

Project Title: Video Case Study on Pollinator Best Management Practices (BMPs)

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Abstract: The New York State Best Management Practices project has codified standards and actively demonstrates the implementation of best management practices (BMPs) for protecting water quality on golf courses. Increasing the availability of information on pollinator-related issues is a first step in expanding the project beyond water quality protection. Therefore, this project developed a video case study, filmed on a NYS golf course, to demonstrate BMPs and habitat enhancements to educate golf course staff in New York State and beyond. The case study has increased the awareness of this issue, identified BMPs for pollinators, and has been published on YouTube with promotion to reach a large state-wide and national audience.

Background and Justification:

Environmental stewardship has been a core principle of the Cornell University Turfgrass Science Program since its inception in the 1960s and its research and education programs have had significant impact in both New York State and around the world. Currently, the focus is on information organization and access through the New York State Best Management Practices (NYS BMP) project. The NYS BMP project is an innovative research and outreach education program that has codified standards and actively demonstrates the implementation of BMPs for the protection of water quality on golf courses in the state of New York in a variety of areas, such as Integrated Pest Management (IPM), nutrients, facilities, irrigation, etc.

The NYS BMP project is beginning to expand beyond water quality protection to address additional environmental stewardship that protects additional ecosystem services that can be provided by golf courses. Addressing pollinator related issues has been identified by a number of golf course superintendents throughout the state as a priority topic for NYS BMP expansion.

Objectives:

Objective 1: Increase the awareness of issues related to pollinators on the state's golf courses.

Objective 2: Identify BMPs for pollinators that can be implemented by golf course superintendents on the state's golf courses.

Objective 3: Identify candidate golf courses that can be used as case study subjects in Westchester County or Long Island to effectively illustrate pollinator BMPs and develop a 5 to 6 minute video case study that clearly illustrates these BMPs.

Objective 4: Publish the video case study on the internet and promote the availability of the case study using a variety of communication methods already established by the BMP project.

Objective 5: Project evaluation.

Procedures:

Objective 1: Increase the awareness of issues related to pollinators on the state's golf courses.

Superintendents have routinely identified more information on pollinators as one area of interest for expanding the availability of BMP information. By devoting the first video case study completed by the NYS BMP project to pollinators and using the communication methods already established by the NYS BMP project (state wide representation on the BMP committee, web site, email, Twitter, etc.) we are increasing awareness and providing educational on this topic throughout the state to all stakeholders.

Objective 2: Identify BMPs for pollinators illustrated in the case study that can be implemented by golf course superintendents on the state's golf courses.

Working with Cornell University scientists Dr. Jennifer Grant and Dr. Frank Rossi, we identified the BMPs being used at the case study site that are easily implementable for golf course superintendents.

Objective 3: Identify candidate golf courses that can be used as case study subjects in Westchester County or Long Island to effectively illustrate pollinator BMPs and develop a video case study that clearly illustrates these BMPs.

Through the Metropolitan Golf Course Superintendent Association (MetGCSA) golf course membership, we identified a subject golf course that has already implemented a number of pollinator BMPs and that has installed five bee hives on the course in two locations. The subject golf course is Rockville Links Club in Rockville Centre on Long Island.

Once a case study site was selected, an initial site visit was conducted in July 2016 by Dr. Frank Rossi, Cornell University, and Stacey Kingsbury, Project Coordinator. During the field visit, we discussed the case study outline with Lucas Knutson, the golf course superintendent, scouted filming locations, and took pictures of the study sites. Following the site visit, the script for the case study was developed. Coordination between the professional videographer, Cornell, and the golf course superintendent resulted in a September 2016 film date. The professional videographer edited the case study and after a series of reviews with edits, finalized the video case study using agreed upon production values.

Objective 4: Publish the video case study on the internet and promote the availability of the case study using a variety of communication methods already established by the BMP project.

The video case study has been published on YouTube and is being advertised on the NYS BMP web site, Twitter account, and project-related presentations. It has also been provided to the NYS IPM staff to be included on the NYS IPM YouTube channel. The completion of the case study video coincides with an updating of the web site to increase the dynamic content and promotional efforts to drive traffic to the web site, funded by a grant from the New York State Turf Association (NYSTA) which we believe will help draw an audience to the video case study.

We have also created a fact sheet on the case study using the NYS BMP template that is available for download and is being distributed at meetings, conferences, and educational workshops. In addition, we featured this case study in a presentation at the annual NYSTA conference in November 2016. Last, Cornell University developed an educational plan for the BMP project, which incorporates the pollinator BMP case study and builds upon this information to be delivered throughout the state to superintendents and other golf course staff by a variety of different communication methods.

Objective 5: Project evaluation.

In the short term, the project will be evaluated based on an analysis of the web site traffic. In the longer term, as this information is made available in workshops, meetings, and conferences, an evaluation of the number of superintendents implementing pollinator-based BMPs could be conducted by survey to determine how many golf courses have changed management practices to protect pollinators. As part of a grant from the Golf Course Superintendents Association of America (GCSAA), we are currently conducting a survey of superintendents with questions related to awareness of pollinators, habitat enhancement and management practices. This survey will be repeated in a year to measure changes in awareness and practices that are protective of pollinators. The GCSAA grant will also fund the addition of a new section devoted to pollinators and BMPs on the project web site, expected to be completed by summer 2017.

