Spring 2015 Meeting of the Natural Area Advisory Committee
16 April 2015, NATL Academic Pavilion, 12:00-12:50pm

In attendance:

Morgan Byron (NATL Graduate TA)
Ethan Carter (NATL Graduate TA)
Christopher Crockett (Entomology and Nematology Student Organization)
Jennifer Gillett-Kaufman (Entomology and Nematology)
Gail Hansen de Chapman (Lakes, Vegetation, and Landscaping Committee)
Alex LoCastro (NATL Undergraduate TA)
Ken Prestwich (Friend of NATL)
Jack Putz (Biology)
Lary Reeves (NATL Vice Chair)
Beverly Sensbach (FLMNH)
Sean Sharp (Wetlands Club)
Matthew Smith (Plant Pathology)
Thomas Walker (Friend of NATL, Entomology and Nematology)
Emma Weeks (NATL Chair)

12:10 PM
Introductions (Emma)
Emma began the meeting by thanking all NAAC members for coming and everyone introduced themselves.

1. Budget FY 2015 update- fiscal report on adherence to and/or deviation from 2014-2015 spending plan (Appendix 1) (Lary)
Lary explained that the fiscal plan has been on track for 2014-2015 spending to date. In fact, we are under budget for miscellaneous expenses and a new portion of money for invasive species management has been freed up now that Ethan Carter is being paid by a TA stipend. The surplus of money for miscellaneous use is due to those funds being increased recently, to help with years requiring extensive repair and maintenance costs. Unlike in previous years, this year's outstanding balance will not roll over to the next year's budget and must be spent by the end of May.

Lary asked NAAC members for suggestions on how to spend the surplus funds. Jack Putz asked if it were possible to encumber these funds, such as with an outdoor equipment store, but this is not a possibility.

Emma suggested that materials for removing aquatic invasive plants, such as waders or water boots, be purchased. Jennifer Gillett-Kaufman seconded this idea, adding that the money should be used for invasive species management and awareness. Jennifer also suggested NATL use the funds to print extra map cards and invasive species brochures, which was met with approval.

2. Preliminary draft of 2015-2016 spending plan for approval at Fall meeting (Appendix 2) (Lary)

Lary described the spending plan for next year, saying that there are to be no expected changes. The funds set aside for invasive species management that are not being used currently are to stay in the budget, as Ethan Carter will soon graduate and someone else will need to fill this position. Although this budget is usually approved in at the Fall meeting, Jennifer suggested the NAAC approve it now. Her motion was seconded and the budget was approved.

3. Updates on possible capital improvements and funding sources (Appendix 3) (Emma)

Emma was excited to share that the ADA compliant boardwalk from the FLMNH to the Cultural Plaza entrance of NATL is completed, save for the repositioning of two NATL-related signs. This was something on the wish list from the last meeting, and ended up being fully funded and completed in mid-March.

In regards to Section B (Instituting remove access (and security) and real-time online interaction with NATL), the Operations Committee is in the process of setting up the nature-viewing webcams and getting the live feed online. Jennifer mentioned that there is still money left in the grant fund for a second camera, once the first is operational.

Emma noted that we are not in a hurry to address the remaining items in Section B, but are seeking grants to better accomplish them. She suggested the NAAC keep an eye out for opportunities, even crowdfunding, if done under UF standards. Jennifer suggested advertising NATL's donation page when at public outreach events, in an effort to secure money for these projects.

Emma also mentioned the user survey she has been conducting, to gauge exactly who is using NATL and for which classes. She has received feedback from some of these users of NATL and they suggested a greater amount of seating and certain classroom accommodations (like a pull-down projection screen) be added to the wish list.

Any ideas for items to add to this list are welcome.

4. People Counter Summer (Appendix 4)

Ethan described the process by which NATL counts its visitors. In the past, there were some technical difficulties with the TrailMaster devices, but since the replacement of the most troublesome device in mid-Fall, there have been no issues.

