digital and print use that highlights the interaction between natural areas and these organisms, with specific interest paid to the ecological role of non-crop plant species in supporting populations of agriculturally significant organisms.



Pic 6: DPMSO members inspecting NATL for placement of traps.

Survey and Management of Invasive Guinea Grass (2018) – The PI of the project is Emily Steffes, an undergraduate student and the outgoing invasive species intern at NATL. Her academic advisor for the project is Dr. Tom Walker. Her project will involve creation of an up-to-date map with an inventory of the grass that will aid in future surveying and monitoring of this grass. As the grass is surveyed, efforts to control it through manual and chemical means will be employed. Along with this, a management plan detailing prevention strategies and methods of control will be developed to assist future invasive species interns in potentially eradicating guinea grass.



Pic 7: Emily Steffes studies Guinea Grass in NATL.

Appendix 7. Social Media Updates

NATL's Facebook page has **1,261** Likes and our Twitter page has **1,455** Followers. Since the last NAAC meeting in September, we have gained **64** Facebook Likes and **102** followers on Twitter! The NATL Instagram account, created in June 2015, has **490** Followers, **62** more than the number of followers at the Fall 2017 NAAC meeting.

If you use social media, please follow NATL on [Facebook](#), [Twitter](#), and [Instagram](#). The NATL Operations Committee makes an effort to post several times a week about what is going on in NATL. We also love posting about visitors using NATL, so please share any pictures or observations with us on any of these social media accounts.

Appendix 8. Status of Control of Invasive Plants in NATL

Although guinea grass is still a major invasive, this year there has shown a slow regrowth of guinea grass in areas that were overgrown this time last year. A “grass walk” has been scheduled with Mike Drummond from the Alachua County Environmental Protection Department to help with identifying the various species of grasses that are found in NATL and may be invasive. Along with the slow growth of guinea grass, no mimosa has been found in the restricted upland pine yet. Last year 484 trees with either pulled or treated with triclopyr, a record year for this species.

Cory Gillis worked on clearing gridlines for NATL’s ten-year photos during fall and spring semester and uncovered many areas that had major infestations of coral ardisia. A volunteer event was held on February 16 in which over 600 plants were pulled from both the restricted and public hammock. Efforts are underway to hold subsequent volunteer events in fall rather than spring to better manage ardisia.

Top FLEPPC category 1 plants in NATL include cogon grass (*Imperata cylindrica*), coral ardisia (*Ardisia crenata*), cat's claw vine (*Macfadyena unguis-cati*), air potato (*Dioscorea bulbifera*), skunk vine (*Paederia foetida*), and Japanese climbing fern (*Lygodium japonicum*). Category 2 plants include but are not limited to paper mulberry (*Broussonetia papyrifera*), silverthorn (*Elaeagnus pungens*), and Chinaberry tree (*Melia azedarach*). More information about invasive plant management in NATL can be found on the NATL website (http://natl.ifas.ufl.edu/biota/invasive_control.php).

Table 3. The top invasive species removed in NATL. The numbers indicate how many individual plants were managed. See Appendix 2 for a more in depth table with additional species.

Species name	Common name	2015	2016	2017	2018*
<i>Albizia julibrissin</i>	Mimosa	814	161	534	0
<i>Ardisia crenata</i>	coral ardisia	959	550	1,295	980
<i>Broussonetia papyrifera</i>	paper mulberry	16	69	16	1
<i>Cinnamomum camphora</i>	camphor tree	42	802	87	5
<i>Dioscorea bulbifera</i>	air potato	1	7	24 vines	0

*Indicates the year is not over yet and thus, additional plant removal may be added in in the future.

Appendix 9. Nature trail update

We maintain our trails to a height of 80 inches to be compliant with the Americans with Disabilities Act (ADA). The NATL TAs routinely trim the nature trails and roads. Each semester, we attempt to assemble volunteer groups to help trim and pick up trash. Each nature trail is mowed by the undergraduate TA biweekly and weekly in the summer months while all over trails are mowed by Facility Services. The signs on our self-guided nature trails are updated weekly and trail sequences via Excel spreadsheets are updated monthly to reflect any changes and to help facilitate future seasonal updating of the trails. All signs are routinely cleaned while new signs are put up for new species and non-relevant signs are pulled. Any fallen tree or trail blockage will be lopped and/or chain sawed and removed. SEEP boardwalk is swept biweekly.

No SEEP boardwalk concerns at this time, although planks can be assessed for future replacement.

NATL employees routinely went out to chainsaw fallen trees and clear trails following the damage left by Hurricane Irma. Trees were cut to 6 feet for Facility Services to come in and remove. NATL's recent intern, Cory Gillis, installed three new 3' by 2' signs along the SEEP nature trail- Wetland's Bingo, Fishes of NATL, and the companion sign to the light trap. In efforts to capture 10-year photos, gridlines were cleared through NATL-west and east and restricted Upland Pine gridlines were mowed and bush-hogged.

