# A Case Study in Maximizing the Use of Social Media for Outreach Programs

Athena Rayne Anderson, PhD, MEd
www.AthenaRayneAnderson.com

Study Completion Year: 2012
Self-Publication Year: 2024

## Abstract

Social media has the potential to connect even small organizations to a global audience. Use of social media can be especially beneficial for outreach programs, such as those conducted by agricultural extension agencies, libraries, nature centers, and museums. Social media allows these organizations to have a professional online presence, communicate their message, and interact with their audience, without the technical skills that were necessary with early web applications. This article is an exploration of the use of several social media platforms in the outreach efforts of an individual scientist (the author). Goals were to (1) educate the public and (2) reach a global audience. A website with a blog was integrated with YouTube videos, Twitter posts, a Flickr photo group, podcasts, interviews, book reviews, and an RSS feed to investigate the overall potential of social media for educating the public. The site reached a global audience and enjoyed meaningful public interaction and increased visitation during its lifespan. Implications are discussed for maximizing the use of social media by outreach and extension efforts.

Key Words: social media in outreach, social media in extension

## Introduction

Social media has the potential to connect even small organizations to a global audience. Social media, also known as Web 2.0, is a collection of interactive online platforms, such as blogs (web logs), podcasts, Twitter, YouTube, and Flickr. The social nature of these platforms allows users to share content with each other, contribute their own content, and interact with other content authors. In contrast to Web 1.0 technology, such as online dictionaries and static websites, social media is more informal, more interactive, and puts the power of knowledge creation into the hands of the public.

Social media is very popular; Technorati was tracking more than 1.2 million blogs on the internet, as of February 21, 2012, and the site reported "explosive growth" in the number of blogs since they started monitoring them in 2004 (Technorati, 2004). As of the same date, there were more than 38 million active Twitter accounts (WhisThis.com, 2004). YouTube reported on May 25, 2011, that it had 3 billion video views every day (YouTube Team, 2011), and that number has likely increased since that time. Flickr was reported to have 51 million registered members, and 20.6 million unique visitors in August, 2011 (Yahoo!, 2011).

The combined popularity and ease of using social media allow organizations to reach and interact with more people than has ever been possible. Use of social media can be especially beneficial for outreach programs, such as those conducted by agricultural extension agencies, libraries, nature centers, and museums. Social media allows these organizations to have a professional online presence, communicate their message, and interact with their audience, without the technical skills that were necessary with Web 1.0 applications. For instance, someone with basic computer skills can set up a free blog and publish content within minutes. Establishing Twitter and YouTube accounts is even easier.

Many types of organizations currently use social media in their outreach efforts. For instance, groups involved in health care use blogs to educate their readers about research and publications (Sublet et al., 2011), general public health issues (Sapp & Cogdill, 2010), and disaster preparedness (Wilson & Yowell, 2008). Agricultural extension agencies use blogs to educate about gardening and landscaping (Gillman et al., 2011), turfgrass management (Jones et al., 2011), integrated pest management (DiPietro & Miller, 2009), and youth 4-H programs (Ashton et al., 2010). The Bird Ecology Study Group uses their blog to inform people of bird behavior and localities, soliciting images and content from the public, and occasionally publishing their observations (Wee, 2011). Many of these blogs also feature an RSS subscription option.

The websites for many nature centers and natural history museums also have blogs through which they engage their audience. But, in spite of the popularity and potential of blogs and other social media, few outreach programs utilize the suite of available platforms to their greatest advantage. For instance, a Google search of “nature center” and “blog” on February 13, 2012 returned only 8 nature centers with blogs on their websites (Table 1). Of these, all displayed social sharing buttons (such as Facebook or Twitter), but only half offered an RSS subscription option (Table 1). None of these nature centers indicated that they were using other social media. Average post frequency during the months of August, 2011, through January, 2012 for these nature centers ranged from 0 to 6.7 per month, and all blogs allowed public comments.

**Table 1**

*Results of Google Search for “nature center” and “blog,” on February 13, 2012.*

| Organization | Location | Social Buttons | RSS | Comments | Post Freq |
|---|---|---|---|---|---|
| Catoctin Creek Park and Nature Center | Middletown, MD | X | | X | 6.7 |
| Western North Carolina Nature Center | Asheville, NC | X | X | X | 4.5 |
| Vashon Nature Center | Vashon Island, WA | X | X | X | 4.0 |
| Chik- Wauk Museum and Nature Center | Grand Marais, MN | X | | X | 2.3 |
| Pfeiffer Nature Center & Foundation | Portville, NY | X | X | X | 1.3 |
| Ogden Nature Center | Ogden, UT | X | | X | 0.5 |
| Osborne Welcome and Nature Center | Elkader, IA | X | X | X | 0.3 |
| Carpenter Nature Center | Hastings, MN | X | | X | 0.0 |

A similar search for “natural history museum” and “blog” returned only 5 sites, 4 of which displayed social sharing buttons, and 3 of which offered RSS subscription options (Table 2) .