5. Volunteer Summary (Appendix 5)

Ethan explained the graph and table shown in Appendix 5, noting that the Spring 2015 semester is not yet over, and there is a volunteer event scheduled for tomorrow (April 17) afternoon. This will change Figure 2 of Appendix 5.

6. Minigrant update and 2015 planning

Morgan profiled each of the four NATL minigrant projects approved by the NAAC in November 2014. The addition of two more projects was due to additional funding from Super Volunteer Tom Walker and the NATL chair. All four projects have been underway since the beginning of the semester and many are nearing completion. Descriptions of all four projects are below:

1. The first project was proposed by ENSO, the Entomology and Nematology Student Organization, and included placing permanent structures for nighttime insect collecting using light traps in NATL. Currently, one of these structures can be found where the SEEP and Old-Field trails meet. Special permission is needed to use this structure because it requires entering NATL after dark. So far, it has been utilized by ENSO members and students in ENY 3005/5006 Principles of Entomology. The group hopes to install at least one more light-trapping structure in another location in NATL. They are also finishing up signs to explain to visitors the purpose of these structures. This project will be completed by April 22, 2015.
2. Another minigrant project taking place this semester was undertaken by Haleigh Ray and Ashley Egelie, graduate students in the Entomology and Nematology Department. Their project involves the installation of native solitary bee and wasp habitats within NATL as part of UF Native Buzz, a citizen science project that is being undertaken by the PIs and Dr. Jennifer Gillett-Kaufman. These nesting structures can be found along the Old-Field trails and into the Hammock. Accompanying permanent signs are currently under development and will be installed in May 2015. This project was co-funded by Operation Pollinator, who matched NATL's minigrant contribution.
3. A third minigrant project, proposed by Gabe Somarriba, an undergraduate in the College of Liberal Arts and Sciences, hopes to expand the inventory of aquatic life in NATL's wetlands and improve the look and functionality of the associated webpages. Gabe has given the NATL Operations Commitee several updates, and has been busy sampling NATL's waters for the last few months with promising results! Gabe has recorded a total of six species (four in NATL East, two in NATL West), two of which are non-native. These are *Pimephales promelas*, the Fathead Minnow, and *Xiphophorus maculatus*, the Southern Platyfish. Gabe has photographed individuals of each species for the NATL website's fish page. His project is estimated to be completed in June.
4. The fourth minigrant project underway in NATL is a survey of lichens by Barry Kaminsky, a Masters student in Biology whose research is focused on lichens. According to his updates to the Operations Commitee, his project is moving along as expected.

Barry has collected more than 30 common lichen species from NATL, which he plans to photograph. As well as adding to the known biota of NATL, Barry's project will include a 10-page lichen guide to be used by classes and visitors interested in identifying these cryptic organisms. His completion date is estimated to be in July.

All four proposals – as well as those for past projects – are available on the NATL website at http://natl.ifas.ufl.edu/minigrants.php.

7. Facebook and Twitter Updates

NATL's Facebook page has 867 Likes and our Twitter page has 738 Followers. Since the last NAAC meeting in September, we have gained 205 Facebook Likes and 161 followers on Twitter! If you have a social media account, please feel free to Like NATL on Facebook, at facebook.com/UF.NATL and follow us on Twitter at @UFNATL. The TAs make an effort to post every day of the week about what is going on in NATL, usually with pictures! We also love posting about visitors using NATL, so please share any pictures or observations with us on either of these social media accounts.

8. Control of invasive exotic plants in NATL (Appendix 6)

Ethan detailed his efforts for eliminating invasive species from NATL, supplemented by the information in Appendix 5. According to Ethan, the situation is much the same as it was in the Fall NAAC meeting, and focus has been put on cogongrass, skunkvine, and Japanese climbing fern, in particular. Another species of concern, though a lesser threat, is paper mulberry.

9. Nature trail update, boardwalk concerns

Alex talked about his efforts and the efforts of the other TAs to maintain NATL's trails, keeping them trimmed to 80 inches high (in compliance with the Americans with Disabilities Act) and free of debris. He mentioned the tilling and restarting of the eastern portion of Old field Plot B in October 2014, followed by the western portion in February of this year.