Appendix 10. NATL Bioblitz

On October 7th and 8th NATL hosted its first Bioblitz in conjunction with the Florida Natural History Museum's Butterfly Fest. On the 7th the goal was species ID and specialists were invited out along with students to look for biota in NATL. On the 8th tours were organized in conjunction with Butterfly Fest. Forty-four bird species, three new to NATL; one mammal (white-tailed deer, of which there is at least a family of three!); 14 reptile/amphibian species; 12 fungi species; 56 plant species; and 66 insect species (including 15 mosquito species, 3 new to NATL) were identified during the event on Saturday. On Sunday a plant walk, a butterfly/moth ID walk, an insect walk and a night hike were planned. The plant walk was well attended, the butterfly/moth ID walk less so and the last two events were cancelled due to the weather. In all the event was relatively successful. Lessons learned: order less t-shirts, advertise further in advance and have a sign-up sheet so that you know who is coming!

Some of the new species we added to NATL's list of fauna and flora:

Birds: Magnolia warbler and Rock pigeon

Plants: *Clematis crispa*, *Lemna obscura*, *Azolla caroliniana*, *Persicaria sp.*, *Cladium jamaicense*

Reptiles: yellow-bellied slider

Fungi: *Russula sp.*, *Tomentella sp.*, *Postia sp.*, *Lepiota/Leucoagaricus sp.*, *Pluteus sp.*, *Panus sp.*

Insects: *Scolia dubia*, *Oncopeltus fasciata*, *Largus succintus*, *Selenisa sveroides*, *Lestes disjunctus*

Appendix 11. Oldfield Update

There was an Old-field restart of subplot BSW (1-year) in March of 2018 through double disking. Plot D (10-year) was restarted in August. The restart of Plot D (10-year) was initiated in 2015 and, in July of 2017, trees were cut and felled while the plot was cleared, mowed, and double disked by PPD in August and September. Any debris and small logs were moved to the edges of the plot. Following the clearing and disking of Plot E in September 2017, four large pines were cut and removed by Facility Services in February.

Appendix 12. Restoration of Upland Pine

Lary has completed his work on a Smilax guide for the website and its been posted for viewing ([Smilax info](#)).

In spring 2016, members of the NATL staff outlined a demonstration area to contrast three upland pine restoration treatments: burning, mowing and herbicide. The demonstration area is situated on the western end of the restricted area (see Fig. 5). Half of an area, 50 meters wide by 200 meters long, was designated to demonstrate an herbicide treatment, and the other half of the area was designated to demonstrate a mowing treatment. In addition, another segment will be allotted to the combined treatments of herbicide + fire and mow + fire treatments. Unfortunately, due to weather conditions we have not been able to burn the upland pine area in 2017 or as yet in 2018. Treatments will restart after the first burn.