Only two sites used more than these social media platforms. Four out of the five blogs allowed comments. One site stands out for its use of social media: the website for the Natural History Museum in London has 16 blogs with posts published almost every day among them, RSS subscription options, social buttons for each blog, and a link to their YouTube channel.

**Table 2**

*Results of Google Search for "natural history museum" and "blog," on February 13, 2012.*

| Organization | Location | Social Buttons | RSS | Comments | Post Freq |
|---|---|---|---|---|---|
| Natural History Museum | London, England | X | X | X | >30 |
| American Museum of Natural History | New York, NY | X | X | | 11.7 |
| Slater Museum of Natural History | Tacoma, WA | X | | X | 1.8 |
| Sam Noble Museum | Norman, OK | X | X | X | 0.2 |
| Carpenter Nature Center | Hastings, MN | X | | X | 0.0 |
| University of Kansas Natural History Museum | Lawrence, KS | | | X | 0.0 |

This article is an exploration of the use of several social media platforms in the outreach efforts of an individual scientist (the author). Website setup and goals are described, followed by the marketing strategies and social media used to advertise the site and encourage visitor interaction. This is followed by a report of site statistics and visitor interactions. A discussion follows that examines the utility of the social media platforms used, and the overall success of the site's outreach efforts.

# Methods

## Site philosophy

The author's primary goal was to educate non-scientists about pollinators, such as bees, bats, and moths, and their importance to our everyday lives. The author also wanted the site to be relevant to visitors from anywhere in the world, and to be viewed as a trusted source for

information about pollinators and related issues. The site was set up with a blog and several static pages, as described below.

## Site organization

The site was named "Pollinators.Info," because the author felt that this best represented the goal for the site to be a reliable source of information about pollinators. The domain .info was chosen because pollinators.com and pollinators.org were being used. The site's web address was registered as www.pollinators.info.

Initially, the site contained eight pages:

1. Home- the blog roll
2. Welcome!- a short introduction to the site and its focus
3. Author- information about the author, her education, and goals of providing accessible and accurate information
4. Links- links of interest to pollinator-related sites or resources
5. Agriculture- an introduction to the importance of pollinators to agriculture and related links
6. Gardening- an introduction to pollinator gardening and related links
7. Education- an introduction to teaching with pollinators and related links
8. Shop Here!- links to pages on Zazzle.com where logo merchandise could be purchased

Two additional pages were added within a few months of the site's launch:

1. Product Reviews- the author's reviews of pollinator-related books
2. Subscribe Here!- a description of the free weekly newsletter, benefits of subscribing, and a short subscription form.

Several types of posts were published 1-7 times per week between May 13, 2011 and February 13, 2012. All posts included a relevant image, links to related content, and related resources. For instance "Pollinator Profiles" posts featured a photograph of a pollinator and gave detailed information about its life history and the plants it pollinates (Appendix 1). "Take Action" posts gave readers ideas for making small changes on their property to benefit pollinators (Appendix 1). Interview posts showed a written dialog between the blog author and someone of interest. For instance, the author interviewed Dr. Scott Hoffman Black, the director of the Xerces Society for Invertebrate Conservation, and co-author of the book, "Attracting Native Pollinators," via email about the book and its message. Another type of post was designed to be catchy and relate to almost any viewer. The post, "Victoria's Secret loves pollinators (even if they don't realize it)" told the story of cotton pollination and that much of Victoria's Secret's products would not be possible without native bees (Appendix 1). Other posts highlighted a free

pollinator-related resource, like fact sheets, lesson plans, and brochures, and provided a link to a .pdf file of the document (Appendix 1).

Intense Debate was used as the comment platform, because it allowed visitors to ask multiple questions on every post, receive responses from the author, and interact with each other. This format also did not require visitors to login or sign up to leave comments. The author responded to all visitor comments within 7 days.

## Marketing

Pollinators.Info was launched on May 13, 2011, and announcement emails were sent to 266 nature centers, natural history museums, and botanical gardens in the USA. The site was advertised as "your source for pollinator-related information, resources, and community." Posts could be accessed via the internet or RSS feed. The author developed a logo, using Microsoft PowerPoint, and created merchandise (on Zazzle.com) such as postcards, stamps, shirts, and mugs, featuring the logo design. These items were made available through a link to Zazzle.com.