He also thanked the Wetlands Club for replacing the 10 worn boards mentioned at the last meeting, and made them aware of 3 more that warrant replacing. Sean Sharp, the Wetlands Club NATL representative, knew of these damaged boards and assured us the club is planning to replace them soon.

Emma also mentioned that we were given a new shed courtesy of Dr. Billy Crow, and it is located behind the Entomology and Nematology department.

10. WiFi and webcams

Lary gave us a review of the WiFi and webcam installation that resulted from the Tech Fee grant. The WiFi is up and running, as is the electricity, and the infrastructure currently needed for the wildlife-viewing cameras is in place. There have been some technological problems with the camera, as it can be configured indoors but cannot connect when taken outdoors. This issue is currently being resolved. Lary also mentioned the second camera, which was planned to be put inside a barn owl nesting box on the Old field trail. He mentioned we may reconsider where to place the camera, since the box has been empty since its installation.

11. ADA compliance and Cultural Plaza entrance

Emma spoke about the new boardwalk that connects the Cultural Plaza entrance into NATL and the FLMNH. She mentioned efforts from 2014, when NATL organized the dropping of the curb to improve access and investigated sources of funding for path improvements. We were eventually successful at securing sufficient funds to install the desired pathway from UF ADA (Ken Osfield). As of March 2015, the steep grassy path has now been replaced with an ADA-compliant boardwalk that provides safe and efficient travel from the Cultural Plaza into NATL. We are continuing to work on this aspect of NATL's accessibility by improvements to the SEEP trail (to be completed as part of an Eagle Scout project) and maintaining the clearance above our trails. The Eagle Scout project will aim to reduce the sloping gradient of the SEEP when moving off the trail to look at signage placed near the water. This will allow those using wheelchairs to safely navigate down to view the signs.

Cultural plaza entrance before and after the installation of an ADA accessible boardwalk:

BEFORE

AFTER

12. Restoration of Upland Pine (Appendix 7)

Tom gave the NAAC an update on current efforts to improve Upland Pine infrastructure in the hopes of making it as useful for students and visitors as possible. Morgan and Tom have been working on documentation of current progress and needs.

Cabbage palms are still considered a problem in the Upland Pine ecosystem, as they encroach and create a dense understory. The seeds are easily spread by birds all over the NATL. Tom's research into the cabbage palm's life history has led him to conclude that the efforts need not be urgent – as these trees take decades to reach adulthood. The focus now is managing the Public Area for cabbage palms and providing an educational experience, as little is known about these trees. In the Restricted Area, Tom recommended keeping our options open and perhaps encouraging a graduate student to do a cabbage palm related project in the area.

Tom also stated that February 12th saw a very effective prescribed burn in the Restricted Area Upland Pine and the NATL Operations Committee is hoping for an equally effective burn in the Public Area (Upland Pine Blocks A and B). After this, flammable grasses will be planted. These are already ordered and set to arrive in June.

13. Call for volunteers/potential TAs

Emma encouraged the NAAC to recommend any motivated students to come and volunteer for NATL on a regular basis. She mentioned that there is both indoor and outdoor work to be done, so selection is not limited to only those who enjoy being outside. Jennifer added that most of the TA positions have been filled by worthwhile volunteers who showed a legitimate interest in helping NATL.

Gail Hansen de Chapman asked about whom is eligible for these opportunities, suggesting that people involved in the Master Gardener program or kids interested in nature may be interested. Jennifer said that those would make good volunteer (as long as the children are chaperoned), but that the TA spots are only given to UF students.

Wetlands Club update (Sean Sharp)

Sean gave the NAAC a brief update on their activity as a club and work with the SEEP. Sean is in charge of SEEP management and will be the Wetlands Club member of the NAAC for the next meeting as well. He said the Wetlands Club has been busy with their 15 year assessment of the SEEP, identifying plants and the like. The club is concerned with erosion at the SEEP entrance, and plan to attend to that in the near future. They have also been hosting educational events in the SEEP, including an event focused on girls in STEM disciplines, and others.

