

Lori Bronars and Miriam Olivares

# Mapping natural history field guide coverage for discoverability

## A collaboration

In these times of emphasis on interdisciplinary research, it seems librarians are encouraged to collaborate more than ever and not work just in their own individual silos. This article describes collaborative web-based mapping work between the authors, librarians at Marx Science and Social Science Library | Yale University Library, Yale University. Additionally, the Marx Library is the hub for support services involving technology, statistics, and data, therefore the work of librarians is heavily supported technologically with data analytics and geospatial-integrated resources.

### Field guides at Yale

Field guides have been defined as “portable, pocket-sized books, packed along on a jaunt into the natural world to assist in identifying native plants, animals, rocks, and other phenomena. Their scope is typically defined in a broad or narrow sense by geography, or by type of organism covered.”<sup>1</sup> Field guides have been collected in the libraries at Yale for many years, ranging from Roger Tory Peterson’s *Field Guide to the Birds: Giving Field Marks of All Species Found in East-ern North America* (Houghton Mifflin Company, 1934) to *Dragon Lizards of Australia: Evolution, Ecology and a Comprehensive Field Guide* (Museums Victoria Publishing, 2019). As of November 20, 2020, a search of field guide in book titles in our library catalog finds 642 books in holdings of Marx Library and 148 books in the Yale Ornithology Library.

The search for the phrase *field guide* in the title field does lead to some false hits such as *Disassembly Required: A Field Guide to Actually Existing Capi-talism* (AK Press, 2013), but the vast majority of

search results are appropriate and in the natural history realm, with the exception of a small number in what Diane Schmidt categorized as field guides to “Man-Made Objects,”<sup>2</sup> such as *The Old Barn Book: A Field Guide to North American Barns and Other Farm Structures* (Rutgers University Press, 1995). Recent circulation statistics for Marx Library, courtesy of Yale University Library’s Assessment and User Experience Research Department, shows that they are currently used as much today as in earlier years. Between 2005 and 2010, statistics show that there were 90 checkouts and between 2015 and 2020, there have been 96 checkouts. Of course, field guides have been added to the collection since 2010.

For years, as liaison to the biological sciences, Science Research Support Librarian Lori Bronars has highlighted selected field guides in various subject LibGuides.<sup>3</sup> There have been occasions for referring patrons to a field guide in providing reference assistance, as in the case of a Yale alumna who was serving in Afghanistan and wrote to ask about help with identifying indigenous migrating birds in her area. Bronars was able to refer her to these books in the Yale collections: *Birds of Central Asia: Kazakhstan, Turkmenistan, Uzbekistan, Kyrgyzstan, Tajikistan, and Afghanistan* (Christopher Helm and Princeton University Press, 2012), *On the Birds of Afghanistan*, and *Knud Pa-*

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## Creating interactive maps

At Yale's Marsh Botanical Garden, the following courses in the Department of Ecology and Evolutionary Biology or in the Yale School of the Environment have made use of the facility and grounds according to the associate director:<sup>4</sup> Plant Diversity and Evolution, Plant Structure and Function, Evolution & Functional Traits, Tropical Field Botany, Temperate Woody Plant Taxonomy and Dendrobiology, and Plants and People. Students and faculty in these courses are all potential users of field guides, and in the case of the latter, the lecturer for the course has created her own guide and key to the trees on the Science Hill area of the Yale University campus and referred her students to an app for invasive species identification.<sup>5</sup>

For the past few years, the authors have been collaborating on Yale course-integrated instruction for some of Bronars's liaison departments. During these sessions, Bronars watched and listened with fascination to Olivares's presentations on creating themed and layered interactive web-based maps using Esri's ArcGIS Online, which is subscribed to by Yale University Library. This led to Bronars's inspiration to plot coverage of selected field guides on such maps. She shared the idea and vision for this project with GIS Librarian Miriam Olivares and discussed the potential work involved, as well as the foreseeable outcomes.