In the summer of 2011, the author sent postcards featuring the Pollinators.Info logo to 22 nature centers within a 3-hour driving distance of Athens, GA. Postcards invited recipients to visit the site, use it in their outreach activities, and contact the author if they were interested in free public presentations about pollinators.

The author emailed several online newsletters and offered to write free pollinator-related articles, and applied to be featured as Blog of the Week on the blog of Birds and Blooms magazine. A post was also submitted to the blog "Garden Grab," which showcases garden-related posts with outstanding photographs.

Google Analytics was established for Pollinators.Info to monitor site visits, starting on July 1, 2011. Two Google AdWords campaigns were conducted between July 1, 2011, and January 31, 2012, to generate interest in the site and increase site visits.

The free Pollinators.Info newsletter was first published on July 2, 2011. Initially, subscribers received the free e-booklet, "Killer Bees: An Essential Guide," written by the author. Starting in December, 2011, subscribers were also given a free chapter of the e-booklet, "Pollinated Sweets: Seasonal Desserts Made Possible by Pollinators," which was available for sale on the site, and also written by the author. This e-booklet was also listed for sale on Google Books and eLibrary.

Newsletters were published via email weekly, and included links to the week's posts, information about pollinators and/or plants from around the world, and site statistics (obtained from Google Analytics). Subscribers also received a monthly theme message, with links to several of the site's posts on a particular topic (such as beetles).

The Pollinators.Info Twitter account was created on July 21, 2011. Several tweets per week alerted subscribers to new posts and included links to each. On July 23, 2011, the author created a YouTube channel to showcase short videos of pollinators (http://www.youtube.com/user/pollinatorsinfo, no longer available). Video reviews of pollinator-related books were added to the channel soon after its launch.

On August 1, 2011, the first podcast was made available, and featured an interview with a pollinator scientist and a free downloadable transcript. Podcasts were available on the first of each month thereafter. The Pollinators.Info podcast feed was added to the podcast search sites TeachOutLoud, Podfeed.net, and Digital Podcast. The author was interviewed about Pollinators.Info by Julie Tennis, the author of the blog, BeeMentor.com, on November 8, 2011.

On January 29, 2012, the author created a Flickr photostream to showcase her pollinator-related photographs and promote the site (http://www.flickr.com/photos/pollinatorsinfo/, no longer available). On February 10, 2012, the author started the "Pollinators Info bumble bee photo group" on Flickr, with the goal of collecting bumble bee photos from anyone, anywhere, to document bumble bee ranges and phenology, and promote Pollinators.Info. Announcement emails about the photo group were sent to 51 nature centers and natural history museums in the USA and UK, inviting them to participate as part of their outreach activities (http://www.flickr.com/groups/bumbles/, no longer available).

## Results

A total of 240 posts were published in 34 categories between May 13, 2011 and February 13, 2012. Twenty-six of these posts contained links to free downloads. Five organizations requested pollinator presentations , and three online newsletters accepted guest articles from the author in 2011. Pollinators.Info was featured as Blog of the Week on the blog of Birds and Blooms magazine on September 9, 2011 (http://birdsandbloomsblog.com/2011/09/09/blog-of-the-week-pollinators-info/, no longer available). Garden Grab featured the post "Plant Profiles: Barrel Cactus" on their site in 2011, (no longer available).

Pollinators.Info received a total of 91 legitimate (non-spam) comments between May 13, 2011 and February 13, 2012. Visitor comments were often in the form of questions to the author, or

were in response to a question posed by the author in a post. Visitors also emailed the author directly with comments or questions.

According to Google Analytics, Pollinators.Info received a total of 10,246 visits from 8,028 unique visitors (ISP addresses) between May 13, 2011 and February 13, 2012. Site visitation varied per month, (Fig. 2) with the lowest in October, 2011, and the highest in November, 2011. Site visitors arrived from every major region in the world, from all continents, and 131 countries (Appendix 2). Pollinators.Info was in the top 100 natural history blogs in the world on the Nature Blog Network on February 13, 2012 (number 86 out of 551 in the Natural History category, and number 348 out of 1,953 in all categories). The site rose in Google page rank during its lifespan, and was within the first 5 sites listed for several keywords as of February 21, 2012 (Table 3).