ENSO update (Chris Crockett)

Chris told the NAAC that they are currently searching for a second location to build a light-trapping device for collecting insects in NATL. They are limited by which areas provide electricity but are still favorable habitats. ENSO has been in touch with the NATL Operations Committee, who will help them choose a second location as they complete their minigrant project.

Next NAAC meeting date and time

The date and time of **Noon, Thursday, September 17, 2015** was suggested in the agenda. Please put the date in your diaries and let Emma know now if you already know that you will not be able to make it.

12:50 PM Meeting Adjourns

14. Group photo (Appendix 8)

Appendix 1: Fiscal Report for FY 2014-15

NATL Fiscal Plan for FY 2014-15					**16 April 2015 Report for FY 2014-15**	
Approved 4 September 2014						
					Receipts	
Funds available for 2014-15, excluding stipends for Graduate TAs*.					Already received	Projected
Brought forward from 2013-14			507		507	507
Projected income for 2014-15						
	Provost	6,000			6,000	6,000
	NATL endowment	4,625			3,746	4625
	Sum		10,625			
	Grand Total			**$11,132**	10,253	11,132
Spending plan for 2014-15					**Expenditures**	
					Already spent	**Projected**
Personnel (OPS)					**or encumbered**	
	Undergraduate TAs	4,322			3,573	4,322
	Control of invasives	1,320			96	1,320
	Sum		5,642			5,642
Other Expenses						
	Miscellaneous expenses	2,500			1,255	2,500
	Upland pine restoration	1,000			1,039	1,000
	2000 NT fliers	400			400	400
	2 minigrants @$500 each	1,000			1,000	1,000
	Sum		4,900		3,694	4,900
	Grand Total			**$10,542**		10,542
To be carried forward				$590		590
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 2015-16

Initial NATL Fiscal Plan for FY 2015-16				**Comments**
Final version to be approved at Fall meeting				
Funds available for 2015-16, excluding stipends for Graduate TAs*.				
Brought forward from 2014-15	590			
Projected income for 2015-16				
Provost	6,000			Assumes no change
NATL endowment	4,625			Assumes no change
Sum		11,215		
Grand Total			**$11,215**	
Spending plan for 2015-16				
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	*2,500*			
Upland pine restoration	*1,000*			Continues efforts to restore 13 acres
				of longleaf pine ecosystem
2000 NT fliers	400			Based on quote
2 minigrants @$500 each	1,000			Program attracts student proposals
				to fulfill NATL needs
Sum		4,900		
Grand Total			**$10,542**	
To be carried forward			$673	
NATL improvement fund (from online donations)				
Online donations to NATL (implemented March 2012)		$ 921		

Appendix 3: Capital Improvements Update Spring 2015 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 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 drainboard if restraints on cost, design, and context are met.
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.)
5. Natural Area Park water fountain. (Design and placement not yet considered.)
6. Dog waste sanitation stations: Signs about dogs on leashes and picking up of animal waste at three main entrances with bags for waste disposal. (Dogipot 1003-L Pet Waste Station Kit) LINK
7. 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). LINK
8. Binoculars on a permanent stand that are attached to or near the boardwalk for wildlife viewing. (If the UF Foundation approves the idea, donors might pay enough for binoculars with commemorative inscriptions to fund other items on this wish list.) (Barska® 40x100 mm Blueline Jumbo Waterproof Binoculars and Stand). LINK

9. 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.)
10. ~~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.

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
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.
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.

C. Enhancing the research and teaching usage of NATL

$10,000 a year instituting a seed money grant program ($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.

Appendix 4: People Counter Summary

Three TrailMaster units are installed at NATL's Academic, Cultural Plaza and Natural Area Park Entrances. These units measure NATL usage by counting the number of people passing through each of the three entrances. 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). Figures 1 and 2 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.