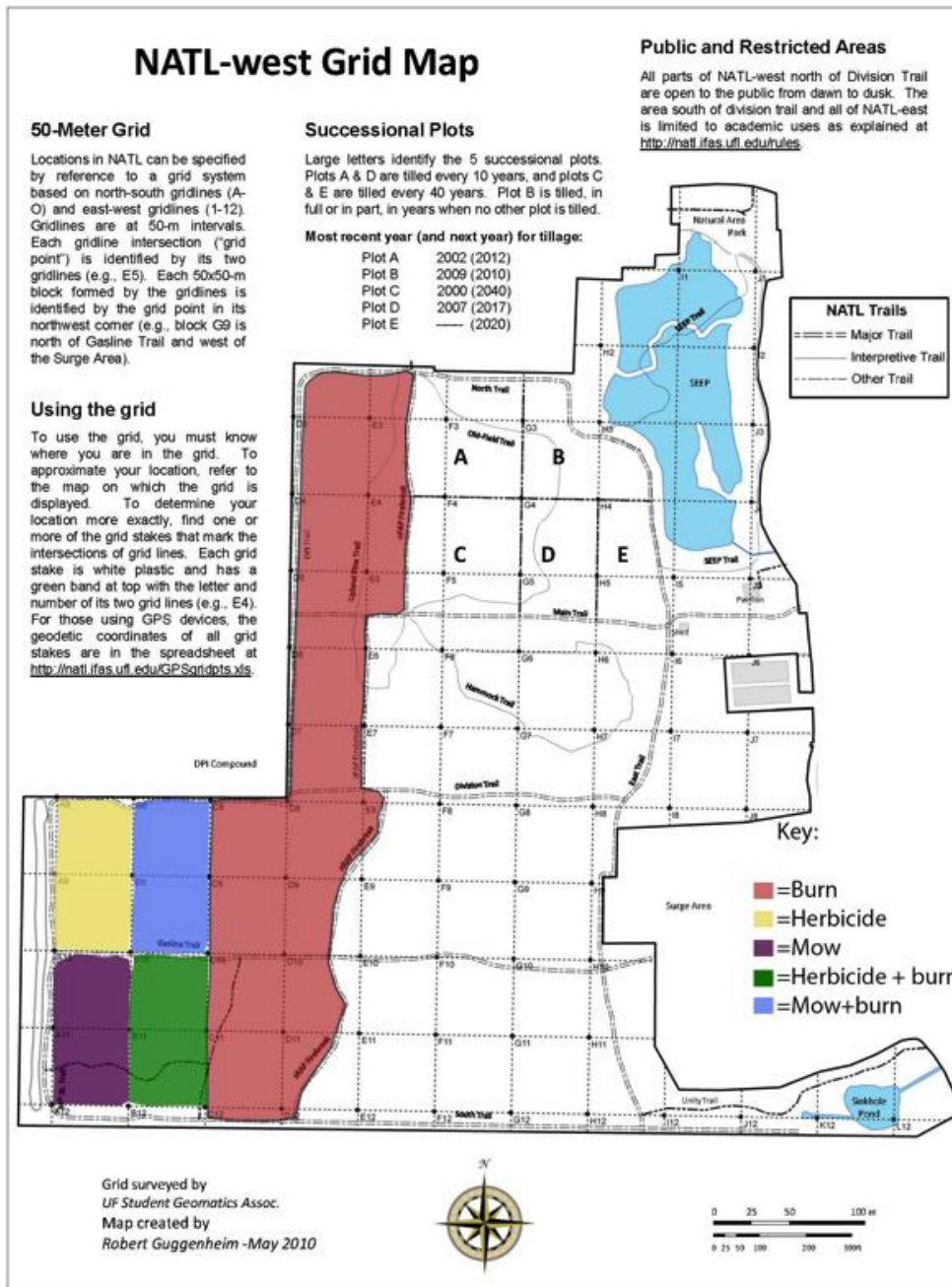


Figure 4. Map showing demo plot

Appendix 13. NAAC roster Spring 2018

NAAC roster						
The current version of the NAAC roster is at http://natl.ifas.ufl.edu/docs/NAACroster.xls						
Last name	First name	Representing	Email	Campus address	Phone (352-)	Notes
Brown	James	ENSO (Entomology & Nematology Student Organization)	jamestbrown5@ufl.edu			
Brownson	Erika	NATL Undergraduate Teaching Assistant	ebrownson@ufl.edu			non-voting
Clark	Mark	Soil and Water Science	clarkmw@ufl.edu	PO Box 110510	392-1804 ext. 319	
Crandall	Raelene	School of Forest Resources and Conservation; Fire Ecology	raecrandall@ufl.edu	PO Box 110410	273-3416	
Daniels	Jaret	McGuire Center, FLMNH	jdaniels@flmnh.ufl.edu	PO Box 110620	273-2022	
Eells	Jennifer	NATL Graduate Teaching Assistant	jeells0@ufl.edu			
Gillett-Kaufman	Jennifer	Entomology & Nematology Department	gillett@ufl.edu	PO Box 110620	273-3950	
Hansen de Chapman	Gail	Chair of Lakes, Vegetation, and Landscaping Com.	ghansen@ufl.edu			
Hong	Jessica	NATL Graduate Teaching Assistant	jessica.hong@ufl.edu			
Jacobson	Susan	Wildlife Ecology and Conservation	jacobson@ufl.edu	PO Box 110430	846-0562	
Kim	Jin-Won	Tourism, Recreation and Sport Management	jinwonkim@ufl.edu	PO Box 118208	294-1625	
Lewis	Erik	Facilities Planning and Construction	etlewis@ufl.edu	PO Box 115050	273-4011	
Nielson	Alexandra	New Invasive Species Intern	a.nielson@ufl.edu			
Prestwich	Ken	NATL Super Volunteer	kprestwi@holycross.edu	none		
Putz	Jack	Biology	fep@ufl.edu	PO Box 118526	392-3704	
Robinson	Scott	Florida Museum of Natural History	srobinson@flmnh.ufl.edu		273-1965	
Romagosa	Christina	Wildlife Ecology and Conservation	cmromagosa@ufl.edu		273-3996	
Sessa	Emily	Department of Biology	emilysessa@ufl.edu	PO Box 118526	392-1098	
Sharp	Sean	Wetlands Club	seanjsharp@ufl.edu			
Smith	Erick	Friend of NATL	erick@kestreleco.com			
Smith	Jason	School of Forest Resources and Conservation	jasons@ufl.edu	PO Box 110410	846-0843	
Smith	Matthew	Department of Plant Pathology	trufflesmith@ufl.edu	PO Box 110680	273-2837	
Steffes	Emily	NATL Invasive Species Intern	esteffes@ufl.edu			non-voting
Walker	Tom	Friend of NATL	tjw@ufl.edu	PO Box 112015	273-3920	
Weeks	Emma	Entomology & Nematology Department (NATL Chair)	eniweeks@ufl.edu		273-3954	