**Table 3**

*Pollinators.Info Google page rank for target keywords, as of February 21, 2012.*

| Keyword | Rank |
|---|---|
| small mammal pollinators | 1-4 |
| butterfly pollinators | 1-3 |
| wasp pollinators | 1 |
| beetle pollinators | 1 |
| reptile pollinators | 1 |
| mammal pollinators | 2-3 |
| stingless honeybees | 2-3 |
| honeycreeper pollinators | 2 |
| reptile pollination | 2 |
| pollinator gardening | 2 |
| moth pollinators | 3-4 |
| bat pollinators | 3 |
| bird pollinators | 3 |
| fly pollinators | 3 |
| endangered pollinators | 5-6 |
| hummingbird pollinators | 5 |

Between May 13, 2011 and February 13, 2012 there were 20,363 page views, with an average number of pages viewed per visit of 1.99. Visitors spent an average of 2min, 30s on the site. Of the total visits, 621 (0.06%) were from mobile devices of 58 types. The most common method of finding Pollinators.Info was via Google keyword search. The most visited page was the one giving information about the author (Author), and the most visited post was “Book Interview: Bee Basics.”

The use of Google AdWords resulted in increased site visitation during two ad campaigns. One campaign advertised the post, “Victoria’s Secret loves pollinators (even if they don’t realize it)” during July, 2011. This campaign resulted in a peak of 173 visits on July 5, which was higher than the total number of visits during the 5 days after the end of the campaign (164). A second ad campaign, directing people to the site so they could learn how to help pollinators, resulted in a peak of 133 visits on December 11, 2011, which was higher than the total visits during the 3 days following the end of the campaign (115).

A total of 188 people were subscribed to the newsletter on February 13, 2011, and 10 people (0.05%) had unsubscribed. An average of 46% of subscribers opened the weekly newsletter, and 54% was the highest open rate recorded. Newsletter subscribers came from 14 countries (Table 4), with the highest numbers from the United States. Not all subscribers were from primarily English-speaking countries. The number of newsletter subscribers increased continuously during the months of July, 2011 through January, 2012 (Fig. 3).

**Table 4**

*Countries in which Pollinators.Info newsletter subscribers lived.*

| Country | Number of Subscribers |
|---|---|
| United States | 126 |
| unknown | 34 |
| Canada | 6 |
| India | 4 |
| United Kingdom | 2 |
| Australia | 2 |
| Ireland | 2 |
| New Zealand | 1 |
| Thailand | 1 |
| Iran | 1 |
| Malaysia | 1 |
| Lebanon | 1 |
| France | 1 |
| South Africa | 1 |
| Costa Rica | 1 |

As of February 13, 2012, a total of 92 tweets were sent from Pollinators.Info, and 115 people were following the site on Twitter. The Pollinators.Info YouTube channel contained 17 videos and received a total of 1,098 views. The Flickr photostream contained 73 photos, and had been viewed approximately 55 times. The Flickr Bumble Bee Photo Group had 10 members, and the

group photo pool contained 5 photos from the author and 8 from members. A total of 6 podcasts were published, the transcripts of which were available on the site.

## Discussion

The combined use of several social media platforms met the goals for Pollinators.Info. The primary goal was to educate the public, and visitor comments and Google page rank increases attest that the site was used as a source of information about pollinators. Another goal for the site was that it would reach an international audience, which was accomplished, based on reports from Google Analytics. Finally, the author wanted visitors to view the site as trustworthy. This is more difficult to measure, but comments left on the site and in emails to the author indicate that visitors believed they could trust the site's content.

The variation in site visitation across months was most likely due to posting frequency in all but one instance. According to Rowse and Garrett (2008), high site visitation is most strongly correlated with high post frequency and regularity in timing of posts. Post frequency on Pollinators.Info was lowest during the month of the lowest site visitation (October). However, site visitation in December was low, without a corresponding low post frequency. This could be the result of potential visitors focusing on holiday shopping and travel, rather than visiting informational blogs.

Maintaining a high blog posting frequency is time- consuming. Each post on Pollinators.Info required 10 - 60 min to complete. Maintaining other social media platforms can also be time-intensive. These time commitments are a reasonable explanation for the low post frequency found among outreach blogs online. Without a regular posting schedule, a blog will be less likely to show up in Google keyword searches, and will be more difficult for potential visitors to locate.

Visitor comments on Pollinators.Info increased in frequency between May 13, 2011, and February 13, 2012. However, comment frequency was still less than one per week by February, 2012. This is possibly due to the youth of the site, and the corresponding low visitor numbers. Although the site experienced increased visitation in its 9 month lifespan, the average daily visitor numbers were low. Pollinators.Info received an average of approximately 60 visits per day in February, 2012. This is low compared to other natural history blogs on the Nature Blog Network that receive an average of more than 1,000 visits daily. Rowse and Garrett (2008) stated that an average daily visitor number of 1,000 can take years to achieve.