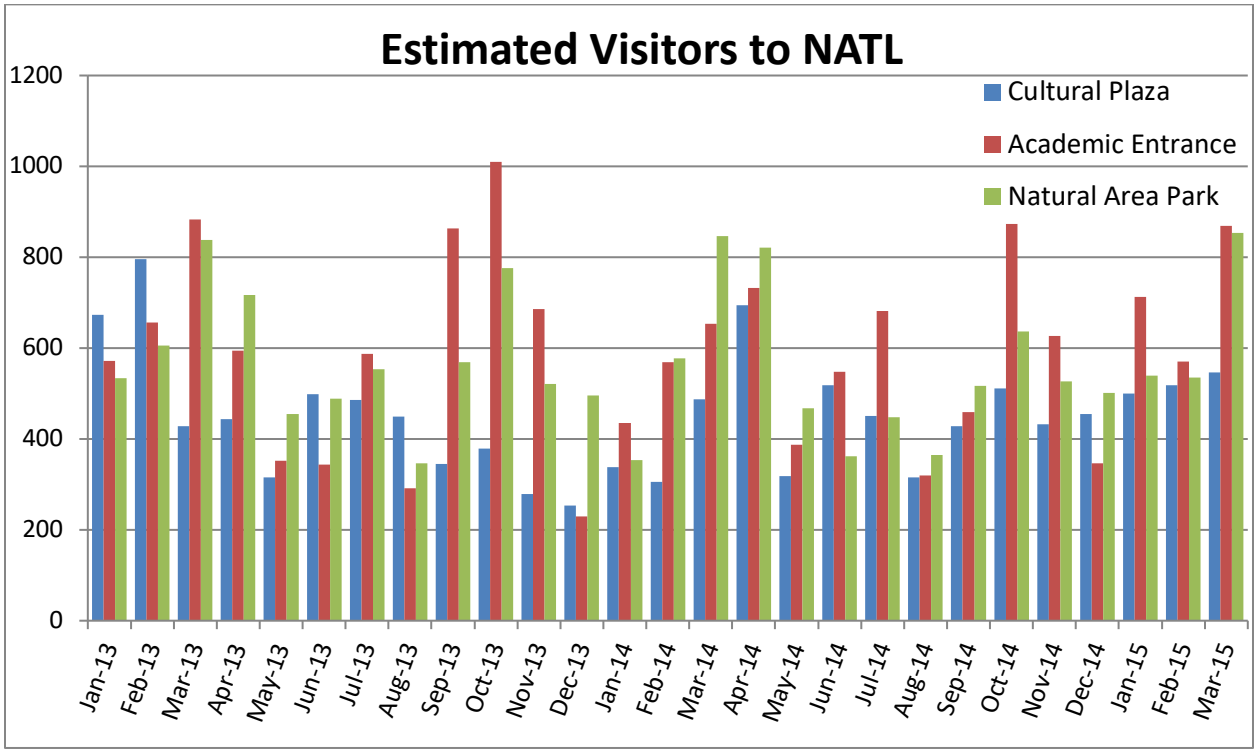

Figure 1. Summary of TrailMaster counts from January 2013-March 2015 at the Cultural Plaza, Academic and NAP entrances. All numbers are TrailMaster counts/2 because users are counted twice, as they enter and exit.

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. Unreliable counts given from May-August 2014 due to TrailMaster malfunctions were replaced with averaged values from the preceding and following years.

		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	5345
	2014	338.5	305.5	487*	694	318	518.5	451	316	427.5	511.5	432	454.5	5254
	2015	500.5	518.5	546										1565
AE	2011						676	532.5	548.5	834.5	915.5	557	345.5	4409.5
	2012	689	804	724.5	1174.5	573	719.5	501.5	608.5	1090	954.5	621.5*	248.5	8709
	2013	572	656	882.5	595	352	344	587.5	291.5	864	1010.5	686	229	7070
	2014	434.5	569.5	653	732	387.5	547.5	681.5	319.5	459	873	627	346	6630
	2015	712.5	570	869										2151.5
NAP	2012				639	471	471.5	338	356*	676.5	549	375	330.5	4206.5
	2013	533.5	605	838	717.5	455.5	488	553	347	568.5	776	521.5	495.5	6899
	2014	353	577.5	846*	820.5	467	362.5	448.5	365	517.5	636.5	527	501	6422
	2015	540	535.5	854										1929.5
												Grand Total		**73376**