We both concluded the project was feasible. Olivares was enthusiastic to help and was en-

couraging. She suggested using an online survey platform, Esri's Survey123, that easily connects to ArcGIS Online. The interoperability between both platforms would allow Bronars to record the information she wanted to share about each mapped field guide and would also make it easy to transform the survey data into a web-based map that could be embedded in the LibGuides. See inset box for Olivares's instructions on creating the survey and the maps (below). As alternatives, readers who do not have access to the licensed ArcGIS Online, can pursue a free public account<sup>6</sup> or an open source resource.

Before starting production work, we established the workflow for the project. The first step was to decide on the specific bibliographic fields for each field guide that Bronars wanted to display on each map. Based on web-based maps Bronars had imagined, she wanted to offer an interactive web-based map that would display an icon for each book, with the icon offering a clickable pop-up window with the bibliographic fields she wanted to share (title, publication year, catalog link to the book's record with call number or online access link, and remarks about geographic coverage). Olivares created the resulting survey template for ingesting the field guide data. The survey was designed to capture each bibliographic data point in a separate field. This facilitated "geolocating" each book's entry. For each field guide, a state or country for its map point was selected.

Survey123 automatically generates a GIS layer users can load in an ArcGIS Online map or export as a tabular file (e.g., CSV) or GIS

### Instructions for creating the survey and the maps

- Create a list of the desired fields to appear in the pop-up window. (see Figure 1.)
- Create a survey with those fields, using Survey123.
  - Enter one book's record into the survey.
  - Open the survey data in an ArcGIS Online web map.
  - Review the pop-up window content and configure as needed.
  - Change the symbol to your preferred icon.
  - Save the map and share publicly.
- Complete book records in the survey. They should appear in the map.
- Create an app with the map. Review settings:
  - o Include "Share tools."
  - o Turn on "Add embed option to share dialog" for a moment, copy the embedding script, and leave it on or off.
  - Use the script to embed the map into the Springshare LibGuide.

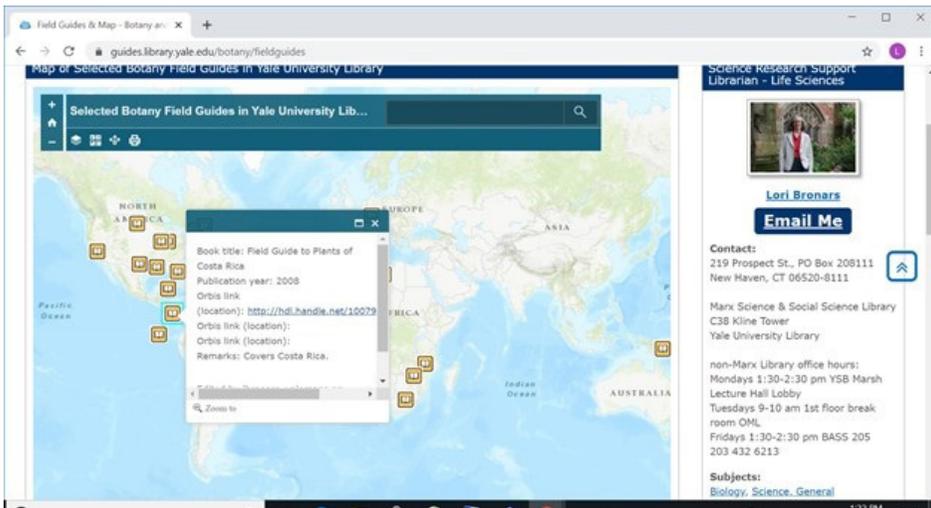


Figure 1. One of the field guide maps the authors created for use in a Research Guide (LibGuide).

file (e.g., shapefile). Once Bronars entered all the bibliographic information for all the featured books, a field guide GIS layer was created to start mapping.

The authors worked collaboratively so Olivares could guide Bronars in creating the web-based maps. We decided on an icon for the plotted points, using pixabay.com. Bronars tended to choose to highlight field guides within New England since Yale University is located in Connecticut, and also others that were in different countries, so the plotted points would be spread apart. This meant avoiding international field guides or field guides covering multiple countries because they would only be represented by a single point on the map. The plan was to create the maps and then add them to a page on the related LibGuides, where selected field guides were highlighted.