The number of countries visiting Pollinators.Info was a surprise, considering that the site is written in English. However, free online translation sites (like Google Translate) allow visitors to

read almost any site in their own language. The author attributes this international interest to posts on pollinators from all over the world.

An average visit duration of 2 min 30 s indicates that visitors were interacting positively with Pollinators.Info. Rowse and Garrett (2008) suggested that visit duration is an indicator of the usefulness of a site, and that visits longer than 1 min are above average. Pollinators.Info newsletter subscriptions, Twitter followers, and YouTube and Flickr views increased during their lifespan, which also suggests that the public was interested in the site's contant and in continued interaction with Pollinators.Info.

Pollinators.Info was short-lived, but the results of frequent posting and integrating several social media platforms were favorable. At the time of its cancellation, the site was growing, based on average daily visit numbers, increased newsletter subscribers, and an increase in visitor comments. The author attributes this growth to the integration of several social media platforms. First, a high weekly blog post frequency makes Pollinators.Info more likely to be shown among search engine results. The YouTube channel, Twitter feed, and Flickr stream were prominently advertised on the site, encouraging use of those platforms. Also, the profiles for Pollinators.Info on YouTube, Twitter, and Flickr direct readers back to www.pollinators.info to learn more about pollinators.

In this manner, Pollinators.Info was advertised not only when someone performed a keyword search for a pollinator, but also every time they found the site's tweets, videos, or photos through searches for those media. For instance, an internet user searching for information about bumble bees might not see the blog for Pollinators.Info in their search results, but they might see photos or videos of bumble bees from the Pollinators.Info YouTube channel or Flickr photostream, and be directed to the site via those media.

Social media platforms are increasing in popularity. This, coupled with the ease with which they can be established and maintained, makes them ideal for meeting outreach goals. There is a need for translation between the scientific and lay communities that could be filled with outreach activities that use social media. For instance, blogs can make science topics more accessible to the lay public (Miller & Pole, 2010; Minol et al., 2007). According to Bonetta (2007), science blogs are important because they provide the lay public with personality and authoritative content, which are also valued by readers.

These results support the suggestion by Rowse and Garrett (2008) that integration of social media is one key to blog success. In the case of Pollinators.Info, blog success was measured by increases in traffic, comments, subscribers, followers, and views of photos and videos. These

are of direct benefit to the public, via education and free resources. However, most outreach blogs online appear to be missing the opportunities offered by social media. Outreach programs are encouraged to determine which social media platforms work best for them, then integrate them to reach, and engage with, a larger audience.

## Acknowledgements

The author thanks Ron Carroll, Keith Delaplane, Jim Affolter, Laurie Fowler, Jim Porter and Cathy Pringle for their support and guidance during this research.

## Competing Interests

The author has no competing interests to declare.

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## Figures

Figure 1. Monthly site visitation for Pollinators.Info from July 1, 2011 through January 31, 2012.

Figure 2. Increase in number of Pollinators.Info newsletter subscribers from July 1, 2011 – January 31, 2012.