Appendix 5: Volunteer summary

Since the last NAAC meeting in September 2014, NATL has hosted a number of volunteer events. Volunteers at these events worked on trash pick-up, cleaning signs, trimming tails and fences, and coral ardisia removal. These events brought 29 volunteers who worked a total of 72.5 hours. In addition, Tom Walker and Ken Prestwich collectively donated 223.5+ hours of their time to NATL (the + sign is used to signify days between August 11 and December 31, which Tom Walker volunteered but cannot find log sheets listing the hours).

Table. 2 Volunteer Events September 2014-February 2015.

November	January
11/11/14 Veteran's Day of Service volunteers help pick up trash, trim trails, and clean signs (14 people x **2.5 hrs) 35 hrs**	1/19/15 MLK Day of Service volunteers help pick up trash, trim trails, and clean signs (15 people x 2.5 hrs) **37.5 hrs**

Table 3. Volunteer Hours September 2014-February 2015.

Volunteer	Hours
Miscellaneous Volunteer Projects	72.5 hours
Tom Walker	140+ hours
Ken Prestwich	83.5 hours
Salvador Gezan	6 hours
Total	**302+ hours**

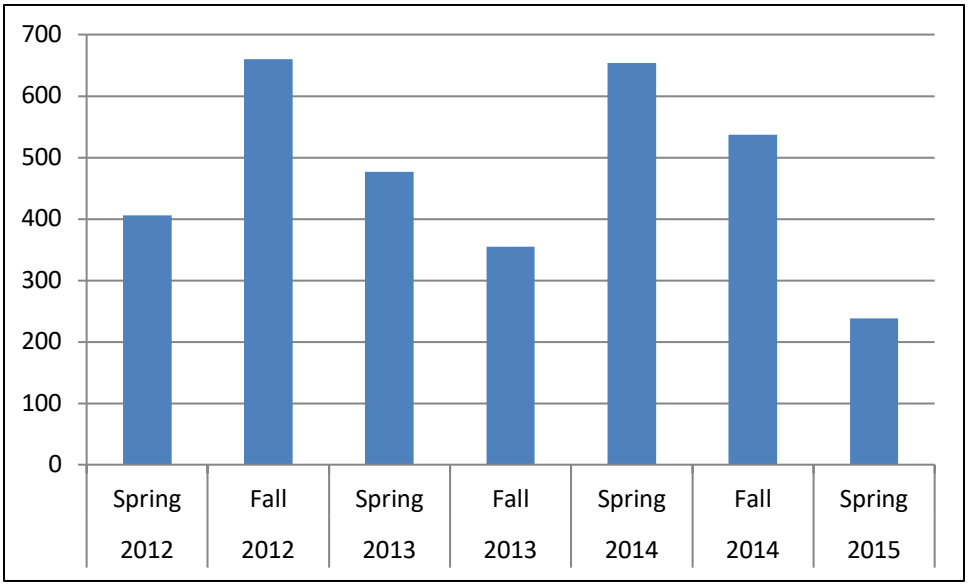

Figure 2. Volunteer hours reported at NAAC meetings - Spring 2012-present.

Appendix 6: Control of invasive exotic plants in NATL

In 2012, Ethan and Tom Walker prepared a summary of efforts to control NATL's invasive plants from 1994 to May 2012. That summary is currently on the web. Afterwards we reconsidered which species were the greatest threat to NATL and assigned the species of greatest concern to places in a new classification of NATL's invasive plants. Now we are working on a framework to report annually the status of NATL's invasive species of greatest concern in a straightforward, revealing manner. Below are examples of how this framework may operate. These are taken from a spreadsheet that has notes within certain cells to explain the details.

Table 4. Status of exotic plants in NATL 2010 to present.