Appendix 14. Status of Control of Invasive Plants in NATL

The table below is a summary of some of the top invasive species removed in NATL. The numbers indicate how many individual plants were managed in each year.

Species of Invasive exotic plants in NATL: 2010 to 2018											
Ethan Carter and Tom Walker (under construction)											
Category	Worst documented	Plants or Patches Treated									
		2010	2011	2012	2013	2014	2015	2016	2017	2018	
Most threatening											
coral ardisia	Mature Plants	2009: >1200	316	81	5	7	2	2	20	33	41
<i>Ardisia crenata</i>	juvenile plants	2009: >8	ND	ND	ND	1366	2968	1150	530	548	973
cogongrass	patches treated	2005: >20	ND	17	10	7	5	3	1	0	0
<i>Imperata cylindrica</i>											
skunkvine	Major patches treated	2016:15:00	1	0	0	1	0	0	15	0	0
<i>Paederia foetida</i>	Patch remnants treated	2014: 3	1	1	0	0	3	0	0	0	0
cat's claw	new sites found	2006: 1	0	1	1	1	1	0	0	0	0
<i>Macfadyena unguis-cati</i>	sites treated	2011: 2	1	2	2	2	1	1	0	0	0
mimosa	counted, treated trees	2017: 49	ND	366	78	13	10	168	168	496	0
<i>Albizia julibrissin</i>											
air potato	Major patches treated	2009: 4	1	1	0	0	0	0	2	0	0
<i>Dioscorea bulbifera</i>	Patch remnants treated	2010: 5	5	1	ND	2	0	0	0	0	0
Japanese climbing	patches treated	2012:07:00	1	3	7	4	0	1	3	2	2
<i>Lygodium japonicum</i>											
Lesser threats											
camphortree	mature trees	2011: 7	ND	7	3	0	2	0	3	21	12
<i>Cinnamomum camphora</i>	stems	2016: 798	ND	11	31	3	2	4	798	48	1
white leadtree	mature trees	2000: 1	0	0	0	0	0	0	0	0	0
<i>Leucaena leucocephala</i>	stems	2012: 43	ND	8	43	18	15	0	0	0	0
silverthorn	mature shrubs	2012: 7	ND	ND	ND	7	1	0	0	0	0
<i>Elaeagnus pungens</i>								0	0	0	0
negundo chastetree	multistem clump	2011: 23	ND	23	2	0	0	0	0	0	0
<i>Wisteria negunda</i>										0	0
paper mulberry	mature trees	2011: 47	ND	ND	>30	ND	47	0	2	16	0
<i>Broussonetia papyrifera</i>	stems	2014: 480	ND	29	15	ND	480	2	69	0	1
chinaberry tree	mature trees	2012: 5	ND	4	5	1	0	0	0	0	0
<i>Melia azadirachta</i>	stems	2011: 9	ND	9	0	0	0	0	0	0	0
loquat	mature trees	2012: 3	ND	ND	3	1	0	0	0	0	0
<i>Eriobotrya japonica</i>	stems	2014: 30	ND	ND	7	6	30	0	5	1	0
arrowhead vine	Major patches treated	2016: 3	0	0	0	0	0	0	3	1	0
<i>Synedrella nodiflora</i>	Patch remnants treated	2009: 3	3	3	3	3	3	1	0	0	0
Chinese tallowtree	mature trees	2012: 7	ND	1	7	0	1	0	0	2	0
<i>Sapium sebiferum</i>	stems	2011: 15	ND	15	7	2	0	1	1	1	0
glossy privet	mature trees	2016: 40	ND	ND	10	2	0	0	0	40	1
<i>Ligustrum lucidum</i>	stems	2016: 92	ND	ND	5	1	ND	0	0	92	3
English ivy	Major patches treated	2017: 31	0	0	2	1	0	0	0	31	6
<i>Hedera helix</i>	Patch remnants treated	2014: 3	0	0	0	2	3	1	0	1	0
Asparagus Fern	Major Patches treated	2015: 1	ND	ND	ND	ND	ND	1	0	0	0
<i>Asparagus setaceus</i>	Patch remnants treated								0	0	0
Eradicated (more than three years without a sighting)											