# Figures

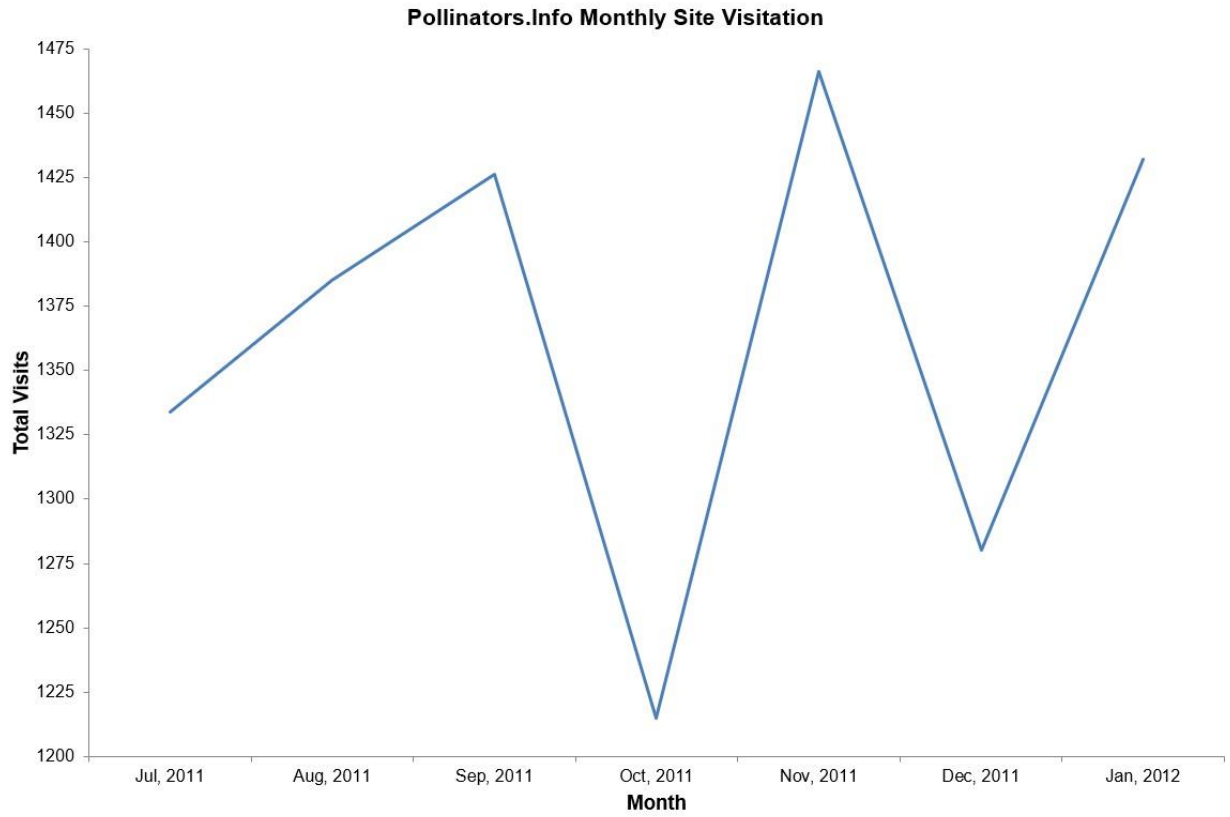


Figure 1. Monthly site visitation for Pollinators.Info from July 1, 2011 through January 31, 2012.

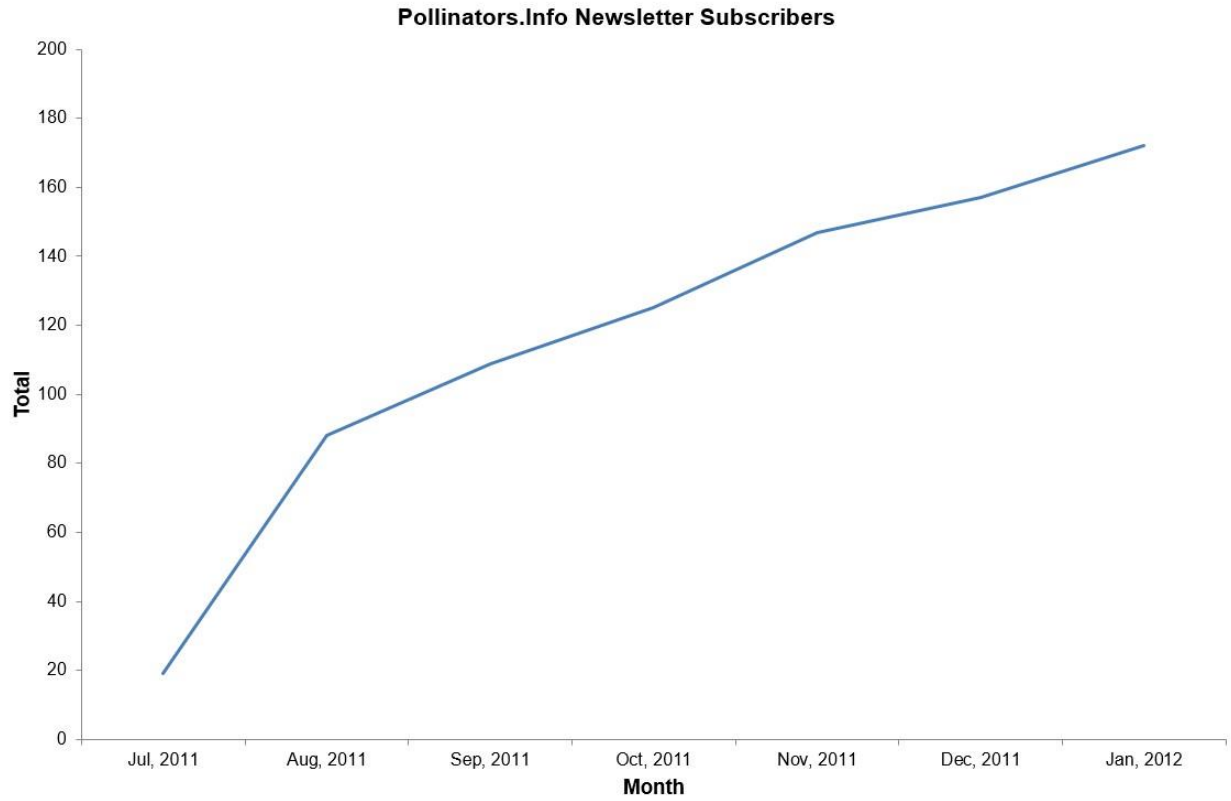


Figure 2. Increase in number of Pollinators.Info newsletter subscribers from July 1, 2011 – January 31, 2012.