Status of Invasive exotic plants in NATL: 2010 to date									
by Ethan Carter and Tom Walker **(under construction)**									
	Category	**Worst documented**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**
Most threatening									
coral ardisia	Mature Plants	2009: **>1200**	316	81	5	7	2	(0)
Ardisia crenata	juvenile plants	2009: **>8400**	ND	ND	ND	1366	2968	(0)
cogangrass	patches treated	2005: **>20**	ND	17	10	7	5	(1)
Imperata cylindrica								
skunkvine	Major patches treated	2005-07; 2009; 2012: **1**	1	0	0	1	0	(0)
Paederia foetida	Patch remnants treated	2014: **3**	1	1	0	0	3	(0)
cat's claw	new sites found	2006: **1**	0	1	1	1	1	(0)
Macfadyena. unguis-cati	sites treated	2011: **2**	1	2	2	2	1	(1)
mimosa	counted, treated trees	2011: **300**	ND	300	78	13	10	(0)
Albizia julibrissin								
air potato	Major patches treated	2009: **4**	1	1	0	0	0	(0)
Dioscorea bulbifera	Patch remnants treated	2010: **5**	5	1	ND	2	0	(0)
Japanese climbing fern	patches treated	2007: **2**	1	3	7	4	0	(0)
Lygodium japonicum								
Lesser threats								
camphortree	mature trees	2011: **7**	ND	7	3	0	2	(0)
Cinnamomum camphora	stems	2012: **31**	ND	11	31	3	2	(0)
white leadtree	mature trees	2000: **1**	0	0	0	0	0	(0)
Leucaena leucocephala	stems	2012: 43	ND	8	43	18	15	(0)
silverthorn	mature shrubs	2012: **7**	ND	ND	ND	7	1	(0)
Elaeagnus pungens								(0)
negundo chastetree	multistem clump	2011: **23**	ND	23	2	0	0	(0)
Vitex negunda								
paper mulberry	mature trees	2012: **>30**	ND	ND	>30	ND	47	(0)
Broussonetia papyrifera	stems	2011: **19**	ND	29	15	ND	480	(0)
chinaberry tree	mature trees	2012: **5**	ND	1	5	1	0	(0)
Melia azedarach	stems	2011: **9**	ND	9	0	0	0	(0)
loquat	mature trees	2012: **3**	ND	ND	3	1	0	(0)
Eriobotrya japonica	stems	2012: **7**	ND	ND	7	6	30	(0)
arrowhead vine	Major patches treated	2006: **1**	0	0	0	0	0	(0)
Syngonium podophyllum	Patch remnants treated	2009: **3**	3	3	3	3	3	(1)
Chinese tallowtree	mature trees	2012: **7**	ND	1	7	0	1	(0)
Sapium sebiferum	stems	2011: **15**	ND	15	4	2	0	(0)
glossy privet	mature trees	2012: **10**	ND	ND	10	2	0	(0)
Ligustrum lucidum	stems	2012: **5**	ND	ND	5	1	ND	(0)
English ivy	Major patches treated	2012: **2**	0	0	2	1	0	(0)
Hedera helix	Patch remnants treated	2013: **2**	0	0	0	2	3	(1)
Japanese jasamine	Major patches treated	2012: **1**	ND	ND	1	0	0	(0)
Jasimum mesnyi	Patch remnants treated	2013: **1**	ND	ND	0	1	1	(1)
Eradicated (more than three years without a sighting)								
elephant grass	active sites	1995: **2**	0	0	0	0	0	(0)
Pennisetum purpureum								

Status of Control of Invasive Plants in NATL

NATL has approximately 142 plants that are not native to Florida, but only about 25 of these are currently under strict surveillance because of their perceived potential to significantly alter NATL ecosystems. An invasive plant will naturalize on its own, and take over native ecosystems by choking out and outcompeting natives. FLEPPC (Florida Exotic Pest Plant Council) maintains a list of all invasive plants in Florida, ranking them as either category 1 or 2. Category 1 plants are the most lethal and displace native plants disrupting ecosystems, while category 2 plants can spread but have not yet necessarily altered ecosystems severely enough to be categorized as 1.

