North American Bird Phenology Program (BPP):
Reviving a Historic Program in the Digital Era

www.pwrc.usgs.gov/bpp/

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North American Bird Phenology Program

Presentation Summary

• Program History
• Coordinators and Observers
• Revival of Program
• Transcription Screen and Process
• Matching aka “Validate-o-Rama”
• Who volunteers with us and why?
• Future goals and applications
Wells W. Cooke and the start of the program

- Wells W. Cooke, teacher in Indian Schools in the Mississippi Valley, took interest in studying bird migration.
- 1881: First two years of his study he was receiving correspondence from about 20 observers.
- 1883: The American Ornithologist Union (AOU) was founded, took interest in Cooke’s research.
- 1884: The task of collecting and cataloging the amount of information had outgrown the capabilities and funding of the AOU.
- Merriam drafted a memo to Congress asking for the appropriation of funds and the creation of The Division of Economic Ornithology.
- As Chief of the Division of Economic Ornithology Merriam increased number of participation to ~3,000 observers.

Wells Woodbridge Cooke (1858-1916)
Wells W. Cooke started the project while a teacher at an Indian School in the Mississippi Valley.

After Cooke’s death, the program was supervised by the likes of Edward A. Goldman, Edward W. Nelson, Harry C. Oberholser, and May Thatcher Cooke (Wells’ daughter).

Fred Lincoln contributed greatly to running the project while simultaneously running the North American Bird Banding Lab.

Chandler Robbins closed the program in 1970, in part, to focus on the North American Breeding Bird Survey.
Bird Phenology Program Observers

Over the 90 year span in which records were actively collected, the collectors and original observers who recorded the bird migration cards comprised of notable naturalists, researchers and high ranking biologists within Fish and Wildlife Service and the Bureau of Biological Survey.

Ira N. Gabrielson
John Walter Hoxie
Winton Wedemeyer
Edgar Mearns
Alexander Skutch
Olaus J. Murie
C. Hart Merriam
Vernon Bailey
P. A. Taverner
James Bond
Aldo Leopold
Lawrence Walkinshaw
H.C. Oberholser
A.H. Howell
The 52 filing cabinets were put into attics, basements, and off-site storage facilities for 40 years.
The program came to a close in 1970

Over the 90 year span 6 million records were collected

- Database of the time- all of what was known about bird migration
- Contained original records, publications, breeding and nest records, field reports... etc.
- Contained records of extinct species, exotic species, and rare records.
- Used to create the AOU Checklist of North American Birds and first field guides
In 2009, Sam Droege and John Sauer received funding to hire a coordinator and a few scanners to revive the program.
Program Goals

- Curate, organize and prioritize 6 million data records for N. America, 1880-1970
- Scan and key standard cards with quality assurance
- Create a digital format for a dataset
- Grow and manage a network of volunteers worldwide to transcribe historical biological data online.
- Create automated system for transcription verification
- Make data easily accessible for policy makers, the public and researchers.
- Create template for digitizing legacy data that can be replicated and applied to other data sets
North American Bird Phenology Program

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Data from one transcription goes into observation table

Match

No Match

Match

No Match

Record sent to "rectification system"

Data from one transcription goes into observation table
Volunteer Recruitment
On March 18, 2009, the BPP put out a press release to announce the program

- **ClimateWatch Magazine**
  Watching Birds, Tracking Climate

- **Audubon Naturalist News**
  Measuring Springtime

- **BioScience**
  Phenology and Citizen Science

- **Audubon Magazine**
  In the Cards

- **TC Palm**
  Bird records may provide insight into global warming

- **South Coast Today**
  Flight plans: Historic records to shed light on global warming, migration

- **Wildbirds Broadcasting**
  Online Entry to Improve Input of Historic Bird Phenology Details

- **CNN.com**
  Ninety years of birdwatchers' notes going online

- **Wired.com**
  Open Data: Help Migratory Bird Observations Fly into the Digital Age

- **ABC 7 News: San Francisco**
  Bird-watching helps fight global warming

- **ABC 7 News: Washington DC**
  What can old bird sightings reveal about climate change?

- **The Take Away**
  Saving history: The biologist who protected six million bird-watching notecards

- **The Take Away**
  Birding gets a digital upgrade
BPP records transcribed online by a worldwide network of over 2,700 volunteers from...

- United States
- Canada
- Turkey
- Philippines
- Nigeria
- Japan
- Ireland
- Belgium
- France
- Germany
- India
- Romania
- Iran
- Australia
Volunteer Retention

- Let volunteers choose their own level of involvement
- Establish a community by interacting with each other
- Give volunteers a reason to donate their time
- Allow the volunteers to feel needed - without them we could not accomplish what we do!
- Keep the lines of communication open with volunteers and identify any potential problems
- Create a survey examining each volunteer's level of satisfaction within the project/program
- Allow volunteers to contribute suggestions and improvements at anytime
- Recognized each volunteer through for his/her work
Current Count:

Cards

- Total cards scanned: **1,042,494**
- Cards transcribed online: **669,070**

Participants

- Participants transcribing cards online: **2,700**
160,000 Records Will Soon Be Available for Download

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Publications from BPP Data


Next Steps...

Expand communication:

• Developing a mobile app to further engage citizen scientists

• Allow volunteers to interact with each other through website comments forum

• Expand social media applications by allowing volunteers to tweet, text, email, or post their transcription stats

• Develop visualizations of data for website

• Create a user-friendly interface for data search and output

• Allow volunteers to gauge their accuracy, not just tally transcriptions
Future Applications

- Create a front end for collecting migration records or merge with existing program
- Make dataset accessible to scientists, managers, and other stakeholders interested in exploring patterns and trends in phenology and climate across space and time
- Make dataset available through other database repositories thereby integrating dataset with other physical and climatological datasets.
- Repurposing crowdsourcing system for museum collections, citizen scientists, and other large datasets
For more information or to contribute or participate in this project, please contact:

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