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Snapping Biodiversity: Documenting and Sharing Natural History using Smartphones and Social Media

Kimberly M. Kellett

[1]Georgia State University – Perimeter College, Life and Earth Sciences, 2101 Womack Rd., Dunwoody GA 30338 USA
(**kkellett@gsu.edu**)

Students are on their phones constantly – why not incorporate their love of snapchatting and hashtagging into a learning activity? This is a scavenger-hunt style exercise that allows students to document and share their natural history discoveries – biodiversity, adaptations, biological interactions – with their family and friends (and you) through photographs and videos. This activity will reinforce material that students have learned, give them opportunity to expand their knowledge, and emphasize the importance of science communication! There are a variety of ways to implement this activity in their own courses – whether it is a semester-long project, a lab activity, or a homework assignment. This activity is appropriate for any biology course that includes the topics of biodiversity, organismal evolution, and/or ecology.

Keywords: biodiversity, ecology, social media, photography

Link to Supplemental Materials: **http://www.ableweb.org/volumes/vol-40/38_Kellett**

Introduction

In introductory Biology courses, students often learn about a variety of different taxa, ecological phenomena, and organismal interactions. However, they may struggle to make connections between what they see in lecture slides during class, and what they see at home in their yards, at parks, or enjoying outdoor recreation. What they learn in introductory Biology (especially for non-Majors) may therefore be soon forgotten after the exam (or even before the exam). This activity presents a way for students to reinforce and recall what they have learned in Biology class, practice their observation skills, and learn about various adaptations that organisms have by taking photographs and posting them with detailed captions on a private Facebook page designated specifically for your course. Students enjoy the social and competitive nature of this "scavenger hunt" style activity, and may even begin noticing and photographing plants, insects, and more in their daily lives.

The activity presented here is a general outline, and can be modified to fit a variety of low-stakes assignments such as a semester-long (or few weeks long) ongoing homework assignment, an hour-long review activity, or an assignment that goes hand-in-hand with a field trip or outdoor lab. Although best-suited for non-majors, this activity could also be incorporated into a Majors Biology lab (perhaps in addition to a field-based outdoor lab).

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Student Outline

Objectives

- Document and identify representatives of various taxa
- Document and identify various ecological interactions
- Describe adaptations to environment

General Guidelines

Throughout the course, you'll be responsible for uploading and captioning photos to the appropriate albums on our class's Facebook page. The albums are as follows:

1. Plants (10 photos total)
2. Mollusks (5 photos total)
3. Arthropods (Insects & others) (10 photos total)
4. Chordates (5 photos total)
5. Ecological Interactions (4 photos total)

For each post, you should do your best to post DIFFERENT organisms than you've already shared. You should also try (I realize this won't be perfect) to post different organisms from your classmates. Our goal is to represent as much biodiversity as possible in our albums, and no one wants to see 4 different pictures of the same exact thing.

Your organism should be the FOCUS of the photo (i.e. no selfies or group photos.) I realize you aren't professional photographers, but spend time to try and take as high-quality photos as possible. For things like plants, and slow moving insects, this shouldn't be a problem! Mammals and birds might be a bit trickier… For plants, try to include as much of the plant as possible, not just the pretty flower, but the leaves and stem as well.

Caption Guidelines:

1. Identify the organism to the lowest level of classification you are able. You can try to identify down to lower levels using internet & book resources, but don't make an identification unless you're sure of it!

Plants - minimum required is Division (Moss, Fern, Gymnosperm, Angiosperm) and identify any angiosperms as monocot or dicot.

Mollusks – identify to class (gastropoda, bivalvia, cephalopoda, chiton)

Arthropods – minimum required Subphylum (Hexapoda, Crustacea, Myriapoda, Chelicerata) and for some insects and chelicerates you'll be able to identify the order.

Chordates – Class (Mammalia, Aves, Reptilia, Amphibia). For all birds and mammals (and many reptiles & amphibians) you should identify the order, family, genus, and species as well. Humans don't count!

Ecological interaction – identify the above information for each organism involved and identify the interaction (mutualism, parasitism, commensalism, predation, competition, herbivory)

2. Give any known common names for the organism in your photo
3. Identify the location the photo was taken (as detailed as you can)
4. Describe an interesting adaptation the organism has to its environment. For ecological interactions – describe the interaction in more detail.

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Materials

Cell phones or tablets with cameras and internet access, and a Facebook account.

Notes for the Instructor

Please be mindful of your students' privacy during this activity. Inform that even though the Facebook group is private, they may choose to create a "fake" account if they have privacy concerns. Be specific, but realistic about photo assignment expectations. You may want to assign a larger number of Plants and Insects, as these are relatively easy to find and photograph, while vertebrates tend to be harder to find and faster moving! If you have concerns about students sharing photos with one another or just downloading them from the internet, you may have them include their student ID in the photo as well. Uploading your own "example" photos with captions before assigning this to your students is also helpful.

Instructor Guide to Making Group Photo Albums

Step 1 – Create Group

1. Log in to Facebook and select "Groups" from the left side menu
2. Click the green "Create Group" button in the upper right-hand corner
3. Type in a distinct, but relatively short/easy-to-search name in the box that pops up
4. You'll have to add at least one other person to your group in order to create one. Since you probably aren't Facebook friends with your students, I suggest either creating a "fake" alternate account for yourself, or adding a colleague, partner/spouse (make sure to tell them first though!) You can always remove them after students join the group.
5. Under "Select Privacy" choose – "Closed Group." This will allow students to search for and request to join the group, but will not allow any non-group-members to see posts or photos.
6. Click the blue "Create" button!

Step 2 – Create Albums

1. On your group's page click "Add Photos/Video" at the top of your group's timeline
2. Select "Create Photo/Video Album"
3. Select a sample image from your own image library to add to the album
4. Your photo will upload into an album automatically named with the date of the photo – change the name in the left-hand corner of the screen to whatever you'd like it to be. You can also add a description for your students.
5. Click "Post" in the lower left hand corner
6. Repeat steps 1-5 for as many albums as you need for your assignment! (Hint: Grading is easier if you have multiple albums, and 1 or 2 photos/student/album rather than having one album with lots and lots of photos in it!)

Please see the video that accompanies this file for a visual representation of the album-making process.

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About the Authors

Kimberly Kellett is an Assistant Professor at Georgia State University – Perimeter College. She teaches Biology and Environmental Sciences courses at the Dunwoody campus.

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