Results and Discussion:

We successfully followed the procedures above, identified the BMPs being followed at the case study subject site, and produced a video case study in four parts. We found that beyond a discussion of BMPs as originally envisioned, addressing the process of habitat enhancement and communications with club members to also be an important part of the case study.

Based on our initial site visit, we identified the BMPs as followed by Superintendent Knutson that protect pollinators at Rockville Links. After review of the draft BMP statements by Cornell University scientists, the final wording of these four BMP statements are as follows:

- Pest monitoring can help to ensure that pesticides are only used when and where their benefits are greater than the cost of the pesticide and its application.
- When pesticides are deemed necessary, an effective product with low toxicity to bees and short residual toxicity should be selected.
- Do not apply pesticides to blooming plants, including weeds, when bees might be present. Mowing before application removes blooms and reduces pollinator contact with treated nectar.
- Water in pesticides to drive product into roots for uptake, unless otherwise indicated.

After shooting film in three locations of the golf course, the length of the raw footage available to us and the amount of information we wished to convey resulted in the division of the video into 4 separate videos to reach a target length of 2-4 minutes each. These 4 videos are an introduction

and three parts. The introduction includes an overview of the case study and BMPs. Part 1 introduces the golf course and the impetus behind renovations to the golf course and habitat enhancements. Part 2 shows a newly renovated area that has been planted with natives in the grow-in phase. Part 3 shows an established native area and discusses how Superintendent Knutson communicated with his members prior to introducing bee hives to the course.

We have put these four videos together in a YouTube playlist and have begun promoting the playlist. Within the first 3 days of the video being available and promoted with one tweet, a number of retweets, and an email to the BMP committee representatives, the videos were viewed as follows: Introduction (43 views); Part 1 (42 views); and Parts 2 and 3 (32 views each).

As part of our overall focus on pollinators this year, we will continue promoting the availability of this information at every possible opportunity. For example, in addition to additional tweets and emails to superintendents with the link to the complete play list, future promotion of the case study will also promote specific information found in each video, such as:

- BMP statements (Introduction)
- how golf courses can provide habitat in an urbanized environment (Video 1)
- seeding native areas in the fall (Video 2)
- communicating with club members before introducing bees (Video 3)

Additional blog posts on pollinators will include a link to the YouTube videos and be grouped with the hashtag #pollinators. Upcoming presentations in February and March to superintendent associations in the state will include slides on the availability of the video case study. The NYS IPM program has also been provided access to the videos for incorporation into the NYS IPM YouTube channel and once posted there we will monitor the number of views on this channel as well. We will provide the NYS IPM program an update with the metric of number of views at the end of this year once more data is available.

Overall, we found the development of creating a video case study to take longer than expected. The initial site visit was a critical piece of this project because it provided the opportunity to hone the script before filming, to take pictures of areas that changed substantially between the site visit and the date of filming, and to make efficient use of the both the videographer's and superintendent's time during filming. The actual filming date could not be scheduled until two months after the initial site visit to accommodate participants' schedules.

We also found that the editing process time took longer than expected because of the amount of material filmed was more extensive than we had anticipated. Instead of significantly deleting information, we kept most of the video and added visual interest to the dialog by incorporating more pictures and other graphics than originally anticipated that represent the topics being discussed on screen, such as pictures of the established native area in full bloom, close up shots of both wild and domestic pollinators, drought maps, etc. For future video efforts, taking numerous photos and acquiring additional graphics of the golf course (such as historical photos if relevant to the case study, before/after photos, etc.) would be beneficial. Last, from a cost efficiency standpoint, as travel time and expense is a large budget item, it would be cost efficient to do several case studies at a time on a few golf courses within the same general vicinity. Based

on our experience, we believe case studies on 3 or possibly as many as 4 case studies on as many golf courses could be filmed within a three day time period.

Project Locations:

The case study video was filmed on Long Island, but the video provides information and resources relevant to any location in New York State. While we provide specific references throughout the video to NYS specific resources (such as where native plant information, list of beekeepers, a link to the NYS Pollinator Plan, etc.) much of the information is also applicable to any location outside the state as well.

Samples of Resources Developed:

NYS BMP You Tube channel playlist:

https://www.youtube.com/watch?v=s3uCL_fH6V0&list=PL0Pj9592gJ0uy2HF1VjEgHvXKQuJa_Prt

NYS BMP Twitter account: https://twitter.com/NYS_GolfBMP

Rockville Links written case study: http://nysgolfbmp.cals.cornell.edu/wp-content/uploads/2016/04/NYBMP_CaseStudyRockvilleLinksFinal.pdf

Representative Photos:



Figure 1. Bee hive at pond location from Video #1.

Video Case Study on Pollinator Best Management Practices



Figure 2. Established native wildflower area from Video #3, mid-summer.



Figure 3. Bee hives near established wildflower area.



Figure 4. Newly established wildflower area from Video #2.



Figure 5. Established wildflower area.



Figure 6. Filming of the case study video with Dr. Frank Rossi (left) and Superintendent Lucas Knutson (right).