One problem that we discovered was that the first map, embedded in a box on the botany LibGuide, was requiring an ArcGIS Online login to view it. At one point in troubleshooting, it even looked as though the input survey data were lost. Olivares consulted with Esri, the ArcGIS Online vendor, and the survey data were found.

It seems that there were a couple of compatibility issues between the LibGuides' platform and ArcGIS Online. They were easy to resolve. The work may have gone more smoothly if we had been clearing the computer's cache regularly.

Mapping the botany field guides' coverage served as a sort of training exercise, so it required several meetings between the authors. Figure 1 shows this first botany field guides' coverage map.<sup>7</sup> Our second effort, the zoology field guides' coverage map,<sup>8</sup> benefitted from the first experience and required only a couple of meetings between the authors. Our next map project will be to map coverage of selected field guides to birds, which are well represented in the collections of Marx Library and Yale's Ornithology Library.

Even in this technological era of smart phone apps, field guides can be a useful resource for researchers in the field or backyard nature enthusiasts, sometimes including information not found in apps, such as range maps or differing field marks for males versus females or for juveniles versus adults.<sup>9</sup> The addition of a map to Bronars's botany and zoology field guide pages has resulted in more visits to these pages. In a six-month period in 2018, the number of visits to the botany field guides page was 116, and it had dropped to 45 for the same period in 2019, whereas in this period in 2020, with the addition in January of the coverage map, the number of visits increased to 150. Likewise, for the zoology field guides page, the number of visits in a six-month period in 2018 was 26. In 2019 this had increased to 64 but in 2020, with the addition of the map to this page in January, the number of visits jumped to 101 (see Table 1).

Statistics seem to show that adding a map to descriptions or lists of field guides can improve

their discover-ability.

## Conclusion

In conclusion, finding ways to collaborate can be a rewarding experience for everyone involved. In this case, a new online resource for making field guides more discoverable, in the form of a map, was created. Once the process was worked out, the second map was completed quickly. The authors were satisfied with the increase in visits to the pages, noted above, after the maps were added. We have begun work on the bird field guide coverage map. Perhaps there will be additional collaborations possible between the authors with their respective expertise.

## Acknowledgments

The authors would like to thank Meng Tang for downloading the data and crafting the circulation report and to Sarah J. Tudesco for assistance with pivot tables in the report on the “field guide” search from the library catalog for holdings at Marx Library.

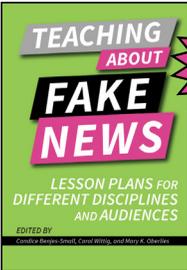
Visits to page		
Botany field guides	(1/1/2018–6/30/2018)	116
Botany field guides	(1/1/2019–6/30/2019)	45
Botany field guides & map	(1/1/2020–6/30/2020)	150
Zoology field guides	(1/1/2018–6/30/2018)	26
Zoology field guides	(1/1/2019–6/30/2019)	64
Zoology field guides & map	(1/1/2020–6/30/2020)	101

Table 1: Visits to LibGuide field guide pages.

## Notes

- Christina Peterson, “Tracking Nature Field Guides,” *Library Journal*, June 1, 2000, p. 83, <http://web.a.ebscohost.com/ehost/pdfviewer/pdfviewer?vid=2&sid=6df9c126-be9a-492a-9b9d-0e73cc4eac6e%40sessionmgr4006, accessed June 8, 2020>.
- Diane Schmidt, *A Guide to Field Guides: Identifying the Natural History of North America* (Englewood, CO: Libraries Unlimited, 1999).
- See <https://guides.library.yale.edu/botany> and <https://guides.library.yale.edu/zoology>.
- Kunso Kim, personal communication.
- Linda Puth, personal communication.
- See <https://www.arcgis.com/home/signin.html>.
- See <https://guides.library.yale.edu/botany/field-guides>.
- See <https://guides.library.yale.edu/zoology/fieldguides>.
- Jane Larkin, personal communication. *z*

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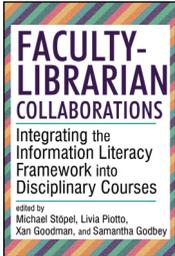
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