# Appendix 1 - Post Examples

## Pollinator Profile: Round Island Skink

Photo © Dennis Hansen

Vulnerable!

The Round Island skink, also known as Telfair's skink, and *Leiolopisma telfairii*, was once endemic to Mauritius and its islets. It is now found only on the 373-acre (151ha) Round Island, off of Mauritius' North coast.

Round Island skinks are the largest lizard species on the island, reaching about 12-15" (30-40cm) from nose to tail. Adults use their strong legs to dig burrows in which they hide or nest, usually in vegetated habitats. These skinks tend to spend most of their time on the ground, and are active primarily during the day.

Round Island is one of the last strongholds of a palm savanna habitat that was once also present in the lowlands of northern and western Mauritius. According to David Bullock (see citation below), this habitat contains some of the world's rarest palms and reptiles. The Round Island skink is now rarely found outside this unique habitat.

The Round Island skink is omnivorous, but is an important pollinator for palms and other plants native to the island. The individual in the photo above is resting on a palm, and you can see yellow pollen dusted on the top of its head.

Invasive rats, rabbits, and goats are largely to blame for the destruction of the palm savanna habitat on Mauritius. Like many other endangered species, habitat destruction has been one of the greatest threats to the Round Island skink. The International Union for Conservation of Nature (IUCN) has listed this skink as Vulnerable since 1986.

Round Island has been better preserved than other islets, mostly due to its greater distance from the mainland. I call it a conservation success story that invasive rats, rabbits, and goats have been eradicated from the island. According to Angelo Pernetta and colleagues (citation below), the Round Island skink might soon be reintroduced to islands on which it was extirpated.

The history and conservation of the Round Island skink are examples of the connections between plants and their pollinators. Read more pollinator stories in the Pollinator Profiles category!

Reptiles are not common as pollinators around the world, but their stories are fascinating! Read more in the Reptiles category.

Bullock, David. 1986. The ecology and conservation of reptiles on Round Island and Gunner's Quoin, Mauritius. Biological Conservation 37:135-156.

Pernetta, Angelo P., Diana J. Bell, and Carl G. Jones. 2005. Macro- and microhabitat use of Telfair's skink (Leiolopisma telfairii) on Round Island, Mauritius: implications for their translocation. Acta Oecologica 28:313-323.

Have you seen reptile pollinators? Share your story with us in the comments below!
*Many thanks to Dr. Dennis Hansen for allowing me the use of his photograph!*

If you'd like to learn more about reptiles on Mauritius, give this book a try: Amphibians and Reptiles of Madagascar, the Mascarene, the Seychelles, and the Comoro Islands. You can order your copy now by clicking on the title or the cover image below!

## Appendix 1 - Post Examples

### Take Action! Little ways you can help pollinators- #6

Use natives!

Pollinators get the most benefit from native plants, no matter where you live. There's a lot of research to back this up- native plants are better for pollinators than non-natives. Here are a few reasons why:

- Native plants are more recognizable to pollinators as food sources.
- Native plants tend to provide more nectar and pollen than ornamental varieties.

Photo © Athena Rayne Anderson 2011

- Native plants are part of your local ecosystem, and establishing them can also provide shelter for pollinators.

Native plants are also better for YOU, because they're easier and less expensive to maintain. They are adapted to your local climate, soil, and light conditions, so don't need extras like irrigation and fertilizer.

Do you grow natives instead of non-natives? What's your opinion about replacing non-native plants with native plants in gardens and public places to benefit pollinators and other wildlife? Share your ideas with us below!

This post is in a series, and you can read the others here:
Use native grasses
Don't mulch
Keep something blooming
Minimize chemical use in your yard
Start a pollinator garden plot

Find out more ways you can help pollinators in the Actions and Gardening categories!
Get FREE STUFF and weekly site updates when you subscribe to the free pollinators.info e-newsletter!

Get to know your native plants with a Peterson Field Guide! This series of guides is one of my favorites for just about everything! For a group as large as "wildflowers," Peterson's guides are divided into regions. Check out the one for the northeastern and north-central US here: A Field Guide to Wildflowers. Get your copy now by clicking on the title or the cover image below!

## Appendix 1 - Post Examples

### Victoria's Secret loves pollinators (even if they don't realize it!)

Have you ever seen one of these?