At NATL, we use both mechanical and chemical techniques to control invasive plants. A few common invasive plants that you may recognize are mimosa, Chinese tallow and camphor tree. The only invasive plant eradicated from NATL was elephant grass, however all of our documented invasive plants have been severely diminished and are controlled. We define "eradicated" as being absent with no sightings in NATL for a minimum of 3 years. There are currently 7 plants that have not been sighted in several months and no known existing infestations awaiting treatment. The common names of these species are air potato, pindo palm, silverthorn, negundo chastetree, chinaberry, wandering Jew, and Japanese loquat. It is expected that they are no longer found in NATL, but have not yet reached the 3 year mark to be classified as eradicated. Four of the remaining invasive species that cause the most concern are cogon grass, skunk vine, coral ardisia, and Japanese climbing fern, which are all category 1 (FLEPPC).

Top category 1 plants in NATL include cogon grass (*Imperata cylindrica*), coral ardisia (*Ardisia crenata*), cat's claw (*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).

Appendix 7: Restoration of Upland Pine (Tom Walker)

Enhancement of UP infrastructure.
Since the last NAAC meeting, Tom Walker, with much assistance from Morgan Conn and Ethan Carter, has worked to improve the usefulness of the NATL's blocks of upland pine for academic users. This has resulted in (1) New diameter and P-number maps for all blocks, (2) On these maps, on NATL's GIS, and on the ground, NATL's 50x50m gridblocks have been divided into 25x25m ¼-gridblocks. On the ground, metal stakes mark the four corners of every ¼-gridblock. One of these is always a labeled stake supporting a 10ft flagged metal pole; the other three corners are made conspicuous and informative by 6 ft, white PVC poles marked with a yellow, blue, or red band of color. These colors indicate, respectively, an east-west gridline, a north-south gridline, and a stake at the center of a 50x50m gridblock. If this is confusing there is an online page that shows how it works. If you want to learn more about these and other enhancements (illustrated with photos and maps of what is described above), download this docx file, with hyperlinks. It was written for instructors and students interested in using NATL's Upland Pine for class or individual projects.

Cabbage palm update.
Last fall you were offered evidence that cabbage palms were invading NATL's upland pine ecosystem. Since then, David Fox, a Ph.D. candidate in Forest Systems (SFRC), has added a new perspective to the question of how to deal with the invasion. He did this by pointing out that little is known about the rate of development of cabbage palms during the establishment ("trunkless") phase. A cabbage palm is trunkless between the germination of its seed and the development of an above ground trunk that will then grow upward with little change in diameter. The only published study of the duration of cabbage palm's establishment phase under natural conditions was in a coastal hydric hammock near Cedar Key, Florida. Kelly McPherson and Kimberlyn Williams (*Amer. J. Botany* 83: 1566-1570. 1996.) estimated that the fastest growing 1, 10, and 50% of plants would remain trunkless for 33, 42, and 59 years! On the other hand they wrote that under ideal nursery conditions, with intense watering and fertilization, growth from seed to incipient trunk was reported to occur in as little as 7 years.

The long and uncertain establishment phase under natural conditions suggests that NAAC's plan for dealing with the invasion should be to use the UP blocks in the public-area to educate students and visitors about (1) the invasion, (2) the lack of information as to development time, and (3) techniques for measuring the development of individual palms. For the time being, our plan for the UP blocks in the restricted area should be to keep them suitable for lengthy or brief studies of cabbage palm development in newly restored upland pine.

Recent and future management of upland pine.
Tom Workman managed a controlled burn of Blocks C, D, and E on 12 Feb 2015. Estimated coverage of the burn, by block was 95%, 60%, and 75%. Workman has agreed to manage a burn of Blocks A & B in April or May on the earliest date that a dependable northwest wind is

predicted and the Phillips Center has no daytime event. Planting of wiregrass and other flammable grasses in the restricted area UP blocks is planned for the summer rainy season.

NAAC roster Spring 2015

NAAC roster						
The current version of the NAAC roster is at http://natl.ifas.ufl.edu/docs/NAACroster.xls						
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NAAC Group Photo