Photo © ChriKo 2006

How about one of these?

Photo © Athena Rayne Anderson 2011

Well, ok, what about these?

Ah-hah! So you've seen the panties, huh? Well, now that I have your attention, check this out:


Photo © ChriKo 2006

+


Photo © Athena Rayne Anderson 2011

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What's the mystery flower? When I was growing up, it was... "the fabric of our lives." Give up? It's COTTON!

Even though there are other materials added to our clothes sometimes (think polyester and spandex), most of what we wear nowadays is still made of cotton. I mean, it's hard to beat your favorite pair of jeans, right?

Cotton flowers are pollinated by a lot of animals, especially bees. After pollination, the ovary and seeds develop. After a while, the cotton boll (fruit) pops open to reveal the white fluff that we turn into denim, napkins, pillows, and... panties!

Can I get three cheers for pollinators?!

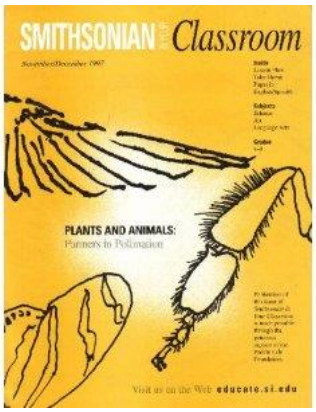
Know of another common product that depends on pollinators? Share it here!

If you liked this post, you might also enjoy the Bees and Agriculture categories and the Agriculture page. If you really liked it, subscribe to the free pollinators.info email newsletter and get FREE STUFF!

Learn about the importance of pollinating bees and how you can contribute to their conservation- order your copy of Attracting Native Pollinators now by clicking on the title or the cover photo below!

# Appendix 1- Post Examples

## Smithsonian Pollinators Curriculum: free download!




The Smithsonian In Your Classroom program (from the Smithsonian Institution) has a fun, free, curriculum to teach kids about pollinators!

The curriculum is called: Plants and Animals: Partners in Pollination, and it features the following:

a detailed introduction for you, the educator
3 complete lessons for grades 4-9
printable worksheets and diagrams
resource list for more information

Just click on the curriculum title above to download it for free. You'll need Adobe Reader to see the file, but don't worry- download the Adobe Reader for free here.

Have you used any of these lessons? Offer your critique below so we can learn from you!

Get more free stuff in the Downloads category, and find more educational resources on the Education page!

Get FREE STUFF and weekly site updates when you subscribe to the free pollinators.info e-newsletter!

Find the answers to all your pollinator questions, get to know your native bees, AND learn how to plant a pollinator garden in the Xerces Society's amazing guide, Attracting Native Pollinators. Get your own copy now by clicking on the title or the cover image below!

# Appendix 2 - Site Visitor Countries

Algeria
Anguilla
Antigua and Barbuda
Argentina
Aruba
Australia
Austria
Azerbaijan
Bangladesh
Barbados
Belarus
Belgium
Belize
Bermuda
Bolivia
Boznia and Herzegovina
Brazil
Brunei
Bulgaria
Cambodia
Cameroon
Canada
Chile
China
Colombia
Costa Rica
Croatia
Czech Republic
Denmark
Dominica
Ecuador
Egypt
El Salvador
Estonia
Ethiopia
Finland
France
French Guiana
Georgia
Germany
Ghana
Greece
Guam
Guatemala
Guyana
Hong Kong
Hungary
Iceland
India
Indonesia
Iran
Iraq
Ireland
Isle of Man
Israel
Italy
Jamaica
Japan
Jersey
Jordan
Kazakhstan
Kenya
Kuwait
Laos
Latvia
Lebanon
Libya
Lithuania
Luxembourg
Macau
Macedonia
Malaysia
Maldives
Mauritius
Mexico
Mongolia
Morocco
Myanmar
Namibia
Nepal
Netherlands
New Zealand
Nicaragua
Nigeria
Norway
Oman
Pakistan
Panama
Paraguay
Peru
Philippines
Poland
Portugal
Puerto Rico
Qatar
Réunion
Romania
Russia
Rwanda
Saint Vincent and the Grenadines
Saudi Arabia
Serbia
Singapore
Slovakia
Slovenia
Solomon Islands
South Africa

South Korea
Spain
Sri Lanka
Sudan
Sweden
Switzerland
Syria
Taiwan
Tanzania
Thailand
Trinidad and Tobago
Tunisia
Turkey
Uganda
UK
Ukraine
United Arab Emirates
Uruguay
US
Uzbekistan
Venezuela
Vietnam
Virgin Islands
Zambia